The Australian Handbook for Careers in Psychological Science

THE AUSTRALIAN HANDBOOK FOR CAREERS IN PSYCHOLOGICAL SCIENCE

TONY MACHIN; TANYA MACHIN; CARLA JEFFRIES; AND NANCEY HOARE

SUSAN ABEL

University of Southern Queensland

Toowoomba

- Susan Abel
- Tony Machin
- Madison Lindfield

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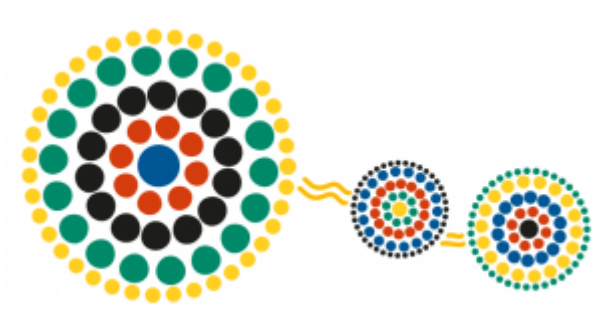
ACKNOWLEDGMENT OF COUNTRY

The University of Southern Queensland acknowledges the traditional custodians of the lands and waterways where the University is located. Further, we acknowledge the cultural diversity of Aboriginal and Torres Strait Islander peoples and pay respect to Elders past, present, and future.

We celebrate the continuous living cultures of First Australians and acknowledge the important contributions Aboriginal and Torres Strait Islander people have and continue to make in Australian society.

The University respects and acknowledges our Aboriginal and Torres Strait Islander students, staff, Elders, and visitors who come from many nations.



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FOREWORD

MEGHAN E. NORRIS

In 2019, a team of psychological scientists in Canada came together to write an open access book about the many careers related to psychology that students might pursue. At the time, the team admittedly did not know much about open access publishing, but based on data, our own experiences, and feedback from our students, we knew there was a gap in connecting students in psychology with career options. Armed with passion for psychological science, and a shared goal of helping well-trained students make evidence-based impacts in areas that they care about, we created *The Canadian Handbook for Careers in Psychological Science*.

Although we knew there was a need for a resource like this, we were surprised that in only two years, this book has had approximately 24,000 homepage views. Now, thanks to a team of authors in Australia, this book is evolving, and will serve many more across the world.

It is with excitement and gratitude that I write to formally welcome and celebrate *The Australian Handbook for Careers in Psychological Science*. As editor of *The Canadian Handbook for Careers in Psychological Science*, my hope was to spark in others the curiosity that my friends, colleagues, and mentors had inspired in me – I did not expect to see these same sparks mirrored back to me from across the oceans a short time later.

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To the authors of *The Australian Handbook of Careers in Psychological Science* – a sincere thank you for sharing your knowledge freely to support students as they pursue their paths.

For students – uncertainty is part of the journey. Psychology is a broad and deep discipline, and it continues to grow as we learn more about our world and each other. I hope that this book develops curiosity and action in both the science and practice of our discipline, illuminates paths you may not have considered, and empowers you to pursue your goals.

With best wishes for many wonderful opportunities to come,

Meghan E. Norris, PhD

CHAPTER 1.

AN INTRODUCTION TO CAREERS IN PSYCHOLOGICAL SCIENCE

TONY MACHIN AND NATALIE GASSON

WELCOME TO PSYCHOLOGICAL SCIENCE

Welcome to the world of psychological science – we're so thrilled to share it with you. If you're feeling apprehensive about the word 'science', don't let it throw you off. Although psychology is a science (more on this below), we want to encourage you to think of science as a power tool: you might be a bit apprehensive at first, but once you learn how to use the tool, things become incredibly exciting. You will get some information on the tool of science in this chapter, with more to come in the chapters to follow.

With our science power tool in hand, we can systematically explore, evaluate, understand, and solve questions that we care about. For example, understanding how, when, and why the brain can rewrite itself is (a) amazing, and (b) allows us to use this information in contexts such as everyday learning, and recovery from trauma. Science allows us to measure and evaluate the efficacy of treatments, including psychotherapy – providing us with evidence that a specific treatment is worthwhile and won't cause harm. Science allows us to understand basic behavioural phenomena like *bystander apathy* (the tendency for bystanders to not intervene in an emergency), and then it will enable us to create interventions based in empirical evidence that will facilitate bystander engagement. Applying scientific methods allows us to create better communications so that people will behave in healthier ways. For example, designing playgrounds to promote active play, creating healthier and more efficient workplaces, developing prevention and harm-reduction programs that work, increasing the uptake of pro-environmental campaigns and optimising sport performance – just to name a few benefits. By using the scientific method to systematically explore questions like this, we (a) can communicate more effectively with our colleagues in other areas under a common framework, and (b) – most importantly – have confidence that we're making decisions about how to proceed in any context with the support of empirical evidence.

The first edition of this handbook was conceived and produced in Canada. This chapter was written by Norris and Baker (2019). We now include information about the Australian context to ensure this book is helpful to psychology students here in Australia (and maybe New Zealand). We believe that there is a major role for psychological science to play in managing the impact of the COVID-19 pandemic, which has been felt across the whole community – effects which will continue for some time. There is currently an increased focus on the psychological effects of dealing with a global pandemic, the need to maintain social distancing, and even factors that contribute to the rise of conspiracy theories about the virus. There are many ways we can make a positive difference in our communities using the tools you will learn about in the chapters that follow.

With that, let's get started.

WHAT IS PSYCHOLOGICAL SCIENCE?

Although the terms 'psychology' and 'psychological science' can be used interchangeably, it's important at this point to restate that this book approaches psychology as a science. Psychology is the scientific study of brain and behaviour, and the interactions between them. This means that in the quest to understand the brain and behaviour, the scientific method is applied. Thus, those training in the field of psychological science are developing the skills to notice patterns, develop hypotheses, systematically test those hypotheses through measurement, draw conclusions, and use those conclusions to create or refine hypotheses in an ongoing process that continually gives us a more accurate and precise understanding of brain and behaviour. To establish clear boundaries, psychology is not using gut intuition to understand people. Psychology is not making unfounded assumptions. Psychology is not mind-reading. Instead, psychology is doing careful background research. Psychology is carefully collecting observations in a systematic way. Psychology is ensuring that observations are collected in an ethical way. Psychology is having a strong understanding of research methods and data analytics so as to have the tools to carefully evaluate quality of evidence. Psychology is having an awareness of validity, reliability, and generalisability of research findings to appropriately apply research in practice and future research. Psychology is ensuring that ethical responsibilities are met. In this book, we will highlight the ways in which the scientific method has been used to understand brain and behaviour, and we will help you to make important connections between training in the psychological sciences and the many careers that this training prepares you for.

Highlighting the reason this book was created, surprisingly (to us), despite developing skills and knowledge in the science that underlies the wide variety of applications of psychological science, many students do not immediately see the value of their undergraduate degree in psychology when it comes to employment, especially if they are working in an area that is not related to their degree (Rajecki & Borden, 2009). Training in psychology at the undergraduate level provides students with a broad and valuable skill set that can lead to careers in professional psychology (e.g., registered and endorsed psychology) and discipline psychology (e.g., research, policy development, community program development, and many more). One goal of this book is to overcome this gap: psychology is an incredibly popular major (e.g., Cooperative Institute Research Program, 2008) and an increasingly popular subject at high school (see Waring, 2019 for an overview), and students who receive training in psychology develop concrete skills and knowledge that employers want. This book was carefully curated to highlight the many ways you can apply your training in psychology to a wide variety of careers, some with the word 'psychology' or 'psychologist' in the job title, and some that don't use those terms. Further, this book was carefully curated to highlight the many ways in which others have applied their training in psychology to solve important questions related to the brain and behaviour. As with any science, we're continually developing and learning. If you're interested in the brain and behaviours, and get excited to ask questions, search for answers, and apply these to what you've learned, you're in the right place. If you're feeling unsure, that's okay. Hopefully the following chapters shed new light on the field of psychological science to help you as you develop your long-term career goals. If you decide that psychology is not for you, that's also a win: it's important that you find an area to work in that meets your personal goals. You will likely interact with someone who is working from a psychological science framework during your career, and we hope this content gives you a common framework from which to work.

PSYCHOLOGICAL LITERACY

An emerging area of focus for those of us who teach psychology is that of *psychological literacy*.

In fact, we're using the tools of psychological science to understand better what it means to have psychological literacy. The purpose of an accredited undergraduate degree in Australia is to provide students with '… broad and coherent knowledge and skills in the scientific discipline of psychology' (Australian Psychology Accreditation Council [APAC], 2019, p. 10). This means that students learn about different fields of psychology both from a theoretical and an empirical (evidence-based) perspective. Undergraduate students develop cultural competencies, critical thinking skills, and an understanding of ethics (research and professional). Alongside these, students also develop communication and research skills that when combined with discipline knowledge, place them in good stead for employment and/or postgraduate training. This combination of knowledge and skills is known as 'psychological literacy'. The question that we ask ourselves is how do we measure psychological literacy?

A recently published systematic review (Newell et al., 2019) found that most researchers who have attempted to measure psychological literacy refer to two definitions: that of McGovern et al. (2010) and Cranney et al. (2012). Broadly defined, psychological literacy can be thought of as '… the general capacity to adaptively and intentionally apply psychology to meet personal, professional and societal needs' (Cranney et al., 2012, p. iii). An earlier description of psychological literacy by McGovern and colleagues (2010, p. 11) helps us to fully appreciate this complex idea. They list nine key components of psychological literacy:

1. having a well-defined vocabulary and basic knowledge of the critical subject matter of psychology
2. valuing the intellectual challenges required to pursue scientific thinking and the disciplined analysis of information to evaluate alternative courses of action
3. taking a creative and amiable sceptic approach to problem-solving
4. applying psychological principles to personal, social, and organisational issues in work, relationships, and the broader community
5. acting ethically
6. being competent to use and evaluate information and technology
7. communicating effectively in different modes and with many different audiences
8. recognising, understanding, and fostering respect for diversity
9. being insightful and reflective about ones' own and others' behaviour and mental processes.

So, let's have a look at how we're using psychological science to explore psychological literacy. One of the first steps is to work out a way to measure psychological literacy. The development of an accurate (i.e., reliable and valid) test of psychological literacy will enable psychology educators to monitor student learning and course outcomes, benchmark for course accreditation, and showcase the valuable skills and knowledge gained by psychology students during their studies. It would also improve research into psychological literacy in education and other settings because we would know the test is giving us good data. For example, it would be interesting to determine how psychological literacy levels differ between graduates of different courses. Or how much psychological literacy there is in the general population?

One step in the scientific method (which you will read more about in a later chapter) is to find out what is already known about a topic. That is, to look at published articles, books, and reports. In a first attempt to measure psychological literacy, Roberts et al. (2015) did exactly

this. They found and used an existing self-report measure of psychological literacy developed by Chester et al. (2013) in which psychology students were asked to rate their own knowledge/competence of each of the nine dimensions. If you look back at the list of psychological literacy dimensions by McGovern and colleagues, you can see the first one is 'having a well-defined vocabulary and basic knowledge of the critical subject matter of psychology'. The first question in Chester and colleagues' scale was: 'At this point in your education, how would you rate your knowledge of basic concepts/principles in psychology?'. Roberts et al. also found and used one full questionnaire for each of the nine dimensions (you can look up that article to read more about these questionnaires). Two large samples of undergraduate psychology students (*N*=218 and *N*=381) participated in the research and completed these measures. Firstly, the authors found that the relationships between the single item and full measure for each dimension were not consistent or high. The second finding of interest is that when they looked at the pattern of answers in the nine larger questionnaires (using a technique called 'factor analysis'), three underlying factors (groupings) emerged and these factors reflected Generic Graduate Attributes, Psychology as a Helping Profession, and Reflective Processes. Roberts et al. suggested that it might be the latter two (Psychology as a Helping Profession and Reflective Processes) that best distinguish psychology graduates from other graduates. They further explored whether students from different year levels of their degree and students from a speech pathology course performed differently on these questionnaires, but found that the differences were very small. The authors then considered the overall results from their study and suggested that the next step to take in the research in this area should be the development of a 'test' of psychological literacy. A 'test' of psychological literacy would be like the tests and examinations at school and university that test what you know. The questionnaires used so far are what we call 'self-report', where you would just say whether you think you know something or not. This illustrates the scientific method where we take systematic observations (research results) and use this to develop new questions about our topic – in this case the efforts to best measure psychological literacy.

Roberts and Gasson (2018) subsequently developed the Test of Psychological Literacy (TOPL). This test included scenarios that were developed to test knowledge of the major areas of psychology as set out by the Australian Psychological Accreditation Council (APAC) and the Psychology Board of Australia. In addition, the scenarios were written to reflect personal (e.g., self-care), professional, and societal situations demonstrating the accepted working definition of psychological literacy (Cranney et al, 2012). The scenarios were sent out to experts for review and edited based on this expert feedback. The final scenarios were tested with a sample of undergraduate psychology students and some further editing was done. The final test has 86 scenarios assessing knowledge across the major areas of psychology as set out by our professional bodies here in Australia. Research has compared responses from final year psychology students to other undergraduate students, and psychology students to the general public. While these results are promising, more research needs to be conducted.

Work is now progressing on the Test of Psychological Literacy – Revised (ToPL-R; Machin & Gasson, 2019). Currently we are developing a scoring process based on the Situation Judgement Test (SJT) methodology (as described by Robinson et al., 2020). Similar to a multiple choice question, respondents are presented with five possible answers to each scenario, each of which has been rated by experts as to how 'correct' it is. By using a multiple choice style response format, the test can be completed in less time and scored electronically, making it fit for purpose (i.e., able to quickly and accurately assess psychological literacy). Secondly, further studies on the 86 scenarios and subsets of these scenarios will help to demonstrate that the test is useful (i.e., reliable and valid). So the research is ongoing and uses the tools of psychological science. We hope that this example helps you to see how the scientific method (the process of research) enables

us to improve our knowledge and practices. This process works across all areas of interest to psychology researchers but here we have illustrated the process using our work on psychological literacy.

We argue that psychological literacy will help all psychology students have a clearer understanding of the outcome of their degree and how it will impact their employability skills. The terms employers use when describing the attributes they require are sometimes different to the terms we use in the academic world. The next section outlines the key qualities that employers are looking for, and the following section provides you with an opportunity to assess your employability skills.

WHAT DO EMPLOYERS WANT?

According to Graduate Careers Australia's 2015 Graduate Outlook Survey of employers in Australasia (Matthews et al., 2016), the top 10 most highly rated attributes of job candidates were:

1. interpersonal and communication skills (written and oral)
2. cultural alignment/values fit
3. emotional intelligence (including self-awareness, confidence, motivation)
4. reasoning and problem-solving skills
5. academic results
6. work experience
7. technical skills
8. demonstrated leadership
9. extracurricular involvement (e.g., clubs and societies)
10. community/volunteer service.

Although many students might not see how their psychology degree is relevant for the workforce (Borden & Rajecki, 2000), undergraduate training in psychology directly and intentionally addresses many of the top 10 rated attributes desired by employers. The Australian Psychology Accreditation Council (2019, p. 10) specifies Foundational Competencies that reflect a broad and coherent knowledge base and skill set in the discipline of psychology. They require graduates of an undergraduate degree with an APAC-accredited sequence to be able to:

1.1: Comprehend and apply a broad and coherent body of knowledge of psychology, with depth of understanding of underlying principles, theories and concepts in the discipline, using a scientific approach, including the following topics:

i. the history and philosophy underpinning the science of psychology and the social, cultural, historical and professional influences on the practice of psychology
ii. individual differences in capacity, behaviour and personality
iii. psychological health and wellbeing
iv. psychological disorders and evidence-based interventions
v. learning and memory
vi. cognition, language and perception
vii. motivation and emotion
viii. neuroscience and the biological bases of behaviour
ix. lifespan developmental psychology
x. social psychology

xi. culturally appropriate psychological assessment and measurement
xii. research methods and statistics

1.2: Apply knowledge and skills of psychology in a reflexive, culturally appropriate and sensitive manner to the diversity of individuals

1.3: Analyse and critique theory and research in the discipline of psychology and communicate these in written and oral formats

1.4: Demonstrate an understanding of appropriate values and ethics in psychology

1.5: Demonstrate interpersonal skills and teamwork

1.6: Demonstrate self-directed pursuit of scholarly inquiry in psychology.

Thus, there appears to be a gap such that undergraduate students in psychology may not see the strong connections between their developing skills, and the attributes desired by the job market.

Assess Your Employability Skills Self-Efficacy

Take the 51-item Employable Skills Self-Efficacy Survey to rate your self-perceived employability skills self-efficacy (Ciarocco & Strohmetz, 2018). The survey is also part of our evaluation of this handbook's impact on undergraduate psychology students' perceptions about non-clinical psychology career paths (approved by the USQ Human Research Ethics Committee, approval number H20REA235).

This book will show you many examples of how you can use your training across a variety of careers, including those outside 'professional psychology'. Understanding the foundation of psychological science can help demonstrate how psychology training can translate into many career paths.

PSYCHOLOGY AND THE SCIENTIFIC METHOD

To belabour the point, psychology is an empirical science. This means that, in addition to theory and logic, most professionals who work in the psychological sciences rely on the collection, analysis, and interpretation of data to inform their work. This is important: we know from research that humans can fall prey to biases including the *availability heuristic* (the tendency to assume that what comes to mind easily is likely accurate, e.g., Tversky & Kahneman, 1973), *false-consensus effects* (the tendency to assume that our behaviours and opinions are similar with most other people, e.g., Ross et al, 1977), and *confirmation bias* (the tendency to see information which is confirming rather than disconfirming, e.g., Nickerson, 1998). Relying on data (especially data verified by other scientists) to inform our professional opinions helps us to not only limit the effects of these biases, but it also helps us to gain representative insights into phenomenon of interest that are more likely to reflect their true nature.

As we look with an empirical lens at the brain and behaviours, and as you develop your own professional opinions, you are encouraged to always consider the following three concepts when you are considering information presented to you: validity, reliability, and generalisability.

Validity is the degree to which a measure or design accurately captures the construct or process of interest. This means that when you are reading about any finding, you should first ask yourself questions including: 'Are these researchers measuring what they think they are measuring, or did they make a mistake?' and 'Is this research actually addressing the concept it's claiming to?'.

Reliability is the degree to which a finding consistently appears across time and/or situations. This means that when you are reading about any finding, you should ask yourself questions

including: 'Do I think this effect will appear in a similar context if this is done a year from now?', 'Do I think there are other variables that might influence whether this effect will appear?' and 'Do I think there is a better measure of this effect that will more consistently measure this effect?'.

Generalisability is the degree to which similar findings are likely to occur in other contexts. This means that when you're reading about any finding, you should ask yourself questions including: 'Do I think that this effect will also appear in other groups of people? If not, why?' and 'Why should (or shouldn't) this effect appear in other groups of people?'.

A final consideration you should make when engaging with research is critically important: the ethics of the research. You should always ask yourself whether the work you are doing (or learning about) meets the Australian Psychological Society's principles for ensuring Respect for the rights and dignity of people and peoples, Propriety, and Integrity (Australian Psychological Society, 2007). You can learn more about this in **Chapter 4**.

Note that you have an important role to play here: it's your job as a reader of science to use your developing skills to ask tough questions of other researchers. Again, scientists are human, and even with careful work, we can all make mistakes. We need to trust that our colleagues (that now includes you!) will ask tough questions of our studies. From this point on, it's your professional responsibility as a developing psychological scientist to ask questions about validity, reliability, and generalisability if they arise, and to ask questions about other aspects of research, including ethics. You need to become a critical consumer of research even if you do not conduct research yourself. You will learn more about asking questions of research in future chapters.

CAREERS IN PSYCHOLOGICAL SCIENCE

An undergraduate degree in psychological science is useful preparation for many types of careers. For example, as a result of strong training in the scientific method, students in the psychological sciences are equipped to distinguish causal and noncausal relationships between variables. This means that students can identify if one variable causes another, or if two variables are related but one doesn't necessarily cause the other (i.e., if variables are correlated). Insights such as these prove valuable in many contexts. For example, when a client presents claiming that Treatment X cured an ailment, a practitioner trained in the psychological sciences should immediately consider the validity, reliability, and generalisability of the claim. Specifically, the treatment may not be valid – perhaps there is a lurking third variable, such as passage of time, which often is associated with a reduction in symptoms. To put this into context, Treatment X could cure the cold after seven days, but most instances of the cold resolve on their own in around seven days. A student with training in psychological science would design an experiment to test the effects of Treatment X to see whether it is indeed an effective treatment. If we want to make accurate causal claims, then there are proper ways to run the experiments (you will learn more about experimental design in **Chapter 3**). You may have noticed that this example isn't even psychological in nature. This highlights that psychologists are trained in the scientific method, which can be applied in any area that follows this method.

As overviewed above, students who train in psychological science receive training in both skills and knowledge that are important to employers. Thus, there are many, many career options available to a student who has trained in psychology. Indeed, a challenge that many students in psychology face is not 'What can I do?', but rather 'How do I choose what to do?'.

IDENTIFYING POSSIBLE PATHWAYS

You may find yourself asking one of two questions: 'What do I want to do?' and/or 'What can I do with training in psychology?'. Both of these are good questions, and may require different

processes to reach satisfying answers. Below is just a brief summary of two search strategies that can be used with students as we explore career opportunities: broad search strategies and targeted search strategies. Broad search strategies best answer the question 'What do I want to do?', whereas targeted search strategies addresses 'What can I do?'. Note that the below methods are not evidence-based in that the authors don't have data to support their use beyond our own personal experience in working with students. Specialists in career development elaborate on career search and development in **Chapter 2**.

The Broad Search Strategy

This is a strategy for when you have no idea what you want to do, and are seeking to identify careers that meet your personal interest and long-term development goals. This search strategy uses backwards planning: rather than starting from where you are now and building out, this strategy looks for an end point and guides you in planning backwards.

Step 1. The Initial Search: Identify 5-10 jobs across organisations that you think look interesting, even if they aren't jobs that you're qualified for (yet!).

Step 2. Identifying Common Requirements: Do you notice any common requirements among these jobs? If so, this common requirement might be a qualification you consider working towards.

Step 3. Identify Exemplars: Individuals normally change jobs throughout their lifetime. The Australian Institute of Business reports that Australian employees spend an average of 3.3 years in any one job. It's one thing to read a job posting, but it's another to see the journey to get there. In this step, identify individuals who have jobs that are of interest to you, using tools such as LinkedIn. Are there any early career experiences of desired exemplars that are relevant for you?

Step 4. Planning for the Next Steps: Once you have identified common requirements and typical pathways among your careers of interest, you're in a position to start planning your next steps on your similar pathway. If you've learned that a specific undergraduate or postgraduate course is required for your careers of interest, it's time to start searching for programs.

Similar to the broad career search steps, if you identify postgraduate programs that are of interest to you. What are their requirements? Are there common undergraduate courses that you need for admission? Consider enrolling in those courses now. Are there common volunteer or research assistantship requirements for admission? If so, consider applying for those positions now so that you meet that requirement.

If you're unsure about postgraduate admission requirements, it's always a good idea to contact your program of interest directly. Requirements and space availability can change year-to-year. Only that specific program has the most up-to-date information on their admissions process.

The Targeted Search Strategies

Sometimes career searches can be much more pragmatic. For example, the desired career might be within a certain geographic location that earns a certain salary.

This targeted search strategy is intended to be a career search strategy, not a job search strategy. That is, if you're asking the question 'What should I do with my life in terms of a career?' this may be a helpful strategy. If you're looking for a specific job (i.e., you have your credentials and are actively job searching), you will want to check in with your local career assistance office for guidance.

The targeted search strategy involves going directly to a source and evaluating careers on your criteria of interest. Many resources exist that give specific and concrete information on career specifics. The myfuture website is one such resource. Another is the Australian Government Job Outlook website. This free, online resource provides information on many occupations, the typical educational training paths required for a variety of occupations, average salary by geographic location, and the job availability outlooks associated with many careers. The Job Outlook site provides interesting information when searching using the keyword 'psychologist'. It brings up a combined occupational group 'Psychologists and Psychotherapists' with the Australian and New Zealand Standard Classification of Occupations (ANZSCO, 2013) ID of 2723.

As you look through these careers, we encourage you to think about how the knowledge and skills you're developing in your education can be applied to the careers included. You might be able to make connections between a generic career description (e.g. career counsellor) and your specific skills, knowledge and expertise. For example, as a student with training in psychology, you likely have developed skills related to teamwork, written and oral communication, data management and analysis, and problem-solving.

We want to encourage you to use the Australian Government Job Outlook site in multiple ways. For example, not only is the Job Outlook site a helpful guide for a career search, but it's also helpful for those who are actively applying for jobs. When you receive a job offer – especially for professional careers – there may be an opportunity for negotiations. The Job Outlook site is an excellent resource for benchmarking average rates of pay, and for benchmarking your credentials in light of a specific occupation. Thus, when asked for your expected salary, you might respond with 'Based on data from the Job Outlook site, I would like to suggest that my salary would be in the range of $1,800-$1,900 a week'. Notice again this tendency to seek data to inform an opinion: your psychology professors repeatedly asking you for evidence develops data-driven skills that will help you in many areas of your life!

In addition to the resources provided above, there are many additional resources available. One example is the Training and Careers section on the Australian Psychological Society website.

COMMON PROFESSIONAL SKILLS, KNOWLEDGE, AND ETIQUETTE BEHAVIOURS

There are a number of common skills and professional behaviours that span career opportunities and that either we wish we knew as a student, or that we wish students knew. Note that this section does not highlight professional skills in terms of practicing psychology in a clinical sense, but rather professional skills at a more general level. Specific skills related to sub-disciplines in psychology will be addressed in the chapters to come, and in courses that you choose to pursue.

Searching for Evidence

In psychological science, our gold standard for evidence is peer reviewed scholarly research. In the context of empirical research, peer review is a system where an individual (or team) conducts a study to answer a research question, writes a manuscript describing that study, and then submits the manuscript for 'peer review' at a specific journal chosen by the author(s). The editor of that journal then typically chooses two to three experts in the area (reviewers) to read and critique the submitted manuscript. The reviewers provide feedback to the authors and editor, and make recommendations as to whether the paper should be published in that specific journal, revised and resubmitted for further consideration to that specific journal, or rejected from that journal. The editor then goes through the reviewer feedback and makes a decision as to whether the manuscript will be published, and under what conditions if revisions are requested. Very few papers are accepted without any required revisions. If authors choose not to make the requested revisions –

or if their paper has been rejected – they can submit their manuscript to another journal of their choosing (with or without edits).

The entire research and peer review process can take months or – typically – years from start to finish. The feedback from reviewers is intentionally very critical, with the goal of ensuring that rigorous and accurate research is published. Research that does not meet the threshold for rigour and/or accuracy is unlikely to be published in a high calibre peer reviewed journal. You may have submitted assignments for classes – this is the early training that allows students to gain expertise writing scholarly reports. With enough training and practice, students become experts, and those who choose to can submit manuscripts for publication, become the peers for the peer review system, and train students of their own.

Academic journals have differing levels of impact – impact is a rough measure of how much people read and cite certain journals. Some journals have a higher readership resulting from a very high calibre of research due to a much higher threshold for publication. For example, some high-threshold journals might require multiple studies that comprehensively test many factors related to a research question to be considered for publication. Other lower-threshold journals might publish research that is interesting but does not yet have a great deal of empirical support. Thus, not all academic journals are considered equal. One proxy of journal quality is their impact factor – usually available on their webpage. There are also websites which summarise the journals' impact over time, such as SciMago. While high readership may indicate that articles are being widely accessed, this does not mean that the research was rigorous and replicable. Many tabloid newspapers have high readership, but it doesn't mean the content is accurate. Highly-specialised journals may have fantastic research, but only be read by a handful of specialised researchers because there are only a few experts in the world. Readers must always be thoughtful while they read research, and be actively considering the degree to which the research is valid, reliable, generalisable, and ethical – among other things, but these four are a great start! This is fundamental to what reviewers and good researchers do.

Where to find peer reviewed articles?

Members of the public typically have to pay to read scholarly research, including peer reviewed research (but, see the **Changes Happening in Peer Reviewed Research** section below). If you're currently a member of a university community, you likely have access to scholarly research through your library. Universities sometimes pay millions of dollars to have access to academic journals (e.g., Bergstrom et al., 2014). You can visit your campus library to access scholarly research, or you can typically go to your library's catalogue and databases or websites like Google Scholar to access the journals your institution subscribes to (see the text box **Finding Peer Reviewed Articles** below for instructions). If you type in keywords – similar to a regular Google search – the Google Scholar search engine will populate with results for scholarly articles. Again, remember this doesn't mean they're quality search hits, but they will be scholarly in nature. You should always be asking yourself 'To what degree is this research valid, reliable, generalisable, and ethical?'.

Finding Peer Reviewed Articles

Search Strategies

If you're a student, or employed at a university, your library will subscribe to many peer reviewed

journals suitable for study and research. You'll need to develop and apply search strategies to make the most of these resources. Bear in mind that most library search tools are limited in functionality – they can only match text that you provide (unlike Google which has some ability to add related keywords to a search). If you want to refine a search, you'll need to use 'Boolean operators'. Boolean operators include the following symbols:

AND	Searches for all keywords.
OR	Searches for a keyword or one or more synonyms.
"phrase search"	Searches for the whole phrase contained inside quotation marks.
(synonyms OR similar)	Used for complex searches containing multiple concepts.
Wild*	Searches for variants of the base word (before the asterix), including plurals, verbs, and adverbs, etc. Can't be used inside a phrase search.

Here are some example searches:

1. Addressing the question 'Do assistance dogs ease PTSD?':

("assistance dog" or "service dog") AND (PTSD OR "post traumatic stress disorder")

2. Addressing the topic 'fear of public speaking may look like':

(Glossophobia OR (public speaking AND fear))

3. Addressing the topic 'Indigenous worldview and relationship to psychology':

Indigen* AND (worldview OR perspective*) AND psychology AND theory

You can use these strategies to search for peer reviewed research in your library's catalogue, databases, and Google Scholar.

Library Search

Most university libraries will have a search box on their homepage that you can use to search for both physical and digital research. Once you've entered your search parameters, and hit enter or clicked the search icon, you should see some results.

The results list will likely include thousands of items, ranging from print books to online journal articles. You can use the filters (usually found in the left menu) to refine these. Look for words like 'Peer reviewed' and 'Available online' to focus your search on high quality peer reviewed research you can access without leaving your desk. You can also use the date filters to ensure you're seeing the latest research on your topic.

Databases

Your library will likely subscribe to a number of online databases focused on collecting psychology research from around the world. To locate these databases, look for a database link on the library homepage, or ask for help from your librarian. Some libraries will provide a list of recommended databases for each subject.

Most databases:

- have a 'Help' section with detailed instructions for performing searches
- have a peer reviewed or scholarly material filters to ensure you find reliable, authoritative information
- offer advanced search features that allow you to focus your search.

Google Scholar

Of the plethora of search engines available to search online information, we recommend Google Scholar. This is a Google tool that retrieves scholarly information, including but not limited to peer reviewed articles. Google Scholar can be used to develop your search: it will give an indication of what has been published on a topic and can also be used to find additional keywords and phrases for your searches.

Google Scholar can also be linked to most university libraries, allowing current students and staff to directly access the articles available via their library subscriptions. To set this up:

1. Open the 'hamburger' menu and select 'Settings'
2. On the next page, select 'Library links"
3. Complete the form by adding your university name to the search box
4. Select or tick the check box that appears
5. Save these settings.

Further help is available from Google.

Source: McGregor, R., Tweedale, R., Gunton, L., Peters, E., Rose, Y., Schultz, S., & Singh Sachdeva, K. (2021). Working with information. In *Academic Success.* https://usq.pressbooks.pub/academicsuccess/

If you have a more targeted literature search, you might use a targeted search engine such as APA PsycInfo which searches psychology resources. To determine the best targeted search engine, you might use a database identification tool through your library. Here is one example of a database identification tool from the University of Southern Queensland.

If you're struggling with finding scholarly research relevant for your question of interest, librarians are trained in conducting literature searches. Their services are free for you to access, and you can find librarians in libraries both at educational campuses and in public libraries. When conducting any type of literature search, you would be wise to consult with a librarian.

Changes Happening in Peer Reviewed Research

For many good reasons, changes are happening to the process of publishing research in psychological science. Although we'll review this in more detail in **Chapter 3**, there're a few critical changes happening that you should know about in the context of reading and interpreting psychological research for your professional development.

The process of peer review described above continues to hold mostly true. However, recently pre-registration has been added to the process. Pre-registration is submitting the research question(s), and basic research design plan before the research is conducted.

In some cases, this preregistered plan is peer reviewed and researchers get feedback about potential flaws in design before conducting the study. This use of the preregistration process has great merit in the facilitation of getting constructive criticism early in the process at a time when it can be used to tweak research design. Imagine if your professor gave your assignment feedback before you submitted it. Would that result in a stronger final submission?

In other cases, the preregistration details are kept temporarily private, to become public once the research is complete to ensure that researchers are conducting the research consistent with their preregistered intentions. This is intended to minimise researcher bias (intentional or unintentional) during the research process.

Another change happening in the world of scholarly publications is a trend towards open access publishing. Open access publishing is publishing in such a way that readers do not need to pay a fee to access the work. As noted above, accessing scholarly research can be expensive and prohibitive. Some academic journals and some textbooks (this one, as an example!) are written intentionally to be open access. In addition to pragmatics regarding how to make the open access system sustainable (e.g., who pays for server maintenance, etc.), one downside is that typically open access resources are viewed as having less prestige than those publications that require payment to access and, as a result, authors do not often consider them as a primary destination for research publication. It seems that a shift is now underway, though. Many open access journals, including PLOS ONE (2019), employ a peer review system and have grown in credibility. As scholarly research becomes more available to the public (which personally, we think is an excellent improvement), it's critical that the public has the tools to critically read and evaluate this research. Again, always question the degree to which research findings are valid, reliable, generalisable, and ethical – there are other things to consider, but this is a good first cut!. We hope this will lead to an increase in psychological (and scientific) literacy in the general population.

Business Etiquette

As with most professional contexts, there are common professional situations you're likely to find yourself in while working in a variety of different career trajectories, and there are some common business etiquette behaviours. These behaviours are often taught by mentors, are rarely explicitly addressed, and may or may not actually be best practices.

To help ensure you're aware of these types of professional etiquette behaviours, some are addressed below. Please read these with thoughtful caution, however. Etiquette can change within a professional body (and oftentimes ought to change), and often varies significantly across professional bodies. To give an example, in some professional contexts it's perfectly appropriate to wear jeans and sneakers to a job interview. In others, business attire is expected. If you're ever in doubt about appropriate professional etiquette, ask a trusted mentor. If you don't have a trusted mentor, ask any friendly academic for some advice. They may be able to steer you in the right direction.

The next section will highlight some common business etiquette behaviours within psychological science that will span many career trajectories, but again recognise that this can vary by region, institution, and individual. Appropriate etiquette can change over time, and it may be different within subsets of the population. If you're unsure of business etiquette (or if you want to work to change it), please connect with a trusted advisor.

Addressing Academics

Many students coming into university from high school will address their lecturers and tutors as 'Mr/Ms Last name'. In a higher education setting, always use professional titles. In an Australian university context academics should be referred to as 'Dr Last name' if they have a doctorate, or 'Associate Professor Last name' or 'Professor Last name' if that have achieved associate or full professor status. This is not true in other systems, such as in the United States. Note, female instructors who don't have a doctorate should be referred to as 'Ms Last name' (not 'Miss' or 'Mrs')

as a woman's marital status is irrelevant to her professional status. As we learn more about the impacts of pronouns, the use of gendered titles to address individuals may change.

In the event that you're unsure of how to address someone in their preferred way – for example, if you're uncertain if a gendered title is appropriate, or whether you should refer to someone by their first name, there are appropriate ways to find out. In some cases, an individual will tell you how they prefer to be addressed. In other cases, you might ask. For example, you might ask for permission to use someone's first name if you have a close collegial working relationship with them. An example of how to ask a question like this is: 'Dear Dr Last name, I want to ensure that I am addressing you appropriately. What is your preferred way to be addressed?'.

Please note that when a professional prefers that you use their professional title, this is entirely appropriate. Let's consider this in another context: A police officer might be called Officer Jeffrey. It would be out of context to call Officer Jeffrey 'Mrs. Jeffrey' if they were in uniform. Likewise, it would be Officer Jeffrey's choice to allow someone to call her 'Sue' when she was on duty. Officer Jeffrey might be comfortable with her partner calling her 'Sue', but not a member of the public she's assisting. Notice there's a great deal of context in this example, just as there is in any interpersonal dynamic. If you're unsure of how to address your instructor – or any colleague – a friendly email asking for their preferred way to be addressed is appropriate.

In a professional context – for example at a lecture – you should probably default to referring to any colleague by their professional title even if you have permission to use their first name. For example, we introduce some of our best friends as 'Dr Last name' in professional contexts, such as at conferences.

Writing an Email

We all have questions, and an email is a common way to ask professors and other professionals those questions. Before sending an email to anyone, it's helpful to first consider these points:

1. What exactly is it that I need help with?
2. What are the best resources for me to get the needed help? For example, if you're looking for deadline or absence policies, before sending an email you should first check the syllabus/unit outline of the course you're in enrolled in (if in the context of a class), any previous correspondence (do an email search), and relevant webpages. Some organisations – including universities – also have discussion boards on their online platforms for certain types of questions. If you've exhausted your resources and need some extra support from an instructor or a boss, an email may be very appropriate.

It may be tempting to send an email to an employer or instructor similar to the way you would send a text – especially if you have a quick question. Although this may be appropriate if you know someone well and are engaged in an email conversation (as we often do outside of professional contexts), text-style email is not typically an appropriate method for professional communication. When emailing in a professional context, you want to ensure the following information is included:

- a proper salutation
- who you are, and the context you're writing about
- a concise statement of your question/comment, overviewing what you've already done to try to solve the problem or answer the question
- your full name and contact information, including your student number if relevant

You can read two **Sample Email Templates** in the text box below, although you should edit them prior to use so that your own professional tone comes through.

Sample Email Templates

Sample One

Dear [Ms CEO],

I am a new employee in your marketing department, and am writing to ask for clarification about [Project X]. Specifically, I've [read through the request for proposal and have done research on our competitors], but am unable to find information on [sales history]. My goal is to [create a thorough document that has all relevant information to ensure our success]. Could you please direct me towards more information?

Thanks for your time!

With kind regards,

[Your full name]

[Email address/phone number]

Sample Two

Dear [Dr Lastname],

I am a student in your [course name, and section]. I am writing to ask for [clarification on, further information regarding, etc.]. Specifically [give summary of the background research you've already done e.g., consulted the syllabus], and my current understanding is [summary]. I am seeking clarification about [specification of what is not understood]. Could you please provide more information to help me better understand?

Thanks for your time!

With kind regards,

[Your full name]

Student Number [0123456789]

When using electronic communication, please remember that USING ALL CAPLOCKS IS CONSIDERED YELLING. Excessive use of exclamation points can also be interpreted as yelling!!! The way you type communicates tone. If sending an important email, you might ask a friend or colleague to first read it over to ensure your tone is appropriate for the context. If an email reads more harshly than intended, you might soften it by adding an emoji (if professionally appropriate – there are boundaries on appropriate use of emojis), or by acknowledging to the reader in the text that the email reads more harshly than you intend it to.

Leaving a voicemail

You'll undoubtedly have to leave a voicemail at some point during your professional career which is sometimes an uncomfortable task. When leaving a voicemail, we recommend that you speak slowly, ensure that you give your name and a way to contact you for follow up. Importantly, give this information twice! Sometimes there is a crack in the phone line and a digit can't be heard. Leaving your name and contact information twice helps to ensure that your recipient gets all of the information they need to follow up with you.

Asking for letters of reference/experience

Sometimes students are uneasy asking for letters of reference. Please know that each year, most instructors get dozens of requests for letters of reference. We tell you this (a) to reassure you that you're engaging in an expected professional behaviour by asking for a letter of reference, and (b) to help you understand what an effective request for a letter of reference contains.

Instructors often teach dozens – sometimes hundreds – of students in a given year. Instructors also often teach multiple courses in a given academic year. As a result, although you may have a great relationship with your instructor, and they know you well, they may have forgotten some important details related to your professional interactions that could be helpful in a letter. Below (**Information Needed for Letter of Recommendation**) is the information that we request when students ask for a letter of recommendation, along with the internal reasoning for asking the question. Your letter writers may request different information. Please consider below example a starting place, and use the format provided by your letter writer when requested.

Information Needed for Letter of Recommendation

General information to help you set the context

The nature of the program or job you're applying to

A letter of reference for a specific job might be very different to an application to a postgraduate course in psychology, which might be different from an application to another type of program. Please give a brief overview of the program so the letter can be framed appropriately.

An overview of the submission process

References for postgraduate courses in psychology in Australia are submitted confidentially through an online portal. However, not all letters go through this process, and job letters can vary significantly in their submission process. Please give a brief overview of how the process will work, and whether letters should be directly addressed to a specific recipient (e.g., 'Dear Graduate Committee', vs 'Dear Ms. CEO'). Because reference letters have to be sent in specific ways, it's easiest to give these details right away either in an attached file or link to a webpage. Be sure to include the deadline in your request, and give your referee at least two weeks before the deadline. It's extremely helpful if you include your current CV/resume.

Specific information that helps us to write letters of reference

Full name on record, preferred name, pronouns and student number

Sometimes students have different preferred names from those on record, and we want to make sure that those receiving the letter know who we're referring to. Having access to all names, preferred pronouns, and your student number also helps us to search our records more effectively so that we can write a comprehensive letter.

All courses you've taken with the person you're asking for the letter of reference – including the year taken

Sometimes courses change slightly across years, and the components of the course can also change. Remember there are dozens of students in multiple courses asking for letters. By providing this information in your request, you're making it much easier for your letter writer, and you're demonstrating conscientious professional behaviours. Thus, this also helps your letter writer when they comment on your professional skills!

Academic achievements (e.g., Honours List, any other academic awards, conference presentations, or publications, if relevant)

As instructors, we often don't get notice of your individual achievements. We're excited to hear about them, and can include information about them in your letter. Even if we have heard about them, a reminder is helpful.

Volunteer and work experience (both academic and non-academic)

In this section, include any volunteer or work experience that might be relevant for the letter. Even if you volunteer in the lab of your letter writer, please include this. It helps to know that you've provided a comprehensive record.

Non-academic achievements

Have you done something great that isn't related to your academics? This is important and matters! Please be sure to tell us a bit about it.

Etiquette at a Conference

Depending on your area, appropriate business behaviours can vary. For example, some conferences are very formal and require full business attire, whereas others are more business casual in nature. If you have the opportunity and resources to attend a conference, it's appropriate to ask a trusted advisor about the level of formality at the conference, including dress code. Some conferences have pictures on their website of previous conferences, so you can see typical conference attire for yourself. If the dress code is not obvious, you might ask your advisor, or even the organiser of the conference: 'Is there a dress code at the conference?'. Additional business etiquette considerations that are fairly common across contexts are overviewed below. We didn't learn many of these behaviours until after we graduated with PhDs, and wish we knew some of them earlier!

Nametags

Nametags should be worn on your right side. The logic is when you shake hands (with your right hand), your colleague's eyes can follow a relatively straight and natural path from your shaking hand to your visible nametag while also comfortably make eye contact.

The Elevator Pitch

Elevators used to be where all important people met. Okay, that's not true, but the term 'The Elevator Pitch' refers to a description of your expertise that you can communicate to someone in a few seconds (the length of an elevator ride). It's the ultimate tl;dr (too long; didn't read) of your expertise.

It's worth your time to develop and practice an elevator pitch of your interests now. This pitch can and will change with time, but you'll be interacting with professors and potential colleagues throughout your training. An elevator pitch should be a maximum of 60 seconds in length and summarise your professional interests and experiences. For example, you might use the following structure:

'I'm a [undergraduate student/research assistant/postgraduate student] at [institution] and I'm interested in [general summary of area of interest]'.

Notice that this is a very general and short professional summary about yourself. If the person you're speaking with is interested in learning more, they can ask follow up questions. They can also comfortably 'get off of the elevator at their floor' (i.e., discontinue the conversation) if unavailable for further follow-up.

An elevator pitch is also useful in a number of other contexts outside of conferences. For

example, you might be recruiting participants for your research thesis and need to be able to explain your study quickly and in a way that will capture the interest of potential participants.

The Art of Thank You

In your career you will encounter many people who will go out of their way to help you either in small or large ways. Although not expected, it can strengthen an interpersonal relationship to send a genuine thank you to a person who has helped you in a meaningful way. You can of course send an email of thanks, but in situations where someone has significantly made the world a better place for you, sending a simple handwritten thank you card is often much appreciated. Indeed, we often underestimate how good receiving a thank you can feel for our recipients (e.g., Kumar & Eply, 2018).

HOW TO USE THIS BOOK

Building on themes highlighted in this introduction, this book was created to provide you with content on different applications of psychological science and careers in psychological science, written by experts across Canada and Australia. These experts were once where you are: students in a psychology course. Their chapters will vary somewhat in format to allow each sub-discipline's 'voice' to come through, but all chapters have an intentional focus on both research and application of psychological science, in addition to content regarding educational training pathways and career options.

We hope this book highlights the many careers available to students who train in the psychological sciences. We hope this book also provides you with new insights into the many ways in which psychological science addresses important questions, and ultimately influences the world around us in its application. As with anything you read, we encourage you to always be considering questions related to validity, reliability, generalisability, and ethics as you read this book. Indeed, this is how new research questions are often generated! In that spirit, in case no one has done this already, we would like to welcome you as a colleague in the psychological sciences, and look forward to learning about your future work.

Identifying Your Skills

For each attribute listed below, reflect on your experiences and see whether you can identify a specific example of how you have displayed or developed that attribute. For example, if in a course you had a group-based project that you scored highly on, you should include that in your chart under the 'Reasoning and problem-solving skills' section. Have you taken a course that has required you to present your findings from a project or assignment to the class? That can go under the 'Interpersonal and communication skills' section. These examples need not come just from your psychology studies, but could also come from your experience in previous jobs, or while volunteering.

You likely won't have an example for every box, and that's okay! The goal is to identify some specific examples so that you can rely on these to demonstrate strong attributes.

	Coursework that demonstrates my skills and ability	Volunteer experience that demonstrates my skills and ability	Paid work experience that demonstrates my skills and ability	Awards/honours that demonstrate my skills and ability
Interpersonal and communication skills (written and oral)				
Cultural alignment/values fit				
Emotional intelligence (including self-awareness, confidence, motivation)				
Reasoning and problem-solving skills				
Academic results				
Work experience				
Technical skills				
Demonstrated leadership				
Extracurricular involvement (e.g., clubs and societies)				
Community/volunteer service				

This chapter has been adapted by Tony Machin, School of Psychology and Counselling, University of Southern Queensland, and Natalie Gasson, Discipline of Psychology, School of Population Health, Curtin University. It has been adapted from Norris, M. E. & Baker, T. W. (2019). An introduction to careers in the psychological sciences. In M. E. Norris (Ed.), *The Canadian Handbook for Careers in Psychological Science*. Kingston, ON: eCampus Ontario. Licensed under CC BY NC 4.0. Retrieved from https://ecampusontario.pressbooks.pub/psychologycareers/chapter/introduction/

Send us your feedback: We would love to hear from you! Please send us your feedback.

REFERENCES

Australian Bureau of Statistics. (2013). *Australian and New Zealand standard classification of occupations 122.0* (Version 1.3.). https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/1220.0Chapter22013,%20Version%201.3

Australian Psychological Society. (2007). *APS code of ethics*. https://www.psychology.org.au/getmedia/d873e0db-7490-46de-bb57-c31bb1553025/18APS-Code-of-Ethics.pdf

Australian Psychology Accreditation Council. (2019). *Accreditation standards for psychology programs: Effective 1 January 2019* (Version 1.2.). https://www.psychologycouncil.org.au/sites/default/files/public/Standards_20180912_Published_Final_v1.2.pdf

Bergstrom, T. C., Courant, P. N., McAfee, R. P., & Williams, M. A. (2014). Evaluating big deal journal bundles. *Proceedings of the National Academy of Sciences, 111*(26), 9425–9430. https://doi.org/10.1073/pnas.1403006111

Borden, V. M., & Rajecki, D. W. (2000). First-year employment outcomes of psychology baccalaureates: Relatedness, preparedness, and prospects. *Teaching of Psychology, 27*(3), 164–168. https://doi.org/10.1207/S15328023TOP2703_01

Ciarocco, N. J., & Strohmetz, D. B. (2018). The employable skills self-efficacy survey: An assessment of skill confidence for psychology undergraduates. *Scholarship of Teaching and Learning in Psychology, 4*(1), 1–15. https://doi.org/10.1037/stl0000102

Chester, A., Burton, L. J., Xenos, S., & Elgar, K. (2013). Peer mentoring: Supporting successful transition for first year undergraduate psychology students. *Australian Journal of Psychology*, *65*(1), 30–37. https://doi.org/10.1111/ajpy.12006

Cranney, J., Botwood, L., & Morris, S. (2012). *National standards for psychological literacy and global citizenship: Outcomes of undergraduate psychology education*. University of New South Wales. https://groups.psychology.org.au/Assets/Files/Cranney_NTF_Final_Report_231112_Final_pdf.pdf

Cooperative Institute Research Program. (2008). *2008 CIRP freshman survey*. Higher Education Research Institute. http://www.heri.ucla.edu

Kumar, A., & Eply, N. (2018) Undervaluing gratitude: Expressers misunderstand the consequences of showing appreciation, *Psychological Science, 29*(9), 1423–1435. https://doi.org/10.1177/0956797618772506

Machin, M. A., & Gasson, N. (2019). *Development and validation of the Test of Psychological Literacy – Revised (TOPL-R)*. Manuscript in preparation.

Matthews, B., Guthrie, E., Lindsay, E., Edge, N. (2016). *Graduate outlook 2015. The report of the 2015 graduate outlook survey: Perspectives on graduate recruitment.* Graduate Careers

Australia. https://www.graduatecareers.com.au/files/wp-content/uploads/2016/07/graduate-outlook-report-2015-final1.pdf

McGovern, T. V., Corey, L., Cranney, J., Dixon, W. E. J., Holmes, J. D., Kuebli, J. E., Ritchey, K. A., Smith, R. A., & Walker, S. J. (2010). Psychologically literate citizens. In D. F. Halpern (Ed.), *Undergraduate education in psychology: A blueprint for the future of the discipline* (pp. 9–27). American Psychological Association. https://doi.org/10.1037/12063-001

Newell, S., Chur-Hansen, A., & Strelan, P. (2019). A systematic narrative review of psychological literacy measurement. *Australian Journal of Psychology, 72*(2), 123–132. https://doi.org/10.1111/ajpy.12278

Nickerson, R. S. (1998). Confirmation bias: A ubiquitous phenomenon in many guises. *Review of General Psychology, 2*(2), 175. https://doi.org/10.1037/1089-2680.2.2.175

Norris, M. E. & Baker, T. W. (2019). An introduction to careers in the psychological sciences. In M. E. Norris (Ed.), *The Canadian handbook for careers in psychological science*. eCampusOntario. https://ecampusontario.pressbooks.pub/psychologycareers/chapter/introduction/

PLOS ONE (2019). *Benefits of open access journals.* https://www.plos.org/open-access

Rajecki, D. W., & Borden, V. M. H. (2009). First-year employment outcomes of American psychology baccalaureates revisited: Need for a degree, salary, and relatedness to the major. *Psychology Learning and Teaching, 8*(2), 23–29. https://doi.org/10.2304/plat.2009.8.2.23

Roberts, L. D., & Gasson, N. (2018). Facilitating psychological literacy: The importance of conceptualisation and measurement. In G. J. Rich, A. Padilla-López & L. Katrine de Souza, et al. (Eds.) *Teaching psychology around the world (Volume 4,* pp. 293-305). Cambridge Scholars Publishing.

Roberts, L. D., Heritage, B., & Gasson, N. (2015). The measurement of psychological literacy: A first approximation. *Frontiers in Psychology, 6.* https://doi.org/10.3389/fpsyg.2015.00105

Robinson, M. D., Persich, M. R., & Krishnakumar, S. (2020). What would you do? A new approach to health competence based on situational judgment. *Journal of Personality, 88*(4), 676–688. https://doi.org/10.1111/jopy.12518

Ross, L., Greene, D., & House, P. (1977). The "false consensus effect": An egocentric bias in social perception and attribution processes. *Journal of Experimental Social Psychology, 13*(3), 279–301. https://doi.org/10.1016/0022-1031(77)90049-X

Tversky, A., & Kahneman, D. (1973). Availability: A heuristic for judging frequency and probability. *Cognitive Psychology, 5*(2), 207-232. https://doi.org/10.1016/0010-0285(73)90033-9

Waring, S. (2019). Psychology in secondary schools: The case for including psychology in the NSW science curriculum. *InPsych, 41*(2). https://www.psychology.org.au/for-members/publications/inpsych/2019/april/Psychology-in-secondary-schools

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psychological science. University of Southern Queensland. https://usq.pressbooks.pub/psychologycareers/chapter/what-is-psychological-science/

CHAPTER 2.

INTRODUCTION TO CAREER DEVELOPMENT

NANCEY HOARE AND JENNIFER LUKE

This chapter was originally written by Keates and Hahn (2019) for the Canadian version of this handbook. We've updated the chapter to ensure the information reflects the Australian context and is therefore relevant to psychology students in Australia. The chapter introduces you to career development. It provides information about career paths and options for students with psychology degrees, along with some ways you might think about your career and make career decisions.

INTRODUCTION

Charting your career path beyond university can be a surprisingly complex experience – potentially both exciting and daunting at times. It can be all too easy to put off thinking about your future until some other time. To ease potential stress and help find your way in an unknown terrain, it can be helpful to have a map to make more informed choices. In this chapter, we will help you to start building your own map of your future as we look at the topic of careers from several different perspectives.

We will examine common questions from psychology students, look at some key labour market trends and information, and learn about leading career development theories. Then we'll boil this all down to look at how you can use it to make the most of your time studying psychology, learn about yourself, and make good career decisions. From this broad foundation perspective on career development, you'll be better positioned to make sense of the various career paths you'll be exploring throughout the remainder of this text.

PSYCHOLOGY DEGREES + CAREER PATHS

As a student, you may be used to linear relationships between steps in your education – you complete high school and then go to university and study a range of psychology courses. It's easy to expect to keep moving on a predictable track to eventually gain employment. The reality is that students who study psychology can head in many directions, some highly-related to their psychology studies, and some less obviously so. This handbook will shed some light on some of the more common pathways for psychology graduates, as well as a few destinations you might not have anticipated.

Before you dive into the wealth of information in this text about all the exciting career possibilities that lay ahead, and ideas about how to navigate your career in this chapter, we want

to address a few key questions and concerns that we hear from psychology students about career options, and highlight the value of the transferrable skills you're learning in your study program.

Students study psychology for a variety of reasons. Some students want to become a registered psychologist, so they'll pursue the pathway to full registration. Other students may want to work in a job – not necessarily a psychology job – where they can help others. Some students are curious about people and why we behave the way we do. Some students study psychology to gain a better understanding of themselves. Other students are really interested in psychological research. First, we'll look at the pathway to full registration as a psychologist, and then we'll explore other options for students who graduate with a three-year psychology degree.

REGISTRATION AS A PSYCHOLOGIST

To legally call yourself a psychologist, you need to have general registration with the Psychology Board of Australia, which is part of the Australian Health Professional Regulation Agency (AHPRA). In Australia, there is a National Registration and Accreditation Scheme (NRAS) for registered health practitioners, which was established by the Council of Australian Governments (COAG) in 2008 to keep the public safe by ensuring that only suitably trained and qualified health practitioners who practice in a competent and ethical manner can become registered (AHPRA, 2015).

The NRAS has a variety of other objectives, such as:

- facilitating workforce mobility and the continuous development of a flexible health workforce
- facilitating the provision of high-quality education and training for practitioners
- facilitating access to services provided by health practitioners (AHPRA, 2015).

AHPRA is responsible for implementing the NRAS and there are a range of National Boards that regulate the 15 health professions (e.g., psychologists, medical practitioners, nurses and midwives, chiropractors, dental practitioners, optometrists, pharmacists, Aboriginal and Torres Strait Islander health practitioners, occupational therapists, etc.) which currently fall under the NRAS. The key role of the Psychology Board of Australia is to protect the Australian public by making sure only practitioners who have the relevant skills and qualifications to provide ethical and safe psychological services are registered to practice in the psychology profession (Psychology Board of Australia, 2019). The Australian Psychology Accreditation Council (APAC) is responsible for accrediting psychology study programs, which must meet the Accreditation Standards for Psychology Programs established by the Psychology Board of Australia (Psychology Board, 2021). The latest APAC Accreditation Standards for Psychology Programs came into effect on January 1 2019 and are available online (APAC, 2019).

Education and Training Pathways to General Registration as a Psychologist

It takes a minimum of six years of education and training to become eligible for general registration as a psychologist in Australia (Australian Psychological Society, 2021). The same registration requirements apply across all states and territories in Australia. The Australian Psychological Society (APS) is the professional association for psychologists in Australia. You will find a wealth of information about psychology careers and study pathways on the APS website. The APS breaks the 6-year sequence into three steps:

Step 1:	Successfully complete a three-year accredited undergraduate psychology sequence, such as a bachelor degree. People who have previously completed a non-psychology bachelor degree can complete an APAC-accredited graduate diploma in psychology.
Step 2:	Successfully complete a fourth year of accredited psychology studies (e.g., a psychology honours degree or postgraduate diploma in psychology). You must have completed Step 1 before you can apply to undertake Step 2.
Step 3:	Successfully complete postgraduate study required for general registration (e.g., a Master of Psychology). You must have completed Step 2 before you're eligible to undertake Step 3.

There's a fourth step for registered psychologists who want to obtain an Area of Practice Endorsement (AoPE) from the PsyBA in one of the seven specialised areas. These areas include:

- clinical neuropsychology
- clinical psychology
- community psychology
- counselling psychology
- educational and developmental psychology
- forensic psychology
- health psychology
- organisational psychology
- sport and exercise psychology.

Obtaining an Area of Practice Endorsement involves completing a registrar program, which is an additional period of supervision and professional development.

Many students enrolled in psychology undergraduate programs will go on to further study to become fully-registered as a psychologist. Some students want to go even further and pursue an area of practice endorsement (such as clinical psychology), some want to complete a PhD, and others want to complete both a masters and a PhD.

While becoming a fully-registered psychologist can certainly be a rewarding path, it may not be desired or possible for all psychology graduates. Entry into psychology honours and masters programs is extremely competitive. It usually requires a high Grade Point Average (GPA) and universities typically have a cap on the number of students they can offer places to in these programs. Therefore, the majority of psychology students enter the labour market after graduating with a bachelor degree, and some will take on further study in a non-psychology area.

WHAT CAN I DO WITH A THREE-YEAR PSYCHOLOGY DEGREE? – COMMON CAREER PATHWAYS

Because some students may not want to take the pathway to registration as a psychologist, or they may not get into honours, one of the most common questions asked by students in psychology is – 'What can I do with a three-year psychology degree?'. This is an excellent question and students might be hoping for a clear answer to provide future direction. The truth is, however, a bit murkier than the predictability you might be expecting. The simple answer is – there are a lot of options. Psychology is such a versatile degree that it can open numerous possibilities. Sometimes having so many options can be stressful or confusing. **Figure 2.1** provides examples of some of the common types of jobs that students with a three-year bachelor degree in psychology work in. Keep in mind that this is not an exhaustive list, but it will give you some idea of the variety of different options available.

Figure 2.1: Example of Common Jobs for Three-Year Psychology Graduates

Some psychology graduates who do not go on to complete the pathway to registration as a psychologist may work in related roles, such as counsellors, support workers, welfare workers, or research assistants, or they may work in other areas, such as marketing, human resources, public relations, and a multitude of other professional fields. What does this mean for you? It means that you have options. You can continue to move in directions more explicitly related to psychology, but you can also give yourself permission to explore other destinations. In fact, in 2020, 28.1 per cent of Australian undergraduates stated that they were working in roles outside of their main study discipline (QILT, 2020), so if you're studying psychology, but do not go on to full registration, you're among the majority.

Why is this the case? There are several factors that influence the steps someone takes in their career. Although the fact that you've chosen to study psychology might tell us something about some of your aptitudes and interests, you'll still find a wide degree of variety in the make-up of students in your psychology classes. Not all psychology students are the same – each person in your class has their own life experiences, personality, interests, skills, abilities, and values – and these will strongly influence the directions they're inspired to pursue. Beyond the internal factors, there are a host of external variables that will affect this as well – such as parental and peer influences, networking connections, chance opportunities, barriers encountered, labour market forces, finances, geographic location, and more – which will all alter your career trajectory in complex ways. We'll go into a deeper analysis of career development later in this chapter, looking at the labour market and helpful career theories and models that have been refined over the last century to help us to grasp this complex dynamic.

SHOULD I GO ON TO FURTHER STUDIES AFTER I COMPLETE MY BACHELOR'S DEGREE?

Another common question psychology students ask is – 'Should I go on to further studies after I complete my bachelor's degree?'. Where do you go from an undergraduate degree? Approximately 61 per cent of psychology students are in full-time employment four months after graduating, and almost 32 per cent are pursuing further study, which may be in psychology or in other non-psychology fields (QILT, 2020). Just as there're a variety of career directions, there are just as many routes you can take to get to those destinations. Once you start exploring your options after completing a bachelor degree, you'll come across programs ranging from short certificates and courses to postgraduate programs in a variety of different discipline areas. These can be in psychology or in other areas. A degree in psychology can be stepping stone to a range of different occupations – such as counsellor, social worker, teacher, medical practitioner, police officer, and lawyer – and a range of different discipline areas – such as arts, business, human services, and science. It can be very easy to get overwhelmed trying to sort through all of these possibilities.

How can you make an informed decision? Getting a clearer sense of your career direction and long-term plans can help keep you grounded while considering your next steps. As you work through this text you'll be refining your own sense of direction in terms of what fits you and your life, and learning about developing the necessary qualifications and experience to be a competitive candidate in your field of interest.

WHAT AM I LEARNING STUDYING PSYCHOLOGY? THE VALUE OF YOUR DEGREE

Even though you spend so much time in your courses, learning the content and working on your assessments, many students struggle to articulate what they've been learning – especially when it comes time to apply for jobs or further education. The good news is that your studies in psychology are providing you with valuable knowledge and skills that employers want – not only your knowledge about human behaviour, but also your skills in critical thinking, scientific reasoning, communication, research methods, and many more. Throughout your undergraduate degree, you'll be developing skills in psychological literacy (see the section on **Psychological Literacy** in **Chapter 1** for more details). These skills can be applied in a range of different careers – not just in psychology. You'll also be developing a range of transferrable or generic employability skills that employers are typically looking for in university graduates. The section **What do Employers Want?** in **Chapter 1** outlines a list of attributes that were highly-rated by employers. These are the types of generic skills or graduate attributes that universities embed in their study programs.

Each Australian university will have a list of 'graduate attributes' – or generic skills and personal qualities that you're expected to be able to demonstrate after you've completed your university program. Oliver and Jorre de St Jorre (2018, p. 824) provide the following examples of these graduate attributes:

(1) written and oral communication
(2) critical and analytical (and sometimes creative and reflective) thinking
(3) problem-solving (including generating ideas and innovative solutions)
(4) information literacy – often associated with technology
(5) learning and working independently
(6) learning and working collaboratively
(7) ethical and inclusive engagement with communities, cultures and nations.

If you're currently studying at university, have a look at your university's graduate attributes. For a more specific outline of what you can expect to learn from your university psychology

program, you can consult the learning outcomes associated with your university program, individual courses, or course materials.

While universities' graduate attributes outline a range of generic employability skills and attributes, there are specific skills and learning outcomes associated with studying psychology at various levels. The Australian Psychology Accreditation Council (APAC, 2019) presents detailed information outlining the expectations for graduates from undergraduate through to postgraduate psychology programs in the 2019 Accreditation Standards for Psychology Programs. Please refer to pages 10–11 of this handbook for the Foundational Competencies expected for graduates from a psychology bachelor degree. APAC also outlines the pre-professional and professional competencies expected for graduates at the fourth year (e.g., psychology honours degree) and postgraduate (e.g., coursework masters degree), respectively. There are also professional competencies expected for graduates of programs focused on specialised areas of practice within the field (e.g., counselling psychology, clinical psychology, health psychology, etc.), such as masters degree (coursework) or a doctoral degree (professional).

If you compare the professional competencies and generic skills you can get from your psychology degree with what employers are looking for, you can quickly see that you're well-positioned with a solid foundation for future success. With ongoing shifts in both education and labour markets, the need to strengthen your employability involves more than just acquiring generic skills and professional competencies. Bridgestock (2009) highlights that employability (which includes optimal economic and social outcomes) must not just focus on the discipline-specific competencies or graduate skills gained through university study, but must also include self-management skills in career-building and a proactive approach to navigating the world of work.

There're a range of other core skills that are important for navigating the world of work, interacting with others, and getting the work done. These skills are outlined in the Australian Government's (2015) Core Skills for Work (CSfW) Developmental Framework. The CSfW framework outlines a set of non-technical skills that have been identified as important to employers and to a person's successful participation in work. The CSfW also acknowledges that work performance is not only skills dependent, but also is impacted by a range of personal factors that can affect a person's approach to tasks. Contextual factors such as performance in a work situation is not only dependent on the skills and knowledge that an individual brings to it, but on a range of factors that may affect how well they can apply these to different tasks. Contextual factors such as cultural, value-based, motivation, level of autonomy, self-belief and resilience are examples of what can affect an individual's capacity to demonstrate certain skills or to develop them further (Commonwealth of Australia, 2013). These skills are grouped under three clusters. There are several skill areas within these three clusters, which each have a specific focus, as shown in **Table 2.1**.

Cluster 1 - Navigate the world of work	Focus
• Manage career and work life	Identifying work options, gaining work, and developing relevant skills and knowledge.
• Work with roles, rights, and protocols	Working with roles and responsibilities, operating within legal rights and responsibilities, and recognising and responding to protocols.
Cluster 2 – Interact with others	**Focus**
• Communicate for work	Recognising communication systems, practices, and protocols, speaking, and listening, understanding, interpreting, and acting, and getting the message across.
• Connect and work with others	Understanding self, building rapport, cooperating, and collaborating.
• Recognise and utilise diverse perspectives	Recognising different perspectives, responding to, and utilising diverse perspectives, and managing conflict.
Cluster 3 – Get the work done	**Focus**
• Plan and organise	Planning and organising workload and commitments, and planning and implementing tasks.
• Make decisions	Establishing the scope of decision-making, applying decision-making processes, and reviewing impact.
• Identify and solve problems	Identifying problems, applying problem-solving processes, and reviewing outcomes.
• Create and innovate	Recognising opportunities to develop and apply new ideas, generating ideas, and selecting ideas for implementation.
• Work in a digital world	Using digitally based technologies and systems, connecting with others, accessing, organising, and presenting information, and managing risk.

Table 2.1: Core Skills for Work (CSfW): Clusters, Skills, and Skills Focus. *Adapted from Commonwealth of Australia. (2013). Core skills for work developmental framework: Overview. Used under a CC-By licence.*

Reflect on Your Core Work Skills

Take a moment to reflect on your core skills for work:

- Where are your current strengths?
- What evidence do you have that will help you to demonstrate these strengths?
- How can you use that evidence when you're applying for jobs?
- Which areas do you think need further development?
- What are some strategies you could use to strengthen those areas?

In the next section, we'll take our investigations further by looking at labour market information and how it can help you navigate your career development.

WHERE ARE THE JOBS? – LABOUR MARKET INFORMATION

The future ain't what it used to be.
– Yogi Berra

Previous generations might have experienced periods of relative stability and predictable career progression, but in our modern society, change is the new normal. With significant technological advancements transforming the ways we work, information technology transforming our cultures, and political, ecological and cultural changes affecting every aspect of our lives, it can be hard enough to predict the weather a month from now, let alone make informed career plans for years into the future. 'Chaotic systems display … a lack of predictability at the micro level, while at the same time appearing to have a degree of stability at the macro level' (Bright & Prior, 2005, pp. 292–293). There is no one answer to 'Where are the jobs?' because there is too much change to predict the future at that micro level. However, there are some broad changes at the macro level that we can explore.

Broad Trends Affecting World of Work

With the nature of working rapidly changing, understanding the future of the labour market can prove difficult. Here we'll look at key forces that will influence the way work is viewed in the future. A report by PwC (2018, pp. 6–7) on the workforce of the future outlines five 'megatrends' that are shaping society and the future of work, which include:

1. technological breakthroughs: rapid advances in technological innovation
2. demographic shifts: the changing size, distribution and age profile of the world's population
3. rapid urbanisation: significant increase in the world's population moving to live in cities
4. shifts in global economic power: power-shifting between developed and developing countries
5. resource scarcity and climate change: depleted fossil fuels, extreme weather, rising sea levels and water shortages.

The influence of technology and globalisation across the world is perhaps the most obvious. Technology has consistently driven long-term economic growth, resulting in continuous productivity gains since the mid-nineties – a narrative that is expected to continue as the world's knowledge becomes increasingly digitised. The rapid advances in automation, robotics, and artificial intelligence are also significantly changing the nature and number of available jobs (PwC, 2018).

According to PwC (2018), technology has many economic advantages and other benefits, such as improving our lives, enhancing our living standards, increasing the average life span, enhancing productivity, and freeing people to focus on personal fulfilment. Technological advances have also enhanced global connectivity, with globalisation affecting countries in different ways. Increased competition and trade have allowed certain countries to benefit as it becomes more cost-effective to move both goods and information. However, this has also resulted in markets that are arguably more unstable in comparison to markets in the twentieth century. With the development of global financial markets, undesirable market effects can spread very quickly on a global scale. This is particularly evident with the global COVID-19 pandemic, which according to the Organisation for Economic Co-operation and Development (OECD, 2020) has '…triggered the most severe

economic recession in nearly a century and is causing enormous damage to people's health, jobs and wellbeing'.

With this increasing global connectivity, societal mindsets are shifting as consumers are exposed to more choices and are faced with an evolving definition of what it means to meet their needs (Gratton, 2011). This is further influenced by changes in the world's demographic and societal structure. Developed countries are facing a rapidly aging population concurrent with a low birthrate. While increasing longevity means that people are able to contribute to the labour market for a longer period of time, governments are also faced with restructuring their policies to better support the population.

The final restructuring that will inevitably occur concerns the use of energy resources and their related contribution to climate change. A reorganisation appears inescapable in the future – whether it's a reluctant adaptation of the present energy framework as resources become increasingly strained, or a construction of a new energy framework that would integrate networks both locally and globally to create a new system of sustainability.

All of the aforementioned trends combined will continue to reshape the future of work – how we work, with who, and where. Psychology is involved in all of these areas. For example, some psychologists focus on helping people navigate the challenges they face in the world of work, and many psychologists use technology to provide telehealth services to clients – particularly since the impact of COVID-19. Some psychologists are working in the area of climate change and sustainability to help us better understand the psychological dimensions of global climate change. The American Psychological Association Task Force on the Interface Between Psychology and Global Climate Change (APA, 2009) report describes how psychological research is contributing to this understanding. In its Psychology and Climate Change: Position Statement (APS, 2020), the Australian Psychological Society highlights the important contribution psychology can make to climate change, and recognises the need for urgent action at all levels of society.

WHERE PEOPLE WORK

Shifting from a global perspective to a national perspective, it can be enlightening to see where people in Australia work. A common assumption is that most people work in large companies, but in fact large companies only employ a small percentage of the population, with most people working in small businesses of less than 20 people, and over 60 per cent of Australian businesses operating as sole traders (ABS, 2019).

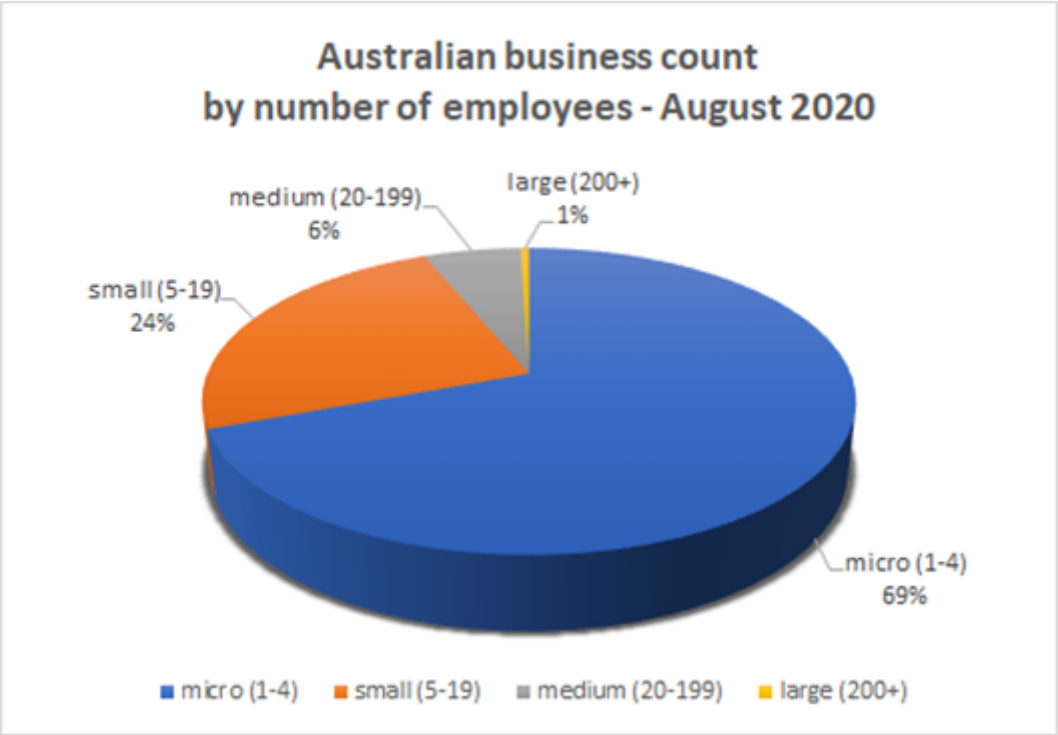

Figure 2.2: Percentage of Employees in Micro, Small, Medium, and Large Businesses in Australia. *Source: Australia Bureau of Statistics (2020). Used under CC-By licence.*

While registered psychologists in private practice would be in included among the high percentage of small businesses in Australia, there're a range of other contexts within which registered psychologists work. These can include public hospitals and health services, private hospitals, community mental health services, non-government mental health services, government departments (e.g., Social Services, Defence, Health, Veterans Affairs, Foreign Affairs and Trade, etc.), educational institutions (e.g., schools and universities), prisons and correctional facilities, child protective services, non-government organisations (e.g., drug and alcohol services, migrant and refugee support services, welfare service, youth services), private corporations, and a whole host of other contexts.

Many undergraduate psychology students decide not to go on to further study. According to the 2020 Quality Indicators for Learning and Teaching (QILT) Graduate Outcomes Survey (GOS), which gathers data four months after students graduate from university, 88 per cent of psychology undergraduates were in some form of employment (e.g., full-time, part-time) four months after graduating. There were 61.4 per cent of undergraduate psychology graduates in full-time employment, and 32 per cent had gone on to further study. The QILT data also show the median annual salary for undergraduate psychology graduates in full-time employment in 2020 was $63,000. Of the students who had gone on to complete postgraduate coursework in psychology, 96.3 per cent were employed, and the median yearly salary was $95,000 (QILT, 2020).

Occupational outlooks can be a valuable source of information in trying to predict future demand for careers of interest. Using resources like the Australian Government's Job Outlook website, you can search by occupation to access information projecting demand 10 years into the future, as well as wage information, skills, job postings, and more. For example, according to the Job Outlook website, employment in the Health Care and Social Assistance industry has grown strongly in recent years, and workers in this industry – including psychologists – have been required to support the National Disability Insurance Scheme (NDIS) (Commonwealth of Australia, n.d.; National Disability Insurance Agency, n.d.). Below (**Table 2.2**) is a quick sampling

of some of the kinds of information you may find on the Job Outlook website about different occupations:

Occupation	Number of workers	% full-time	Weekly pay	Future growth	Average hours week	% Female	Average age
Psychologist and Psychotherapist	36,100	52%	$1877	Very strong	43	80%	44
Clinical psychologist	13,500	52%	$1857	Very strong	43	80%	43
Counsellor	33,000	51%	$1584	Strong	41	77%	45
Social worker	30,000	64%	$1829	Very strong	41	84%	42
Registered nurse	298,400	50%	$1909	Very strong	41	62%	43
Secondary school teacher	148,300	76%	$1914	Moderate	46	62%	43
Primary school teacher	168,900	65%	$1801	Moderate	45	85%	41
Student counsellor	2,700	55%	$1584	Strong	42	78%	43
Occupational therapist	22,700	58%	$1569	Very strong	41	92%	34
Advertising and marketing	87,100	78%	$1737	Very strong	44	61%	34
Welfare support worker	62,200	63%	$1328	Very strong	41	74%	43
Youth worker	12,300	63%	$1328	Very strong	42	59%	35
Police officer	48,200	93%	$2036	Moderate	43	27%	40
Training and development professional	17,400	77%	$1742	Decline	44	58%	43

Table 2.2: Job Outlook Information for a Sample of Occupations. Used under a CC-BY licence.

So What Does All of This Data Mean for You?

Getting information about future trends, salary surveys, and occupational outlooks can give you a sense of what's going on in the world of work to help you make informed decisions. Knowing, for example, that roughly 61 per cent of graduates of psychology end up working after they've completed their undergraduate studies might encourage you to consider a range of possibilities, or seeing the higher salary and employment rates of graduates with postgraduate degrees (e.g., master of psychology) might lead you to think that further education could be a good investment.

While potentially quite useful, this information should be used with caution. In the dynamic modern workplace, changes can happen quite quickly. Much of the information included in job futures projections may be based on census information or graduate surveys that could be already a few years old. Most importantly, the information speaks to general patterns and averages, but not to individuals. Although there may be broader trends or pathways that others follow, they need to be considered in the context of your specific life circumstances and particular needs. It can be tempting to follow the money or seek out the hot jobs, but this is not a guaranteed road to success.

A balanced approach to decision-making that considers environmental conditions together with personal factors is more likely to lead to good decisions than a strategy based on either aspect alone. To help you form your own grounded perspective of looking at careers, we'll look at some of the most prominent models and thinkers influencing career development theory today in the next section.

MODELS AND WAYS OF LOOKING AT CAREERS – HOW DO I THINK ABOUT CAREERS?

Much like the other topics you've studied in your degree so far, the topic of 'career development' has had a lot of academic study – with years of theory development and research looking at how people develop careers. The central questions of career development theories have been:

- How do individuals make decisions about what career to pursue?
- How do career paths develop over time?

This chapter will be useful to you if you're interested in 'career development' from an academic perspective, but you don't need to be to derive value from it. As we review theories of career development, we'll extract information and strategies that you can use as you map out your own future career path(s). We'll review several approaches to career development, focusing on those theorists and topics that may be most helpful to you as you think about your own career decisions.

Person-Environment Fit

A foundational theory and concept in career development is person-environment fit, credited to Frank Parsons work from the early 1900s (Neault, 2014). The central idea of person-environment fit is that the better the match between a person (namely their traits such as skills, personality, interests, and values) and the environment (such as the needs and demands of a specific occupation and workplace), the greater likelihood of success and happiness for that person (see **Figure 2.3**).

Figure 2.3 Person-Environment Fit Model. *Adapted from Keates and Hahn. Used under a CC-BY-NC licence.*

In practical terms, following the person-environment fit model to make a career decision would lead to activities such as first assessing your skills, personality, interests, and values, then gathering data about occupations, and then comparing you (the person) and the occupations (environment) and looking for the 'best fit' career choices.

This simple idea of person-environment fit continues to be the foundation of most career development activity (and in the next section we'll present some activities you can use to learn more about yourself and about potential occupations as you look for fits). However, while useful as a foundation, this approach is too one-dimensional. Simply looking at fit between an individual person's needs and an occupation's needs is not representative of the actual complexity of career decisions and career development over one's life span. In addition, it leaves out significant other variables that impact on what options are available to many people.

Constraints on Person-Environment Fit

While person-environment fit is a useful starting point, a key criticism is that it assumes that all individuals are choosing from all possible environments (jobs, organisations) and doesn't consider lifelong career development. Theorists such as Gottfredson (1996) argued that choosing a career is not just about your psychological self but also your social self. Through your career choice, you are '…placing [yourself] in the broader social order' (Gottfredson, 1996, p. 181). This draws attention to the impact of social aspects such as gender and social class. Gottfredson's (1996) theory of circumscription and compromise asserts that your self-concept and your images of occupations are impacted by social factors. Circumscription is a narrowing of perceived options – '…the progressive elimination of unacceptable alternatives' to those that are considered socially-acceptable (Gottfredson, 1996, p. 187). Compromise is then the process of editing your preferred career options based not just on what is most compatible with you, but what you perceive as most acceptable. For example, some might believe that certain careers are only appropriate for certain genders – such as nursing only being appropriate for females, or engineering only being appropriate for males.

Consider Career Circumspection and Compromise

- Are there career options that you think aren't 'acceptable' for you? Based on your gender identity? Based on your social class? Based on other social variables?
- Are any of those career options that you feel are compatible with your skills and interest, but you've eliminated them as options because of perceived 'unacceptability'?

Gottfredson's concepts of circumscription and compromise illuminate how there is more to a career decision than assessing the fit between a person and the environment – there can be internal reactions to external factors, and these internal reactions change perceptions of what careers might be possible and acceptable as you plan your career options.

LIFELONG CAREER DEVELOPMENT

While person-environment fit still plays an important role in our career development, our sense of self is constantly evolving, and we need to adapt to the ever-changing world of work. The whole process is a dynamic interaction of a variety of influences – intrapersonal, interpersonal, contextual, and developmental. The Systems Theory Framework (STF) (STF; McMahon & Patton, 1995; Patton & McMahon, 2006) for career development incorporates the variety of influences on our career development and provides a very useful model to think about careers. As you can see in **Figure 2.4**, individual factors – such as our interests, skills, gender, age, ability, personality, and values – are at the centre of our system and are influenced by social, environmental, time, and chance factors. The social influences are not just the people close to us, such as our family and friends, but also others who influence our careers in direct or indirect ways, such as our teachers, bosses, co-workers, sports coaches, the media, and so on. The STF also takes into account the environmental influences, such as the job market, the political climate, the economy, where we live, how much money we have, and a range of other broader influences. Many of these factors are outside of our control but can affect us at different stages of our lives. The STF also incorporates the random or chance factors that we haven't planned for, but that can influence

our careers. You can see from the model that all of these factors interact dynamically with one another and are influenced by time. The STF provides us with a very useful lens through which to view our careers. It's an overarching framework that readily allows the incorporation of a range of theoretical approaches. Through the integration of elements from the social system and the environmental-societal system with the individual system, more recent contextualist approaches – informed by constructivism and social constructivism – have been put forward. This includes the development of the Psychology of Working Framework (PWF) (PWF; Blustein, 2013) and the Theory of Career Construction (Savickas, 2020), which we'll cover later.

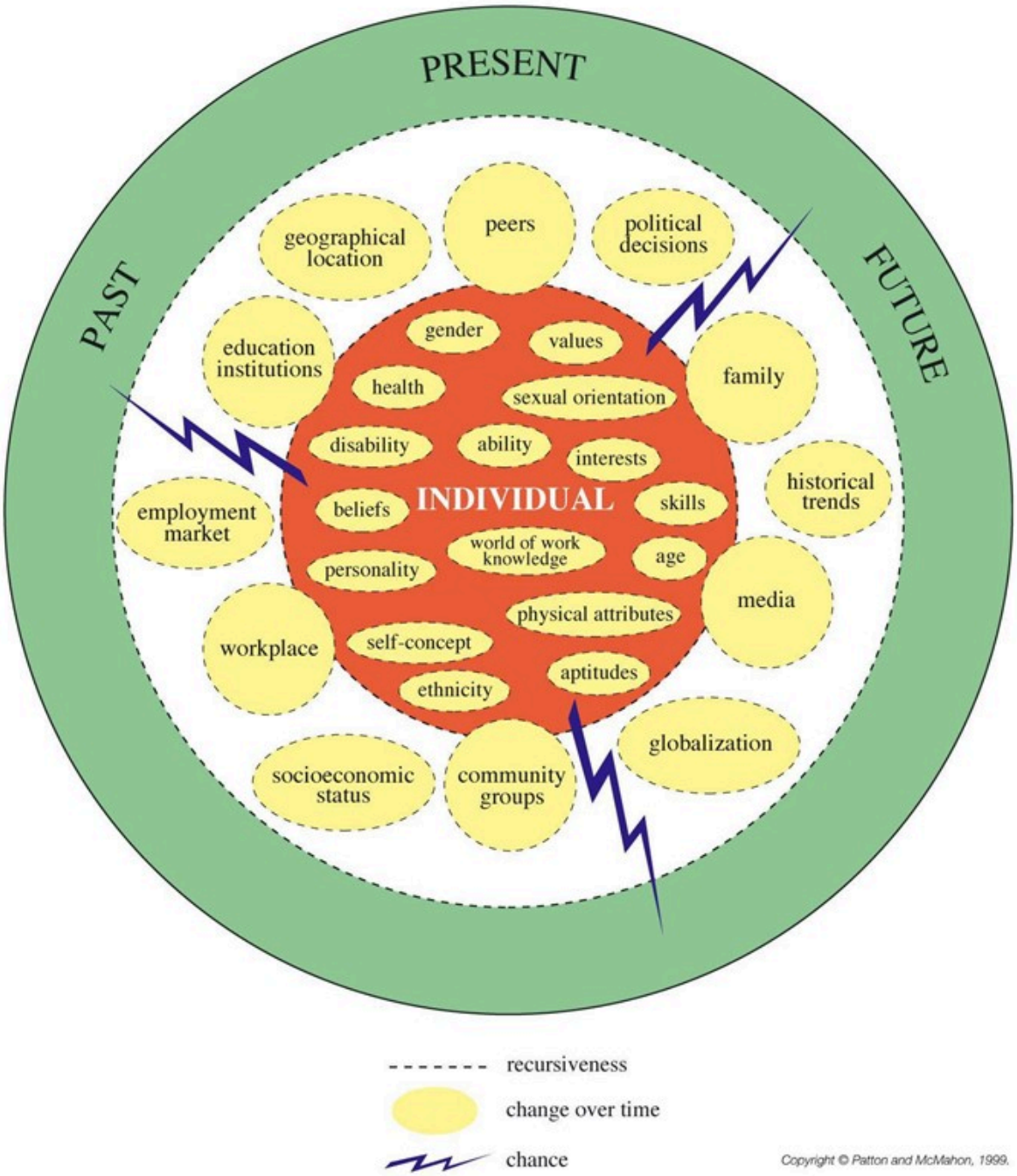

Figure 2.4: Systems Theory Framework for Career Development. *Source: Patton, W., & McMahon, M. (1999). Career development and systems theory: A new relationship. Brooks/Cole. Reproduced with permission from Dr Mary McMahon. This image is excluded from the Creative Commons licence of the book and cannot be reproduced without permission from the copyright holder.*

Career Paths are Rarely Linear

While it's helpful to think about how to plan your career path, planning doesn't represent the full experience of how careers actually unfold. Many people think of career development as a ladder – a series of planned steps leading up to greater and greater things. In reality, people's career trajectories are far more disordered, as can be seen in **Figure 2.5**.

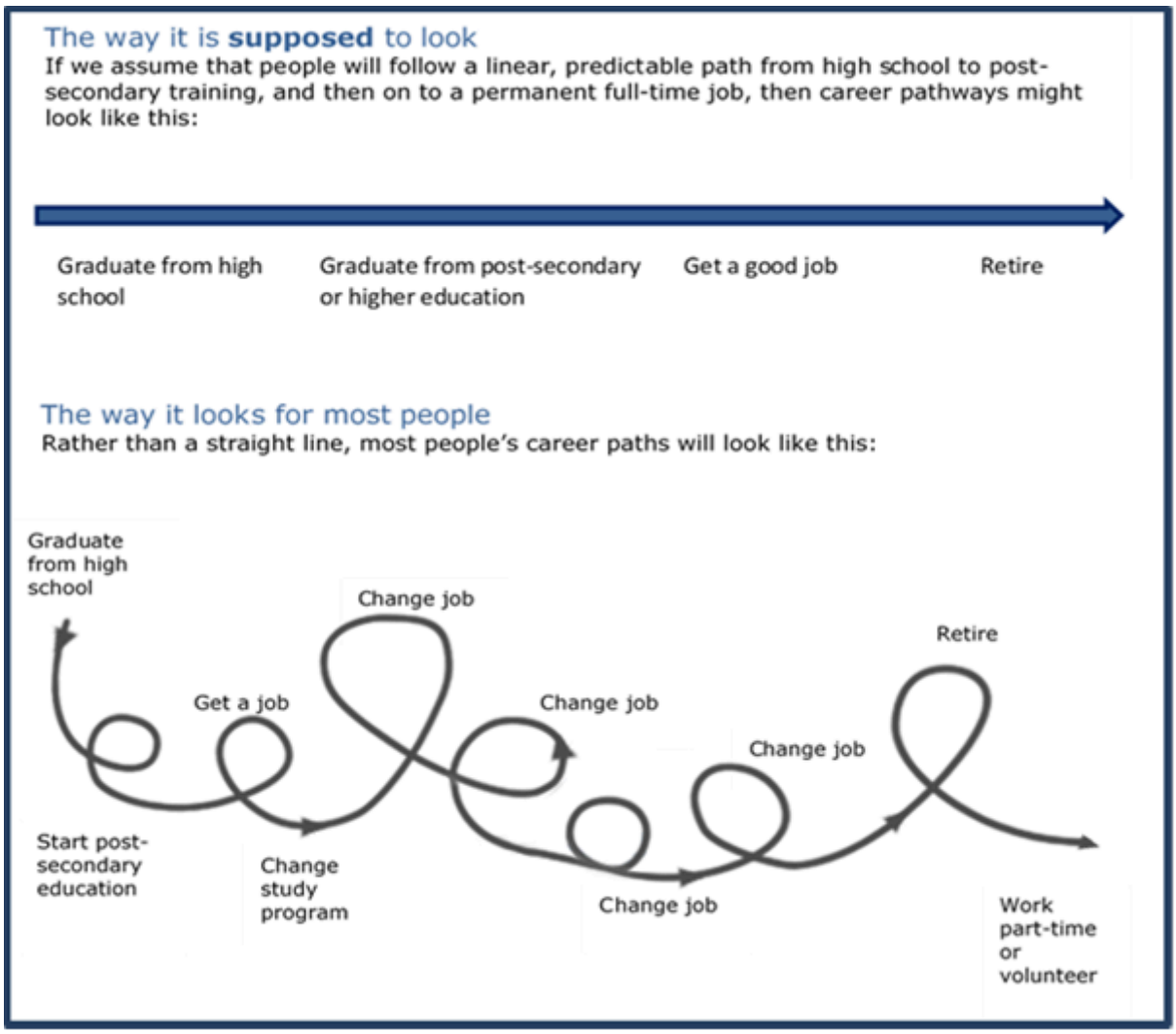

Figure 2.5: Typical Career Trajectories. *Adapted from Keates and Hahn (2019). Used under a CC-BY-NC licence.*

Understand Your Career Trajectory

- What has your career experience been?
- Do you feel pressure to have an answer and a clearly laid out path?
- When someone asks you 'What are you going to do after graduation?' or 'What are you going to do with your degree?' or 'What do you want to be when you grow up?', do you feel pressure to have an answer?

Planned Happenstance

Mitchell et al. (1999) argue that unexpected events play a significant role in most careers, and their Planned Happenstance model (an intentional oxymoron) is a good way to conceptualise how careers actually unfold. If you ask people 'How did you get to be where you are today?', you might find 'luck' plays a role in many people's careers. That is the 'happenstance' part of planned happenstance. But what about the 'planned'? If you were to ask follow-up questions about the luck, such as 'When that lucky situation happened, how did you respond?', you might find that people actively took advantage of the luck to turn it into a career move. And when you ask questions like 'And what had you done previously that put you in the situation where the luck was able to happen?' you might find that people had to have been actively engaged in a network and in exploration in order to be somewhere where luck found them. Although the lucky happenstance may have been a key occurrence, each person may have created the conditions for the luck, and then acted on the luck rather than ignore it.

There are two key tenets of planned happenstance theory (Mitchell et al., 1999, p. 118): 'a) exploration generates change opportunities for increasing quality of life; and b) skills enable people to seize opportunities'. The first – that exploration creates opportunities – draws our attention to how we're not just passive recipients of chance events, but that we can increase the likelihood of positive happenstances through exploration and engagement. For example, individuals who have little to no interaction with the larger world are unlikely to experience a lot of exciting chance events that will bring new career opportunities. However, if we're engaged and connected, are building a strong network and attending events, speaking with colleagues, are part of an online community, and so on, then we're more likely to bump into new opportunities. Our own behaviours can generate greater likelihood for lucky opportunities. Then, when there is a lucky opportunity, we can choose to ignore it, or we can choose to take advantage of it. If there 's a knock on the door we have to open it to see if it's a visit that might lead to something exciting.

Mitchell et al. (1999) lay out five skills they believe help us generate and take advantage of happenstances, listed in the left-hand column below. The interplay of these skills helps us to make it more likely that we'll have positive happenstances, and that we'll then act on them in a way that leads to the most positive impact for our own lives.

Think of your own career path so far, that has led you to where you are today. What role has planning played and what role has happenstance played? **Table 2.3** has some questions to help you reflect on your happenstance skills.

Happenstance Skills	Reflective Questions
Curiosity: exploring new learning opportunities	How has curiosity led you to new opportunities in your past?
Persistence: exerting effort despite setbacks	What is an example of a time when you persisted and that meant that you were able to move forward despite facing challenges?
Flexibility: changing attitudes and circumstances	When in the past have you been flexible and that allowed you to take advantage of an opportunity you might not have had?
Optimism: viewing new opportunities as possible and attainable	How would you describe your own level of optimism and how much you believe new opportunities will appear and be things you can act on?
Risk-taking: taking action in the face of uncertain outcomes	How would you describe your risk-taking approach? What is an example of a time in the past when you took a risk on a new opportunity, and it led to good things?

Table 2.3 Reflecting on Your Happenstance Skills. Adapted from Mitchell et al., 1999, p. 118.

The Chaos Theory of Careers

The Chaos Theory of Careers (Bright & Pryor, 2005; Pryor & Bright, 2014) has some commonality with Planned Happenstance (in particular the role of unexpected events), but is an attempt at a much broader new conceptualisation of career development. The authors wanted a theory that would not just address how an individual makes a career decision, but one that also incorporates the complexity of variables – both personal and contextual – that impact career trajectories. They asked a fundamental, and very big, question: 'Why should the influences on career development be different from those that brought about life or which shape our cosmos?' (Pryor & Bright, 2014, p. 4). They looked beyond the career development literature to general science and its attempts to explain the overall function of the natural world.

Careers, like other parts of nature, are part of a chaotic system: 'An individual's career development therefore is the interaction of one complex dynamical system (the person) with a series of more or less generalised other complex dynamical systems including other individuals, organisations, cultures, legislations and social contexts (Pryor & Bright, 2014, p. 5).

The Chaos Theory of Careers

The Chaos Theory of Careers uses terms from general Chaos Theory (such as complexity, non-linearity, chance and change), and applies them to career development.

Complexity – There are so many variables, linked in so many ways, that complexity is a reality of systems, including the systems within which we work and manage our careers. As covered in the labour market section, many authors are arguing that complexity is increasing and will continue to.

Non-linearity – Perhaps the most well-known component of general chaos theory is the butterfly effect, in which a butterfly flaps its wings in one part of the world and impacts the weather somewhere on the other side of the globe. This is an example of non-linearity and, applied to careers as we have covered already, this emphasises how most people's careers don't follow a direct line, and that a small change can cause disproportionately significant impacts.

Chance – This theory reinforces the importance of recognising how we can't focus on predictability, but should recognise and even embrace the role of chance in our careers.

Change – The authors argue not only that there's constant change in the larger world, but that people themselves change. A criticism of the person-environment fit model (that we explored at the beginning of the section) is that it assumes little change in both the person and the environment. If people themselves are continually changing, how does that impact how people make career decisions?

The Chaos Theory of Careers draws our attention to the complexity of career development and to the multiple and often unpredictable influences on our options and opportunities.

How Has the Chaos Theory of Careers Affected Your Career?

- How well do you think chaos describes the natural world?
- How well do you think a chaos theory can describe your career so far?
- If careers are chaotic, how does that make you feel? Are you excited by the possibilities, concerned about the lack of predictability, intrigued by the complexity, or a combination of

those feelings and/or others?

Constructivist Approaches

Much recent work on career development uses a constructive approach, emphasising that reality, and how we experience it, are individually and socially constructed. There isn't one objective reality, nor one story of who we are and our career path. A subset of constructivist theories, narrative approaches specifically highlight the role of story and argue that we narrate our own lives – '…we are the stories that we live' (Niles & Harris-Bowlsbey, 2013, p. 113). As we tell the story of ourselves and our careers, we're designing our own reality.

Although overall the world may be chaotic (should we ascribe to a Chaos Theory conceptualisation), the narrative approach allows a look at how individuals have agency in impacting the stories they narrate for their own careers. It's '…by constructing personal career narratives, we can come to see our movement through life more clearly and can understand our specific decisions with a greater life context that has meaning and coherence' (Niles & Harris-Bowlsbey, 2013, p. 112).

As an illustration of one constructivist approach, Savickas (1997) uses a 'career story' process to help people narrate their own development. He asks clients five key questions about themselves – asking them to name role models, favorite magazines, favorite book, mottos, and early recollections. Then, working together, the counsellor and client draw themes out of these reflections, and the client constructs a story of their career – identifying central themes that have guided them in the past, and that they may choose to use to guide them into the future. Having these themes then informs decision-making about next steps.

Another example of a constructivist approach is the use of metaphor as a way for individuals to understand their own careers (Amundson, 2010). 'People actively seek to make meaning of life events and this process is ongoing' and metaphors are a common way humans make meaning (Amundson, 2010, p. 7). Using metaphors is helpful because by 'referring to parallel examples where similar dynamics are in play' we're better able to understand a new experience by relating to the familiar metaphor (Amundson, 2010, p. 2).

Consider the metaphors in the box below that might be used to describe your career. If you use this metaphor for your career:

- What does it bring to mind?
- What limits does it have – what does it miss in your experience?
- How might it be helpful to organise your thoughts?
- Does it make you feel more or less optimistic about your future?

Career Metaphors

- Career as journey, which can include getting a call, responding to the call, facing obstacles
- Career/life as book – with chapters and difficult challenges
- Climbing the ladder of success

- Following the yellow brick road
- Solving a puzzle (or many puzzles)
- Undertaking a research project

Metaphors adapted from Amundson (2010).

Limitations: Ethnocentricism

We've reviewed a few examples of how career development theory has evolved over time. During this evolution, there has been a growing conversation about diversity and the limitations of existing theories in an increasingly diverse community. Ethnocentrism is the assumption that one's own 'value system is superior and preferable to another' (Niles & Harris-Bowlsbey, 2013, p. 135). Historically most of the career development literature has been produced in North America, and primarily by members of dominant groups (Niles & Harris-Bowlsbey, 2013). Much of the research on career development stems from vocational psychology, and the data used in psychological research has been dominated by samples drawn from Western, Educated, Industrialised, Rich, and Democratic (WEIRD) nations, with the majority being from the United States (Muthukrishna et al., 2020). Therefore, it's important to note that the theories we've covered don't reflect a universal value system.

Arthur and Collins (2014) draw attention to several cultural assumptions that have been made in career development literature reflecting a European-American perspective:

- Individualism and autonomy – assuming that individuals make their own choices that create their futures
- Affluence – assuming that individuals have access to affluence, or the resources needed
- Structure of opportunity open to all – assuming that all individuals have access to opportunities
- Centrality of work in people's live – assuming that work is a central part of people's lives
- Linearity, progressiveness, and rationality – assuming that individuals' careers progress in a linear and rational way.

Cultural Assumptions

- What messages about 'career' have you learned from your family, and what messages are rooted in your family's history and experiences?
- Are there any structural or systemic obstacles you believe you may (or have) experience(d) as you pursue your career path?
- What privileges have you benefited from that have made your life easier?
- Which (if any) of the assumptions listed above have you made when you think about careers and opportunities?

The assumptions listed above are based on a 'Western' worldview and limit the applicability of the

career theories we've reviewed so far. Even the term 'career' itself may have different meanings for different people, depending on historical and cultural influences (Arthur & Collins, 2014). Although the theories we're reviewing in this chapter all have useful ideas to offer, we should examine them through a lens of diversity and social justice, considering how each theory may be limited within a particular worldview, and consider limits, biases, and gaps.

In addition to limitations within career theories, there are also limitations and structural barriers that people from marginalised groups may experience in the labour market. Niles and Harris-Bowlsbey (2013, p. 130) argue that 'there is also ample evidence to suggest that women, people of colour, persons with disabilities, gay men, lesbian women, and transgender persons continue to encounter tremendous obstacles in their career development'.

Fortunately, there are increasingly more diverse voices in career development writings. For example, the Psychology of Working Framework (PWF; Blustein, 2013) places a strong emphasis on the role that sociocultural factors – such as social class, social capital, marginalisation, and freedom of choice – play in career choice, work experiences, and career fulfilment. Duffy et al. (2016) developed a testable theory based on the PWF – the Psychology of Working Theory (PWT) – which helps to explain the process of securing decent work and how this leads to need satisfaction, work fulfilment, and wellbeing. According to the University of Florida's Dr Ryan Duffy, a person will experience decent work when they are provided safe working conditions (physical and mental), the provision of adequate rest, healthcare, and compensation, as well as organisational values that reciprocate employee social and family values. The PWT model includes predictors of decent work – such as marginalisation – which Duffy et al. (2016, p. 132) describe as 'the relegation of people (or groups of people) to a less powerful or included position within society' (p. 132), economic constraints (e.g., limited income), work volition, which refers to a person's perception that they can make career choices despite constraints, and career adaptability. Career adaptability encompasses four elements, including being *concerned* about one's career, feeing in *control* of one's career, being *curious* about oneself and one's career opportunities, and having *confidence* in being able to complete career-related tasks and overcome barriers (Savickas & Porfeli, 2012). Being adaptable involves being ready and having the resources to cope with current and anticipated career tasks (Savickas & Porfeli, 2012).

Career Adaptability

- How adaptable do you feel in relation to your career?
- How much in *control* of your career do you feel?
- How *curious* are you about yourself and your career?
- How *concerned* are you about your career?
- How *confident* are you in your ability to complete career-related tasks and overcome any barriers that stand in the way of achieving your career goals?

FINDING YOUR WAY– MOVING TOWARDS YOUR CAREER GOALS

In the previous section we reviewed the evolution of career development theory. We're now going to present some more concrete processes and tools that you can use as you seek to develop your own career path and a meaningful sense of direction.

The Value of Purpose

Research from Harackiewicz et al. (2002) and Snyder et al. (2002) shows that students are more successful academically when they are motivated in pursuing career goals, with a desire to learn and embrace necessary challenges for growth, while students with undefined goals tend to put in minimal effort. Does this mean you have to have all the answers right now? Most definitely not – as we have said before, only some of us are in a position to be navigating directly towards a clear goal. However, taking active steps in exploring potential directions can give a sense of purpose to your time at university, help keep you motivated during challenging times, and position you for success during and after your studies.

This sense of purpose is different to a specific short-term goal. It's longer-term and broader – a direction we're always working towards that motivates and guides our decisions, often with a service component. Damon writes that purpose is '…a part of one's personal search for meaning, but also has an external component, the desire to make a difference in the world, to contribute to matters larger than the self' (Damon et al. 2003, p. 121).

Living purposefully requires knowing yourself well enough to get clarity about what unique purpose is suited to you based on your unique personal make-up and identity. Having a sense of your values and interests is fundamental in terms of making decisions that align with who you are, but it's also important to factor in your strengths (Smith, 2017). In fact, research shows that when we use our strengths at work, we're more likely to find meaning in our work, and to perform at a higher level (Dubreuil et al., 2014). In this section, we'll look at decision-making strategies, self-assessment strategies, key resources, and activities to help you get clarity as you think about your future options.

Career Decision-Making Styles

Everyone has their own style of making decisions – and the role of data plays a different role in each style. Dinklage (1968) found eight decision-making styles:

- **Planful** – Systematic process with goals, options, and actions
- **Agonising** – Try to be planful, but end up excessively focusing on data and information to their detriment and struggle to make a perfect decision
- **Impulsive** – Select alternative quickly, minimal use of data
- **Intuitive** – Use experience and judgment to decide on path with little use for data
- **Compliant** – Highly influenced by other opinions or social norms
- **Delaying** – Sees a decision to be made but avoids it, lacking motivation or information
- **Fatalistic** – Feels their actions don't matter, that decision is out of their hands
- **Paralytic** – Sees decision, but is paralysed by fear of process or outcome.

Your Decision-Making Style

Having a sense of your own decision-making style can help you to navigate your own ongoing career decision:

- Do any of the decision-making styles listed above resonate with you?
- When have you made big decisions in the past? Were you successful? Why? Why not?
- If you weren't successful, what would you do differently the next time?

Decision-Making Processes

The Cognitive Information Processing (CIP) Approach examines how we make effective career decisions (Sampson et al., 1992). It posits that decisions involve both cognitive and affective elements, and that career decisions are ongoing, with our knowledge evolving over time. In their information processing pyramid (see **Figure 2.6**), they describe three foundational components: self-knowledge, occupational knowledge, and decision-making skills, capped by metacognition (awareness of our thoughts and processes). We'll work through these pieces in the coming sections, exploring self-assessment, exploring options, and decision-making.

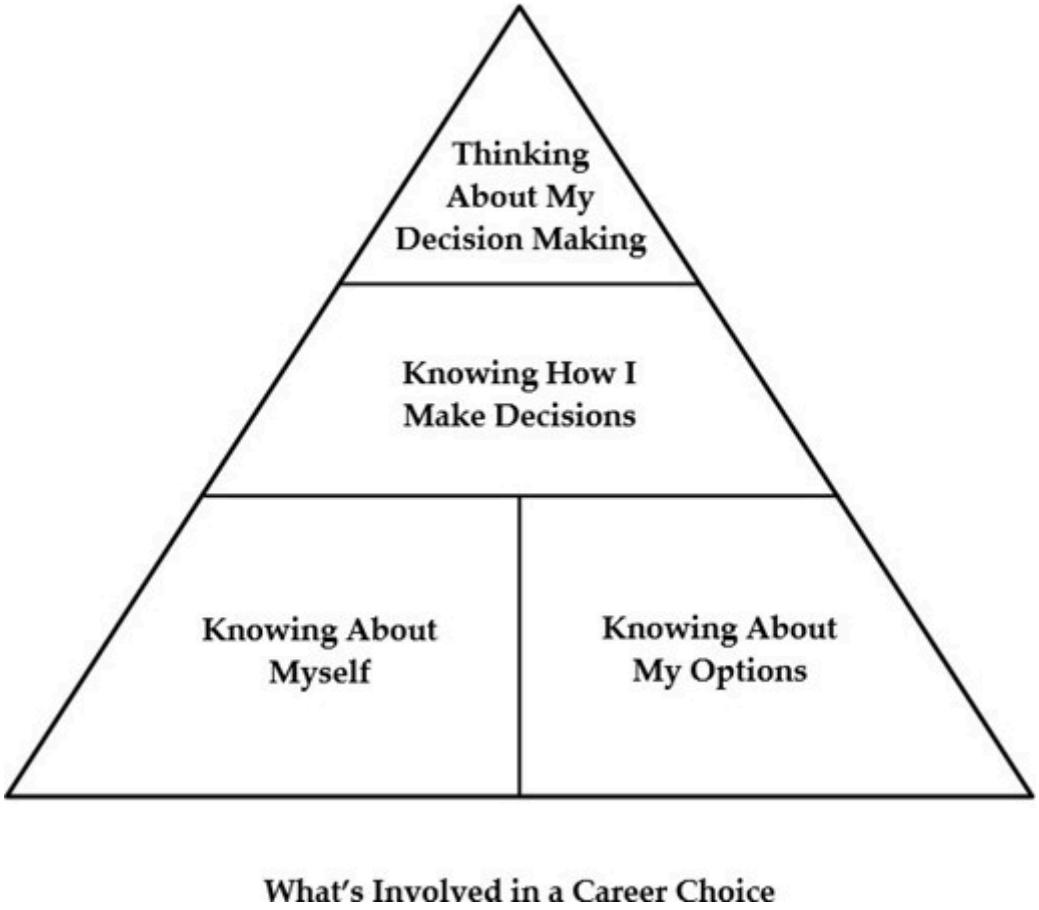

Figure 2.6: Cognitive Information Processing Pyramid *(Sampson et al., 1992). Source: Keates and Hahn. Used under a CC-BY-NC licence.*

The Cognitive Information Processing Approach (Samson et al., 1992) also includes the CASVE process (named after the phases of Communication, Analysis, Synthesis, Valuing, and Execution), featured in **Figure 2.7**, which explains the phases we go through in making a decision. The first two components from the pyramid are incorporated into the analysis phase, while the metacognition and decision-making skills apply throughout. The process reflects the cyclical nature of navigating career decisions, as we incorporate new learning and experiences into future decisions.

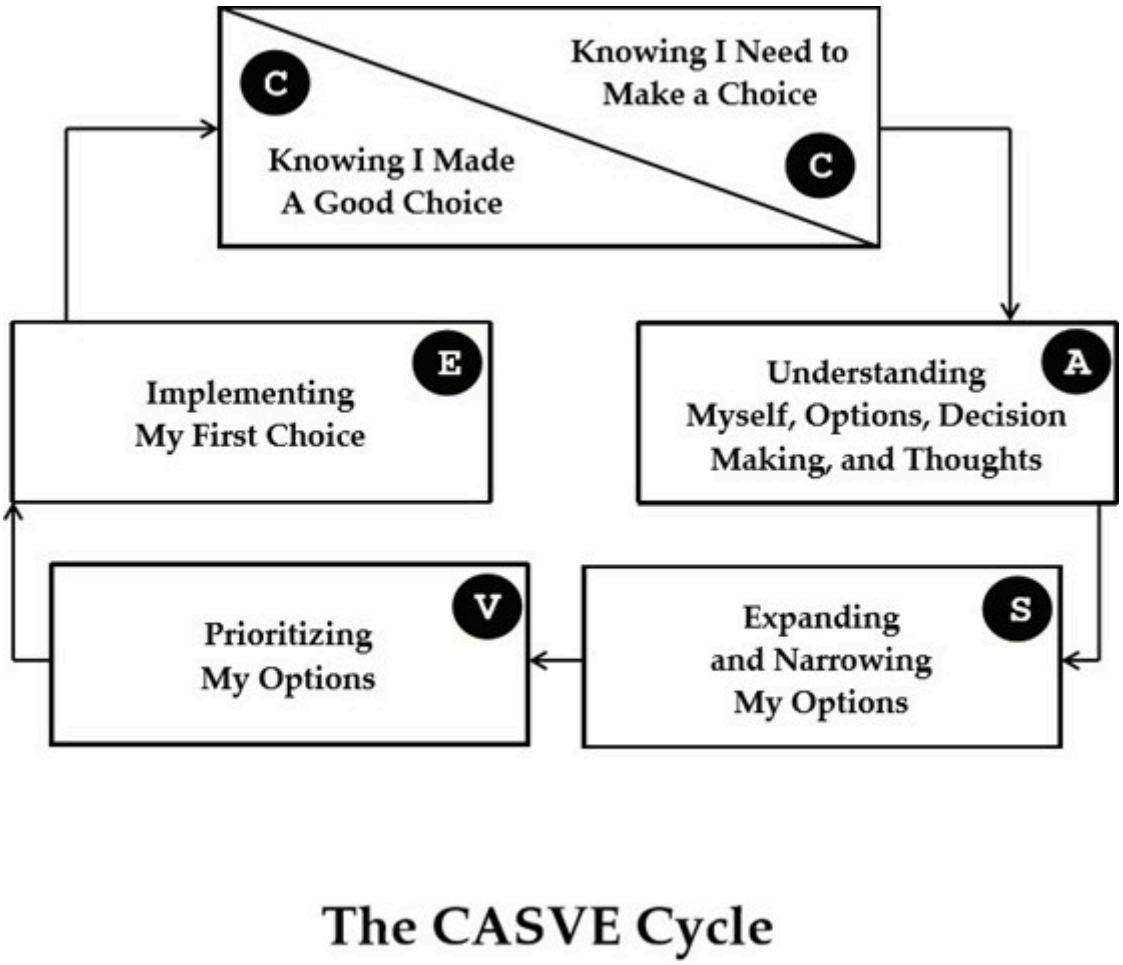

Figure 2.7: CASVE Model *(Sampson et al., 1992). Source: Keates and Hahn. Used under a CC-BY-NC licence.*

By paying attention to your own thought process, you can monitor your progress. Are you in need of more information or options? Or do you need to move ahead with evaluation and execution and learning from your experiences? Although not everyone is in the same place, it's very common for university students to benefit from attention to all aspects of this process – starting with analysis of self and options. In the coming sections we'll look at the various phases of the CASVE model of decision-making to help you make informed career decisions. While most students want to start with the question 'What can I do with my degree?', most career counsellors will try to shift the initial conversation to learning more about you as a person. Your unique make-up in terms of personality, skills, values, interests, experiences, connections, and your environment will all greatly influence career directions that you might choose to pursue. As students of psychology, you're well aware there are many ways to try to measure and assess people – from complex formal assessment tools, to mind mapping, journaling, and reflective conversation – and they can all contribute different pieces to your evolving self-understanding.

Using Assessment Tools

Australia has an online National Career Information Service called myfuture (Education Services Australia, 2021), which is a government-funded resource that can be used by students, teachers, career practitioners, parents, and carers. This online service can help people create a personal profile based on a range of different self-assessment tools (e.g., interests, skills, values, work preferences), and explore a range of different study areas and occupations of interest that align with their profile. There are 358 occupation profiles that describe the tasks and skills involved in each occupation, and incorporate a wealth of current labour market information about those

occupations. The myfuture website also has information about over 15,000 higher education and vocational education and training (VET) courses. Other freely-available career assessments are included in **Table 2.5**.

Table 2.5 Free Online Personality and Career Assessments

Assessment	Description	Link
IPIP-NEO Personality Assessment	Based on Big Five research, the International Personality Item Pool (IPIP)-NEO measures the personality traits of Agreeableness, Neuroticism (Emotional Stability), Openness to Experience, Extraversion, and Conscientiousness	http://www.personal.psu.edu/~j5j/IPIP/
O*NET Career Interest Profiler	O*NET Interest Profiler is sponsored by the U.S. Department of Labor, Employment & Training Administration and and developed by the National Center for O*NET Development.	https://www.mynextmove.org/explore/ip
Life Values Inventory	Helps you clarify your personal values to make more effective decisions	https://www.lifevaluesinventory.org/
VIA Character Strengths	Based on Positive Psychology and the work of Christopher Peterson and Martin Seligman. It focuses on assessing character strengths.	https://www.viacharacter.org/

Assessment by Self-Reflection

A number of popular career books outline reflection activities that can help you make sense of your current career situation, often partly involving looking backwards at past experiences, or collecting data from current experiences. In our work with students, we've found the reflective activities listed in **Table 2.6** to be particularly useful.

Table 2.6 Career-Related Reflective Activities

Activity	Instructions
Mind mapping – a creative open-ended way of pouring out ideas to mine your experience for insights	Start with a large blank piece of paper and write your name in the middle. Then, radiating outwards, write out any idea that comes into your head as potentially relevant for your future – it could include past jobs, hobbies, mentors, strengths, fears, dreams, etc…
Journaling – to track daily experiences of engagement	Start paying attention to your daily experiences and record how each activity went in terms of your subjective experience – what you enjoyed, did well, or disliked.
Experience reflections – a variety of exercises for personal clarification	Write down key career stories from your past where things were going well – and reflecting on the meaning in terms of skills, interests, or values for you personally.

For more ideas and reflective activities, you may want to consult a career planning book like some of these popular titles students have enjoyed in the past:

- *You Majored in What?* by Katharine Brooks, Ed. D.(2010)
- *Designing Your Life* by Bill Burnett & Dave Evans (2018)
- *What Colour is Your Parachute?* by Richard Nelson Bolles (2018)
- *Business Model You: A One-Page Method for Reinventing Your Career* by Tim Clark, Alexander Osterwalder, and Yves Pigneur (2012)

Assessment Through Other's Perspectives and Support

Another rich source of information about ourselves can be other people around us. Family, friends, coworkers, supervisors or teachers could all offer perspectives that can complement your own internal reflection or results from formal assessments. You can ask important people (between 5 and 10) who know you well for their perspective on your key strengths, weaknesses, or personal

qualities. Finally, you may want to consider getting help with the self-assessment process by talking to a professional career development practitioner. Many universities have some form of careers centre on campus that provides career advising or counselling to students and you can also seek out private career practitioners via the Career Development Association of Australia (CDAA). Career counsellors and practitioners are trained to guide you through the process of reflecting on yourself, exploring possibilities, and making plans to move towards your goals. Often, having a conversation with an unbiased person who does not know you personally can help you get clarity and perspective on your situation to help you feel more confident in knowing what directions are personally meaningful to you. Talking to a qualified career development practitioner can be very helpful if you're not sure which direction you'd like to take or if you're weighing up different options.

In our Case Study podcasts for this chapter, we discuss some typical career questions that prospective or current students may have about studying psychology. The people in the case studies are fictitious and all names are pseudonyms, but the issues are drawn from real issues that have been presented by people who have sought careers counselling. An overview of the case studies are found below, along with an audio recording for you to listen to.

Case Study 2.1: Diana

Diana is a 43-year-old who graduated with a Bachelor of Science (Psychology) 10 years ago. Diana has worked in community services as a project officer and now wants to continue her psychology studies to become a clinical psychologist. Listen to Diana's case study below.

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://usq.pressbooks.pub/psychologycareers/?p=63#audio-63-1

Case Study 2.2: Carly

Carly is 19 years of age. She has just returned from a gap year of travel after high school and now wants to apply for a university degree. As a trained musician, she has known many professional musicians who have struggled with mental health and this has led to Carly wanting to focus on this area in her career. She is unsure if she should focus on psychology or counselling. Listen to Carly's case study below.

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://usq.pressbooks.pub/psychologycareers/?p=63#audio-63-2

Case Study 2.3: Jim

Jim is 49 years of age. He has been a qualified mechanic for over 30 years and wants a career change. He is interested in psychology, but he is worried about not having strong maths knowledge. Listen to Jim's case study below.

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://usq.pressbooks.pub/psychologycareers/?p=63#audio-63-3

Case Study 2.4: Ben

Ben is 32 years old. He graduated with a Bachelor of Education (Secondary) five years ago and has since been teaching maths and history in a high school. Ben has become very aware of the psychological support needed by many of his students and their families and wants to find out more about studying psychology or counselling. Listen to Ben's case study below.

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://usq.pressbooks.pub/psychologycareers/?p=63#audio-63-4

Learning about oneself is not a one-time event, but rather an ongoing process that unfolds over our lifetime. Not only do we come to understand ourselves in deeper ways, but we also continue to change and evolve from our experiences – meaning that a situation that might be a good fit for us in our twenties, may no longer be a good fit in our thirties or forties.

EXPLORING CAREER OPTIONS

This book is an excellent starting point for exploring your career options related to psychology – it will provide a solid overview of some of the most common pathways you might want to consider, as well as some new ideas you hadn't thought of before.

Formal Sources of Information

To take this research further, and explore possibilities not covered here, you may want to consult other sources of career information such as:

- Job Outlook – To access information on wages, outlooks, education, skills, and more.
- Myfuture – To access information about occupations and study options.

- LinkedIn – Similar to Facebook in terms of profiles and newsfeed, but offers a powerful search tool including the ability to search alumni by institution to see what others have done with your degree.
- Professional Associations – Most occupations have a professional association. For example, the Australian Psychological Society (APS) is the professional association for psychologists in Australia and is a source of valuable information about careers in psychology
- The Australian Health Practitioner Regulation Agency (AHPRA) – Has lots of information about the registration requirements for psychologists and a range of other health professions.
- Career books – Your campus careers centre may have a resource library featuring books with occupational information that can help you go more in-depth in areas of interest.

Informal Sources of Information

Speaking to professionals working in areas of interest can be a valuable source of insight (known as information interviewing). Conducting an informal career-related interview with someone who works (or has worked) within and understands the industry sector or occupation you are pursuing can provide you with valuable insights. An informational interview can provide you with:

- information about work and industry sector trends
- employment opportunities and the different roles available
- a strong understanding of skills, experience or qualifications required for various occupations
- new professional connections to both people and industry-related associations or agencies.

Questions You Could Ask in an Information Interview

1. What interests keep you going in your work?
2. What skills are essential in doing your work?
3. What are your work/life fit preferences (values and needs) that are met in this work?
4. If you were going to start again in this field of work today, what would you do to be really ready? (What training and experience would you need to have? What would be some great ways to get it?)
5. What professional associations do you rely on to keep up-to-date? What publications, organisations, or people do you suggest I contact for more information?

Synthesis and Valuing

As you collect information on yourself and possible careers, you'll be moving into the next phase of the CASVE model – of synthesising options and valuing potential directions based on the information you found which helps you move into the execution phase of testing out your ideas. If

your research doesn't provide an obvious career direction to explore, it may help to work through more systematic analyses of your findings. This can be as simple as a chart of pros and cons for each career of interest to help you get a more holistic view of each option. For a more in-depth analysis, consider using a matrix to rank the options against a set of important criteria. For example, someone might analyse three career paths of psychologist, marketing professional, and lawyer, and explore them in terms of pay, satisfaction, creativity, status, and investment required in training. Alternatively, you might benefit from talking through your various options with family and friends, or seeking professional help from an impartial career counsellor to help you clarify your thoughts and feelings.

Execution and Taking Action

Although collecting and analysing information is very useful, it's important to balance research with action and experience. By testing out your career ideas, you can get very important firsthand experience that can tell you more about your potential career directions. Planned Happenstance and Chaos Theory tell us of the impossibility of knowing the future in great detail, and the value of taking action despite this. As you move forward gaining various experiences from coursework, extracurricular activities, part-time work, volunteering, and otherwise, you'll likely learn new information about yourself and the world of work that could inform and alter your career direction. As you move forward learning from your coursework and other experiences, you'll also be developing marketable experience that will be valuable in future applications to work or graduate school. While initially pursuing a broad range of experiences can be beneficial, at a certain point, starting to focus on a few specific directions will likely help you be more strategic in your involvement. Considering what you've learned in the research stage about careers of interest can help you prioritise the development of key skills to help you pursue the well-rounded education needed to be successful in your next step.

The Value of Ongoing Reflection

To get the most of your time at university, it's important to complement your education and experiences with ongoing reflection. In fact, a recent study showed that employees who reflected for 15 minutes daily performed 23 per cent better at their work after 10 days than employees who did not participate in the reflection (Di Stefano, Gino, Pisano, & Staats, 2014). Not only does ongoing reflection reinforce your learning and inform decisions, but it will also help you when it comes time to apply to jobs or school as it will help you to articulate the value of your experience and skills to potential employers or graduate programs. You may want to consider some key questions after or during new learning experiences such as courses, extracurricular activities, or work:

- What was challenging about this experience? How did I overcome it? What results did I achieve?
- What impact did I have on those around me, on my environment, or on myself?
- How did this change me? What do I do or see differently now?
- What is most significant about this experience for me? For a potential employer?
- What areas of growth does it show for me? What skills did I develop?

Likewise, we encourage you to reflect on your learning throughout this course. As you learn about various possible career paths, connect them back to your personal experiences and what you're

learning about yourself. Are they a good fit? Why or why not? What is this telling you about what you want or where you want to go?

Conclusion

In this chapter we've covered the following key ideas as you think about how to make sense of the information of this book and apply it to your own career decision-making:

The value of your degree – Your psychology degree can help to prepare you to head in many potential career directions. To position yourself for success, be able to articulate the value of your degree to future employers and postgraduate programs with a clear sense of the skills and knowledge you have gained, and add to this with experience outside of the classroom.

Making sense of labour market information –Integrating knowledge of opportunities and labour market trends with an understanding of yourself can help you make more informed decisions now and in the future.

Consider person-environment fit – But remember it is only part of the equation.

Accept and embrace chance and chaos – Chance and unpredictability are normal. In addition to planning, embrace happenstance – success derives from a combination of planning, preparedness, and taking advantage of luck. Use the five skills outlined by Mitchell et al. (1999):

- Curiosity: exploring new learning opportunities
- Persistence: exerting effort despite setbacks
- Flexibility: changing attitudes and circumstances
- Optimism: viewing new opportunities as possible and attainable
- Risk-taking: taking action in the face of uncertain outcomes

Actively explore possibilities – Proactively exploring careers of interest can give you a sense of direction, ease anxiety, and motivate you to do your best academically.

Get to know yourself – Through formal and informal means, developing a sense of who you are in terms of strengths, values, interests, and personality can help you make better decisions and articulate your value to potential employers or education institutions.

Access resources – Gather information and support with online tools, people in your network, and resources at your university careers centre.

We hope this chapter helps you with your understanding of career development and how to explore your options. The other chapters in this book will provide you with information about a diverse range of career options within the field of psychological science.

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REFERENCES

American Psychological Association. (2009). *Psychology and global climate change: Addressing a multifaceted phenomenon and set of challenges. A report of the American psychological association task force on the interface between psychology and global climate change.* https://www.apa.org/science/about/publications/climate-change-booklet.pdf

Amundson, N. E. (2010). *Metaphor Making: Your career, your life, your way*. Ergon Communications.

Arthur, N., & Collins, S. (2014). Diversity and social justice: Guiding concepts for career development practice. In B. C. Shepard, & P. S. Mani (Eds.). *Career development practice in Canada* (pp. 77–104). Canadian Education and Research Institute for Counselling.

Australian Bureau of Statistics. (2020). *8160.0.55.005 – Quarterly counts of Australian businesses, experimental estimates, 2019 – 2020.* https://www.abs.gov.au/ausstats/abs@.nsf/mf/8160.0.55.005

Australian Health Practitioner Regulation Agency. (2015). *AHPRA FAQ: About the national scheme*. https://www.ahpra.gov.au/~/link.aspx?_id=D4E5EF420D3C4EAB8B247FDB72CA6E0A&_z=z

Australian Health Practitioner Regulation Agency. (2021). *Homepage*. https://www.ahpra.gov.au/

Australian Psychology Accreditation Council (2019). *Accreditation standards for psychology programs: Effective 1 January 2019.* https://www.psychologycouncil.org.au/sites/default/files/public/APAC_Accreditation_Standards_2018_Jan_Version_for_Online_Publishing_Single.pdf

Australian Psychological Society (APS). (2020). *Psychology and climate change position statement – revised June 2020.* https://www.psychology.org.au/getmedia/c876613b-7f96-4456-8975-1a82190ec1d2/20APS-Position_Statement-Psychology_Climate-change.pdf

Australian Psychological Society (APS). (2021). *Study pathways*. https://www.psychology.org.au/Training-and-careers/Careers-and-studying-psychology/studying-psychology/Study-pathways

Blustein, D. L. (2013). The psychology of working: A new perspective for a new era. In D. L. Blustein (Ed.), *The Oxford handbook of the psychology of working* (pp. 3–18). Oxford University Press.

Bridgstock, R. (2009). The graduate attributes we've overlooked: Enhancing graduate employability through career management skills. *Higher Education Research &*

Development, 28(1), 31–44. https://www.tandfonline.com/doi/abs/10.1080/07294360802444347

Bright, J. E., & Pryor, R. G. (2005). The chaos theory of careers: A users guide. *The Career Development Quarterly, 53*(4), 291–305. https://doi.org/10.1002/j.2161-0045.2005.tb00660.x

Brooks, K. (2010). *You majored in what? Designing your path from college to career*. Plume.

Brown, D., & Crace, R. K. (2002). *Life values inventory facilitator's guide*. https://www.lifevaluesinventory.org/LifeValuesInventory.org%20-%20Facilitators%20Guide%20Sample.pdf

Burnett, B., & Evans, D. (2018) *The designing your life workbook: A framework for building a life you can thrive in.* Potter/Ten Speed/Harmony/Rodale. https://designingyour.life/the-book/

Clark, T., Osterwalder, A., & Pigneur, Y. (2012). *Business model you*: *A one-page method for reinventing your career*. Wiley. Commonwealth of Australia. (n.d.). *Job Outlook*. https://joboutlook.gov.au/

Commonwealth of Australia. (2013). *Core skills for work developmental framework: Overview. https://www.dese.gov.au/uncategorised/resources/core-skills-work-developmental-framework*

Damon, W., Menon, J., & Bronk, K. C. (2003). The development of purpose during adolescence. *Applied Developmental Science*, *7*(3), 119-128. https://doi.org/10.1207/S1532480XADS0703_2

Di Stefano, G. D., Gino, F., Pisano, G. P., & Staats, B. R. (2014). *Learning by thinking: How reflection aids performance*. SSRN Electronic Journal. https://www.researchgate.net/publication/272302319_Learning_by_Thinking_How_Reflection_Aids_Performance

Dinklage, L. B. (1968). *Decision strategies of adolescents* (Unpublished doctoral dissertation). Harvard University.

Dubreuil, P. Forest, J., & Courcy, F. (2014). From strengths use to work performance: The role of harmonious passion, subjective vitality, and concentration. *The Journal of Positive Psychology*, *9*, 335–349. https://doi.org/10.1080/17439760.2014.898318

Duffy, R. D., Blustein, D. L., Diemer, M. A., & Autin, K. L. (2016). The psychology of working theory. *Journal of Counseling Psychology, 63*(2), 127–148. http://dx.doi.org/10.1037/cou0000140

Education Services Australia Ltd. (2021). *Myfuture*. https://myfuture.edu.au/

Gottfredson, L. S. (1996). Gottfredson's theory of circumscription and compromise. In D. Brown & L. Brooks (Eds.), *Career choice and development* (pp. 179–232). Jossey Bass.

Gratton, L. (2011). *The shift: The future of work is already here*. HarperCollins.

Harackiewicz, J. M., Barron, K. E., Tauer, J. M., & Elliot, A. J. (2002). Predicting success in

college: A longitudinal study of achievement goals and ability measures as predictors of interest and performance from freshman year through graduation. *Journal of Educational Psychology*, *94*, 562–575. https://doi.org/10.1037/0022-0663.94.3.562

Keates, C., & Hahn M. (2019). Introduction to career development. In M. E. Norris (Ed.), The *Canadian handbook for careers in psychological science*. eCampusOntario. https://ecampusontario.pressbooks.pub/psychologycareers/chapter/career-development/

Life Values Inventory. (2021). *Life values inventory* [Homepage]. http://www.lifevaluesinventory.org/

LinkedIn Corporation (2018). *LinkedIn* [Homepage]. https://ca.linkedin.com/

McMahon, M., & Patton, W. (1995). Development of a systems theory of career development. *Journal of Career Development, 4,* 15–20. https://doi.org/10.1177/103841629500400207

Mitchell, K. E., Levin, A. S., & Krumboltz, J.D. (1999) Planned happenstance: Constructing unexpected career opportunities. *Journal of Counseling & Development*, 77, 115–124. https://doi.org/10.1002/j.1556-6676.1999.tb02431.x

Muthukrishna, M., Bell, A. V., Henrich, J., Curtin, C. M, Gedranovich, A., McInerney, J., & Thue, B. (2020). Beyond Western, educated, industrial, rich, and democratic (WEIRD) psychology: Measuring and mapping scales of cultural and psychological distance. *Psychological Science, 31*(6), 678–701. https://doi.org/10.1177/0956797620916782

National Disability Insurance Agency. (n.d.). NDIS. https://www.ndis.gov.au/

Neault, R. A. (2014) Theoretical foundations of career development. In B. C. Shepard, & P. S. Mani (Eds.) *Career development practice in Canada: Perspectives, principles, and professionalism* (pp. 129–150). Canadian Education and Research Institute for Counselling. https://ceric.ca/resource/career-development-practice-in-canada-perspectives-principles-and-professionalism/

Nelson Bolles, R. (2018) *What Colour is Your Parachute?* Ten Speed Press. https://www.parachutebook.com/

Niles, S. G., & Harris-Bowlsbey, J. (2013) *Career development interventions in the 21st Century* (4th ed.). Pearson.

Oliver, B., & Jorre de St Jorre, T. (2018). Graduate attributes for 2020 and beyond: Recommendations for Australian higher education providers. *Higher Education Research & Development, 37*(4), 821–836. https://doi.org/10.1080/07294360.2018.1446415

Organisation for Economic Co-operation and Development (OECD). (2020). *OECD economic outlook, June 2020: The world economy on a tightrope – the global outlook is highly uncertain.* http://www.oecd.org/economic-outlook/june-2020/

Organisation for Economic Co-operation and Development (OECD). (2021). *Coronavirus*

(COVID-19): Focus on the global economy. https://www.oecd.org/coronavirus/en/themes/global-economy

Patton, W., & McMahon, M. (1999). *Career development and systems theory: A new relationship*. Brooks/Cole.Patton, W., & McMahon, M. (2006). *Career development and systems theory: Connecting theory and practice (2nd ed.)*. Sense Publishers.

Pryor, R. G, & Bright, J. (2014). The Chaos Theory of Careers (CTC): Ten years on and only just begun. *Australian Journal of Career Development*, *23*(1), 4–12. https://doi.org/10.1177%2F1038416213518506

Psychology Board AHPRA. (2019). *Registration*. https://www.psychologyboard.gov.au/Registration.aspx

Psychology Board AHPRA. (2021). *Accreditation*. https://www.psychologyboard.gov.au/Accreditation.aspx

Quality Indicators for Learning and Teaching (QILT). (2020). *2020 Graduate Outcomes Survey.* https://www.qilt.edu.au/docs/default-source/resources/gos/2020/2020-gos-national-report.pdf?sfvrsn=478c15e2_3

Quality Indicators for Learning and Teaching (QILT). (2020). *2020 Graduate Outcomes Survey – Longitudinal.* Retrieved from https://www.qilt.edu.au/surveys/graduate-outcomes-survey—longitudinal-(gos-l)

Sampson, J. P., Jr., Peterson, G. W., Lenz, J. G., & Reardon, R. C. (1992). A cognitive approach to career services: Translating concepts into practice. *Career Development Quarterly*, *41*, 67–74. https://doi.org/10.1002/j.2161-0045.1992.tb00360.x

Savickas, *M. L. (2020).* Career construction theory and counselling model. In S. D. Brown & R. W. Lent (Eds.). *Career development and counseling: Putting theory and research to work* (3rd ed., pp. 165–199). John Wiley & Sons.

Savickas, M. L. (1997). *Career Counseling*. American Psychological Association.

Savickas, M. L., & Porfeli, E. J. (2012). Career Adapt-Abilities Scale: Construction, reliability, and measurement equivalence across 13 countries. *Journal of Vocational Behavior, 80,* 661–673. http://dx.doi.org/10.1016/j.jvb.2012.01.011

Smith, E. E. (2017). *The power of meaning: Crafting a life that matters*. Rider Books.

Snyder, C. R., Shorey, H. S., Cheavens, J., Pulvers, K. M., Addams, V. H., & Wiklund, C. (2002). Hope and academic success in college. *Journal of Educational Psychology*, *94*, 820–826. https://psycnet.apa.org/doi/10.1037/0022-0663.94.4.820

U.S. Department of Labor. (2021) O*Net Online* [Homepage]. https://www.onetonline.org/

VIA Institute on Character. (2021). Homepage. https://www.viacharacter.org/

VIA Institute on Character. (2021). *VIA Assessments Psychometrics* [Webpage]. https://www.viacharacter.org/researchers/assessments

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CHAPTER 3.

RESEARCH METHODS IN THE PSYCHOLOGICAL SCIENCES

TONY MACHIN AND ERICH FEIN

INTRODUCTION

The field of psychology is characterised by a diversity of research questions related to human thought and behaviour. As such, psychology is organised into several distinct sub-disciplines such as clinical and organisational psychology. Although psychological research spans a wide range of different content areas, there is quite a bit of similarity underlying how psychologists go about answering research questions in these different areas. This is not to say that differences do not exist in the research approaches used within different areas of inquiry. However, these differences are in large part variations in emphasis and in the specific tactics used to accomplish research objectives. The broader principles and fundamental empirical or data-driven strategies guiding psychologists in different sub-disciplines are for the most part the same. Therefore, when using approaches to the discovery and construction of knowledge that differ from these broad principles and strategies, the researchers must endeavour to explain why they have adopted that approach.

If you find you struggle to understand some concepts in this chapter, don't worry – these are topics experts throughout psychology continue to study. Indeed, understanding these concepts takes practice. Recognising that readers have a varied background in this area, there is a keyword index at the end of this chapter. Further, there are many additional resources to help you learn more about these topics. Open access (free) supports for statistics basics include Andy Field's (2019) Discovering Statistics, the Noba Project (2021), and Daniel Lakens (2019) has a low-cost course titled Improving Your Statistical Inferences. These resources are not a substitute for a university course in research methods or statistics, but they can provide supportive background information if you want to build a stronger foundation in these key areas.

The principles and procedures that guide psychologists' exploration of research questions are what we typically refer to as 'psychological research methods'. The goal of this chapter is to introduce readers to the key principles that nearly all psychological scientists rely on when conducting psychological research. Understanding research methods is obviously essential for any student whose ultimate goal is to embark on a career as a research psychologist in either academia or an applied setting. However, it's also important for many non-research careers – for example, many professions require employees to be 'consumers' of psychological research. These individuals might not conduct research, but will often draw upon prior research to develop plans of action to help accomplish their objectives (e.g., advertising firms developing product campaigns, managers attempting to resolve conflicts between employees, etc.). Indeed, even people making decisions in their personal lives might find themselves needing to be consumers of psychological research (e.g., a parent of a child with behavioural problems considering various intervention plans). Regardless of the setting, being an informed consumer of psychological research and

developing your psychological literacy requires an understanding of the key principles that guide how research is conducted.

In discussing psychological research methods, this chapter is based on a series of key steps that a researcher must undertake in conducting any program of research. For ease of presentation, these steps follow a straightforward sequence. This sequence is a logical progression and, as will be seen, some steps cannot really be undertaken without first completing earlier steps. The order of some steps can be reversed or even addressed at the same time. To illustrate this design process, a recurring hypothetical example of a research program will be used: how fear and anger might influence aggression.

We (Tony and Erich) have adapted the original chapter created by Vaughan-Johnston, Fabrigar and Lawrence (2019) to reflect the Australian context and fully accept responsibility for the revised chapter and any errors or omissions.

KEY STEPS IN THE RESEARCH PROCESS

Formulating Research Questions

The first step to any program of research is formulating the research question. Ultimately, any study is only as useful as the research question it's designed to address. Additionally, as will be seen, many of the decisions made in later stages of the research process are informed by the nature of the question a study intends to answer.

Descriptive Versus Inferential Research Questions

When formulating a research question, the first issue to address is whether the goal of the research will be primarily descriptive versus inferential in nature. *Descriptive research questions* largely focus on describing one or more psychological or behavioural constructs in a given domain of interest. For example, a researcher studying aggression might be interested in the prevalence of verbal aggression in the workplace. This researcher might wish to determine the proportion of employees in Australian or New Zealand workplaces who have been verbally demeaned or insulted by their co-workers. In addition, there are several large-scale studies of work and life balance in Australia, such as the Australian Work-Life Index (Fein, Skinner, & Machin, 2017), which include variables related to aggressive supervision.

Although psychological research is sometimes primarily descriptive in nature, most psychological research is predominantly inferential in its goals. *Inferential research* involves the exploration of relations among psychological and behavioural constructs. For example, in the context of aggression, a researcher might want to know what characteristics of workplace employees are associated with them being perpetrators of verbal aggression. In this case, a well-developed study may suggest that certain characteristics of individuals (e.g., personality) and situations (e.g., abusive supervision) may contribute to causing verbal aggression. Clearly, both types of research question (descriptive and inferential) are useful and interesting. However, if we ultimately want to understand why something occurs and/or how we can influence it, research must move beyond the purely descriptive level and begin to address inferential questions.

Exploratory Versus Confirmatory Research Questions

Assuming an inferential research question, the next consideration is whether this question will be approached in an exploratory or confirmatory manner. In *exploratory research*, researchers do not have specific expectations, but rather more general notions regarding the answer to the question. For example, a researcher interested in what characteristics are associated with the likelihood of

being a perpetrator of verbal aggression in the workplace might measure a wide range of different characteristics of employees (e.g., their proclivity to experience different emotions, their level of seniority in the organisation, various personality traits) and then conduct analyses to see which characteristics are associated with aggression. In contrast, for *confirmatory research*, the researcher specifies what factors are likely to cause aggression and perhaps even when and why such factors have their effects. These *hypotheses* are generally derived from past research and/or some theory regarding the phenomenon of interest. The researcher then focuses attention primarily on those factors that have been hypothesised to produce the outcome of interest.

Both approaches have their advantages and limitations. The strength of exploratory research is that it encourages researchers to think broadly about the phenomenon of interest and maximises the opportunity of stumbling on unexpected discoveries. However, although exploratory studies often consider a wide range of possibilities, they are rarely optimal tests of any single explanation. In contrast, confirmatory studies tend to have a narrow focus, but usually provide more systematic and complete tests of the factors they are designed to explore. For instance, if a study must cover a wide range of different characteristics of employees that could predict their proclivity to engage in verbal aggression, it might not be feasible to extensively measure each factor (e.g., the researcher might only be able to include a few questions measuring each factor). In contrast, if a researcher has explicitly postulated that tendency to experience the emotions of fear and anger are major determinants of aggression, the researcher might be able to include very extensive measures of each emotion, and perhaps even multiple different types of measures of each emotion. The two approaches, however, are not mutually exclusive. Indeed, often a program of research will adopt an exploratory approach in its early phases and then gradually transition to a more confirmatory approach.

Basic Versus Applied Research Questions

A final consideration during the research question formulation stage is whether the study will be designed to primarily address a basic (i.e., theoretical) research question versus an applied research question. Basic research is aimed at formulating and testing fundamental psychological principles governing a domain of interest. For instance, a researcher might be interested in developing a theory of the role of emotions in aggression. The goal of this researcher is to develop principles that explain which specific emotions either increase or decrease aggression and why these emotions have the effects they do on aggression. Thus, the goal is to arrive at a fundamental understanding of the relations among the constructs of emotions and the construct of aggression.

In contrast, applied research questions tend to focus on a specific problem. They typically emphasise predicting or influencing an outcome rather than focusing on understanding why that outcome is predicted or influenced by a given factor. Indeed, applied research questions often focus on the effects of a specific measure or intervention with less concern as to why that measure or manipulation accomplishes its goal and/or the effects of the broader construct of interest that measure or intervention is presumed to represent. However, some applied research will also include a consideration of potential theoretical or conceptual causes because such frameworks provide a foundation for future research. For example, an applied researcher might be interested in testing if a specific measure of anger predicts employee aggression or if a specific anger management program lowers employee aggression. In this case, the research could test the impact of the anger management program on employee aggression and might explain his or her results with a conceptual model.

As with other distinctions, the basic versus applied research question distinctions are not mutually exclusive. Often basic research might have the ultimate goal of developing principles that can be used to solve applied problems. Likewise, the exploration of applied questions can

often contribute to the understanding of basic questions. Thus, this distinction is more a matter of emphasis than a fundamental difference in the nature of the research question being addressed. However, this difference in emphasis does have implications for the methodological decisions that a researcher might make at subsequent stages of the research process.

Selecting Dependent Variables

Once a researcher has formulated a research question – and presuming that question is inferential in nature – the researcher's next step is to determine the specific constructs of interest. More precisely, constructs are those psychological elements within people and groups thought to vary across people and/or situations. Although the goal of all inferential research is to determine the relationship between constructs, some of this research involves merely finding associations between constructs, whereas other studies test hypothesised causal relationships among the constructs(s) of interest. A researcher cannot assess 'fear', 'aggression', or other constructs directly, but instead selects specific measures that represent constructs in an observable way. Measures representing the outcome constructs in hypothesised relationships are called 'dependent variables' because they are conceptualised to be dependent on the levels of one or more independent variables – a topic that will be addressed later in the chapter.

After having determined the constructs that one intends to study, one must more precisely define them. Some constructs are more easily defined than others. For example, when measuring psychological constructs such as personality, there are numerous conceptualisations of personality, including the Big Five and HEXACO frameworks. In contrast, physical traits such as height and weight often have widely-accepted definitions that are consistently applied across domains of research. Keep in mind that how a researcher chooses to define the study variables will affect the results of the study, the comparability of outcomes to other studies that have researched the same constructs, and one's ability to operationalise the constructs in a way that will allow for feasible, sensible, and meaningful measurement.

For example, there are a broad range of ways to characterise aggression (e.g., Archer & Coyne, 2005). For some research questions, a broad conceptualisation that includes indirect, relational, and social aggression may be very useful. In other cases, a very specific definition of aggression as 'causing physical harm to others' may be preferable. Even within this seemingly narrowed conceptualisation of physical harm, important conceptual questions require answering: for example, should the mere desire or wish to cause physical harm count, or only aggressive actions that are actually expressed by a participant?

Operationalisation is the formal term for the specific definition of constructs with linkage to specific measures. For example, if one wishes to measure an individual's aggression, the experimenter must decide how – that is what method of instrumentation – should be utilised to obtain an accurate measurement (e.g., using a self-report scale, observational techniques). Thus, one possible operationalisation of individual aggression could be self-report using the Aggression Scale (e.g., Orpinas & Frankowski, 2001). Researchers usually hope they can make inferences from the measure back to the construct the measure is trying to capture. When operationalising dependent variables, one must aim to select measures that are sensitive enough that the influence of the independent variable on the dependent variable can be detected. Measures should strive to accurately capture a construct of interest – a topic that will be discussed in detail later as *construct validity*.

Level of measurement. There are four major categories of measurement level. *Nominal scales* involve any measure for which scores are given as categorical labels. For example, in our fear/anger and aggression study, we might assess participants' cultural background (e.g., German, Chinese) as a nominal variable. Notice that nominal scales like this do not imply any rank ordering

of the categories. That is, cultures like Germany or China are not options that vary along a single continuum of provided options, but are categories that are selected.

Conversely, *ordinal scales* provide a rank ordering of the categories. For example, a measure might ask people to rank-order several aggressive thoughts they are experiencing from most to least aggressive. Here the response options are ordered from most aggressive to least aggressive: a single continuum. However, also recognise there is no standard distance between the rankings: that is, the psychological distance implied by the gap between the first and second most aggressive thoughts would not be expected to match the distance between the fourth and fifth most aggressive thoughts.

Interval data provides response options that are equally spaced. In psychology it is often difficult to create truly interval scaling. Imagine a self-reported anger scale ranging from 1 (slight anger) to 2 (moderate anger) to 3 (strong anger). The psychological distance between response options such as slight to moderate, versus moderate to strong, although intended to be equal, might not necessarily be equivalent to one another, making it difficult to form truly interval measurements. However, when multiple items are aggregated together, pseudo-interval scaling often functions quite similarly to true interval scaling, and such aggregated ordinal data can often be treated statistically as though it were interval (Harpe, 2015).

Ratio data additionally adds a true zero point. For example, if participants' punching a doll is used as a behavioural measurement of aggression, zero punches indicate a complete absence of this behaviour. This matters, for example, when multiplying using the scale, comparing between levels on the scale. A 2 on a self-report scale of anger does not indicate 'twice' as much anger as a 1, but a person who punches a doll twice has engaged in twice as much of this type of aggression compared to someone who punches once.

METHODS OF MEASUREMENT

There are methods of measurement routinely used in psychology. The most common method of measurement used in psychology is *self-report measurement*. These measures ask participants to verbally report their standing on the psychological or behavioural construct of interest, typically using some form of structured rating scale. Self-report tools are usually considered to be *direct measures* because participants are directly asked to assess their own psychological attributes. Examples include the Beck Depression Inventory (Beck et al., 1996) or the NEO Five-Factor Inventory (Costa & McCrae, 1991). One issue that commonly arises when using self-report measures is that they are susceptible to *socially desirable responding* (Paulhus, 1991), meaning that respondents may distort their responses in order to present themselves favourably. For example, people may understate how much anger or fear they're feeling if feeling these emotions strongly is considered inappropriate. Another issue is that people may not always be able to provide accurate self-report responses. For example, self-report responses are influenced by the cognitive accessibility of relevant information (e.g., Strack et al., 1988), making these responses susceptible to influence based on how questions are framed. Additionally, people may simply not have perfect introspective self-awareness (Nisbett & Wilson, 1977), and therefore not be capable of accurately describing why they think or feel certain ways.

Another common method of data collection is the use of *indirect measures*, which refer to tools that assess participants without directly asking them to provide self-assessment of their psychological attributes (De Houwer, 2006; Gawronski & De Houwer, 2014). A quite common form of indirect measure is *implicit measurement*, referring to measures that assess relatively uncontrolled and automatic types of participants' responses. Examples of implicit measures include the Name-Letter Task (NLT; LeBel & Gawronski, 2009; Nuttin, 1985), the Implicit

Association Test (IAT; Greenwald et al., 1998), and the Affect Misattribution Procedure (AMP; Payne et al., 2005). Although these implicit measures are quite diverse in form, they work by assessing reaction time, or subtle response patterns that would be difficult to deliberately control. For example, implicit measures often assess how quickly people pair objects together, following the logic that similar objects or ideas are 'congruent' for respondents, and are easily categorised together. For example, people who pair 'good' with 'white' quickly, but 'good' with 'black' slowly may be viewed as preferring white over black people. Other implicit measures suggest that underlying feelings about an object can be assessed by how respondents' feelings spill over onto stimuli presented shortly after. The AMP, for example, exposes participants very briefly to an image of an attitude object (a prime), and then asks them to rate their opinion towards a neutral stimulus (e.g., rating how much they like a meaningless shape). Individuals who rate the neutral stimulus as 'bad' after viewing a particular prime are viewed as having a negative opinion of the prime object (Payne et al., 2005).

One reason that indirect measures are often championed is that they are thought to be highly resistant to social desirability concerns (Petty et al., 2012). For example, when measuring racial attitudes with a self-report scale, psychologists may be concerned that respondents would have a powerful motivation not to admit racist attitudes. An indirect measure can subvert these social desirability concerns by measuring extremely subtle reaction time differences that would be difficult to control. It may be noted that some research has identified specific conditions whereby respondents can occasionally control 'implicit' responses (Klauer & Teige-Mocigemba, 2007), but generally respondents will find it much more difficult to deliberately control their responses on these tasks. Thus, implicit measures may not be completely immune to social desirability or other motivated control attempts, but they are highly resistant to such response biases.

One common observation about implicit measures is that they do not always show high levels of convergence with their explicit counterparts. Although critics have sometimes framed this low convergence as a problem, low correlations may simply suggest that implicit measures capture unique variance in constructs that traditional self-report measures fail to capture. Importantly, this implies that direct and indirect measures may have *incremental validity* in predicting behaviours – meaning using both types of measure to predict behaviour is more powerful than using only using one type of measure. Reviews have shown that incremental validity of implicit and explicit attitudes can indeed be observed (Friese et al., 2008). Furthermore, each type of measure may be uniquely helpful in specific contexts. In conditions where people are deliberate and thoughtful, *explicit measures* have better predictive power, whereas implicit measures are better used to predict spontaneous behaviour (Asendorpfet al., 2002).

Oftentimes in psychology, psychological processes are inferred based on physical changes that occur in participants' brains or other bodily regions. *Physiological measures* record processes such as voltage fluctuations in brain neurons (i.e., brain activity) captured using electroencephalography (EEG), metabolic processes using positron emission topography (PET), and blood flow in the brain using functional magnetic resonance imaging (fMRI). For example, some researchers have assessed people's fear responses by assessing activation of their amygdala region through techniques including magnetoencephalography (Moses et al., 2007). Cacioppo and Tassinary (1990) have chronicled some of the impressive advances in neuropsychology's ability to non-invasively examine brain activity. Like implicit measures, physiological measures are often seen as preferable to self-report measurement because they can obviate participants' attempts to control their responses. Although these measures therefore have great value in addressing certain concerns, one general limitation of these methods is that because of the complicated technology required, their administration requires highly specialised technicians, and they are therefore costly and time-consuming to use. More substantively, numerous neuropsychologists have warned

readers about the dangers of over-assuming causal relationships between brain 'signals' and participants' emotions, thoughts, or actions (Cacioppo et al., 2003).

Just as implicit and physiological measures operate by capturing respondents' uncontrollable reactions, *observational measures* allow social scientists to obtain information from their subjects through evaluating participants' overt behaviours. Observations can be made with or without participants' awareness that such observations are occurring. For example, aggression has been measured by measuring how much hot sauce participants put into a glass of water supposedly intended for the next participant to enter the laboratory, with large amounts of hot sauce indicating an aggressive behaviour (Lieberman et al., 1999).

RELIABILITY AND VALIDITY

A comprehensive explanation of the development of new measures goes beyond the scope of this chapter, but guidelines are available for interested readers (John & Benet-Martinez, 2014; Simms, 2008). The following section instead focuses primarily on issues of measurement reliability and validity – two fundamental psychometric properties.

Although both reliability and validity in measurement are crucial, reliability is required for a measure to be valid, but validity is not required for a measure to be reliable. In principle, *reliability* simply refers to the consistency with which a measure provides the same information, although it comes in many forms. For example, psychologists may measure the same construct in the same people across a span of time, using the same measure. If a measure provides consistent measurements across time, and the construct it assesses remains stable, people who score low or high at one time point should continue to do so later – this is called *'test-retest reliability.'* Of course, constructs that are expected to change across time (e.g., acute experiences of fear) don't typically get measured with high test-retest reliability, because participants' responses change due to the fleeting nature of emotion. However, many traits are thought to be relatively stable across the lifespan, such as personality (Costa & McCrae, 1993), and high test-retest reliabilities serve to indicate that these constructs' measures are providing consistent information.

Another tool for assessing reliability is the extent to which independent evaluators judge something in an equivalent manner: *'inter-rater reliability."* For example, if observers were asked to evaluate aggressive behaviour displayed by participants, inter-rater reliability would be high if all the judges observed and recorded a similar number of aggressive behaviours. If judges' evaluations completely differed from one to the next, this would be evidence that their observations lack reliability – that is, lack consistency. Similarly, when evaluating various items that are thought to assess the same underlying construct, 'internal consistency' refers to when items correlate highly with one another due to respondents answering in a consistent way across items (Henson, 2001). For example, a highly fearful individual should express that they are 'terrified', 'frightened', as well as 'scared'. The core principle is consistency: consistent responses to these items by the same respondents would indicate that the items are reflecting the same construct, meaning that they have reliability.

After operationalising your measures, it's also important you ensure that your measure displays *validity*. A measure is valid insofar as it quantifies accurately what it purports to measure. *Construct validity* refers to the degree to which a measure specifically and sensitively captures its intended construct (Cook & Campbell, 1979; Shadish et al., 2002). Although methodology texts often introduce dozens of unique types of validity as though each were completely separate, many of these are best viewed as similar types of evidence that allow researchers to determine if a measure has construct validity. After collecting these multiple types of evidence, researchers would unify them into a coherent argument for construct validity. For example, *'criterion validity'*

is the extent to which a measure is associated with other measures that should logically be related to its construct. This is really evidence of a measure's construct validity – if a measure effectively captures its construct, it should be related to things that its construct relates to. For example, when developing a self-reported fear measure, this fear measure should be related to avoidance behaviours, because people are motivated to avoid things that frighten them. If they do correlate, this is consistent with the notion that the fear measure is accurately or validly measuring fear. Similarly, methodologists refer to *'discriminant validity'* when a measure shows minimal associations with irrelevant variables. For example, a fear measure should not be closely associated with social desirability measures. Indeed, if a fear measure was negatively related to a social desirability measure, it might indicate that people are denying any fear that they feel due to social desirability concerns such as not wanting to sound afraid. This would threaten a fear measure's construct validity, because the fear measure would no longer only be measuring fear.

If a measure appears to reflect its construct according to either experts or laypeople, then it is said to possess *'face validity'.* Once again, this is evidence of construct validity. If emotion experts think the items on a fear measure are not reflective of fear, this could raise concerns about the measure's construct validity. Interestingly, sometimes it's disadvantageous for a measure to possess face validity. For example, if participants are aware that a scale seeks to measure aggression, then it's likely that participants may disagree with items to appear non-aggressive to the extent that aggression is socially inappropriate or anti-normative. To obtain accurate results it's therefore occasionally advantageous to reduce face validity depending on the construct of interest – in other words, increasing a scale's *subtlety* (Holden & Jackson, 1979).

SELECTING INDEPENDENT VARIABLES

Once the dependent variable has been determined, a researcher selects one or more independent variables (IVs), which represent variables conceptualised as predicting or influencing DVs. Many of the same criteria used to evaluate DVs are also relevant when considering IVs. For example, the reliability and validity of IVs are as important as they are for DVs, and are often assessed in the same ways. Continuing with the example of fear or anger inducing aggression, fear/anger would be IVs – the variables understood to be increasing or decreasing aggression. However, IVs are not precisely like DVs. For one thing, DVs are always measured, whereas IVs may be measured or manipulated. Both measurement and manipulation have some advantages and disadvantages, and each opens up several specific questions for the researcher.

MANIPULATIONS

Manipulations are changes in constructs induced by deliberately stimulating or inhibiting those constructs through some process of the study. One common type of applied psychological interventions are training interventions to affect knowledge and skill. Another example would be clinical and counselling interventions that affect emotional states. In our recurring example involving anger, a manipulation would be any action designed to actively change participants' current levels of anger or fear. As with DVs, researchers must consider the many ways that fear/anger could be operationalised. One could remind participants of a time when they felt fear/anger in their own lives (recalled emotion – e.g., Baker & Guttfreund, 1993) or read fictitious narratives which are intended to make participants experience fear/anger (emotion stimulated by narrative engagement). One could employ *deception* to generate anger – for example, Nisbett and Cohen (1996) had a *confederate* 'accidentally' bump into participants as they walked in a corridor, which elicited anger in participants. Despite being quite different, these are all manipulations designed to stimulate an IV.

One reason to incorporate a manipulation rather than a measure of one's IV is that manipulations have advantages with respect to *internal validity*, which reflects researchers' ability to make causal claims about the relationship between study variables. Imagine measuring fear (our 'IV') and then measuring aggression (our 'DV') just a few moments afterwards. Assuming an association existed between these measures, what could a researcher conclude? It's not clear that fear caused aggression. One other possibility would be that participants were already feeling aggressive before fear was measured. If this were the case, those aggressive intentions caused the participants to feel fear and were still present when the aggression measure was collected. Thus, in this case, fear might just as easily have caused aggression (this risk is sometimes called *reverse causation*). Perhaps more likely, a third construct could be responsible for causing the other two constructs to appear associated. For example, participants may have been experiencing physiological arousal at an earlier point in the procedure. This arousal caused them to endorse the fear items because their heart was racing and their palms were sweating, so they inferred that they were feeling fear. Furthermore, their arousal led them to behave more aggressively. Note that in this case, arousal was actually responsible for both variables seeming to 'increase together' (*covary)*, and no real causal relationship existed between fear and aggression. This threat to internal validity is sometimes called the *third variable problem*.

These types of associations that interfere with the direct relationship between IVs and DVs can pose serious threats to internal validity. Now imagine randomly assigning half of a group of participants to watch a frightening movie scene that results in increased fear, and the other half to watch a non-frightening scene that doesn't increase fear (thus, fear is manipulated). That is, every participant has an equal likelihood of being in any of the experimental conditions. Because people are randomly sorted into these groups, it's unlikely that a third variable caused differences in fear between the two groups. This is because any idiosyncratic individual differences between participants would be distributed randomly across conditions. Instead, differences between the groups are most likely attributable to the manipulation's effects, helping to establish a causal relationship wherein the IV causes the DV. Researchers' ability to make such causal claims are referred to as internal validity.

Thus, a common choice when using manipulations is to incorporate a *control group*, representing the condition in which participants would be if they were not subjected to the part of a manipulation that is of interest to you. For example, consider all the elements of watching a five-minute frightening film clip – five minutes of audio and visual stimuli, the feeling of wearing headphones, sitting in a chair, and (hopefully) feeling fear. A control group controls for as many of these irrelevant aspects as possible, leaving only the fear variable to differ across groups. Thus, a control group might watch a five-minute film clip (sitting down, wearing headphones) of an emotionally 'neutral' scene such as a mechanic fixing a dishwasher. Differences in group behaviours are now hopefully attributable only to fear, rather than sitting, wearing headphones, or film-watching in general, since even a boring dishwasher scene contains all of those elements.

This clustering of participants such that some experience one condition, others experience a different condition, and others experience a control condition is characteristic of a *between-participant design*, which helps to examine causal relationships by *randomly assigning* people to one of two conditions and examining differences emerging between the groups. Alternatively, in a *within-participant design*, participants would each undergo each condition. Re-using the video-watching example, a within-participant design might have all participants watch both clips, measuring aggression after each clip. In this case, no random assignment is required because the same individuals participate in both conditions. However, a researcher will often rotate the order of presentation – half of participants watch the control film before the frightening film, and half watch in the reverse order (this process is sometimes called *counterbalancing* the order

of conditions). Otherwise, the order of film presentation might explain any differences between conditions.

ISSUES OF MANIPULATIONS AND MEASUREMENTS

It's often advisable to consider a similar checklist of priorities when using measures or manipulations. Consider issues of confounding variables. One common objection to measuring IVs is that measures are almost always influenced by constructs other than the one intended. For example, it may be difficult to measure fear without a measurement being impacted by participants' neuroticism (a personality trait in which people experience chronic, negative emotionality). Therefore, manipulations may seem superior because they do not introduce such confounds. However, manipulations may also introduce irrelevant confounds if the manipulation influences constructs other than the one(s) intended (see Fiedler et al., 2012). For example, a manipulation designed to increase fear might also make some participants sad, angry, or surprised, making it harder to deduce what was ultimately responsible for any aggression effects. Thus, whether a researcher measures or manipulates an IV, they should still consider how irrelevant variables may interfere with their study's validity.

Second, issues of *transparency* – or the degree to which participants can understand the true purpose of a study – are relevant to both measured and manipulated IVs. For example, it's usually important that participants don't know the precise hypothesis of a study, lest they simply act as they believe they are supposed to (i.e., *demand characteristics* – Orne, 1962). Suppose a study consists only of measuring fear and anger, before measuring aggression. Participants may deduce that the researcher wants to know whether fear and/or anger predict aggression, and act accordingly (acting either to confirm or disconfirm that hypothesis). One way to avoid this problem is to use one of many measures that are designed to measure a construct subtly, to avoid being obvious about what the experimenter is interested in, as discussed above. Another easy solution is to include *filler measures* – scales that researchers don't want to evaluate, that are included to confuse participants' understanding of the study's purpose. Participants will typically assume that all study measures are relevant to the experimenter's research questions, and therefore these bogus measures will throw off their guessing the true hypothesis.

In some contexts, manipulations may also make the study's purposes transparent. If participants understand what a manipulation is meant to do to them, they may act differently due to their awareness of the experimenter's research goals. Transparency is a particular issue for within-participant designs, because these often imply to participants that the experimenter wants to know how something varies across conditions, each of which each participant has experienced. In between-participant designs, in contrast, the design is often well-hidden simply because participants are not aware of what other participants are experiencing and thus do not know what their responses/actions are being compared against. One precaution that is often sensible is to include a *funnel interview* (Page & Scheidt, 1971). In a funnel interview, participants are asked increasingly probing questions about their experiences in the study and what they thought the study's purpose was. Participants who truly understood the study's purpose will presumably state this when they are asked, and researchers can consider whether to refine the manipulation, cut the data of the suspicious individuals, or else simply run statistical tests with and without suspicious participants included to assess the impact of suspicion.

The concept of construct validity was previously introduced with reference to measurements, but it has applicability to manipulations as well. Consider the previous example of bumping into participants to produce anger. In reality, it was primarily participants who were raised in the Southern, not Northern US states who felt anger at the staged hallway collision (Nisbett & Cohen,

1996) – Northerners quite often felt amused by the experience. This raises a critical question: for whom is a manipulation likely to activate its intended construct? The same stimulus that would frighten a child may not produce fear in adults. The easiest way to determine if a manipulation has construct validity is a *manipulation check* performed either during the study, or on a separate pilot sample. A manipulation check usually asks a participant a question directly related to the construct: for example, after watching a (hopefully) scary film clip, participants may be asked 'How scary was that film?' or 'How scared are you?'. If the fear clip is felt to be scarier than the control clip, elevated fear ratings should be produced.

Context

We next consider elements of research context that a researcher must consider when planning a study. In social science, context generally describes the population of interest (people) and the location and time (setting) in which research takes place. *Context* is of great importance to psychologists for at least two reasons. First, context helps to define how measures and manipulations should be designed to optimally capture a construct (i.e., construct validity). Just as some measures are only effective for children (e.g., 'I want my mummy' as an item measuring fear), some stimuli have different psychological meanings in certain eras. For example, consider how the meaning of the name 'John F. Kennedy' changed from 1962 to 1964 (with his assassination occurring in 1963), or how the words 'John F. Kennedy' might have radically different meanings to a respondent who was alive in the 1960s compared to a respondent who was born in the twenty-first century. This is very important in psychology, because it means that measures and manipulations that were developed originally for one context may or may not work effectively in other contexts. Ultimately, psychological scientists are interested in the relationships between constructs, not measures. Therefore, materials must be found to possess construct validity within a given *context* and within a given *population* before they can reasonably test how constructs interrelate. There is often a trade-off to consider. Materials that are very customised for a specific population may be extremely powerful tools for studying that population, but may require a serious re-evaluation and development process when alternative groups are studied, making generalisation attempts more laborious.

A second reason why context and population matters is because sometimes psychologists want to test the *external validity* or *generalisability* of findings. Suppose psychologists discover that fear does causally produce aggressive responses among children. Of course, it doesn't automatically follow that the same relationship would occur among adults, whose emotional self-regulation abilities may be considerably different. Assuming a construct-valid fear manipulation was employed among adults, and assuming a construct-valid aggression measure was also used, the fear/aggression association could be examined among adults as well. Whether the association emerges or not would then test the external validity of the fear/aggression link – that is, how generalisable the link between variables is.

Participants

In psychology, the *population of interest* is typically a very large group of people about whom the researcher wishes to draw conclusions. Researchers create *inclusion criteria* and *exclusion criteria* to aid in the process of defining the population of interest. The former refers to characteristics that would render a participant eligible to participate, and the latter would disqualify a subject from partaking in the planned data collection. For example, if a social scientist was interested in the aggression levels of criminally-convicted juvenile offenders in Australia, then the inclusion criteria might include age (<18 years). Having no criminal record would be an exclusion criterion.

Measuring every individual in the population of interest is virtually never feasible (Banerjee & Chaudhury, 2010), requiring psychology researchers to test their hypotheses using a subset of the population of interest known as a *sample*. In some cases, researchers aim to obtain a truly *random sample*, which ensures that every member of the population under investigation has an equal probability of being included in the sample. One situation in which random sampling is important is when descriptive analyses are important to a researcher. For example, if researchers want to know accurately what the average aggression level is among Australian juvenile offenders, non-random sampling will likely undermine the accuracy of their descriptive estimates.

Truly random samples are often impossible to obtain (Sweetland, 1972), resulting in the collection of data by means of a *convenience sample*, meaning that a sample is obtained from a more readily available subgroup of the population. University students are a classic example of a convenience sample when the population of interest is 'all people', because students are often easily accessible to researchers – for example, participating in research in exchange for bonus marks in their courses or small cash payments. However, university students may differ from members of the general public in some important respects: they're likely to have greater levels of education, may have a more critical approach to evaluating claims about the efficacy of a product or intervention, and so on. Therefore, a worthwhile consideration is whether a convenience sample differs from the population on specific constructs of interest to a researcher. For example, a perceptual psychologist studying visual perception may consider university students to be quite representative of people with respect to rods and cones in their retinas. To this researcher, the attributes for which university students might be expected to differ from the general population probably would not interfere with testing their key hypotheses.

Other cases may be more ambiguous, and the utility of convenience samples may also depend on the type of research question being pursued. For example, if university students have unusually developed cognitive skills (e.g., memorisation and critical thinking skills), this is likely to bias descriptive research questions about cognitive skills or abilities. Inferential research, however, necessitates closer scrutiny regarding the use of convenience samples when such samples are a tenuous match to the populations of interest. For example, it's unclear whether a convenience sample of university students may effectively map onto a broader population or a population composed of individuals at different ages. For example, a sample of Australian university students may have a different relationship between fear/anger and aggression, compared to children or older adults. That is, the relationship between emotion and aggression (an inferential question) may itself differ across a span of age levels. One possibility, if a researcher is concerned about such age effects, would be to collect a representative sample. However, this solution is not without issues. For example, suppose fear relates to increased aggression in young adults, but that children instead become less aggressive when they're afraid. If a researcher were to engage in equal sampling of children and young adults, the study might show no effect of fear when in fact there are two quite different effects that are masked because the two patterns run in opposing directions. Indeed, if researchers have reasonable grounds to suspect that such differences occur across sample types, they may want to conduct multiple studies, each collecting a sample from a different population. In this hypothetical case, Study 1 would identify the positive fear/aggression association among young adults, and Study 2 would identify the negative association in children. An alternative approach would involve deliberately collecting both groups within a single large study (e.g., half young adults, half children), and then statistically analysing any differences across the groups.

Another consideration regarding population is *sample size* – that is, the number of cases or observations produced by participants in a study. There exist numerous techniques to determine an appropriate sample size, usually termed *power analyses*, but the mathematical basis for these

calculations is too complex to be fully advanced here. In general, larger samples decrease the chance that a finding will represent a statistical 'fluke' or false positive result. This is because as our sample becomes bigger, it better approximates the population that we want to make conclusions about. For example, if 10,000 Australian women were surveyed about workplace aggression, the conclusions that could be drawn about experiences of Australian women related to workplace aggression are more likely to reflect the population of all Australian women than a sample size of 10 Australian women.

Although some psychologists advocate for always maximising sample size, there are a few issues to consider when deciding on an appropriate sample size. Certainly, it is true that a larger sample size increases *statistical power*, or the ability to detect inferential patterns between variables where they truly exist. Similarly, descriptive statistics become more precise with larger samples. However, there are other considerations to take into account when planning research. For example, researchers may become constrained in terms of the methodologies that can facilitate such enormous samples. For example, researchers can collect thousands or even millions of participants through crowdsourcing techniques or mass online testing (e.g., YourMorals.org – Iyer, 2019), but as we detail in a later section, online research has both advantages and disadvantages associated with it.

A final issue prompting close attention to population is how stimuli and measures will be developed for various populations. As previously discussed, scientific research proceeds by using measures and manipulations to operationalise abstract constructs. Thus, it's imperative that measures/manipulations have their intended meanings within each specific population. Consider, for example, if researchers used the same religious questionnaire for a study in both the Gold Coast and in rural Queensland. In this case, religious items may not have the same meaning for both populations because the questions could be perceived differently for a variety of factors – words within the questions could be unknown or have completely different meanings in different populations. Accordingly, some methodologists advocate for *measurement invariance analysis* (Millsap & Meredith, 2007; Widaman & Grimm, 2014), which uses a mathematical procedure to establish whether items of a measure perform similarly across groups at a *psychometric* level. Without establishing, at minimum, the basic levels of measurement invariance, comparisons across groups become suspect. Using the above example again, it becomes problematic to replicate a study on residents on inner-city Melbourne compared to rural and regional Victorians if a psychological measure has a completely different psychometric structure for these two groups.

Setting

A major factor in setting is whether a study takes place in a laboratory, in an online survey, or in a field context. The advantages and disadvantages of these contexts have stimulated productive research and debate. For example, laboratory research has sometimes been criticised as lacking *mundane realism* or being artificial and lacking applicability to 'real-world' situations (Ilgen & Favaro, 1985). However, psychologists rarely attempt to produce contexts that resemble 'the real world' literally, instead focusing on participants' experiences of a study as psychologically meaningful (Berkowitz & Donnerstein, 1982). Recall that construct validity, for example, depends upon measures and/or manipulations being able to capture or produce psychological constructs within participants, such as fear, anger, or aggression. For example, a social rejection experience may be quite fabricated and artificial, but if it feels real to participants then causal hypotheses about the effects of feeling rejected can still be evaluated. Similarly, one might be concerned that participants will know they are being studied in a laboratory and therefore act unusually due to being observed. However, this risk can often be managed. Many experiments use deceptive procedures – or between-participant designs that hide the other conditions from participants –

to disguise the true purpose of the research. For example, studies of bystander apathy examine how participants respond to emergencies (Latané & Darley, 1970). Although psychologists can't ethically place people in real emergencies, they can lead participants to believe they're attending a lab for one purpose, and have a simulated emergency occur, such as a person crying out in pain from an adjacent room. When participants intercede, they believe they're responding to a real emergency disconnected from the experiment, and so concerns about participants 'feeling studied' can sometimes be controlled.

Practically, the laboratory offers many important advantages to researchers, such as the ability to control extraneous variables like time of day, temperature, noise and distractions, and so on. Although a variable like 'temperature' may not immediately seem important to a psychologist, note that room heat has been associated with aggression (Baron & Bell, 1975). Seemingly irrelevant environmental variables can directly influence psychological processes. Furthermore, lab equipment such as physiological measurement equipment, or computers that can assess reaction time, can be made available in a laboratory with relative ease. However, a disadvantage is that some kinds of experiences are not easily cultivated in a laboratory. For example, although psychologists may study group formation in a lab, it's more difficult to study long-term group identity processes within a single-hour lab study, and impractical to have participants attend a laboratory for the years or decades required for some processes to unfold. Similarly, topics such as serious romantic relationships, bereavement, and so on, may be difficult to emulate in a laboratory and may be better studied in their natural contexts.

Although not overcoming all challenges associated with laboratory studies, one alternative context to the traditional laboratory is to conduct research in an online setting. There are several advantages to this setting. It's relatively easy to solicit large samples of participants, particularly when using crowdsourcing technologies such as Amazon Mechanical Turk or Crowdflower. Furthermore, exceedingly rare (e.g., individuals with low-prevalence conditions) or distal groups (e.g., when an American researcher wishes to study Japanese populations) are much easier to obtain using online research. However, critics have suggested that attention levels may waver online, especially among university participants completing research online (Hauser & Schwarz, 2016). Others have argued this 'online inattention' problem may be obviated with attention checks (Goodman et al., 2013; but see Hauser & Schwarz, 2015). Certainly, online studies tend to involve participants who know they're being studied, and so the above-noted concerns about presentation biases may be a concern here once again. With respect to the control psychological scientists have over respondents' environments, the answer here is mixed. For example, an online study can request that participants work in a private, uninterrupted work environment, but can rarely enforce this behaviour within participants. Similarly, numerous random variables will fluctuate across participants in online samples. Variables such as room temperature, density of people within the room, and background noise, cannot be directly controlled. Additionally, online research may constrain researchers in their choice of measures and manipulations. For example, researchers can have online participants interact socially in web forums or chat rooms, but many aspects of social interaction (e.g., physical presence, non-verbal communication) are hard to capture in online studies. Similarly, some measures (e.g., physiological) may be impossible to obtain in online contexts, again restricting the sort of research that psychologists can pursue in this format.

Finally, some psychologists have argued for the benefits of *field research*, often protesting the apparent decrease in field studies in recent psychological science (Cialdini, 2009). Field studies do offer some advantages, such as making it typically quite easy to disguise a study's purpose. For example, field studies in which subtle aspects of an environment are altered – such as changing the signs present in a neighborhood and observing the results – will prevent participants from

becoming aware they're being studied, and therefore permit an authentic assessment of their reactions. However, a drawback to field research is that, although external behaviours can be easily detected and studied, internal processes such as participants' private attitudes and emotions to stimuli can be difficult to assess in this setting. Another potential drawback of field research is that many environmental factors that are easy to control in laboratories (e.g., temperature, wind, the presence of passers-by) may be much more difficult to standardise and regulate in field settings. Planning and careful attention to such factors can partially mitigate these risks, but the likely increased instability of noise variables in field research can interfere with inference testing.

Different contexts of data collection (in-lab, online, field, etc.) all carry certain advantages and disadvantages. One alternative to selecting one method and accepting all of the relevant drawbacks, is to conduct multiple studies using multiple methods. For example, a researcher might begin by testing anger's relation to aggression using a laboratory experiment, using university students; then perform a similar test using a large sample of online participants who vary more widely across demographic variables; and then conduct a field study in which anger's relation to aggression is monitored covertly (e.g., in a workplace setting).

Analysis

Once a study is completed, the final steps in the research process are the analysis of the data, the interpretation of the results, and the report of the findings. In psychological research, most studies involve data that is quantitative in nature. *Quantitative data* refer to information that is expressed in some numerical form. For example, people's responses to a 7-point rating scale indicating the level of anger they're currently feeling might be represented by whole numbers ranging from 1 to 7. Once the data is collected, the researcher must formulate a statistical analysis of the data that corresponds to the question of interest.

If the goals of the study are purely descriptive in nature, analysis typically involves the computation of *descriptive statistics* for the measures of interest. Descriptive statistics summarise the overall pattern of responses for a given measure within a sample. The two most common types of descriptive statistics are indices of central tendency (i.e., indices of the single response that best characterises the sample as a whole; e.g., the average of anger ratings in a sample) and indices of variability (i.e., indices of the extent to which responses are very similar to versus different from one another in the sample – e.g., the range of ratings of anger in a sample).

However, as noted earlier, most psychological research involves inferential research questions (i.e., questions regarding the relationship between two or more psychological or behavioural constructs). In these cases, a variety of inferential statistics are available to researchers. The specific type of inferential statistic that will be most appropriate for addressing a given research question depends on a number of factors. A detailed discussion of these different types of statistical tests obviously goes well beyond the scope of this chapter. However, in a broad sense, there are several factors that guide a researcher's choice of statistical tests. First, the nature of the relationship being explored is an important consideration. For example, is the researcher only interested in a relationship between two variables? Alternatively, is the researcher interested in the relationships of several independent variables to a single dependent variable, or perhaps the relationships of multiple independent variables to multiple dependent variables? Second, what is the scale of measurement for the variables to be analysed? Are they purely nominal level variables (e.g., Queensland versus New South Wales), purely interval level (Strongly Agree versus Strongly Disagree), or a mixture? Finally, what are the distributional properties of the variables? Do scores on the variables reflect a normal distribution? Depending on the answers to these sorts of questions, some types of analyses will be more appropriate than others because they make more or less assumptions about these properties of the data.

Although researchers have a vast array of different types of statistical tests from which they can choose, by far the most used statistical tests are based on the concept of *Null Hypothesis Significance Testing (NHST).* Simply stated, these tests assess the hypothesis that the relationship of interest (the a*lternative hypothesis*) does not exist in the population. Tests are considered to be statistically significant when they produce a probability value (a *p*-value) equal to or less than .05. Statistical significance at the .05 level indicates that the data obtained is statistically different from those expected if the null hypothesis were true, and this difference is less than 5 per cent likely to be due to chance alone. In these cases, the researcher is said to have rejected the null hypothesis (i.e., rejected the hypothesis that the relationship doesn't exist in the population).

Tests are considered 'nonsignificant' when they produce a probability value (p) greater than .05. That is, a test is considered to have provided insufficient evidence for the existence of a relationship if there is a greater than 5 per cent probability that the observed relationship could have emerged simply due to chance. In such cases, the researcher is said to have 'failed to reject the null hypothesis'.

When an analysis of a study has produced an accurate conclusion regarding the existence of relationship between variables, the study is said to be high in *statistical conclusion validity* (see Cook & Campbell, 1979; Shadish et al., 2002). Conceptually, there are two forms of errors that a researcher can make with a statistical test, thereby leading to low statistical conclusion validity. A *Type I error* is when a researcher falsely concludes that a relationship exists (i.e., incorrectly rejects the null hypothesis). Traditionally, researchers have considered this form of error to be very serious and set their level of risk for making such an error in their statistical tests (referred to as the *alpha level*) at .05. Recently, some researchers have called for even stricter alpha levels as a means of enhancing the statistical conclusion validity of psychological research (e.g., Benjamin et al., 2017). A *Type II error* is when a researcher falsely concludes there is no evidence for the existence of a relationship (i.e., incorrectly accepts the null hypothesis). Although traditionally researchers have placed less emphasis on this form of error, researchers have considered this form of error to be problematic and have traditionally set their level of risk for making such an error in their statistical tests (referred to as beta) at .20. This means that researchers try to collect enough data that the risk of mistakenly concluding that no relationship exists (when a relationship actually does exist) is no greater than 20 per cent.

Methodologists have identified a number of potential threats to the statistical conclusion validity of research (e.g., see Cook & Campbell, 1979; Shadish et al., 2002). For example, the validity of a statistical test can be undermined if the underlying assumptions of the test are violated. For example, many tests assume that interval or ratio level measures follow a normal distribution. Other tests assume each set of observations comprising the sample are independent of one another (e.g., that the responses provided by one person in the sample are not in any way related to the responses provided by another person in the sample). Researchers may sometimes remedy such problems by selecting a statistical test with less stringent assumptions such as a nonparametric test.

Other threats to statistical conclusion validity reflect more fundamental and sometimes perhaps even more intentional errors on the part of researchers. Concerns regarding these sorts of errors have received a great deal of attention in recent years and have led some researchers to call for major changes in the way psychological research is conducted (Lilienfeld, 2017; Lilienfeld & Waldman, 2017). One issue of concern has been the fact that many studies conducted in psychology have insufficient statistical power. Statistical power refers to the probability that a study will correctly reject the null hypothesis. Traditionally, statistical power has primarily been a concern with respect to Type II errors (e.g., Cohen, 1988). However, recently methodologists have noted that in the context of a single study – because studies with low power tend to be more likely

to produce anomalous results – low power can sometimes also lead to Type I errors (e.g., Button & Munafò, 2017).

Another issue that has generated a great deal of interest is a set of practices known as QRPs (*Questionable Research Practices* – see John et al., 2012; Simmons et al., 2011). QRPs cover a wide range of data collection, analysis, and reporting practices, most of which are considered problematic because they can undermine the statistical conclusion validity of a study. Some of these practices involve incomplete reporting of results. For example, a researcher might conduct analyses on multiple dependent variables, but then only report the results for dependent variables that produce significant effects or conduct multiple different types of analyses on a single dependent variable and only report the analysis that produces a significant effect. Similarly, a researcher might conduct a study involving multiple experimental conditions, but then only report the results for those conditions that produce significant differences. Alternatively, a researcher might conduct multiple studies and then only report those studies that produce a significant effect.

Other practices involve changes to the dataset itself or the manner in which it's analysed. For example, a researcher might decide to drop participants from a dataset based on whether their deletion strengthens the key effects of interest in a study. Alternatively, a researcher might gradually add data participants to an existing dataset and base their decision to stop adding participants solely on when the addition of participants produces a significant effect.

As these examples illustrate, many QRPs are practices that are intended to produce a significant effect, without any clear justification beyond the fact that they produce a desired outcome for the researchers, who may be motivated to identify a significant effect. As such, these practices can inflate Type I error rates. Indeed, although each practice can potentially undermine statistical conclusion validity on its own, the risk is even greater when several of these practices are performed in conjunction with one another (Simmons et al., 2011).

In short, numerous issues have been raised about how psychological scientists conduct aspects of research, and they're often accompanied with guidelines for improving the statistical validity of research. However, other commentators have suggested there are problems inherent in NHST as a scientific tool and that no set of reforms to current practices will ultimately be successful in addressing these limitations. These commentators have argued alternative statistical approaches are required. For instance, some have proposed traditional statistical tests be abandoned or at least supplemented by the reporting of *effect sizes* and their corresponding *confidence intervals* (e.g., Cumming, 2014; Schmidt, 1996). Others have advocated use of *Bayesian statistics* (e.g., Wagenmakers et al., 2017). Space restrictions preclude a discussion of these alternatives and to date neither has gained widespread acceptance in psychology. However, psychologists continue to debate their potential advantages and disadvantages. This remains an important area of research for experimental and quantitative psychologists, as well as individuals who interpret and make policy recommendations based on research that is based fundamentally on statistics-based inferences. Practitioners in the field should remain familiar with developments in this evolving area as these decisions have important implications for the application of existing research.

Shrout and Rodgers (2018, p. 504) conclude that psychological scientists must 'engage in methodologically sound, ethically driven research in which probabilistic decisions are made explicitly and respected by an open research process' which is supported by a very useful table (see their Table 1) that outlines a series of recommendations for research practices designed to speed knowledge construction in psychology and to reduce concerns about replication success in both exploratory (E) and confirmatory (C) studies. Their prognosis is that 'The future of psychological science is bright' (p. 506), which also allows for the psychology profession to prosper.

ETHICS

The previous sections have primarily explained social science methodology with the goal of maximising the reliability and validity of research findings. However, psychological scientists must balance their interests in obtaining reliable, valid results with several important ethical guidelines that establish how research should be conducted. Indeed, one can imagine scientific studies that could be highly reliable and valid, yet ethically egregious. For example, if a researcher was interested in the effects of socioeconomic status on aggressive behaviour, it would be methodologically sound to randomly assign children at birth to adopting parents who are poor or wealthy. However, such a study would obviously be considered ethically problematic. In the research context, the term ethics describes 'good' or 'just' treatment of various groups and individuals involved in the research process. Ways of determining what is 'good' or 'just' is beyond the scope of this chapter. However, there are broad professional guidelines in Australia, such as the National Statement on Ethical Conduct in Human Research (2007), which serve as guidelines that must be considered as part of research planning and conduct.

Although researchers have debated and discussed many aspects of research ethics for decades, and specific guidelines and procedures vary as a function of locales and disciplines, three fundamental principles of research ethics tend to be emphasised in nearly all systems. These three core principles are a mandate for good practice: 1) to give participants information sufficient to allow informed choices about participating or not, 2) minimising harm to participants, and 3) maintaining the privacy of participants' responses.

Informed consent is the principle that participants should have a reasonable understanding of what they will be expected to do in a study, and the likely benefits/harms that may affect them. For example, participants should know if research may cause them harm (including physical, emotional, financial/professional, interpersonal, or other kinds of harm), and how much of their time is being requested as participants. Additionally, participants should be informed in advance about issues including whether their data will be confidential and/or anonymised (see below), or whether information about them will be obtained from sources other than themselves (e.g., from their academic transcripts). The point is that participants' consent to participate in research is only meaningful if they know what they're being asked to do.

One potential challenge to informed consent is the fact that some psychological questions are best pursued by partially or fully misleading participants about aspects of the research. For example, when researchers wish to covertly monitor participants' aggressive behaviours, it may undermine the unobtrusive nature of this measurement if participants know they're being watched. Similarly, some indirect measurements rely on participants not being aware of what is being measured, and in some cases the measure may be undermined if participants realise what is being measured. In other cases, participants are given false information about society, the actions of other participants in the experiment, the purpose of a study (often provided as a cover story in which researchers create a fictitious purpose of the research), or about the participant themselves (e.g., falsely informing participants that they have poor intelligence).

Deception is sometimes considered acceptable – provided it's necessary to effectively study the question of interest – when a *debriefing document* or other method is used to inform participants at the end of a study. A debrief will often contain several elements, such as an explanation of what the truth is (e.g., what the real purpose of a study was), and why deception was considered necessary. Because this new information may alter participants' willingness to have participated, in some contexts it may be appropriate to give participants a second opportunity to consent to the research study. For example, returning to the example of covert monitoring of aggressive behaviour, a researcher might reveal this covert monitoring at the study's end, and offer to delete the recording

if the participant does not consent to the researcher keeping this data. After all, they originally consented without knowing that such data was to be collected. The lack of initial disclosure may be necessary because the monitoring would not be covert if participants were warned about it when they first consented.

A second principle is the *minimisation of harm.* That is, participants' exposure to loss, pain, and/or damage should be reduced as much as possible. Some studies may necessitate some use of harm, such as when participants are given painful shocks to elicit anger (e.g., Berkowitz & LePage, 1967). Minimisation of harm would here involve careful scaling of the shock: it must be painful (enough to elicit anger), but no more painful than that (to minimise participants' suffering). When possible, researchers should highlight ways in which participation can serve as a growth opportunity – such as a chance to better understand themselves – rather than as harmful. In addition to the ethical, this also has a practical benefit: participants who see research and researchers in more positive terms are presumably more likely to understand the importance and value of research in psychological science.

Turning back to the recurring example, a researcher who wishes to induce fear in a participant should aim to have participants experience fear only for as long as is necessary to test a research question. Fear is usually considered a negative, uncomfortable emotion, so while researchers can ethically study fear they should also try to respect participants' needs. For example, researchers may end the study with a positive emotion induction (Westermann et al., 1996) to reverse the harm. Also, consider deception in the context of minimising harm. We previously highlighted the potential issue of deception with informed consent, but there is also a risk of deception causing harm: participants may feel foolish for 'falling for' a deceptive manipulation. Thus, it may be advisable to remind participants that most experiments find only tiny suspicion rates: almost everybody 'falls for it', so participants should not feel embarrassed. It is possible that some deception could introduce other harms, such as leaving participants with inaccurate information about their having health problems. Sometimes, researchers may provide true information in the debriefing form, such as providing real statistics about social facts when false facts were provided in the experiment, or reminding undergraduate participants that the average undergraduate student has high intelligence when they were falsely told they lacked intelligence. The goal is to offset the harm incurred by the false information.

A third important principle is the privacy of participant data. Two aspects of participant data privacy are *anonymity* (i.e., the degree to which participants' identifying information is disassociated from their study data), and *confidentiality* (i.e., whether researchers keep participants' identifying information to themselves). Where possible, it's usually advisable to maintain the anonymity of participants' data by disassociating participants' identifying information (e.g., name, email address) from their response data. This may have several advantages, such as protecting participants' privacy rights. It also permits researchers to share data with others without having to compromise participants' privacy. In some cases, it's necessary for data to be non-anonymous at least temporarily, such as when a researcher tracks a sample of participants across multiple time points and wishes to correlate participants' responses across time. In longitudinal research, this could mean that data is identifiable for decades! However, once data collection has been completed, it's normally possible to anonymise data afterwards, stripping data of this identifying information.

Typically, even non-anonymous data should be confidential, meaning that a researcher would not share any identifier-data associations with others, even if the researcher can personally associate identifiers with data. In summary, the general principle of participant privacy is that privacy should be maintained as far as logistically possible. Tying this back to consent, in cases where confidentiality would not be possible to extend to participants, those participants should

at least know what their expectations of privacy should be, preferably when they initially provide consent.

There is an open access research ethics e-learning course developed by staff at the University of Southern Queensland that is available online and provides a detailed explanation of the ethics principles unpinning research and advice on completing a human research ethics application.

The objectives of the course are:

- an introduction to research ethics
- research methodology risks and benefits
- recruitment and data collection
- collection, use, and management of data and information
- research merit, integrity, and monitoring requirements
- communication of research findings.

Conclusion

Psychological research spans many diverse topics, specialty areas, and interests, such as organisational, clinical, and cognitive psychology. However, the fundamental, conceptual steps required to create high-quality research are in many ways similar. This chapter has focused on delineating research questions, selecting dependent and independent variables, issues involving the setting and population, data analysis, and ethics. It is important to remember that entire chapters and articles have been devoted to in-depth explorations of each of these individual topics (and others) – we have provided many references to example articles and chapters throughout. Importantly, we hope this chapter highlights often under-recognised skills that are developed through training in psychological science. Undergraduate programs in psychological science should prepare students to effectively evaluate research methodological issues including sample size, risks associated with third variables, whether questionable research practices were likely to have been present, whether rigorous ethical safeguards were in place, whether appropriate statistical tests were used, and whether researcher conclusions are consistent with the results from statistical tests based on the methodology employed, These are all skills that are valued beyond academia. In Australia, for example, psychological research skills can lead to evaluating research for policy development, interpreting survey data gathered in an applied setting, and providing evidence supporting one's own professional practice. In general, professionals who display thoughtful and critical consideration of the quality of evidence are highly sought after across a variety of fields and will often exhibit the hallmarks of psychological research training

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REFERENCES

Archer, J., & Coyne, S. M. (2005). An integrated review of indirect, relational, and social aggression. *Personality and Social Psychology Review, 9*(3), 212–230. https://doi.org/10.1207%2Fs15327957pspr0903_2

Asendorpf, J. B., Banse, R., & Mucke, D. (2002). Double dissociation between explicit and implicit personality self-concept: The case of shy behavior. *Journal of Personality and Social Psychology, 83*(2), 380–393. https://psycnet.apa.org/doi/10.1037/0022-3514.83.2.380

Baker, R. C., & Guttfreund, D. O. (1993). The effects of written autobiographical recollection induction procedures on mood. *Journal of Clinical Psychology, 49*(4), 563–568. 3.0.CO;2-W" target="_blank" rel="noopener" data-url="https://doi.org/10.1002/1097-4679(199307)49:4<563::AID-JCLP2270490414>3.0.CO;2-W">https://doi.org/10.1002/1097-4679(199307)49:4<563::AID-JCLP2270490414>3.0.CO;2-W

Banerjee, A. & Chaudhury, S. (2010). Statistics without tears: Populations and samples. *Industrial Psychiatry Journal, 19*(1), 60–65. https://doi.org/10.4103/0972-6748.77642

Baron, R. A., & Bell, P. A. (1975). Aggression and heat: Mediating effects of prior provocation and exposure to an aggressive model. *Journal of Personality and Social Psychology, 31*(5), 825–832. https://doi.org/10.1037/h0076647

Beck, A. T., Steer, R. A., Brown, G. K. (1996). *Beck Depression Inventory-II*. https://www.apa.org/pi/about/publications/caregivers/practice-settings/assessment/tools/beck-depression

Benjamin, D. J., Berger, J. O., Johannesson, M., Nosek, B. A., Wagenmakers, E. J., Berk, R., … & Cesarini, D. (2018). Redefine statistical significance. *Nature Human Behaviour, 2*(1), 6–10. https://doi.org/10.1038/s41562-017-0189-z

Berkowitz, L., & Donnerstein, E. (1982). External validity is more than skin deep: Some answers to criticisms of laboratory experiments. *American Psychologist, 37*(3), 245–257. https://doi.org/10.1037/0003-066X.37.3.245

Berkowitz, L., & LePage, A. (1967). Weapons as aggression-eliciting stimuli. *Journal of Personality and Social Psychology, 7*(2), 202–207. https://doi.org/10.1037/h0025008

Button, K. S., & Munafò, M. R. (2017). Powering reproducible research. In S. O. Lilienfeld and I. D. Waldman (Eds.), *Psychological science under scrutiny: Recent challenges and proposed solutions* (pp. 22–33). John Wiley & Sons. https://doi.org/10.1002/9781119095910

Cacioppo, J. T., Berntson, G. G., Lorig, T. S., Norris, C. J., Rickett, E., & Nusbaum, H. (2003). Just because you're imaging the brain doesn't mean you can stop using your head: A primer and set of first principles. *Journal of Personality and Social Psychology, 85*(4), 650–661. https://doi.org/10.1037/0022-3514.85.4.650

Cacioppo, J. T., & Tassinary, L. G. (1990). Inferring psychological significance from physiological signals. *American Psychologist, 45*(1), 16–28. https://doi.org/10.1037//0003-066x.45.1.16

Cialdini, R. B. (2009). We have to break up. *Perspectives on Psychological Science, 4*(1), 5–6. https://doi.org/10.1111%2Fj.1745-6924.2009.01091.x

Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Laurence Erlbaum Associates.

Cook, T. D., & Campbell, D. T. (1979). Quasi-experimentation: Design and analysis issues for field settings. Rand McNally College Publishing Company.

Costa, P. T., Jr., & McCrae, R. R. (1991). *NEO five-factor inventory (NEO-FFI), Form S (Adult).* https://www.parinc.com/Products/Pkey/274

Costa, P. T., & McCrae, R. R. (1993). Psychological research in the Baltimore longitudinal study of aging. *Zeitschrift fur Gerontologie, 26*(3), 138–141. https://europepmc.org/article/med/8337906

Cumming, G. (2014). The new statistics: Why and how. *Psychological Science, 25*(1), 7–29. https://doi.org/10.1177%2F0956797613504966

Diener Education Fund. (2021). *Noba Project* [Homepage]. https://nobaproject.com

De Houwer, J. (2006). What are implicit measures and why are we using them? In R. W. Wiers & A. W. Stacy (Eds.), *The handbook of implicit cognition and addiction* (pp. 11–28). Sage. https://us.sagepub.com/en-us/nam/handbook-of-implicit-cognition-and-addiction/book227075

Fein, E. C., Skinner, N., & Machin, M. A. (2017). Work intensification, work–life interference, stress, and well-being in Australian workers. *International Studies of Management & Organization*, 47(4), 360–371. https://doi.org/10.1080/00208825.2017.1382271

Fiedler, K., Kutzner, F., & Krueger, J. I. (2012). The long way from α-error control to validity proper: Problems with a short-sighted false-positive debate. *Perspectives on Psychological Science, 7*(6), 661–669. https://www.jstor.org/stable/44282621

Field, A. (2019) *Discovering Statistics* [Homepage]. Retrieved from https://www.discoveringstatistics.com

Friese, M., Hofmann, W., & Schmitt, M. (2008). When and why do implicit measures predict behaviour? Empirical evidence for the moderating role of opportunity, motivation, and

process reliance. *European Review of Social Psychology, 19*(1), 285–338. https://doi.org/10.1080/10463280802556958

Gawronski, B., & De Houwer, J. (2014). Implicit measures in social and personality psychology. In H. T. Reis & C. M. Judd (Eds.), *Handbook of research methods in social and personality psychology* (2nd ed.). Cambridge University Press.

Goodman, J. K., Cryder, C. E., & Cheema, A. (2013). Data collection in a flat world: The strengths and weaknesses of Mechanical Turk samples. *Journal of Behavioral Decision Making, 26*(3), 213–224. https://doi.org/10.1002/bdm.1753

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. (1998). Measuring individual differences in implicit cognition: the implicit association test. *Journal of Personality and Social Psychology, 74*(6), 1464–1480. https://doi.org/10.1037/0022-3514.74.6.1464

Harpe, S. E. (2015). How to analyze Likert and other rating scale data. *Currents in Pharmacy Teaching and Learning, 7*(6), 836–850. https://doi.org/10.1016/j.cptl.2015.08.001

Hauser, D. J., & Schwarz, N. (2015). It's a trap! Instructional manipulation checks prompt systematic thinking on "tricky" tasks. *Sage Open, 5*(2). https://doi.org/10.1177%2F2158244015584617

Hauser, D. J., & Schwarz, N. (2016). Attentive Turkers: MTurk participants perform better on online attention checks than do subject pool participants. *Behavior Research Methods, 48*(1), 400–407. https://doi.org/10.3758/s13428-015-0578-z

Henson, R. K. (2001). Understanding internal consistency reliability estimates: A conceptual primer on coefficient alpha. *Measurement and Evaluation in Counseling and Development, 34*(3), 177–189. https://doi.org/10.1080/07481756.2002.12069034

Holden, R. R., & Jackson, D. N. (1979). Item subtlety and face validity in personality assessment. *Journal of Consulting and Clinical Psychology, 47*(3), 459–468. https://doi.org/10.1037/0022-006X.47.3.459

Ilgen, D. R., & Favero, J. L. (1985). Limits in generalization from psychological research to performance appraisal processes. *Academy of Management Review, 10*(2), 311–321. https://doi.org/10.2307/257972

Iyer, R. (2019) *YourMorals.org* [Homepage]. Retrieved from https://www.yourmorals.org/index.php

John, O. P., & Benet-Martinez, V. (2014). Measurement: Reliability, construct validation, and scale construction. In H. T. Reis & C. M. Judd (Eds.), *Handbook of research methods in social and personality psychology* (2nd ed., pp 339–369) Cambridge University Press.

John, L. K., Loewenstein, G., & Prelec, D. (2012). Measuring the prevalence of questionable research practices with incentives for truth telling. *Psychological Science, 23*(5), 524–532. https://doi.org/10.1177%2F0956797611430953

Klauer, K. C., & Teige-Mocigemba, S. (2007). Controllability and resource dependence in

automatic evaluation. *Journal of Experimental Social Psychology, 43*(4), 648–655. https://doi.org/10.1016/j.jesp.2006.06.003

Lakens, D. (2019) *Improving your statistical inferences* [Online Course]. https://www.coursera.org/learn/statistical-inferences

Latané, B., & Darley, J. M. (1970). *The unresponsive bystander: Why doesn't he help?* Century Psychology Series. Appleton-Century Crofts.

LeBel, E. P., & Gawronski, B. (2009). How to find what's in a name: Scrutinizing the optimality of five scoring algorithms for the name-letter task. *European Journal of Personality, 23*(2), 85–106. https://doi.org/10.1002/per.705

Lieberman, J. D., Solomon, S., Greenberg, J., & McGregor, H. A. (1999). A hot new way to measure aggression: Hot sauce allocation. *Aggressive Behavior, 25*(5), 331–348. 3.0.CO;2" target="_blank" rel="noopener" data-url="https://doi.org/10.1002/(SICI)1098-2337(1999)25:5<331::AID-AB2>3.0.CO;2">https://doi.org/10.1002/(SICI)1098-2337(1999)25:5<331::AID-AB2>3.0.CO;2

Lilienfeld, S. O. (2017). Psychology's replication crisis and the grant culture: Righting the ship. *Perspectives on Psychological Science, 12*(4), 660–664. https://doi.org/10.1177%2F1745691616687745

Lilienfeld, S. O., & Waldman, I. D. (Eds.). (2017). Psychological science under scrutiny: Recent challenges and proposed solutions. John Wiley & Sons.

Millsap, R. E., & Meredith, W. (2007). Factorial invariance: Historical perspectives and new problems. In R. Cudeck and R. C. MacCallum (Eds.), *Factor analysis at 100: historical developments and future directions* (pp. 131–152). Lawrence Erlbaum Associates. https://doi.org/10.1111/j.1751-5823.2008.00054_24.x

Moses, S. N., Houck, J. M., Martin, T., Hanlon, F. M., Ryan, J. D., Thoma, R. J., … & Tesche,D. (2007). Dynamic neural activity recorded from human amygdala during fear conditioning using magnetoencephalography. *Brain Research Bulletin, 71*(5), 452–460. https://doi.org/10.1016/j.brainresbull.2006.08.016

Nisbett, R. E. & Cohen, D. (1996). *Culture of honor: The psychology of violence in the South.* Westview Press.

Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review, 84*(3), 231–259. https://doi.org/10.1037/0033-295X.84.3.231

Nuttin, M. J., Jr. (1985). Narcissism beyond Gestalt and awareness: The name letter effect. European *Journal of Social Psychology, 15*(3), 353–361. https://doi.org/10.1002/ejsp.2420150309

Orne, M. T. (1962). On the social psychology of the psychological experiment: With particular reference to demand characteristics and their implications. *American Psychologist, 17*(11), 776–783. https://doi.org/10.1037/h0043424

Orpinas, P., & Frankowski, R. (2001). The Aggression Scale: A self-report measure of aggressive behavior for young adolescents. *The Journal of Early Adolescence, 21*(1), 50–67. https://doi.org/10.1177/0272431601021001003

Page, M. M., & Scheidt, R. J. (1971). The elusive weapons effect: Demand awareness, evaluation apprehension, and slightly sophisticated subjects. *Journal of Personality and Social Psychology, 20*(3), 304–318. https://doi.org/10.1037/h0031806

Paulhus, D. (1991). Measurement and control of response bias. In J. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes*, Vol. 1. (pp. 17–59). Academic Press.

Payne, B. K., Cheng, C. M., Govorun, O., & Stewart, B. D. (2005). An inkblot for attitudes: affect misattribution as implicit measurement. *Journal of Personality and Social Psychology, 89*(3), 277–293. https://doi.org/10.1037/0022-3514.89.3.277

Petty, R. E., Fazio, R. H., & Briñol, P. (2012). *Attitudes: Insights from the new implicit measures.* Psychology Press.

Schmidt, F. L. (1996). Statistical significance testing and cumulative knowledge in psychology: Implications for training of researchers. *Psychological Methods, 1*(2), 115–129. https://doi.org/10.1037/1082-989X.1.2.115

Shadish, W.R., Cook, T.D., and Campbell, D.T. (2002) Experimental and quasi-experimental designs for generalized causal inference. Wadsworth Cengage Learning.

Shrout, P. E., & Rodgers, J. L. (2018). Psychology, science, and knowledge construction: Broadening perspectives from the replication crisis. *Annual Review of Psychology, 69*, 487–510, https://doi.org/10.1146/annurev-psych-122216-011845

Simmons, J. P., Nelson, L. D., & Simonsohn, U. (2011). False-positive psychology: Undisclosed flexibility in data collection and analysis allows presenting anything as significant. *Psychological Science, 22*(11), 1359–1366. https://doi.org/10.1177%2F0956797611417632

Simms, L. J. (2008). Classical and modern methods of psychological scale construction. *Social and Personality Psychology Compass, 2*(1), 414–433. https://doi.org/10.1111/j.1751-9004.2007.00044.x

Strack, F., Martin, L. L., & Schwarz, N. (1988). Priming and communication: Social determinants of information use in judgments of life satisfaction. *European Journal of Social Psychology, 18*(5), 429–442. https://doi.org/10.1002/ejsp.2420180505

Sweetland, A. (1972). *Comparing random with non-random sampling methods*. Rand Corp.

Vaughan-Johnston, T. I., Fabrigar, L. R., & Lawrence, K. (2019). Research methods in the psychological sciences. In M. E. Norris (Ed.), *The Canadian handbook for careers in psychological science.* eCampusOntario. https://ecampusontario.pressbooks.pub/psychologycareers/chapter/researchmethods/

Wagenmakers, E. J., Verhagen, J., Ly, A., Matzke, D., Steingroever, H., Rouder, J. N., & Morey, R. D. (2017). The need for Bayesian hypothesis testing in psychological science. In S. O. Lilienfeld and I. D. Waldman (Eds.), *Psychological science under scrutiny: Recent challenges and proposed solutions* (pp. 123–138). John Wiley & Sons.

Westermann, R., Spies, K., Stahl, G., & Hesse, F. W. (1996). Relative effectiveness and validity of mood induction procedures: A meta-analysis. *European Journal of Social Psychology, 26*(4), 557–580. https://doi.org/10.1002/(SICI)1099-0992(199607)26:4%3C557::AID-EJSP769%3E3.0.CO;2-4

Widaman, K. F., & Grimm, K. J. (2014). Advanced psychometrics: Confirmatory factor analysis, item response theory, and the study of measurement invariance. In H. T. Reis, & C. M. Judd (Eds.), *Handbook of research methods in social and personality psychology* (2nd ed.). Cambridge University Press.

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CHAPTER 4.

THE ESSENCE OF ETHICS FOR PSYCHOLOGICAL RESEARCHERS AND PSYCHOLOGISTS

TANYA MACHIN AND CHARLOTTE BROWNLOW

This chapter uses material from an open access human research ethics e-course developed with the support of an Open Access Teaching Award from the University of Southern Queensland. The original authors were Tanya Machin, Charlotte Brownlow, and Annmaree Jackson. The e-course can be found at https://open.usq.edu.au/course/view.php?id=400 or by directly contacting Tanya at Tanya.Machin@usq.edu.au or Charlotte at Charlotte.Brownlow@usq.edu.au.

INTRODUCTION

Our aim in this chapter is to provide you with a broad overview of the different ethical codes used in Australia that psychological scientists and psychologists use to guide their work. As a psychology student you're no doubt used to thinking about ethics as this underpins much of the foundational knowledge you learn in your degree. However, you may be unfamiliar with why ethics are important (although we hope not!) or when or how ethical codes are used. The first ethical code was developed by the National Health and Medical Research Council (NHMRC) and is known as The National Statement on Ethical Conduct in Human Research (NHMRC, 2018b) or the 'NHMRC code' or simply 'the code'. This document consists of a series of guidelines that all researchers – including psychological scientists – need to follow. Australia is unique in that our researchers are governed by this code, but our psychologists are required to adhere to a different ethical code developed by the Australian Psychological Society. Countries such as the United Kingdom or Canada have a combined professional and research code of ethics.

To help you work your way through the chapter, we've divided it into several sections, including: 'Why Do We Have Research Ethics?', 'Research Methodology and Risk Management', 'Recruitment and Data Collection', 'Data and Information Management', and 'Merit, Integrity, and Monitoring'. We will then provide a brief overview of the APS code to close the chapter off. Throughout the chapter, we'll provide some case studies, pose questions for you to reflect on, and perhaps even test your ethical knowledge! Finally, the information contained in this chapter comes from an open access e-course that we wrote. If you have any questions about the e-course or want to use it in your course or program, please contact the authors directly.

WHY DO WE HAVE RESEARCH ETHICS?

The history of human experimentation is sometimes considered to be a dark one, with many documented examples of ill-conceived and inhumane medical and psychological experimentation on human beings. While considered 'unethical' by today's standards, these experiments have led to the development and refinement of various national and international laws and guidelines that govern ethical human research.

Case Study: The Tuskegee Syphilis Study

In 1932, the United States of America Public Health Service (PHS) began a twelve-month experiment in Tuskegee, Alabama to study the natural course of untreated syphilis in African American men. The research aimed to determine whether syphilis caused cardiovascular disease more often than neurological damage and to determine if the course of syphilis was different between black and white men. When the study began, there was no known cure for syphilis.

From an ethical perspective, this research provides an excellent case study on how NOT to conduct research responsibly. Researchers initially recruited 600 men: 399 with syphilis and 201 who did not have syphilis. Poor, uneducated African American men were targeted for participation (Centers for Disease Control and Prevention [CDC] (2021)). As an 'incentive' to join research, free medical exams, meals, and burial insurance were offered. The PHS never told the participants they were part of a syphilis study – some men thoughts they were being treated for rheumatism or bad stomachs (Brown, 2017). When penicillin became available as the recommended treatment in 1945, the treatment was withheld from participants (Tuskegee University, n.d). The study was initially supposed to be conducted over a six-month period, however, the study ran for 40 years without subsequent ethical review despite the introduction of numerous international ethical guideline documents.

When Dr John Heller, Director of the PHS Venereal Diseases Unit (1943 to 1948), was interviewed about the research project in 1976, he reflected that the men were considered purely as subjects in a study rather than patients who were in need of treatment.

What Did We Learn?

By today's standards, this research would not be approved by an ethical review body on the basis of:

- lack of voluntary and informed consent processes
- inappropriate use of deception in various stages of research conduct
- use of inappropriate incentives and payments that have likely induced and encouraged the participants to take risks by participating in the research
- withholding known treatments that would benefit the participant once available
- knowingly permitting transmission of the disease to other non-participant individuals (e.g., wives and children of the participant men)
- lack of reporting and monitoring processes.

Video 4.1 provides a 10-minute summary of the Tuskagee Study.

Video 4.1: The Tuskegee Syphilis Study

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://usq.pressbooks.pub/psychologycareers/?p=286#oembed-1

Governance of Human Research

Today research involving humans is tightly governed. Governance of human research is about establishing both rights for participants in research and the responsibilities of those conducting the research (that's you as a researcher and your research institution). This can include:

- ethical review and approval
- compliance with legislation, regulations, guidelines and codes of practice
- legal matters – including contracts – and indemnity/insurance frameworks
- financial management, risk management, and site-specific assessment
- institutional policies and procedures for responsible research conduct and managing research misconduct
- management of collaborative research
- research requirements (DIIS, 2005).

Research in Australia is normally conducted under the auspices of the Australian Code for the Responsible Conduct of Research (NHMRC, 2018) and the National Statement on Ethical Conduct in Human Research, (NHMCR, 2018b). Specific national and state legislation may also apply in the protection of participant rights, including relevant privacy laws. Depending on your targeted research population, specific reviews, approvals, and guidelines may also be required – for example, when working with Aboriginal and Torres Strait Islander peoples and communities. You're responsible for ensuring you're aware of and comply with the relevant legal and institutional requirements when conducting your research.

The National Statement on Ethical Conduct in Human Research (NHMRC, 2018b) outlines four guiding principles for ethical research. You may want to compare your own research (or research you read about in journal articles) against these checklists to ensure you're addressing the four guiding principles detailed below.

Research Merit and Integrity

Your research has merit if it is:

- justifiable by its potential benefit – e.g., contribution to knowledge and understanding, improved social welfare and individual wellbeing, within the skills and expertise of researchers
- designed/developed using methods appropriate for achieving the aims of the proposal
- based on a thorough study of the current literature (as well as previous studies)
- designed to ensure respect for the participants is not compromised by the aims of the research by the way it is carried out or by the results

- conducted or supervised by persons or teams with experience, qualifications, and competence that are appropriate for the research.

You are conducting your research with integrity if you and the research team are committed to:

- searching for knowledge and understanding
- following recognised principles of research conduct
- conducting the research honestly
- disseminating and communicating the results (whether favourable or unfavourable) in ways that permit scrutiny and contribute to public knowledge and understanding.

Justice

Your research is just if you:

- select, exclude, and include categories of participants fairly, and accurately describe the process in the results of your research
- recruit participants fairly
- ensure there is no unfair burden of participation in research on any particular group(s)
- fairly distribute the benefits of participating in the research
- do not exploit participants in the conduct of your research
- provide fair access to the benefits of the research
- make the research outcomes accessible to research participants in a way that is timely and clear.

Beneficence

Your research demonstrates beneficence if you:

- ensure there is likely benefit of the research to the participants, to the wider community, or both
- assess that the likely benefit of the results justifies any risk of harm or discomfort to the participants
- have designed the research to minimise the risk of harms or discomfort to the participants
- clarify for the participants the potential benefits and the risks of the research
- ensure the welfare of the participants (in the conduct of the research)
- suspend the research where the risks to participants are no longer justified by the potential benefits
- consider whether research should be discontinued or at least modified (in the event it's suspended)
- notify the review body promptly if you do suspend the research.

Respect

Your research demonstrates respect if you:

- abide by the values of research merit and integrity, justice, and beneficence
- have due regard for the welfare, beliefs, perceptions, customs, and cultural heritage of individual (and collective) participants and groups involved in the research
- respect the privacy, confidentiality, and cultural sensitivities of the participants
- fulfil any specific agreements made with participants or their communities
- give due scope throughout the research process to the capacity of individuals to make their own decisions
- empower individuals where possible and protect them as necessary where they may be unable to make their own decisions or have diminished capacity to do so.

Processes of Ethical Review in Australia

Ethical review of human research can be undertaken at various levels, according to the degree of risk involved in the research, and the levels of review established at a research institution. In all cases, the ethical review of human research is undertaken in accordance with the guiding ethical principles and process of research governance and ethical review outlined within the National Statement on Ethical Conduct in Human Research (2018b). With regard to the assessment of risk involved in research this involves:

- identifying any risks
- gauging their probability and severity
- assessing the extent to which they can be minimised
- determining whether they are justified by the potential benefits of the research
- determining how they can be managed.

You'll be involved in identifying, gauging, minimising, and managing any risks involved in your project – normally as part of preparing and submitting your ethics application. The Human Research Ethics Committee (HREC) – or other ethical review bodies – will review your research proposal to make a judgement on whether the risks are justified by the potential benefits. Individuals you approach to participate in your research will also assess the risks associated with your research as they decide whether or not they consent to participate.

RESEARCH METHODOLOGY AND RISK MANAGEMENT

The research methodology you adopt for your project will be crucial in considering ethical risk and the management of this. There are two broad types of research – *quantitative* or *qualitative* methods – and both types of methods have different advantages and disadvantages. The choice of which method you will use is determined by your research question. This topic will explore some of the common approaches to research and some of the associated ethical issues to consider when adopting these.

Risks

Research can have an impact on participants both during the conduct of the research and after the research has been completed as they reflect upon their experience of participation (mental) and recovery from any physical demands (e.g., donation of human biospecimens, physical testing, etc.). While this list of potential risks is not exhaustive, some of the common risks are identified below.

Risk of participation to a participant (or you and the research team) is generally classified along a continuum, with 'Inconvenience' – for activities such as the time required to fill out a survey or take part in an interview – at the low end of the scale, and 'Harm' – at the high end of the scale. 'Discomfort' is somewhere in the middle, and this can include both physical and psychological aspects. This could include side effects of drugs that participants may need to take in the research or even anxiety when attending a research interview.

Benefits

All research must have a benefit that either directly or indirectly benefits individuals, groups, or society as a whole. Benefits of research can include gains in specific knowledge, improved individual wellbeing, or increases in the skill or expertise of an individual, group, or organisation. While your research may have no immediate benefit to the participants, it's worth considering whether participants can benefit from self-reflection on the research topic. For example, you may be interested in parenting styles and discipline, and while your research may not have an immediate benefit to this group of participants, they may benefit from self-reflecting on their own parenting practices.

Managing Risks

Much of the research conducted using human participants will have some degree of remaining risk to a participant or the research, despite any mitigation strategies you've applied in the research design phase. Even if the remaining risk is minimal, it's up to you to develop clear strategies for managing these remaining risks should they eventuate. This is not always an easy task as it can be difficult for you to know if a particular topic will cause distress or harm for an individual participant. Therefore, it's important for you to think carefully about how you'll support a participant if they become upset or distressed. You'll also need to think carefully about government regulations and guidelines.

Ethics Risks – Confidentiality

You may be interviewing children about their television viewing habits when the child reveals information about child abuse. Would you know what to do in this situation? Do you have a legal obligation to report this disclosure? Who can you tell to protect the child while maintaining participant confidentiality?

Finally, when thinking about risks and benefits of the research, you'll need to consider the following practical elements:

- What is the research theme or question that this project is designed to explore?
- Why is the exploration of this theme or answer to this question worth pursuing?
- How will the planned methodology and methods explore the theme or achieve the aims of the research?

Quantitative Methods

There are many different research methodologies, and the methodology you choose will depend on the research aims, questions, and/or hypotheses.

Research Surveys and Questionnaires

One of the most common methods for conducting research is surveys or questionnaires. In the past, participants would often complete pen-and-paper surveys and either hand them to the researcher or mail the survey to the researcher. Nowadays most researchers would use online survey software such as Qualtrics or Survey Monkey (it's always best to check with your university to see what survey software they recommend – at USQ we use the USQ Survey Tool, which was developed from LimeSurvey). Surveys/questionnaires can be quantitative when questions use a closed question format (e.g., Likert scales) or can be qualitative when an open question format is used. Many surveys/questionnaires can contain a combination of the two types of questions (mixed method).

Ethical risks to consider:

- How long will it take participants to complete the survey?
- Could the content of the questions cause/trigger psychological harms, economic harms, or legal harms to participants?
- Could the research cause social harm to participants? Is your survey/questionnaire voluntary and anonymous?
- How secure is the online survey software?
- Where will the data be collected, stored, and transferred? You'll need to check the terms and conditions of the software licence to ensure you have full access and ownership of the data and are aware of relevant privacy laws.

Additional considerations:

- Make sure you have permission to use any measures or scales that you want to include in your survey or questionnaire – seek permission from the copyright owner as required.
- Ensure you have sufficient qualifications and/or experience to administer and/or analyse the data from the survey or questionnaire if this is a standardised test or test bank.

Ethics Risks – Genetic Testing

Your grandfather provided a human biospecimen 50 years ago for a research project. Advances in medical science mean that it's now possible to predict with accuracy that you'll acquire a certain illness. Would you feel comfortable with this information being published? Would you want to know this information?

Qualitative Methodologies

There are many different research methodologies, and the methodology you choose will depend on the research aims, questions, and/or hypotheses. A strength of qualitative research is that it permits a participant to describe their experiences in ways that are meaningful to them, rather than to group their experience using research-derived classifications (Shaughnessy et al. , 2006).

Research Interviews

Interviews involve conducting discussions with a small number of participants to explore a particular phenomenon of interest. Typically, there are three different types of interviews:

- *structured interviews* where there is a set of predetermined questions that all participants answer in the same order without any variation to the questions
- *unstructured interviews* where there are no predetermined questions, and the interview is quite informal and unstructured
- *semi-structured interviews* contain elements from both the structured and unstructured interviews. That is, there are some predetermined questions, but the interviewer can change the order of the questions or ask additional questions for further clarification or to expand on an issue that arises during the interview.

Ethical risks to consider:

- It's important to protect your participants' identities, and this may be done through a process to remove any identifying information, such as replacing a participant's name with the use of a pseudonym.
- Length of time it takes a participant to complete the interview. This might vary from 10 minutes to a couple of hours. Please try and keep interviews under one hour if you can and offer your participant breaks, water, or snacks if they need them.
- Talking to another person can arouse people's emotions, and so you may need to consider this risk. That is, you'll need to consider the content of the questions you're asking: could they cause/trigger psychological harms, economic harms, or legal harms? Participants may also want to stop the interview if they find the questions distressing or upsetting. If you're uncertain about whether a participant wants to continue – ask them. If you're in doubt, you'll need to stop data collection, contact your supervisors or other members of the research team, and you may need to make a report to your research institution's ethics office. Remember, if a participant asks to stop an interview you must not under any circumstance try and cajole them into continuing.
- As a researcher, you'll need to reflect on whether you have the skills to deal with an upset participant. Some topics should be left to interviewers with skills in psychology or counselling.
- Plan ahead and include information about appropriate referral services in the participant information sheet, even if you do not personally think a topic is distressing.

RECRUITMENT AND DATA COLLECTION

Recruiting participants in responsible ways is a core part of the research process and something to which careful attention is paid during assessment of the research ethics of a project. This topic will focus on the responsible recruitment of research participants and the collection of data from individuals.

Recruitment of Research Participants

The strategies you use to recruit your participants will be varied, and you'll need to think carefully about the research methodology you've chosen and who your participants are. For example, are you approaching your work from a quantitative perspective? If so, then you'll need to gather data from lots of participants and therefore your recruitment will need to be broad if you're trying to take a sample that could be considered representative of a wider population.

If you're drawing on qualitative methodologies, then your approach might be different in that

you'll likely be focusing on a much smaller number of participants who have a shared experience of a particular phenomenon and are therefore looking for a more homogenous sample. Your recruitment, in this case, would be more targeted.

You also need to carefully consider your inclusion and exclusion criteria for your participants. Do you, for example, want to focus on a particular age group, occupation, or social class? These criteria need to be made explicit in your application form to enable an accurate assessment of the risks associated with your research.

The strategies you choose to recruit your participants' will also carry different levels of risk, and these need to be considered as part of your research design and ethics reflections.

Recruiting From Your Acquaintance Network

Recruiting people who you know, or friends of friends has the benefit of more straightforward access to your participants. However, one thing to consider if you're planning to recruit participants through this strategy is social risk. Do the people who you approach feel obliged in some way to take part in the research? Will your relationship with them be compromised in any way if they either refuse to take part in the research or don't provide the expected responses? Are these participants' fellow employees within a company, for example, and are there issues of confidentiality and future impacts on working relationships that need to be considered?

These issues will, of course, be influenced again by your research design. If you're planning a quantitative survey that is anonymous then the social risks will be reduced. However, if you're planning to interview participants about a sensitive or personal topic then the social risks will be considered higher.

Vulnerable Participants

Some participants are more vulnerable than others in the research process, and as part of your ethics application, you'll be asked to carefully consider who your target participants are and whether these comprise what are considered a vulnerable population. Such populations include research with a pregnant woman or foetus, children, people with cognitive impairment or mental illness, people considered to be a forensic or involuntary patient, people with impaired capacity for communication, incarcerated individuals or people on parole, those highly dependent on medical care or who are in hospital, military personnel or veterans, Aboriginal and Torres Strait Islander peoples, people in other countries or who would consider English to be a second language, and those who would not usually be considered vulnerable but would be considered vulnerable in the context of the proposed research project.

Children can provide a wealth of important information, but due to their age and cognitive immaturity, special attention needs to be given to safeguarding them in their participation in research. One crucial element is that of consent, which we'll discuss a bit later in the chapter. Care and attention also need to ensure that the rights of children are protected in terms of confidentiality and potential coercion into participation in projects.

Research that is undertaken within schools may require the additional approval of the education governing body, and therefore careful attention needs to be paid to this in the research planning stages. Also, think carefully about the tasks you're requiring the children to do. If a child (or their parents) does not consent to taking part in a school-based activity that will comprise the research, what equitable activity will you provide for them to do instead?

Recruitment of Aboriginal and Torres Strait Islander Peoples

There is great diversity across the many Aboriginal and Torres Strait Islander cultures and societies. Application of core values and cultural and local protocols should be determined by the Aboriginal and Torres Strait Islander communities or groups involved in the research. This means you need to engage with the people or communities you want to research to discuss your proposed research and agree to the best way forward prior to seeking your ethical approval.

Unfortunately, that didn't always occur in the past. Consider, for example, the Cambridge anthropology expedition to the Torres Strait that took place in the late nineteenth century, or later research with indigenous groups that had little contact with white Australian culture but were given tests of cognitive ability without considering how constructs such as intelligence may be expressed in different cultural settings (Dudgeon et al., 2014). In 2016, at the national Australian Psychological Society conference, the APS acknowledged the role psychology played in the mistreatment and erosion of Aboriginal and Torres Strait Islander culture.

It's therefore important that if you're undertaking research with Aboriginal and Torres Strait Islanders, you think about the research collaboratively. You may find the Ethical Conduct in Research With Aboriginal and Torres Strait Islander Peoples and Communities: Guidelines for Researchers and Stakeholders (NHRMC, 2018a) informative.

If you're undertaking health research that is targeting Aboriginal and Torres Strait Islander peoples and communities, you must consult the above guidelines and may find the following useful: Keeping Research on Track II (NHMRC, 2018d) and the Guidelines for Ethical Research in Australian Indigenous Studies (Australian Institute of Aboriginal and Torres Strait Islander Studies [AIATSIS], 2012).

Consent

When you think of obtaining consent, what comes to mind? You may indicate that it could involve signing a consent form prior to taking part in the research. While this is a common component of obtaining consent, this may not be suitable – or even practical – if you propose to administer an online survey. Therefore, a well-designed consent strategy will need to be tailored to your potential participants and fit with your research methodology and research methods. Consent should also be viewed as a process, rather than a single point in time event. That is, obtaining consent may be a component of the processes you undertake when consulting, engaging, and negotiating to prepare for your research conduct. This will be especially relevant in the context of research involving Aboriginal and Torres Strait Islander peoples and communities.

The requirement for consent is a relatively new concept, having evolved predominantly through unscrupulous researchers using a participant as a means to an end – for example, the Tuskegee researchers we discussed earlier in the chapter. Subsequently, international and national guidelines, such as the Belmont Report (National Commission for the Protection of Human Subjects of Biomedical and Behavioural Research, 2012) and the National Statement on Ethical Conduct in Human Research, 2007 (updated 2018) (NHMRC, 2018b) have been produced to empower and protect participants to make an informed decision about their participation in research.

Elements of Consent

When obtaining consent from a participant, you need to ensure that it's provided voluntarily. That is, that the individual has agreed to take part in the research as a result of having being provided

sufficient information, understood that information, and not been coerced (or felt pressured), nor overly enticed to partake (through inappropriate incentive or reward).

This raises a number of decision points that you'll need to work through, for example:

- How much information do I need to provide about the study?
- How will I obtain voluntary participation?
- Who will be involved in recruiting the participants?
- How will I ascertain if the participant understands the information I've provided about the project?
- Does the participant have any expectations about the outcomes of the project – for example, in medical research, will they be expecting treatment of a known condition or illness, versus understanding they're participating in research and may be assigned to a control (i.e., no treatment group)?
- Who needs to be involved in the decision to provide consent? E.g., Will all participants have the capacity for understanding and/or the legal capacity to provide consent? If not, when do others need to be involved in this decision? This would involve situations where the participant lacks the capacity to provide consent, e.g., elderly person with dementia.

Consent Approaches

Normally, ethical review bodies like to see that you can demonstrate that a participant in your research has provided consent. It's therefore worth considering how you've determined the participant has the sufficient capacity to give their consent to take part in the research and how you will document this. Where written consent from a healthy adult participant is provided, this would not normally be a problem. However, for some more sensitive research topics where participants may be reluctant to provide their name or signature, you may need to consider an alternative consent strategy to the traditional written or recorded approach to protect the privacy and confidentiality of your participant. Similarly, if you're working with children and young people, or with individuals who may be unable to give consent because they're temporarily or permanently incapable of comprehending their situation or of communicating about it, you'll need to develop a consent strategy. This strategy will need to empower these individuals to be involved in the decision to participate as much as they are able. You'll also need to consider who else may need to be involved to provide the required ethical and legal consent. In some cases, such as physical or mental health, participants may not be able to provide consent to participate in the research. For example, if you wanted to observe a person with end-stage dementia they would be unable to give consent, however, an appropriate surrogate – such as someone with a legal power of attorney – may be able to give consent on their behalf. Sometimes people may be temporarily unable to give consent. For instance, if they're under the influence of drugs or alcohol. Being able to give consent is different when considering research with child participants – children are not assumed to be incompetent due to their age, but there may be additional steps you need to take for children to give their consent. In some cases – for example, research that is conducted in medical care settings such as neonatal intensive care, terminal care, or emergency and intensive care – relevant jurisdictional laws will also need to be considered.

DATA AND INFORMATION MANAGEMENT

In your ethics application, you'll need to think critically about the issues of data collection, use, and management of data and information. You will also need to consider ethical issues related to

the generation, collection, access, use, analysis, disclosure, storage, retention, disposal, sharing and re-use of data and information. This will be the focus of this section.

Information Versus Research Data Versus Primary Materials

Data generally refers to bits of information. Data can also refer to raw data, cleaned data, transformed data, summary data, and/or metadata (data about data). Data can also refer to research outputs and outcomes. Information, on the other hand, generally refers to data that has been interpreted, analysed, or contextualised, and can take many different forms. You may also see questions in an ethics application about primary materials. This typically refers to physical objects acquired through a process of scholarly investigation from which data may be derived. This may include objects such as ore or biological materials, but also questionnaires, recordings, artworks, and photographs.

Some examples of research data and primary materials can include, but are not limited to:

- what participants say in interviews, focus groups, questionnaires/surveys, personal histories and biographies
- images, audio recordings, and other audiovisual materials
- records generated for administrative purposes (e.g., billing, service provision, etc.) or as required by legislation (e.g., disease notification)
- digital information generated directly by a population through their use of mobile devices and the internet (e.g., Twitter feeds)
- physical specimens or artefacts
- information or reports generated by analysis of existing personal information (from clinical, organisational, social, observational or other sources)
- observations
- results from experimental testing and investigations
- information derived from human biospecimens such as blood, bone, muscle, and urine.

It's quite common for people to get confused between research methods and primary materials in their ethics application. It's really important when completing your ethics application that you clearly articulate the context. For example, are you writing about a questionnaire as a research method for obtaining research data, or is the questionnaire the primary material (i.e., the survey instrument)? Remember that reviewers of your application need to be able to understand what you're trying to say and therefore it's important to use the correct terminology.

Identification of Information

Information is identifiable if someone is able to identify an individual from information that is included in a thesis or journal article. Types of identifiable information include names, date of birth, address, images or photos, or group affiliation.

Re-identifiable information is information that has had any personal identifiers removed and replaced with a pseudonym and/or a code. Even with these types of precautions, it's potentially still possible to re-identify that person. For example, you may be interviewing employees at Company X about their workplace health and safety. Company X may only have 20 employees and so it's possible that some of their individual comments or responses could reveal their identify to people who know the employees at Company X.

No doubt you've heard (and most likely read) the term 'de-identified'. However, ethical review boards prefer the use of either identifiable, re-identifiable, or non-identifiable. This is because the term de-identified can be ambiguous in its meaning. For example, are you proposing that you'll run a process to remove any personal identifiers from research data/information you collect, to protect an individual's privacy? Or do you mean that you have collected the information without any personal information in the first place? Many researchers use the term to indicate that they will 'de-identify' the participants, which is incorrect, whereas non-identifiable information is data that has never had any individual identifiers or that a process had been applied to to permanently removed any personally identifying information.

It's also important to remember that the removal of personal identifiers may or may not be ethically required and some research projects may legitimately require the retention of personal identifiers. For example, if you were conducting biographic research into the bullying and subsequent suicide of Charlotte Dawson, you would want to include any personally identifying information such as tweets she made to internet trolls.

Personal Identification and the Law

As an ethical researcher, you're no doubt thinking about how you can protect the privacy of your participants. In Australia, a participant's personal information is protected by law under the Privacy Act (1988). Personal information is not just limited to information about an individual's private or family life, but also extends to any information or opinion that is about that person or from which they can be reasonably identified (Office of the Australian Information Commissioner [OIAC], 2017). This can include information or opinion about:

- racial or ethnic origin
- political opinions
- religious beliefs
- sexual orientation
- criminal records
- health information
- credit information
- employee record information
- Tax File Number (TFN) information.

Note that this is regardless of whether personal information or opinion is also included within the scope of the Privacy Act (1988), and whether it's recorded in a material form (or not). So, while the definition of privacy can be quite broad, it's important that you consider how you collect, use, disseminate, store, and re-use information for research purposes.

To Identify or Not Identify?

You may think it would be simpler to remove any personal information from your research data or information and that would then reduce or eliminate the risk of being able to identify or re-identify any of your participants. In this way, their privacy would be now protected. Right?

Well… the answer is – it depends! There are some research methodologies where it's entirely appropriate that others know who your research participants were. For example, if you need to match participant responses for questionnaires conducted at two different time points. It's

important to understand that the nature of identifiability can (and often does) change as you collect, use, analyse, disseminate research findings and store your research data and information. For example, data or information might initially be collected in a form that could identify individuals, then coded for analysis and connection to other collected data or information, and then once all the data or information has been collected, the code key might be destroyed, rendering the data or information anonymous.

It's also worth considering how your participant may want to be represented throughout the research process. Would they be happy to be 'anonymised' or would they prefer for their thoughts and opinions to be heard? If you're researching a sensitive topic that may have repercussions for a participant's social or work relationships if their identity was known, then you'll need to discuss this with your participant as well as manage any perceived risk associated with each option. As you can see, there are a lot of decisions you'll need to make when considering how to manage this aspect of your research project.

The risks related to the identifiability of data and information in research are greatest when the identity of a specific person can reasonably be determined by reference to a specific identifier or a combination of identifiers. This situation may be the case when your recruited participants are part of a small population. This means you should take care in how you report your findings and will need to consider how much detail you provide around things like physical locations, specific recruitment groups, or associated organisations. For example, if you report that school principals from Catholic Education high schools in Central Queensland participated in your study, it may be well known within this community that there are only three schools that would fit this criteria. Therefore, it may not be too hard to link the opinions of the participants reported in your study to the school principals who work in those communities.

Risks may also arise where identifiers have been removed from the data or information and replaced by a code, but where it remains possible to re-identify a specific individual (by cracking the code or linking data to other data sets that contain identifiers). The technology that's currently available (as well as what may be available in the future) may create new risks for data and/or information that was never labelled with individual identifiers, or from which identifiers have been permanently removed. For example, face recognition software means that people can be automatically identified without providing any specific permission.

Identifiability may also reflect features of the project, such as the nature of the participant sample. Specifically thinking about whether your data includes high-profile individuals or members of small communities versus larger populations. It's also important to remember that large datasets are not immune to the risk of having participants re-identified.

Privacy, Confidentiality, and Anonymity

Privacy focuses on protecting the personal information of a participant that has taken part in your research project. This is not only an Australian requirement but complies with international laws. Confidentiality is different to privacy and focuses on the obligation of researchers to only use the private information provided to you by a participant for the purpose for which consent was given to you. This is both a moral and legal obligation, and depends on several factors, including the nature of the research and the promises you've given to the participants, along with any professional requirements you may need to fulfil. For example, you would typically outline the details of what data and information you plan to collect, use, disseminate, and re-use in an information sheet provided to participants before they take part in your research so they can then

give their informed consent to participate. You must then abide by those details to maintain the requirements of confidentiality.

Some professions, however, are legally responsible for reporting certain information if they're made aware of it. For example, if a teacher, psychologist, or counsellor becomes aware of child abuse, risk of self-harm, or harm to others, this information must be reported. It's important to know your legal and professional responsibilities to report such information, who you report this information to, the appropriate process that should be followed, and when you can't keep this information private. You must also inform your participants of these details, and this information is normally found in the information sheet.

When information is collected anonymously from a participant, no personally identifying or re-identifying information is provided. Anonymity, therefore, requires that the identity of a participant is protected because it's not known to anybody either within or outside the research team. A good example would be when a participant completes an anonymous online questionnaire. Anonymity does not mean that you will not report any identifying information – in many cases you will report some details such as age range of your participants.

In some situations, you may not be able to ensure participants' confidentiality or anonymity. For example, due to the nature of participating in a focus group, it's impossible for you to guarantee that a participant's confidentiality will be protected as there are other people present in the focus group. While you may ask the other participants to keep the discussions or other members in the focus groups confidential, in reality you can't make someone keep this information confidential. To minimise these risks you could include information within the participant information reminding participants to keep details of the focus group confidential and reiterate this at the commencement of the focus group discussion.

Data Management

As a budding researcher, it's important that you develop a data management plan that addresses issues related to the generation, collection, access, use, analysis, disclosure, storage, retention, disposal, sharing and re-use of data and information, as well as strategies for minimising risk. Your plan should be developed as early as possible in the research process and should include, but not be limited to, details regarding:

- physical, network, system security and any other technological security measures
- policies and procedures
- contractual and licensing arrangements and confidentiality agreements
- training for members of the project team and others, as appropriate
- the form in which the data or information will be stored during and after the project
- the purposes for which the data or information will be used and/or disclosed
- who owns the copyright and intellectual property
- who will be responsible for managing the data (data custodian)
- the conditions under which access to the data or information may be granted to others
- how the data will be shared for future use
- what information from the data management plan, if any, needs to be communicated to potential participants.

As a researcher, you will need to adopt methods to reduce the risk of identification during the collection, analysis and storage of data and information. Methods you may use include:

- minimising the number of variables collected from each participant
- separation and separate storage of identifiers and content information
- separating the roles of those responsible for the management of identifiers and those responsible for analysing content.

Using the Internet and Other Social Media

Data available on the internet can range from information that's fully in the public domain to information that's publicly available but that the creator or poster may consider private.

If you're using information from social media in your research, you'll need to consider:

- Is the information in the public or a private domain?
- Is permission required from a webpage, group administrator, or a specific person prior to using the data for research purposes?
- Do the terms and conditions of the webpage allow your research project to be conducted? The onus is on you to check the terms and conditions of each webpage to ensure you're acting ethically within those guidelines.
- Is the individual who posted the information to a specific site likely to understand that that information could be accessed for research purposes?

How Long Do I Store My Research Data and Information?

Most universities and research institutions will have guidelines outlining their requirements for where data is stored, how long data is stored for, and the security and storage of the data. Typically, there are two stages of data storage: data collection and project completion.

While many people think that once a project is completed, they have to destroy the data, this is actually not the case at all. Instead, there are legally required retention periods for each state and territory across Australia, but a good rule of thumb is to keep the data for as long as it's practical and responsible to do so. This is particularly helpful if you decide a year or two after the project to publish your research and you need to run additional analyses. If you're working on a project with others, you'll also need to consider whether others may want to work with the data in the future and who should retain a copy of the data file.

However, there is a **minimum** retention period that you're required to comply with. Generally, research data must be retained for a minimum of **five years** after the project concludes or is abandoned. However, particular aspects of your research project – such as signed consent forms – may need to be retained for a longer period, e.g., 15 years in Queensland. If your research is significant or results in a patent, the data must be retained for a longer period. Research data from clinical trials has a higher retention requirement again, and some historical-based research may need to be retained indefinitely. It's your responsibility to review the requirements for the type of research you're undertaking and to make the appropriate short- and long-term arrangements for the data to be appropriately stored for the minimum required period. For example, if you're a student working on a project the data should always be given to your supervisor at the completion of your project.

How Do I Store My Research Data and Information?

Research data and information must be kept secure and stored in conditions that are designed to reduce deterioration of the data. Most universities and research institutions will have guidelines for what are considered appropriate conditions, although these will also normally comply with the security and privacy requirements in Australia. While many researchers may use USB drives to store their data, this is NOT considered secure. Unfortunately, we've met too many student researchers whose data has been lost because of corrupted or lost USB drives, including when they go through the wash!

It's therefore considered good research practice to store your research data in at least three separate ways. We recommend you consider using cloud storage to store research data during the active phase of your project as most universities provide free cloud storage for their students. However, you'll need to think about the following questions when you're choosing your data storage solutions:

- If you're using cloud storage to store your date, consider selecting a cloud storage system based in Australia. This ensures the data is protected under Australian laws and regulations.
- Is the storage system appropriate for the data? For example, if you're collecting sensitive health information or data, you may need additional security protocols.
- Is the storage system appropriate for the life of the research project?
- Can access be shared with other researchers if this is required? This includes other research team members during data collection, and other researchers into the future (but only if you've sought consent for the future use of the data in your ethical application).

All information on how you plan to collect, use, and store personal information from your participants needs to be clearly communicated in an information sheet that they can retain and/or ask questions about before they take part in the research.

MERIT, INTEGRITY AND MONITORING

Before any research with or about humans, their data, or their tissue is conducted, it's important for you to critically think about the application of ethical values and principles and incorporate these into your research project. These commonly include research merit and integrity, justice, beneficence, and respect. However, you also need to consider the competence of yourself and your research team to undertake the proposed research methodology and methods. Consideration also needs to be afforded to how you'll monitor the conduct of your research against what has been approved, and what might occur if an ethics review body receives a complaint about the way you're conducting the research. Specifically, this topic will focus on values and guiding ethical principles, monitoring approved research, and what occurs when a complaint is made.

Beneficence, Research Merit, Competence, and Integrity

Beneficence

Before you conduct any sort of research, it's important to think broadly about whether the research has benefit to individuals, groups, or society more generally. A good way to think about beneficence is: Do the benefits of the research outweigh the risks to the participants? When you're planning your research, your concern should always be that the participants will find the research valuable (and hopefully interesting!), even if there is no immediate benefit to them. Any risks

to those who are participating in your research should be minimised (via your research design) and the remaining risks managed, and your participants should be fully informed about both the benefits and risks in taking part in the research.

The conduct of all research will have some level of risk attached, even if this is minimal. For example, social risk may be present when you approach your family or friends to take part in the research or a time imposition risk if you are conducting lengthy interviews, and this will need to be addressed in your ethics application. Of course, the participants will need to be informed in the participant information of any risk that may affect them. Please do not ever try to minimise or downplay the risks of taking part in the research – always be clear and honest with the participants. When thinking about risks, don't forget to also consider the risks to you as the researcher. For example, if you're conducting an interview, you should think about the interview time and location and whether this could pose any potential risks. If it does, you also need to think about how you'll manage that risk.

Research Merit

When thinking about whether research has merit, this means the research is justified, of appropriate quality, and that the project is being conducted by researchers who have experience and competence in that area. More specifically, justification of research means there is a benefit to individuals, groups, or greater society, or that the research will provide new knowledge. Appropriate quality means that the research aims, hypotheses or research questions, methodology, and methods are all appropriate to the research being conducted. Experience and competence means the research investigator or team have suitable training in a range of areas such as cultural and historical understandings for the specific topic, and possess good communication skills.

Research Integrity

Another important principle that relates to both beneficence and research merit is research integrity. Research integrity shows that:

- the researcher has a genuine commitment to gaining a better understanding of specific knowledge
- the research will be disseminated to participants and society more broadly in ways that allow for greater contribution of knowledge on a topic, and for other researchers to critically examine the methods and results

ultimately to preserve and protect the trust that all participants place in research and researchers.

Respect

Respect is another important principle in ethical research and embodies a recognition that all human beings are valuable. Regarding research, this means that you, as a researcher, are committed to upholding a participant's welfare above and beyond completing a specific research project or program. In other words, a participant is not to be treated as a means to justify an end, such as meeting the requirements for your research project, thesis, or survey completion. You also need to assess that you and the research team have appropriate knowledge of cultural groups, values, beliefs, and customs of the people you plan to engage with when conducting the research. It's vitally important that you understand that culture and cultural difference are complex. While ethical review bodies appreciate that a researcher can't be expected to 'know it all', you should be able to demonstrate that you're aware of and mindful of any differences in values and culture your

proposed participants may have to you, and are able to find appropriate ways to manage these differences.

Three ways to manage difference are:

1. If you you're targeting a specific group and feel that your cultural knowledge of this group could cause harm to the group, you may wish to reconsider the research or the research design.
2. If, after careful consideration of the research or research design, you decide to go ahead with the research, you may want to invite someone with knowledge of the targeted participant group into your research team or seek them out as an advisor.
3. If your targeted participation group may be vulnerable, also read through the ethical considerations specific to this participant group within the National Statement on Ethical Conduct in Human Research, 2007 (updated 2018).

Another element of being respectful to your participants is making sure they have all the information they need to make an informed choice about taking part in your research. For example, a participant will need to understand what your research is about, why you're conducting the research, the process of the research (i.e., completing a survey or taking part in an interview) and the exact specifics of what they'll need to do. This is one reason why it's important that you write the participant information sheet clearly, concisely, and in plain language. It's therefore essential that you limit or modify any scientific or discipline-specific words that your participants may have trouble understanding and include any acronyms or initialisms in full in the first instance.

Maintaining and honouring the rights and dignity of the participant is central. This is addressed, in part, through processes of confidentiality and privacy. When conducting research, the researcher will often ask participants detailed information about their life either for demographic purposes or as part of the research. For instance, demographic questions such as annual income or location. Participants need to know that you will respect the information given to you as part of the research process and trust that you will protect and manage that information appropriately. Some research could place the participant at significant risk if other people had access to that information, such as the disclosure of mental health disorders in the participant's workplace. It's important that you respect any personal disclosures from the participants and manage this information well. This could include strategies such as anonymising online questionnaires or using pseudonyms for participants who take part in interviews.

Working With People With Autism

Sometimes there are additional things we might need to consider when working with certain communities. One example we can draw on here is the autistic and autism communities. How might we consider the research questions we pose to ensure they're in alignment with the priorities of these communities? How might we adapt our methods to allow for more inclusive practice? Sometimes we may need to think a little outside the box to ensure meaningful and respectful engagement with our research participants, while still maintaining the highest possible ethical standards. The Australian Autism Research Council (AARC) has recently published commentary on some research priorities and The Cooperative Research Centre for Living with Autism (Autism CRC) has some good guides concerning inclusive research practices.

Justice

It's easy to understand justice when we think about our legal system, but how does justice apply to human research ethics? This principle would typically refer to equity. In other words, we don't want to exploit the participants who take part in our research. In a similar way, you also need to ensure that any research that involves vulnerable groups:

- has additional safeguards
- includes all people in your research that want to take part
- shares research conclusions in a way that's appropriate to the individual or the organisation.

Let's unpack this a little more.

We've already discussed the principle of respect. Justice really takes this principle a step further. Think about people who may be considered vulnerable under our ethical guidelines. For example, a person with a disability, children, or those people whose first language is not English. As researchers, you may need to take extra measures to ensure these people are protected. For instance, you may need to have an interpreter present if you interview someone from a linguistically diverse background, or if you're observing a child you may need to obtain a parent's permission to approach the child to participate in the research (as well as seeking the child's assent to participate).

We've discussed recruitment already in this chapter, but as students and potential researchers, you need to ensure this process is fair. Most researchers will recruit and select participants either randomly or purposefully. If you're recruiting a purposive sample, you may need to ensure that no one is left out, particularly those people who may already feel discriminated against or marginalised. In other words, you can't leave particular participants out of the research simply because it's more convenient for you, the researcher. For example, you may want to ask school children about their family life, but some children may be excluded because they may be perceived as being difficult due to physical or emotional concerns.

As part of the research process, it's important that you take the time to disseminate your research to participants, but also to the community more broadly. The way you decide to disseminate your research should be considered in your research planning. Again, make sure you plan how to discuss your research with groups or individuals who may struggle with lengthy research summaries. It's considered good practice to summarise your research once it's completed and send your finding through to any interested parties. If you're a research student, you would make sure this is a one or two page summary rather than sending your participants a copy of your thesis!

Monitoring

As a researcher, you need to periodically assess and verify that the conduct of your research conforms to your approved ethical proposal. This is referred to as 'monitoring approved research'. Each institution will have their own specific process for monitoring approved research, so we'll discuss monitoring as a general process. Overall, each research institution will have ultimate responsibility for monitoring its approved research. Typically, you'll be asked to complete reports at regular periods (depending on the level of risk associated with the research) and at the conclusion of the project. You'll normally also be required to notify your research institution and the approving ethical review body if anything occurs that was unexpected or occurred in excess of what you expected via an 'adverse event report'. Many institutions will also provide you

with conditions on the ethical approval of your research, so be sure to read your ethics approval carefully! For instance, if there are any complaints from participants about the way you conduct your research, your institution's approving ethical review body will need to be advised.

Progress reports would normally be required at least on an annual basis by institutions. At this time, you'll include your research conduct progress to date, your compliance with the approved project, and note any complaints from participants or any changes to your research protocol. It's important to note that if you decide to make changes to the way you want to conduct the research process, then you must seek approval prior to implementing any of these changes. Normally, this will be undertaken via an amendment application submission and approval process. Examples of when you will need to seek approval via an amendment application include: if one of the research team leaves the project, or if an additional measure or scale is added into a questionnaire.

On very rare occasions, situations may arise where either you, the research institution or the ethical review body may find reasons to discontinue or suspend research conduct. If you need to discontinue your research, be sure to inform both your research institution and the ethical review body as soon as possible. Where the institution or ethical review body suspends or withdraws ethical approval, you need to ensure that all participants are treated fairly and with respect. Where ethical approval is withdrawn, you're also required to notify your participants about the withdrawal of ethical approval. Additionally, you must cease data collection for the project immediately once advised ethical approval has been suspended or withdrawn.

Complaints About Research

Your research institution may receive complaints about you (as a researcher) or the way in which the research is being conducted. Complaints can be made by research participants, researchers, staff of institutions, and members of the public. In Australia, the majority of research institutions follow the National Health and Medical Research Council (NHMRC)'s Guide to Managing and Investigating Potential Breaches of the Australian Code for the Responsible Conduct of Research, 2018 (commonly referred to as 'the Code'). This document outlines that breaches of the Code occur on a spectrum, as well as factors to consider when determining the seriousness of a breach. The consideration and management of complaints, together with the principles of procedural fairness and stakeholder responsibilities – both for institutions and researchers – are also provided.

It's important that you only conduct your research once you've been granted full approval by an ethical review body. Any conditions of approval must be maintained or met, and any deviation from the original approval must be approved by the ethical review body prior to you implementing those changes. If you have any questions about what constitutes a deviation or variation, contact your ethics office to discuss the requirements at your institution. Ignorance is not a defence when it comes to complying with the Code requirements, so it's best to check if you have any questions or doubts.

THE APS CODE OF ETHICS

The Australian Psychology Society is the professional body of choice for psychologists in Australia with over 27,000 members (Allied Health Professions Australia, 2021). The organisation has several roles including advocacy and promotion of psychological knowledge, and provides many benefits for its members. The purpose of the APS Code of Ethics is to protect both the welfare of clients and the morals of the profession (APS, n.d.). The Code has three general ethical principles: Respect for the rights and dignity of people and peoples, Propriety, and Integrity. Within each principle are several ethical standards along with explanatory statements. For example, the general

principle A (Respect for the rights and dignity of people and people) has an explanatory note that outlines the principle and then provides an explanatory statement before unpacking each specific ethical standard. If you read through the APS Code of Ethics, you'll see some similarity with the NHMRC Code. However, the APS Code specifically articulates ethical professional conduct and responsibilities required to be adhered to by psychologists in their practice.

While we would love to share with you examples from the APS Code, unfortunately it's copyrighted. However, if you're a member of the APS, you have access to the APS Code and we encourage you to download the information and have a look.

Conclusion

No doubt as you read through the chapter, you learnt things you may only have had a small amount of knowledge about. However, we hope you finish the chapter with a better understanding of ethics and some of the decision-making that psychological scientists need to appreciate before they embark on a research project. We also hope that when you're reading research articles, you can critically reflect on the ethical issues the researchers themselves may have had to consider.

This chapter has been written by Tanya Machin, School of Psychology and Counselling, University of Southern Queensland, and Charlotte Brownlow, Graduate Research School, University of Southern Queensland.

Send us your feedback: We would love to hear from you! Please send us your feedback.

REFERENCES

Allied Health Professions Australia. (2021). *Australian Psychological Society.* https://ahpa.com.au/our-members/australian-psychological-society/

Australian Institute of Aboriginal and Torres Strait Islander Studies. (2012). *Guidelines for ethical research in Australian indigenous studies.* https://aiatsis.gov.au/research/ethical-research/code-ethics

Australian Psychological Society. (n.d.). *Ethics and practice standards.* https://psychology.org.au/about-us/what-we-do/ethics-and-practice-standards

National Commission for the Protection of Human Subjects of Biomedical and Behavioural Research. (2012). *Belmont report: Ethical principles and guidelines for the protection of human subjects of research.* https://videocast.nih.gov/pdf/ohrp_appendix_belmont_report_vol_2.pdf

Brown, D. L. (2017, May 16). You've got bad blood: The horror of the Tuskegee syphilis experiment. *Washington Post.* https://www.washingtonpost.com/news/retropolis/wp/2017/05/16/youve-got-bad-blood-the-horror-of-the-tuskegee-syphilis-experiment/

Centers for Disease Control and Prevention. (2021). *The Tuskegee timeline.* https://www.cdc.gov/tuskegee/timeline.htm

Dudgeon, P., Rickwood, D., Garvey, D., & Gridley, H. (2014). *A history of indigenous psychology.*

https://www.telethonkids.org.au/globalassets/media/documents/aboriginal-health/working-together-second-edition/wt-part-1-chapt-3-final.pdf

National Health and Medical Research Council. (2018a). *Aboriginal and Torres Strait Islander peoples and communities: Guidelines for researchers and stakeholders.* https://www.nhmrc.gov.au/about-us/resources/ethical-conduct-research-aboriginal-and-torres-strait-islander-peoples-and-communities

National Health and Medical Research Council. (2018b). *National statement on ethical conduct in human research (2007) – Updated 2018.* https://www.nhmrc.gov.au/about-us/publications/national-statement-ethical-conduct-human-research-2007-updated-2018

National Health and Medication Research Council. (2018c). *Australian code for the responsible conduct of research*. https://www.nhmrc.gov.au/about-us/publications/australian-code-responsible-conduct-research-2018

National Health and Medical Research Council. (2018d). *Keeping research on track II.* https://www.nhmrc.gov.au/about-us/resources/keeping-research-track-ii

Office of the Australian Information Commissioner. (2017) *Personal information.* https://lawhandbook.sa.gov.au/ch34s02s03.php

Shaughnessy, J. J., Zechmeister, E. B., & Zechmeister, J. S. (2006) *Research methods in psychology* (7th ed.). McGraw-Hill.

Stark, C. (2019). The essence of ethics for psychologists and aspiring psychologists. In M. E. Norris (Ed.), *The Canadian handbook for careers in psychological science*. eCampusOntario. https://ecampusontario.pressbooks.pub/psychologycareers/chapter/the-essence-of-ethics-for-psychologists-and-aspiring-psychologists/

Tuskegee University. (2021). *About the USPHS syphilis study.* https://www.tuskegee.edu/about-us/centers-of-excellence/bioethics-center/about-the-usphs-syphilis-study

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CHAPTER 5.

CLINICAL PSYCHOLOGICAL SCIENCE

CRYSTAL MCMULLEN; GAVIN BECCARIA; AND JUSTIN KENARDY

INTRODUCTION

Clinical psychological science is both the most recognisable and sought after postgraduate training program in psychology. At the same time, it's also probably the most misunderstood. Every year, the University of Southern Queensland receives over 300 applications for somewhere between 25 and 30 positions in its Master of Clinical Psychology program. It's highly competitive owing to the large number of applicants and relatively few positions available in the program, and this pattern is common among other clinical psychology graduate programs throughout Australia. The purpose of this chapter is to educate undergraduate students about the many facets of clinical psychology. In this chapter, we'll define clinical psychology, the scope of practice and research, discuss training paths, and provide examples of careers in clinical psychology. The goal of this chapter is to educate students about clinical psychology, the training needed to become a clinical psychologist, and provide models of how the different facets of clinical psychology are practiced in various settings.

THE SCIENCE OF CLINICAL PSYCHOLOGY

Clinical psychologists apply the science of human behaviour to real-world concerns, specifically regarding mental health and wellbeing. Clinical psychologists bring principles of the scientific method – namely hypothesis generation, testing, and evaluation – into research, clinical practice and teaching in mental health. Clinical psychologists engage in clinical practice with populations across the lifespan (children, adolescents, early, mid, and later life adults) and social contexts (individuals, couples, families, and organisations) to address a broad array of behavioural and mental disorders including neurodevelopmental, psychotic, mood, sexual, and personality disorders. Clinical psychological science encompasses a wide range of activities with the common goal of improving mental health and wellbeing. These activities can be divided in to at least seven broad areas of clinical practice: research, assessment, diagnosis, prevention, treatment, program evaluation, and consultation. Below, we provide a brief overview of each area of clinical psychological science.

Research

Clinical psychologists routinely apply the principles of research to their practice. As scientist-practitioners, clinical psychologists are firstly research consumers – that is, there's an expectation that they keep up-to-date with current research and apply it to their practice. There's an expectation that a clinical psychologist keeps abreast of the current literature pertaining to mental health assessment and treatment, so they provide best practice to their clients. Clinical

psychologists also apply research techniques to their practice. For example, assessments are routinely applied at the commencement of treatment or throughout treatment. These tools can take the form of behavioural observation (e.g., frequency counts), clinician administered tools (e.g., Health of the Nation Outcome Scales – see Painter, Buckingham & Stewart, 2018) or self-report questionnaires (e.g., the Depression, Anxiety and Stress Scale). By monitoring the process, clinical psychologists can objectively determine whether clients are improving. Finally, several clinical psychologists also actively participate in research, where they develop or refine assessment and treatment techniques. Over the last 50 years, research-led clinical psychologists in Australia have contributed to the improvements in the management of a range of mental health presentations, including psychosis, anxiety, depression, post-traumatic stress disorder (PTSD), and eating disorders to name a few.

Research in clinical psychology takes as many forms as there are research questions, from asking questions about the genetics of individuals who are prone to specific mental difficulties, to the experiences during therapy of clients seeking treatment. In the sections that follow, we provide numerous examples of how research is integral to the development of clinical assessment tools, diagnosis, intervention, prevention, program evaluation, and consultation. Later in this chapter, we provide specific examples of clinical psychologists' careers, many of which prominently feature research.

Assessment and Diagnosis

The goal of psychological assessment is to evaluate the nature and scope of the psychological difficulties that a client or clients (e.g., couples, families) are experiencing. The assessment is used to inform the best practice approach to intervention. The information gathered during an assessment can also be used to determine whether the client's presentation is consistent with a diagnosis, and this is known as a *diagnostic assessment*. Several methods are used to gather information in an assessment, including interviews where clients are asked questions about their symptomology, functioning, background history, and goals. Other methods of assessment include structured clinical interviews such as the Structured Clinical Interview for the DSM (SCID) (First, Williams, Karg, & Spitzer, 2015; First, Williams, Karg, & Spitzer, 2016), clinical observations, self-report symptom checklists/questionnaires, and standardised tests such as tests of intelligence, achievement, and memory. Each of these assessment tools are developed through the application of the scientific method to develop the pool of questions or tasks that the client completes, how the results are scored, and how responses are interpreted in relation to the referral question. The most widely used clinical assessment tools are psychosocial measures such as the Depression, Anxiety, and Stress Scale (DASS) (Lovibond & Lovibond, 1995), and intelligence tests such as the Weschler Adult Intelligence Scale (WAIS) (Weschler, 1955) for adults aged 16 or above, and the Weschler Intelligence Scale for Children (WISC) (Weschler, 1949) for children aged 6 to 16 years. These measures and tests are validated and adapted for use in many clinical populations.

Clinicians can then use the information gathered in the assessment process to determine whether the client's presentation is consistent with a particular diagnosis or diagnoses (where two diagnoses are present it is called 'comorbid'). Clinicians who are practicing in Australia diagnose using one of two diagnostic manuals: the DSM-5, the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 2013), or the *International Classification of Diseases*, 11th revision (ICD-11) created by the World Health Organization (WHO) (World Health Organization, 2019). The purpose of determining a diagnosis is to recognise symptom clusters (i.e., groups of symptoms) which best represent the domain of psychological difficulties that the person is experiencing. For example, a clinician may recognise a group of symptoms a client experiences that is indicative of depression or anxiety. The diagnosis is helpful

for communicating with other mental healthcare providers, for guiding decisions about intervention and prevention, and for helping the affected person make meaning of the difficulties they're experiencing. Scientific processes inform the multiple stages of decision-making clinicians engage in when determining a diagnosis, including which symptoms are considered unique features of a specific mental disorder (e.g., that discriminate between groups), what severity of symptoms would indicate a disorder (versus normal range of human emotion), whether the symptoms are having a significantly detrimental impact on the client's functioning, and the length of time that a symptom or group of symptoms have been present for a particular diagnosis to be considered.

Treatment

Psychological treatments encompass a wide variety of interventions aimed at improving the client's mental health and overall wellbeing. The most commonly used modern psychological treatments have been driven by empirically supported interventions originating from Behavior Therapy, with Cognitive Behavioural Therapy (CBT) receiving the most empirical support. CBT has been well-established as an effective treatment for a number of mental health conditions, such as depression, anxiety, and PTSD. In the last 20 years, there has been increasing interest in the development of 'third wave' CBT therapies, including Dialectical Behavior Therapy (DBT), Schema Therapy (ST), Acceptance and Commitment Therapy (ACT), and Mindfulness-Based Cognitive Therapy (MBCT). When working with clients in clinical practice, clinical psychologists typically use empirically supported interventions to help clients improve their wellbeing. A guide such as the *Evidence-Based Psychological Interventions in the Treatment of Mental Disorders: A Review of the Literature*, fourth edition (APS, 2018) is a useful resource for helping clinicians identify which evidence-based treatments exist for various clinical presentations.

Prevention

Prevention of mental health difficulties is an area of crucial importance. Wherever possible, health practitioners should aim to prevent individuals from experiencing mental health difficulties, rather than solely focusing on the treatment of such difficulties after they have developed. Prevention work can be distinguished from psychological treatment based on the timing of the intervention relative to the client's symptom development. That is, prevention work is aimed at either reducing the risk of developing mental health difficulties, or enhancing factors that would help to protect someone from having future difficulties. *Primary prevention* refers to preventing a disorder before it occurs. For example, helping parents develop healthy parenting practices to reduce the likelihood of a child developing a behavioural disorder such as Oppositional Defiant Disorder (ODD). *Secondary prevention* is aimed at preventing the recurrence of a disorder after it has been diagnosed and treated. For example, a clinical psychologist might be interested in how mindfulness meditation helps those people who have recovered from depression maintain their gains in treatment and prevent recurrence of another depressive episode. Last of all, *tertiary prevention* refers to efforts to improve the quality of life and reduce disability among those living with a condition. For example, providing social skills training to adults or children with Autism Spectrum Disorder (ASD).

Program Evaluation

Clinical psychologists use their research training to evaluate programs that assess, treat, and prevent behavioural and mental disorders. Clinical psychologists employed in academic settings are involved in the development of new assessment measures and intervention programs.

Alternately, they may evaluate existing assessment measures and programs within other populations. For example, if we consider the assessment and treatment of depressive disorders, it's arguable that the structured clinical interview for the DSM is the gold standard for the assessment of clinical depression. Additionally, it's well-accepted that cognitive behaviour therapy has the strongest evidence base for the treatment of depression. However, for First Nations Australians, there has been little research into the best assessment and treatment of depression. While the structured clinical interview is considered one of the gold standard assessments for diagnosis in western populations, until recently it was unknown whether this tool was valid or even appropriate for First Nations Australians living in regional communities. Research led by the University of Queensland in partnership with the University of Southern Queensland evaluated the structured clinical interview for DSM in relation to First Nations Australians (Nasir et al., 2018). Clinical psychologist and psychology students administered the structured clinical interview for DSM to over 400 First Nations Australians and found that this tool was indeed a valid instrument in the assessment and diagnosis of depression. They also found that depression is a significant concern in regional First Nations communities. Similarly, while cognitive behaviour therapy has some of the strongest evidence base for the treatment of depression in western communities, there has been little or no research within First Nations communities. Follow up research by the same research team is evaluating a transdiagnostic cognitive behaviour therapy program among First Nations Australians (Toombs et al., 2020).

Clinical psychologists need to do research in order to:

1. develop a proposal
2. write a grant application to obtain funding to do the research
3. develop the protocol to assess mental difficulty symptoms before, during, and after treatment
4. train other mental healthcare providers in the implementation of the treatments
5. supervise the group therapy treatment
6. work with a team to compile and analyse the data
7. disseminate these findings to other professionals
8. work to translate this knowledge so that other clinicians and practitioners learn about these scientifically-supported methods of helping others.

Consultation

Clinical psychologists are also trained in consultation with other healthcare providers in both the general and mental health settings. In general health settings, clinical psychologists work in interdisciplinary settings (with general physicians, physiotherapists, and dietitians) providing input in the psychological factors in health conditions such as chronic pain, diabetes, or cancer. They also may be involved in conducting psychological assessment of competency in the elderly if there are issue such as dementia, and will work with the interdisciplinary team to ensure the patient is safe.

In mental health settings, clinical psychologists may also consult with other mental health professionals (e.g., psychiatrists, social workers, nurses, and occupational therapists), typically in the context of practice on multidisciplinary mental health or health teams, either in hospital or clinic settings. Some of the consultation functions in the mental health setting may include feedback and recommendations associated with psychometric assessment, assessments of capacity

particularly regarding mental health court matters, or consultation regarding evaluation in living skills programs within tertiary mental health settings.

In child and adolescent settings such schools, psychologists are often involved in behavioural observations and cognitive assessments of children and young people. These assessments can be used to help inform the interdisciplinary team or teachers and provide structured and tailored programs focused on improving social and emotional wellbeing.

I THINK I WANT TO TRAIN AS A CLINICAL PSYCHOLOGIST!

Two common reasons why students are attracted to clinical psychology are 1) they find human behaviour fascinating and 2) they genuinely want to help people. Of course, in the training of clinical psychology, students learn to use their science to assess human behaviour, and they also learn ways of helping people while maintaining clear and structured therapeutic boundaries which benefit both the client and the clinical psychologist.

Clinical psychologists help others in a number of ways. Some clinical psychologists help people through direct contact with those coping with mental health difficulties – for example, through the assessment or treatment of mood disorders. Some help others more indirectly – for example, through the development, evaluation, and implementation of empirically-validated methods for assessment, treatment, and prevention. Still others contribute to individual wellbeing through the execution and dissemination of foundational scientific research that informs our understanding of the factors that underlie the development of behavioural and mental disorders. Each of these forms of clinical practice informs the other: foundational research conducted by clinical psychologists leads to empirically validated assessment and treatment efforts, which then are implemented by clinical psychologists working directly with clients. Observations made in direct contact with clients are key to hypothesis development regarding the assessment and treatment of mental disorders, and often inspire further insights into better approaches to interventions that ultimately will improve the lives of so many. In these ways, the potential scope of clinical psychology practice is very broad.

The broadness of clinical psychology is, perhaps, among the reasons why students find it challenging to understand what it means to become a clinical psychologist. Many who express interest in pursuing postgraduate training in clinical psychology want to be psychotherapists. Although becoming a registered psychologist with an endorsement in clinical psychology – and exclusively providing psychological therapy services in a private practice setting – is often the desired career destination of individuals enrolling in clinical psychology postgraduate programs, we as authors recommend that newly-graduated clinical psychologists get a breadth of experience in a range of clinical settings before commencing their own private practice. The breadth of clinical psychology means that individuals have many degrees of freedom in sculpting a career in clinical psychology that can be quite varied and unique.

Psychologists usually focus their practice in specific areas such as clinical psychology, counselling psychology, clinical neuropsychology, school psychology, correctional/forensic psychology, health psychology, rehabilitation psychology, or industrial/organisational psychology. Within these areas, a clinical psychologist may work with a variety of individual client populations such as children, adolescents, adults, or seniors, or may focus their attention on families, couples, or organisations. They work in a range of settings including schools, hospitals, medical centres, workplace rehabilitation, social service agencies, drug and alcohol rehabilitation facilities, correctional facilities, and universities. Many psychologists have their own private practices.

WORKING AS A PSYCHOLOGIST IN PRIVATE PRACTICE

There are many different settings in which a clinical psychologist can practice. Clinical psychologists can work in hospital inpatient and outpatient teams, community health teams, or not-for-profit organisations, or they may choose to work in the private practice sector. There are many benefits and challenges to consider when weighing up the choice of which setting to work in. Each clinical psychologist has different strengths, different interests, and different preferred work modalities which can help inform their decision.

Private practice offers a unique combination of advantages and challenges. Mostly commonly, the appeal of private practice for clinical psychologists is the flexibility in work hours and type of work. Often private practice clinicians are able to choose what days and times they want to work, whether they want to provide assessment or treatment services (or both), and the type of clientele they prefer to see (e.g. children, adults, couples). One of the most notable challenges associated with private practice is that it can be very isolating. While some private practitioners work in teams (known as a *group private practice*), many work on their own, which can be difficult. Other challenges faced by clinical psychologists in private practice include: setting boundaries around their work-life balance to ensure their private practice work doesn't spill over into their home life. For those who choose to own a private practice, there's also the added challenge of having to ensure they have enough referrals and a business model strong enough to make the business viable.

One key challenge faced by clinical psychologists in Australia is navigating the systems of the key funding bodies, such as: Medicare Australia and the National Disability Insurance Scheme (NDIS). Medicare Australia provides funding support to individuals through a scheme known as the Better Access initiative. This is where individuals who are assessed by their general practitioner to meet criteria for a diagnosed mental health condition can be given a Mental Health Treatment Plan (MHTP). This plan enables the client to access financial rebates for a set number of psychology sessions per year, thereby lowering the cost of accessing psychological services. The NDIS provides funding support to individuals with a recognised permanent and significant disability, such as Autism Spectrum Disorder. Eligible individuals, known as 'Participants' under the NDIS, are given annually-approved plans with set amounts of funding, which they can use to access many services, including psychological support.

Clinicians who see clients under a Medicare MHTP or under NDIS funding must ensure they're well-versed in the complex array of rules and requirements of treating clients under these schemes, as it's the clinician's responsibility to ensure funding is used appropriately. A particular challenge can be where the funding body requirements do not align with the Evidence-Based Treatment for a particular presentation. For example, Family-Based Intervention holds Level 1 evidence as a treatment of childhood presentations such as Conduct Disorder and ADHD. However, the Medicare rules don't allow parent-focused intervention for the treatment of such childhood presentations. It's critical that clinical psychologists maintain a primary focus on ensuring the provision of Evidence-Based Treatments, despite these challenges.

HOW DO I BECOME A CLINICAL PSYCHOLOGIST?

The road to becoming a clinical psychologist is not a short or easy one. Students who are interested in becoming a clinical psychologist should ensure they're confident this is the right path to pursue and remain committed to the journey that lies ahead. We recommend students speak to their university lecturers who work in the area, and to any friends, family, or anyone else you know who work as a clinical psychologist to gain a better understanding and insight into what life as a

clinical psychologist is like. But, if you have a passion for helping people, and enjoy learning about and applying scientific principles, then a career in clinical psychology may be just right for you.

To become a clinical psychologist in Australia, you must first complete four years of accredited undergraduate psychology training. From there, the most direct path to becoming a clinical psychologist is to complete a two-year postgraduate degree in the area of clinical psychology, followed by the clinical registrar program, a two-year supervised practice period. Supervised practice refers to working in a paid role as a registered psychologist, while receiving regular (typically weekly or fortnightly) supervision from a registered clinical psychology supervisor. Supervision is a term used to describe where a psychologist meets with a typically senior psychologist for one to two hours a week or fortnight to discuss their cases, develop their knowledge and skills, and receive guidance on their practice.

POSTGRADUATE TRAINING EXPLAINED

Training in clinical psychology begins at the postgraduate level. Students must successfully complete an Australian Psychology Accreditation Council (APAC) approved four-year sequence in undergraduate psychology to be eligible to commence postgraduate training in clinical psychology. This usually take the form of an honours undergraduate degree or a three-year sequence in psychology plus a graduate diploma in psychology.

Once students have completed their undergraduate training, they're eligible to apply for registration as a provisional psychologist with the Australian Health Practitioner Regulation Agency (AHPRA), as part of one of three pathways:

1. Two-year Master of Clinical Psychology, three-year Doctor of Psychology or three-year combined Master of Clinical Psychology/PhD
2. 5+1 pathway: one-year Master of Professional Psychology, followed by a one-year industry-based internship
3. 4+2 pathway: four-year undergraduate degree, followed by a two-year industry-based internship (note that this pathway is closing in 2022).

Option 1 – As noted above, the most direct path to becoming a clinical psychologist, is option 1, where students would complete the two-year masters degree, a three-year Doctor of Philosophy in clinical psychology (*DPsych*), or a 4 year combined Master of Psychology/PhD. Graduates from these programs are then expected to complete a clinical psychology registrar program ranging from one year for the *DPsych* program, 18 months for the combined master/PhD, and two years for the Master of Clinical Psychology.

Option 2 – Known as the '5+1 pathway', this refers to five years of university study in psychology, followed by a one-year industry-based internship. At the completion of this pathway, students are eligible to apply for general registration as a psychologist. To become a clinical psychologist, they would need to return to university study to complete either a two-year masters degree, a three-year doctorate, or if they've worked as a general psychologist for 12 months of more, a one-year clinical psychology sixth year program (sometimes known as a *bridging* or s*tandalone* clinical psychology masters program).

Option 3 – Known as the '4+2 pathway', this refers to four years of undergraduate training, followed by a two-year industry-based internship. It's important to note that this pathway will be retired as of January 1 2029. This means the Board will not accept any more applications for provisional registration to undertake the 4+2 internship program (the two-year internship) after **30 June 2022**. The 4+2 pathway provides a pathway to general registration only. To become

a clinical psychologist, the student would need to return to university training to complete the *bridging* or *standalone* sixth year program in clinical psychology (as noted above for the 5+1 pathway).

Most student who undertake training to become a clinical psychologist undertake the Master of Clinical Psychology. This program takes two years to complete and students who graduate may apply for the registrar program. In the master's degree, students take foundational courses in ethics, psychopathology, statistics and research design, assessment, and treatment. Many institutions still require students to complete a master's thesis, however the 2018 APAC guidelines no longer require a traditional thesis. Most importantly, students are required to undertake 1,000 hours of supervised practice in at least three different settings. Students will be required to undertake their first practicum at the university or training institute psychology clinic, where they perform clinical services in the form of psychotherapy, psychological assessment, and group work. They're closely supervised and supported by university staff. In the second year of training, students complete practice in industry and are supervised by industry supervisors, and by the end of the second year students are expected to be able to undertake the caseload of a generally registered psychologist. Students who complete the *DPsych* undertake additional coursework, a larger thesis, and an additional practicum (1,500 hours). Students who complete the combined master's/PhD undertake a PhD, as well as the Master of Clinical Psychology coursework and practica. At the completion of any three of these postgraduate programs the graduate can apply for general registration as a psychologist and to become a clinical psychology registrar where they will undertake the final period of clinical supervision required to become an endorsed clinical psychologist.

Conclusion

Being a clinical psychologist is a dynamic and exciting career. A clinical psychologist's work can include research, conducting assessments and treatment, supervising other psychologists or healthcare providers providing clinical services, program development and evaluation, teaching undergraduate and postgraduate students, developing curriculum for university courses, consulting with community and health authorities, working with an interprofessional team (with GPs, OTs, psychiatrists, social workers etc.), giving expert testimony in court proceedings, or providing academic services to the mental health community such as reviewing research grants and journal articles for publication. Depending on where a clinical psychologist works, they can choose the combination of these work activities that best fits their strengths and interests and meets their career goals.

This chapter has been adapted by:

- Crystal McMullen *DPsych* (Clinical Psychology), School of Psychology and Counselling, University of Southern Queensland
- Gavin Beccaria *DPsych* (Clinical Psychology), School of Psychology and Counselling, University of Southern Queensland
- Justin Kenardy PhD, Professor Emeritus, School of Psychology, University of Queensland

It has been adapted from Chivers, M. L., Bowie, C., Buchanan, S., Clifford, T., Goodman, J., Kilik, L., Logan, M., Pukall, C., & Seto, M., C. (2019). Clinical psychological science. In M. E. Norris (Ed.), *The Canadian Handbook for Careers in Psychological Science*. Kingston, ON: eCampus

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REFERENCES

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). https://doi.org/10.1176/appi.books.9780890425596

American Psychiatric Association. (2018). *Structured clinical interview for DSM-5.* https://www.appi.org/products/structured-clinical-interview-for-dsm-5-scid-5

Australian Psychological Society (APS). (2018). *Evidence-based psychological interventions in the treatment of mental disorders: A review of the literature* (4th ed.). https://psychology.org.au/about-us/what-we-do/advocacy/position-papers-discussion-papers-and-reviews/psychological-interventions-mental-disorders

Chivers, M. L., Bowie, C., Buchanan, S., Clifford, T., Goodman, J., Kilik, L., Logan, M., Pukall, C., & Seto, M., C. (2019). Clinical psychological science. In M. E. Norris (Ed.), *The Canadian handbook for careers in psychological science*. eCampusOntario. https://ecampusontario.pressbooks.pub/psychologycareers/chapter/clinical-psychological-science/

First, M. B., Williams, J. B., Karg, R. S., & Spitzer, R.L. (2015). *Structured clinical interview for DSM-5 –Research version* (SCID-5 for DSM-5, Research Version; SCID-5-RV). American Psychiatric Association. https://www.appi.org/products/structured-clinical-interview-for-dsm-5-scid-5

First, M. B., Williams, J. B., Karg, R. S., & Spitzer, R.L. (2016). S*tructured clinical interview for DSM-5 disorders – Clinician version* (SCID-5-CV). American Psychiatric Association. https://www.appi.org/products/structured-clinical-interview-for-dsm-5-scid-5

James, M., Painter, J., Buckingham, B., & Stewart, M. W. (2018). A review and update of the Health of the Nation Outcome Scales (HoNOS). *BJPsych Bulletin*, *42*(2), 63–68. https://doi.org/10.1192/bjb.2017.17

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy, 33*(3), 335–343. https://doi.org/10.1016/0005-7967(94)00075-U

Nasir, B. F., Toombs, M. T., Kondalsamy-Chennakesavan, S., Kisely, S., Gill, N. S., Hayman, N. …Nicholson, G. C. (2018). Common mental disorders among Indigenous people living in regional, remote and metropolitan Australia: A cross-sectional study. *BMJ Open*, *8*(6). http://dx.doi.org/10.1136/bmjopen-2017-020196

Toombs, M. T., Nasir, B.F., Kisely, S.,Kondalsamy-Chennakesavan, S., Hides, L., Gill, N. S., … Nicholson, G. C. (2020). Australian Indigenous model of mental health care based on transdiagnostic cognitive behavioural therapy co-designed with the Indigenous

community: Protocol for a randomised controlled trial. *BJPsych Open, 6*(3), Article e33. https://doi.org/10.1192/bjo.2020.16

World Health Organization. (2019). *International statistical classification of diseases and related health problems* (11th rev.). https://icd.who.int/en/

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CHAPTER 6.

APPLICATIONS AND CAREERS FOR COUNSELLORS AND COUNSELLING PSYCHOLOGISTS

NATHAN BEEL; NANCEY HOARE; MICHAEL DAVIES; DENIS J. O'HARA; AND JAN DU PREEZ

INTRODUCTION

This chapter is based on an original chapter written by Borgen and Neault (2019) for the Canadian version of this handbook. We have rewritten and updated the chapter to reflect the Australian context and to ensure its relevance to the counselling and counselling psychology professions in Australia for those contemplating a career within these professions. Professional counselling is provided primarily by two groups in Australia: counsellors and counselling psychologists. Unlike counselling, which is linked with its own profession, counselling psychology is a specialisation within the psychology profession, and this Area of Practice Endorsement (AoPE) is undertaken after registration as a psychologist. As both counselling and counselling psychology have grown as professions, each have evolved unique identities and scope of practice. It can sometimes be confusing for students to understand the distinctions between the professions given that they are so closely related, so this chapter will focus on the Australian definitions of counselling and counselling psychology and the scope of practice in each area.

This chapter will cover the counselling and counselling psychology professions separately at first, by providing a brief history of each and describing typical training and registration requirements, research approaches, evidence of quality, and contexts in which each are practised. As we cover each of these professional fields, you will see that there are many similarities between them – as well as some differences – so after we talk about the professions separately, we will provide you with an overview of these similarities and differences. To end this chapter, we will offer some suggestions to assist you with deciding which profession would be most suited to you.

We will start off with a brief historical overview of the counselling profession, followed by an outline of current practices in the fields of counselling and psychotherapy and how these practices are evaluated. Then, we will look at some career paths for counsellors, including training options and registration. We will then explore the counselling psychology profession in Australia, starting with a brief historical overview of counselling psychology, followed by an outline of current practices in counselling psychology and how these practices are evaluated. After that, we will look at some career paths, including training options, registration as a psychologist, and an Area of Practice Endorsement (AoPE) for counselling psychologists.

THE COUNSELLING PROFESSION

History of Counselling in Australia

The emergence of counselling associations in Australia can be traced back to the 1940s, with the commencement of the Melbourne Institute for Psychoanalysis, the National Marriage Guidance

Council, and the Australian Hypnotherapists Association (Schofield, 2008). In the 1990s there were over 50 distinct professional counselling and psychotherapy associations, each with their own membership criteria and standards (Schofield, 2013).

In the contemporary landscape there are currently two peak bodies of counselling in Australia to which counsellors can apply for membership. The the Australian Counselling Association (ACA) and the Psychotherapy and Counselling Federation of Australia (PACFA) were both founded and registered in the late 1990's. The Australian Counselling Association (ACA) was established with a purpose to make counselling association membership available for individual counsellors (Armstrong, 2006). The ACA's approach emphasised inclusivity for all counsellors, that encouraged all qualified practitioners to become registered and bound by ethics, rather than have them practicing without any form of regulation. It developed its own code of ethics, training standards, scope of practice, professional development, advocacy for greater recognition of counselling, and provided members with a range of benefits such as reduced professional indemnity insurance premiums. It is currently the largest counselling association in Australia.

The establishment of the Psychotherapy and Counselling Federation of Australia (PACFA) was originally initiated by counselling academics concerned that educational deregulation might weaken the quality of counselling training (Brear & Dorrian, 2010). Its initial structure was a federation of regional and specialist counselling and psychotherapy Member Associations throughout Australia aimed at facilitating national representation for the profession. PACFA later restructured to allow individuals to gain direct membership, and subsequently several Member Associations decided to dissolve and transfer their members to become direct members of PACFA. PACFA created its own minimum training standards, a unified ethics code, scope of practice, reduced insurance premiums, and other benefits. Its key aims are to enhance the professionalisation and recognition of counselling and psychotherapy within Australia via international benchmarking and advocacy.

Defining Counselling

The historical and ongoing confusion around terminology, titles, and scope of practice in the broad field of 'counselling' is well documented (Beel, 2017; Hanna & Bemak, 1997; O'Hara & O'Hara, 2014). Some confusion around the term 'counselling' results from the fact that the common English understanding of the verb 'to counsel' is 'giving professional advice'. In fact, many professionals including human resource officers, employers, lawyers, medical doctors, or schoolteachers may provide 'counsel', as in offering advice. Other professionals work under the title of 'counsellor' but with an additional descriptor – guidance counsellors, financial counsellors, career counsellors, and genetic counsellors are just a few examples. However, most counsellors and psychotherapists focus on personal issues that clients seek help with and would distance themselves from advice-giving, preferring to work alongside their clients, assisting them with finding their own solutions to their problems.

Reinforcing the broad conceptualisation of counselling within the Australian employment context, the Australian Government National Skills Commission Job Outlook site notes information provision as the foremost part of the definition of counsellors.

Counsellors provide information on vocational, relationship, social and educational difficulties and issues, and work with people to help them to identify and define their emotional issues through therapies such as cognitive behaviour therapy, interpersonal therapy, and other talking therapies (National Skills Commission, n.d.).

If counsellors distance themselves from definitions that suggest the provision of advice, how is counselling defined? Defining counselling is challenging given the diversity of practice and

understanding within the profession. The Psychotherapy and Counselling Federation of Australia (PACFA), one of two peak bodies of counselling in Australia, define counselling as:

…a safe and confidential collaboration between qualified counsellors and clients to promote mental health and wellbeing, enhance self-understanding, and resolve identified concerns. Clients are active participants in the counselling process at every stage (PACFA College of Counselling, n.d.).

This definition highlights a trustworthy, ethical, and egalitarian relationship, approved academic qualifications and preparation of the counselling practitioner, and a focus on personal growth and change. The definition sets itself apart from a medical model approach, which sets up a more hierarchical relationship which emphasises scientific knowledge and therapist expertise, transposes client difficulties into disorders, utilises diagnostic assessment, and encourages client compliance with treatment recommendations. The definition does not suggest counsellors reject a medical model understanding of psychological distress and impairment, but that they tend to lean more towards egalitarian, person-centred, and relational practice.

An additional source of confusion is that the term counsellor can designate a person who delivers counselling, irrespective of their professional membership, and it can indicate a member of the counselling profession. Psychologists, social workers, human services workers and even untrained individuals may use the title 'counsellor', and identify it as their occupation, or job position (Beel, 2017). To reduce misunderstanding, those who are members of the counselling profession may use the terms 'registered counsellor' and 'professional counsellor' to signal their membership to and identity in the counselling profession.

A distinct though related identity to that of a counsellor is the psychotherapist. The term 'psychotherapy' is often used synonymously with counselling or therapy in textbooks in the United States (Prochaska & Norcross, 2013) and Australia (O'Donovan et al., 2013). In the Australian counselling context, psychotherapy is viewed as typically a lengthier process, offering deeper psychological engagement, and resulting in enhanced levels of insight and personality change. Australian psychotherapists have identified specific modalities recognised as psychotherapies, and typically undergo longer and more intensive training (College of Psychotherapy, n.d.) than counsellors. In contrast to psychotherapy, counselling is typically briefer and more focused on resolving specific problems, life adjustments, and personal wellbeing (PACFA, 2021d). There is substantial overlap in the definitions, processes, and issues that both counsellors and psychotherapists address. In addition, psychotherapists may belong to different professions than counselling, such as psychology, psychiatry, and social work. For conciseness, the usage of the term 'counsellor' in this chapter will refer to both counsellors and psychotherapists.

A more recent title of Aboriginal and Torres Strait practitioner or healer has been endorsed by PACFA's College of Aboriginal and Torres Strait Islander Healing Practices (CATSIHP). This is a distinct term (but not mutually exclusive) from psychotherapist or counsellor, and represents support for, and recognition of traditional healing practices within the Australian and other indigenous communities (PACFA, 2020; PACFA, 2021b).

It's also important to recognise there are other types of counsellors who are not registerable within the counselling profession unless they have completed specific bridging studies. Rehabilitation counsellors, genetic counsellors, guidance counsellors, and community counsellors are distinct professional identities, with their own unique associations: the Rehabilitation Counselling Association of Australia, Australasian Society of Genetic Counsellors, Australian Psychologists and Counsellors in Schools, and the Australian Community Counselling Association.

As previously mentioned, there are currently two peak bodies of counselling in Australia to which counsellors can apply for membership: the Psychotherapy and Counselling Federation of

Australia (PACFA) and the Australian Counselling Association (ACA). The Australian Register of Counsellors and Psychotherapists (ARCAP) is an organisation jointly-owned and operated by both the ACA and PACFA with the purpose of publishing a common public register of Australian counsellors. Practicing members registered from either peak body are automatically placed on this register. However, it should be noted that the register distinguishes between different levels of registration reflective of the different training requirements of the two associations. Members of the public can search the register to check the registration status of a therapist, and the website also has a complaints portal for the public. In addition to providing a public register, ARCAP is used as a unified entity for the counselling profession to lobby the government.

Counsellors' Work Settings

Counsellors work in an expanding range of settings. These include private practice, educational settings such as schools and universities, mental health and health services, correctional facilities, rehabilitation services, public agencies, employee assistance programs (EAPs), and non-government human services organisations (PACFA, 2018; Schofield & Roedel, 2012). More recent data from the Australian Government National Skills Commission's Job Outlook website (n.d.) – which is based on the Australian Bureau of Statistics (ABS) census 2016 data – broadly categorises counsellors in the following industries: Health Care and Social Assistance (47.4%), Education and Training (36%), Public Administration and Safety (4.2%), and Other (12.4%). Though counsellors are spread across various sectors, the most common practice setting for counsellors is private practice – variously estimated between 47 per cent and 63 per cent (Pelling, 2005; Schofield & Roedel, 2012) – though more than half of private practitioners also work in other work settings (Schofield, 2008).

Want to know more? The Australian Government National Skills Commission's Job Outlook (n.d.) website page on 'Counsellors' provides generally updated data on counsellor ages, earnings, working hours, education levels, and outlooks. Go to the Job Outlook website and search for 'counsellor'.

Counsellor Roles and Activities

Counsellors work with children, adolescents, and adults across the lifespan, individually, with couples, and with family and other groups, focusing on a range of issues. Counsellors support clients with careers, addictions, trauma, grief, relationships, abuse, cultural, spiritual, and adjustment issues, and learning challenges. The goals often involve clients wanting to come to a better understanding of themselves, and/or how they interact with those around them, to help them live more satisfying and productive lives. As already stated, counsellors do not become directly involved in diagnosing psychopathology. However, they do see clients who are struggling with various degrees of distress and impairment, and who seek assistance in moving forward with their lives in a positive way.

Counsellors also provide services other than counselling. They may offer clinical supervision –which is a professional mentoring role to support professional development and wellbeing of counsellors and psychotherapists – and vicariously support competent and ethical practice delivered to clients. Therapists can apply to be registered as clinical supervisors after a specified time as a registered counsellor, and the completion of clinical supervision training. The ACA and PACFA both require all practitioners receive a minimum number of hours of clinical supervision each year as part of their membership conditions.

Another function that counsellors may engage in is teaching. Counsellors will, at times, deliver information sessions to various community groups on topics related to the counsellor's expertise.

Some will deliver professional development to counsellors and other mental health practitioners both as a means of 'giving back' to the profession and to generate additional income. Other counsellors will be employed as counselling educators/lecturers to train the next generation of counsellors. These training roles may be sessional or on a continuing basis, and may be employed at private or public, vocational, or higher education institutions and universities. To date, there are no counsellor educator training programs in Australia to specifically prepare future faculty. However, both the ACA and PACFA have a membership category specifically for counselling educators, and there is a somewhat informal National Heads of Counselling and Psychotherapy Educators organisation that caters to the needs of directors of counsellor training in Australia.

So how do Australian counsellors spend their time? In one study (Schofield, 2008), a sample of 316 counsellors spent more time on average providing counselling than any other activity. Counsellors spent 12.3 hours per week in counselling appointments, followed by 4.4 hours in supervision and training, 3.8 hours in administrative and management activities, and 3.6 hours in tasks related to therapy (e.g., writing case notes). The remainder of 2.8 hours were spent on volunteering, research, and various consulting activities. **Figure 6.1** shows the same information expressed in percentages. Although this pie chart shows counsellors spend less than half of their time in counselling on average, some counsellors will spend a larger proportion of time conducting therapy, while others may primarily occupy other roles such as manager or educator, and maintain relatively few hours each week practicing therapy.

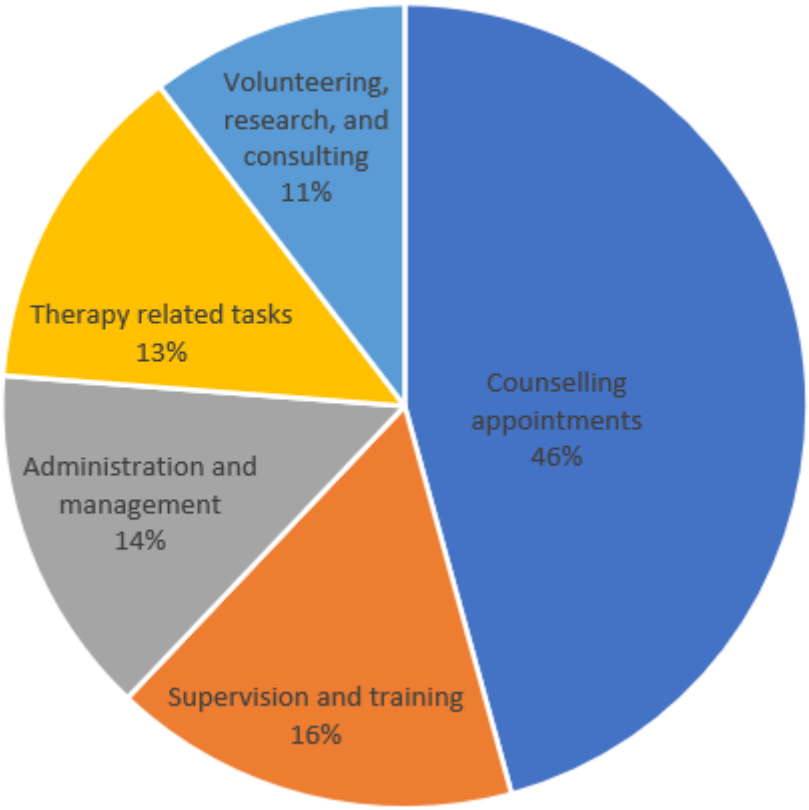

Figure 6.1: Average Counsellor Time Spent On Tasks by Percentage (Based on Schofield, 2008).

Training, Registration, and Career Paths for Counsellors

The analogy of many paths in the woods leading to the same destination is very true for counsellors. Some people pursue a straightforward path of education and work experience that strategically positions them for registration as a counsellor or psychologist. Others take a more meandering approach, with twists and turns over a lifetime of employment.

The pathway for becoming a counsellor registered with either (or both) of the two peak counselling associations starts with undertaking a training program recognised by the ACA and/or PACFA. Both accrediting bodies list, on their respective websites, the training programs they have assessed as meeting their course training standards. While applicants for membership may apply for Recognised Prior Learning (RPL) with a combination of studies and experience, the surest pathway is completing a recognised qualification. The ACA (2021) accepts a minimum of a nationally recognised diploma of counselling (CHC51015) for practicing membership, while PACFA's (2021b) minimum is a three-year undergraduate or two-year postgraduate level degree that meets its training standards. Some practitioners can join PACFA after satisfying Recognition of Prior Learning that meets their training standards. Masters level qualifications in counselling are a popular pathway for graduates from other degrees to meet the educational requirements.

Both peak bodies have a student level of membership, which can be upgraded to Provisional Member (PACFA) or Level 1 (ACA) after graduation. PACFA's full membership level is the Clinical Member, and is gained after meeting the supervision, time, and experience requirements. The ACA also has experience and supervision requirements to advance in the levels of membership, from Level 1 to Level 4, however to progress to Level 3 and beyond, one must have additionally completed the equivalent of a Bachelor or Master of Counselling.

Counselling is a richly practical and intensely interpersonal activity, and the training expectations reflect this. The training standards from both associations understandably emphasise that a substantial volume of training must focus on counselling theories and skill development, and encourage the student's engagement in self-awareness and reflection. In addition, students are required to attend face-to-face classes (which may include residential schools for distance classes), and a counselling placement, both which support by implication that counselling is a relational practice that can't be learnt solely from textbooks.

PACFA has psychotherapy training standards that are additional to the PACFA training standards (PACFA, 2020). These standards emphasise the personal development of the psychotherapy student and will require that they have logged hours of their own experience of psychotherapy, to support their professional formation (PACFA, 2020).

Both professional peak bodies have specialised colleges within their associations. PACFA has colleges for Aboriginal and Torres Strait Islander Healing Practices, Counselling, Counselling and Psychotherapy Educators, Psychotherapy, and Relationship Counselling. In addition, registered PACFA Counsellors can also undertake training to become a registered mental health practitioner. The ACA has colleges titled Alcohol & Other Drugs, Family Therapy, Grief & Loss, Counselling Supervisor, Christian Counsellor, Creative Arts Therapies, and Clinical Counsellors.

Pearson (2017), looking ahead to potential employment in 2030, identified counselling as one of the top 10 occupations most likely to experience increased demand. In their implications section, and reflecting an expectation of increased automation and artificial intelligence, they recommended developing 'skills that are uniquely human' (Pearson, 2017, p. 8). However counselling students shouldn't take future demand as a guarantee for work on graduation, as there are currently 40 institutions in Australia teaching thousands of counselling students. Students should consider how they can enhance their employability by active networking (e.g., joining as a student member of ACA/PACFA, attending networking events, etc.), gaining relevant volunteer experience (e.g., Lifeline), attending professional development events, familiarising themselves with and learning to counsel using different technological platforms, maintaining a log of their experience and supervision, and after graduation, working towards full membership of their chosen association. In addition, students should review counselling advertisements on job sites like SEEK to see what employers are asking for, and where the hiring needs are. Depending on the availability of work in your locality and supply of competing qualified applicants, counselling

graduates may need to compete for positions through strategic preparation alongside their journey of study.

Evaluating the Effectiveness of Counselling

Significant work has been done to evaluate efficacy and outcomes associated with counselling. Counselling has been shown to be a highly effective form of treatment (Smith & Glass, 1977; Wampold & Imel, 2015). Early writers have extensively examined what made counselling effective. Dr. Carl Rogers, an influential pioneer, suggested that for counselling to be effective, the counsellor must bring genuineness, empathy, and positive regard for the client (Rogers, 1961). As the professions of counselling and counselling psychology have evolved, studies focusing on the importance of the therapeutic relationship between the client and the counsellor in a confidential setting have continued to demonstrate the importance of the counsellor in making counselling interventions effective. Research continues to demonstrate that the strength of the therapeutic relationship is important in determining the effectiveness of counselling and counselling psychology interventions (Flückiger et al., 2018). Both counselling peak bodies encourage their members to monitor client progress using formal outcome measures (Australian Counselling Association, 2020; PACFA, 2018) and adjust counselling as needed.

COUNSELLING PSYCHOLOGY

History of Counselling Psychology in Australia

Counselling psychology as a profession is well-established, although it can be argued that it is still in its infancy. As a specialist field, counselling psychology has been around since 1946 in the USA, with its original foundations being in vocational counselling and counselling for war veterans (Grant et al., 2008), but other countries have been slower to recognise it as a profession in its own right. For example, it wasn't until the end of 1982 that a separate Counselling Psychology Section of the British Psychological Society (BPS) was established in the UK, and it became the BPS Division of Counselling Psychology in 1994 (Orlans & Van Scoyoc, 2009).

The Australian Psychological Society (APS) is the peak professional body for psychologists in Australia. It was established in 1944 as the Australian branch of the British Psychological Society (BPS), but in 1966, it became incorporated as the Australian Psychological Society Limited (Allied Health Professionals Australia, 2021). There are two main types of Psychologists in Australia – those with general registration and registered psychologists with an Area of Practice Endorsement (AoPE, APS, 2021df). There are currently nine endorsed areas of practice, namely:

- clinical neuropsychology
- clinical psychology
- community psychology
- counselling psychology
- educational and developmental psychology
- forensic psychology
- health psychology
- organisational psychology
- sport and exercise psychology.

An AoPE allows psychologists to use a title specific to their area of practice (e.g., 'Counselling Psychologist', 'Clinical Psychologist', 'Organisational Psychologist'), whereas registered psychologists without an AoPE use the title 'Psychologist'. You can see that counselling psychology is included as an endorsed area of psychological practice in Australia, but it wasn't recognised as a distinct field until about 50 years ago, in 1976, when the Division of Counselling Psychologists was formed (Grant et al., 2008). In 1992, the name was changed to the the APS Division of Counselling Psychologists. It's now known as the APS College of Counselling Psychologists (Davis-McCabe, et al., 2019).

La Trobe University was the first to offer training in counselling psychology in 1975 (Di Mattia & Grant, 2016) and many universities began offering specialist masters and doctoral programs in counselling psychology (Wills, 1999). However, with the advent of the Better Access initiative, introduced by the Australian Government in 2006 (Littlefield, 2017), there has been a decline in training for counselling psychology (Di Mattia & Grant, 2016). Currently, there is only one university in Australia (the University of Queensland) that offers accredited postgraduate training in counselling psychology, which is a pathway to an AoPE as a counselling psychologist (Australian Psychology Accreditation Council [APAC], 2021).

The Better Access initiative provides Medicare rebates for eligible Australians to access mental health services (Australian Government Department of Health, 2021a). It is a two-tiered rebate system, whereby tier one services are provided by clinical psychologists and attract a higher Medicare rebate, and tier two services are provided by other registered psychologists, including counselling psychologists, as well as other professionals, such as occupational therapists and social workers. Under this system, a distinction has been made between the treatment of a mental disorder by a clinical psychologist (termed *'Psychological Therapy'*) and the treatment provided by other Psychologists (termed *'Focused Psychological Strategies'*) and this has created some tension within the profession and led to substantial growth in clinical psychology training programs and endorsed clinical psychologists (Di Mattia & Grant, 2016). This is evident in the current memberships of the APS Colleges, with the College of Counselling Psychologists representing over 1,000 members (APS, 2021c) and the APS College of Clinical Psychologists representing over 6,000 members (APS, 2021b).

Defining Counselling Psychology

Like the counselling profession, counselling psychology has also struggled with ongoing confusion around terminology, titles, and scope of practice (Gazzola, 2016; Haverkamp et al., 2011; Neault et al., 2013). In part, this is not surprising, given that formal psychological counselling is a relatively new profession, beginning to establish itself as a profession in Australia in the 1970s.

Counselling psychology is part of the broader discipline of psychology, which is the scientific study of '…mental processes (thinking, remembering, and feeling) and behaviour' (Burton et al., 2019). Counselling Psychologists use a strength-based approach to provide evidence-based psychotherapy in a therapeutic relationship with their clients. They provide assessment and diagnose a range of psychological issues for people across the lifespan. See the Australian Psychological Association's (APS, 2021c) College of Counselling Psychology definition here.

Counselling psychology is concerned with using psychological principles to enhance and promote the positive growth, wellbeing, and mental health of individuals, families, groups, and the broader community. Counselling psychologists bring collaborative, developmental, multicultural, and wellness perspectives to their research and practice. They work with many types of individuals, including those experiencing distress and difficulties associated with life events and transitions, decision-making, work/career/education, family and social relationships, and mental health and physical health concerns. In addition to remediation, counselling psychologists engage

in prevention, psychoeducation, and advocacy. The research and professional domain of counselling psychology overlaps with other professions such as clinical psychology, organisational psychology, and mental health counselling.

The Counselling Psychology Profession in Australia

The titles of 'Psychologist' and 'Counselling Psychologist' are protected by law. To use either of these titles and to provide psychological services to the public, a practitioner must be registered with the Psychology Board of Australia, which is part of the Australian Health Practitioner Regulation Agency (AHPRA). AHPRA is responsible for regulating 15 national health practitioner boards in Australia (AHPRA, 2021) under the National Registration and Accreditation Scheme (NRAS) (Australian Government Department of Health, 2021), which is governed by the Health Practitioner Regulation National Law Act, passed by each State and Territory parliament in Australia (AHPRA, 2020). Apart from Psychology, examples of the other health practitioner boards include Nursing and Midwifery, Occupational Therapy, Medical, Optometry, Paramedicine, Osteopathy, Pharmacy, and Podiatry. AHPRA has set standards, policies, and guidelines for each of the health practitioner areas and works with each of the 15 national boards to ensure that health practitioners work in accordance with those standards and policies and the public is protected (AHPRA, 2021). The Psychology Board of Australia adopted the Australian Psychological Society Code of Ethics (2007) as the code of conduct with which all psychologists in Australia must comply (Psychology Board of Australia, 2020). Members of the public can search the Psychology Board of Australia (2020) website to check the registration status of psychologists, and the website also has a portal for reporting concerns about a health practitioner to the Board.

To maintain registration, counselling psychologists need to demonstrate that they have met set requirements such as Continuing Professional Development (CPD) each year. The Psychology Board of Australia (2019) website has information about the different types of registration, including Provisional, General, and Area of Practice Endorsement registration, along with the Registration Standards.

As previously mentioned, the Australian Psychological Society (APS) is the peak body in Australia to which psychologists can apply for membership. There are approximately 27,000 members of the APS, including approximately 1,075 members of the APS College of Counselling Psychologists, which is one of the nine colleges that each represent a speciality area (APS, 2021c). The APS has over 40 branches across Australia, so this provides a great opportunity for psychology students to network with psychologists in their local area. The APS also currently has 48 interest groups to which counselling psychologists can belong. These interest groups are very diverse, with some examples being: Psychology of Relationships, Psychology and Ageing, Narrative Therapy and Practice in Psychology, Aboriginal and Torres Strait Islander Peoples and Psychology, Psychology and Homelessness, Psychology and Yoga, and Trauma and Psychology.

Another professional association for psychologists is the Australian Association of Psychologists Inc (AAPi, 2021a). The AAPi is a relatively new association, formed in 2010, while the APS was first established in 1944. Both the APS and the AAPi provide information, resources, and advice (e.g., on ethical issues) for their members, and they both advertise jobs for psychologists. The APS advertises psychologist jobs on a separate website called PsychXchange (APS, 2021e) and the AAPi has a 'Psychology Jobs' section on its website (AAPi, 2021b). Membership of the APS and/or the AAPi is voluntary and involves an annual membership fee. It's an individual choice as to whether counselling psychologists join either of these professional associations.

Counselling Psychologist Work Settings

According to the Australian Government National Skills Commission's Job Outlook website (n.d.), counselling psychologists work in the broad industry areas of Health Care and Social Assistance (53.3%), Education and Training (29.3%), Public Administration and Safety (11.5%), and Professional, Scientific, and Technical Services (3.3%). Within these industries, counselling psychologists work in a range of settings, such as private practice, hospitals and health settings, courts, prisons, justice services, defence, businesses, sport, community agencies, welfare agencies, and educational institutions such as schools and universities (Di Mattia & Davis-McCabe, 2017).

In a survey of 346 members of the APS College of Counselling Psychologists, Di Mattia and Davis-McCabe (2017) found that more than half (59%) worked in private practice as their primary role and 78% per cent were registered as Medicare providers. The other half (49%) of the respondents said that working in private practice was their secondary role. Other contexts included hospitals (7%), counselling services (7%), community agencies (7%), and university departments (5%). In an international study of counselling psychologists across eight countries – including 253 members of the APS College of Counselling Psychologists in Australia – Goodyear et al. (2016) found that four work settings were common across countries. These included private practice/self-employed, university counselling centres, university or professional school faculties, and K-12 educational settings. This study found that almost half (47.4%) of the Australian counselling psychologists surveyed worked in private practice or were self-employed and most participants (67%) were clinical practitioners, with the remaining working in academia (4.8%), administration (3%), consulting (3%), supervision (3%), research (1.3%) or other/missing data (17.8%). Additionally, Goodyear et al. (2016) provided a descriptive summary of members of the APS College of Counselling Psychologists. The majority of counselling psychologists were female (71%), with a master qualification (57%), self-employed in private practice (47%), as a clinical practitioner (67%), applying eclectic or integrative therapy (46%).

The Australian Government National Skills Commission's Job Outlook (n.d.) website page on 'Psychologists and Psychotherapists' provides some general occupational information, such as average weekly earnings, the average age of people working in these fields, average working hours, skill and education levels, and future prospects. You can see the Job Outlook website for more information.

Counselling Psychologist Roles and Activities

The roles and activities of counselling psychologists are diverse given their expertise in counselling and psychotherapy, mental health disorders, program development and evaluation, mediation, and assessments and report writing (APS, 2021f). Goodyear et al. (2016) found that counselling psychologists' professional time was spent on the key activities of counselling/therapy (52%), administration/management (22%), assessment (18%), teaching/training (16%), consultation (15%), research (14%), clinical supervision (12%) and prevention activities (9%).

Counselling psychologists provide services to individuals, couples, families, groups, carers, other professionals (e.g., medical specialists and health practitioners), hospitals and health departments, community organisations and community groups, and organisations, such as state or local government organisations, welfare agencies, educational institutions, justice services, and community services (APS, 2021f). Counselling psychologists use a wide variety of evidence-based therapeutic approaches and techniques to provide assessment and psychological therapy for a wide range of presenting issues, including mental health disorders such as anxiety and depression, trauma, substance use disorders, eating disorders, and personality disorders (APS, 2021f). They can also work with clients experiencing issues such as grief and loss, significant life transitions,

developmental issues, relationship difficulties, domestic violence, sexual abuse, traumatic events, and career or work issues (APS, 2021f).

Given that psychologists are extensively trained in research, they can also apply their research skills to program development and evaluation. They might be involved, for example, in analysing current treatment programs for specific mental health problems and designing, implementing, monitoring, and evaluating mental health treatment programs (APS, 2021f). Counselling psychologists may also provide mediation services to clients who are experiencing interpersonal or work conflicts (APS, 2021f). Because of their advanced training in psychological assessment, counselling psychologists may also conduct psychological assessments and write reports for individual clients, health and legal professionals, and government departments (APS, 2021f). The types of assessments can include cognitive, personality, and vocational assessments for children, adolescents, and adults (APS, 2021f).

Training Pathways, Registration, and Area of Practice Endorsement for Counselling Psychology

The practice of counselling psychologists in Australia is nationally regulated by the Psychology Board of Australia (PsyBA), which is overseen by the Australian Health Practitioner Regulation Agency (AHPRA). The pathway to becoming a counselling psychologist involves the completion of a three-year accredited undergraduate psychology program (e.g., a bachelor degree), then the successful completion of a fourth year of accredited psychology studies (e.g., an honours degree), followed by the successful completion of postgraduate study to gain general registration as a psychologist (e.g., a Master of Counselling Psychology), and finally, the completion of the Registrar Program to obtain an Area of Practice Endorsement (AoPE) as a counselling psychologist. This final step involves an additional period of supervision and professional development and typically takes about two years full-time. So, in effect, it takes a minimum of eight years full-time to be eligible to apply for an AoPE as a counselling psychologist.

The 2019 APAC Accreditation Standards outline a range of competencies required for an AoPE as a counselling psychologist. For example, counselling psychologists are required to demonstrate competency in applying their advanced knowledge and skills to work with a broad diversity of clients from a lifespan developmental perspective. They adhere to relevant legislation, codes of ethical practice, and mental health practice standards, and take into account occupational settings (APAC, 2019). The working alliance is pivotal to their practice, which is underpinned by the scientist-practitioner model and is based in a diverse range of theoretical approaches (APAC, 2019). Counselling psychologists are also competent in applying their advanced knowledge of psychopathology and psychopharmacology, psychological and culturally responsive assessment, formulation, diagnosis, and treatment of a broad range of mental health disorders and psychological problems (APAC, 2019). They also apply their knowledge of evidence-based research to psychotherapy processes, therapies, and outcomes for individuals, couples, families, and groups and are competent in designing, implementing, monitoring, and continually assessing their evidence-based interventions for clients (APAC, 2019). They conduct comprehensive assessments and extend their case formulations beyond diagnostic factors to incorporate the client's sociocultural factors, personal context, treatment preferences, strengths, and resources to tailor their psychotherapeutic interventions to integrate the multiple dimensions of their case formulations (APAC, 2019). As you can see, gaining an AoPE as a counselling psychologist requires extensive training and the ability to demonstrate competency in applying advanced knowledge and skills to a diverse range of clients within a range of different contexts using a diverse range of methods.

Counselling psychologists are well-trained in research methods and statistics during their university studies because research is a key competency that must be demonstrated at all levels of a psychologist's training. This means they have a good understanding of how to conduct their own research, how to critically evaluate the research published by others, and how to use a wide range of reputable sources (e.g., peer-reviewed journals) to inform their practice and research.

The practice of counselling psychologists – as with all psychologists – is based on research evidence. A useful resource that guides the provision of psychological services to people with mental disorders is the APS (2018) publication entitled '*Evidence-Based Psychological Interventions for the Treatment of Mental Disorders: A Review of the Literature*'. The APS has published several such reviews (2003, 2010, 2006, and 2018), which are typically conducted and updated when new mental health care reforms or initiatives are introduced by the government, such as the Better Outcomes in Mental Health Care initiative, the Access to Allied Psychological Services (ATAPS) initiative, and the establishment of the Primary Health Networks (PHNs) (APS, 2018). The latest 2018 fourth edition reports on the results of the most recent literature review. The review covers a broad range of mental disorders, such as mood disorders, anxiety disorders, substance use disorders, eating disorders, sleep disorders, sexual disorders, attention deficit hyperactivity disorder (ADHD), conduct disorder, and pain disorder. It also covers a broad range of psychological interventions, including Acceptance and Commitment Therapy (ACT), Cognitive Behaviour Therapy (CBT), Dialectical Behaviour Therapy (DBT), Emotion-Focused Therapy (EFT), Eye Movement Desensitisation and Reprocessing (EMDR), family therapy and family-based interventions, hypnotherapy, Interpersonal Psychotherapy (IPT), Mindfulness-Based Cognitive Therapy (MBCT), Mindfulness-Based Stress Reduction (MBSR), narrative therapy, play therapy for children, psychodynamic psychotherapy, psychoeducation, Schema-Focused Therapy, self-help, and Solution-Focused Brief Therapy (SFBT) (APS, 2018).

The APS (2018) literature review bases the levels of evidence on the Australian Government's National Health and Medical Research Council (2009) evidence hierarchy, with Level I being the highest level of evidence and Level IV being the lowest level. The level of evidence guides psychologists towards the treatment that has received the most empirical support in the literature. For example, if a counselling psychologist is treating a child for conduct disorder (CD), the APS's research has found interventions such as parent training or CBT can be helpful in the treatment of clinically significant conduct problems of children and teenagers aged 2 to 17 years of age (APS, 2018). This information, along with their clinical judgement, would guide the counselling psychologist on the most appropriate treatment approach for their client. Counselling psychologists who provide services under the Better Access initiative, which provides Medicare rebates to eligible clients, need to ensure the interventions they choose for their clients are covered in the Medicare Benefits Schedule (MBS) and therefore meet the requirements for the government funding (APS, 2018). Some of the interventions listed in the APS review might not be approved for use in such government-funded programs (APS, 2018).

Given their extensive research training, counselling psychologists draw from a broad range of sources to identify appropriate evidence-based treatments for their clients. For example, the Cochrane Library (2021) contains a database of systematic reviews and the central register of controlled trials, which are sources of high-quality research evidence that can guide healthcare providers, including counselling psychologists. Counselling psychologists are also skilled in conducting their own research, and the field of psychology has embraced a commitment to methodological diversity that accepts both qualitative and quantitative methodologies as legitimate strategies for generating knowledge. Counselling psychologists who engage in research

have a wide variety of international journals to which they can contribute their findings, such as the *Journal of Counseling Psychology*, the *Journal of Counseling and Development*, the *Counseling Psychologist*, and the *Journal of Humanistic Counseling*, as well as Australian journals, such as the *Australian Journal of Psychology*, the *Australian Psychologist*, and the *Australian Counselling Research Journal*.

Counselling psychologists also draw on practice-based evidence (PBE) to critically evaluate the effectiveness of their services. PBE is formal feedback collected from clients that enables practitioners to determine the effectiveness of their practice with each client. Client feedback measures such as the Session Rating Scale (SRS) (Miller et al., 2002), the Outcome Rating Scale (ORS) (Miller & Duncan, 2000), and the Outcome Questionnaire (OQ-45.2) (Lambert et al., 1996, as cited in Beckstead et al., 2003) enable practitioners to track treatment response over time, and adjust treatment as needed. The approach enables counselling psychologists to engage in action research on their effectiveness with every client.

Similarities Between Counselling and Counselling Psychology

As you may have noticed, there are many important areas of overlap between counselling and counselling psychology. An obvious similarity is that both professions focus on helping people. They also share similar developmental influences, which means they're more philosophically aligned than some of the other allied health disciplines. For example, they both share a value in developmental and educational psychology, humanistic psychology, a non-pathologising stance, and a valuing of the strengths and capacity of the client in the process of recovery (di Mattia & Grant, 2015, McLeod, 2019; Meteyard, & O'Hara, 2015). Two other important perspectives shared by counselling and counselling psychology are their view of the person, and an inclusive view of what constitutes clinical evidence. Both professions draw heavily on humanistic perspectives of humanness, emphasising such qualities as human capacity for self-actualisation and goal-directedness, reflectivity, and in the centrality of relationships and sociability (Cooper, 2009). Both counselling and counselling psychology value the importance of clinical evidence that is drawn not only from randomised clinical trials, but also from practice-based evidence, highlighting the importance of clinical experience in informing practice (King, 2013). Counsellors and counselling psychologists work in similar settings, such as private practice, hospitals and health settings, courts, prisons, justice services, businesses, sports, community agencies, welfare agencies, and educational institutions, such as schools and universities. They also work with similar client groups and with presenting issues. There is also an overlap in some of the different types of therapeutic approaches used by counsellors and counselling psychologists, such as Person-Centred Therapy, Cognitive Behaviour Therapy (CBT), Psychodynamic Therapy, and Solution-Focused Therapy. The workforce survey of the counselling and psychotherapy professions in Australian in 2021 highlighted another similarity between counselling and counselling psychology: their respective theoretical and practice orientations (Bloch-Atefi, Day, Snell, O'Neill, 2021). Unlike clinical psychology, counselling and counselling psychology draw on a much broader range of theories. This reflects their shared humanistic backgrounds and a wider view of what constitutes 'evidence'. In the 2021 survey of counsellors and psychotherapists, a breadth of theoretical orientations was represented, with Person-Centred Therapy the largest by far at 19.5 per cent, followed by Psychodynamic Therapy at 6.3 per cent, CBT at 5 per cent, Eclectic at 4.7 per cent, Solution Focused Therapy at 4.3 per cent, and Couples Therapy at 4.0 per cent. While counselling psychology, like counselling and psychotherapy, is strongly influenced by humanistic and psychodynamic theories, in more recent years, counselling psychology also draws on third wave therapies, such as Acceptance and Commitment Therapy (ACT), Dialectical Behavioural Therapy (DBT), and Compassion-Focused Therapy (CFT). While these more recent therapies have

a foundation in behavioural and cognitive approaches, they are also strongly influenced by Eastern philosophies and practices, such as mindfulness, and by more recent advances in the neurological sciences. Many counsellors and psychotherapists are also comfortable drawing on some of the strategies within these third wave approaches, such as mindfulness and self-compassion, as they are consistent with the organismic values of the humanistic therapies.

Differences Between Counselling and Counselling Psychology

Although there are many similarities between counselling and counselling psychology, it is important to note that differences do exist, albeit sometimes subtle ones. Organisationally, counsellors and counselling psychologists are members of different professional associations and have different registration requirements. Counselling psychologists can join either the Australian Psychological Association (APS) or the Australian Association of Psychologists Inc (AAPi), while counsellors can join either the Psychotherapists and Counselling Federation of Australia (PACFA) or the Australian Counselling Association (ACA). Psychologists are also regulated by the federal government via the Psychology Board of Australia under the auspices of the Australian Health Practitioner Regulation Agency (AHPRA).

The profession of counselling has been assessed by the Australian Federal Government to determine whether it too should be registered with AHPRA. Due to the profession's low level of risk of harm to consumers and its industry-based self-regulatory mechanisms, the Federal Government determined that the counselling profession did not require government regulation (PACFA, 2018). As such, the counselling profession remains self-regulated despite previous efforts to acquire government regulation (Day, 2015). In 2021, a Federal parliamentary committee reviewing the mental health sector has recommended that the registration of professional counsellors be overseen by government (House of Representatives Select Committee on Mental Health and Suicide Prevention, 2021). Given the high demand for mental health services in Australia, it's likely that government will take over the responsibility for the registration of counsellors in the future.

There are variations in the training and education requirements of both professions – most notably, the difference in the length of time required to meet the requisite training and supervised practice requirements for each profession. For example, students can complete a three-year undergraduate degree in counselling or psychotherapy to meet the minimum requirements for PACFA membership, although many registered counsellors enter the profession after completing a Master of Counselling degree. A master's degree is considered by many as the preferred pathway to registration. It involves a minimum of five years of study involving a three-year undergraduate degree (most commonly from a related discipline, e.g., psychology, social work, human services, etc.) and a two-year master's degree. In comparison, it takes a minimum of eight years to meet the requirements for an AoPE as a counselling psychologist. Counselling psychologists must complete the required pathway for general registration as a psychologist, which takes a minimum of six years, before they can proceed on to further training and supervision to meet the requirements for an AoPE as a counselling psychologist.

While an understanding of a breadth of counselling approaches is taught in both professions, counselling psychology programs tend to require students to have proficiency in at least two theoretical counselling approaches. While counselling programs may focus on specific theoretical approaches, it's more common to provide students with theoretical breadth and less depth in any specific counselling approach. In counselling programs there is also a strong emphasis on training in interpersonal skills and less training in psychological assessment. Counselling programs in Australia do train students in mental health and psychopathology, as it is a requirement within the profession's training standards, but there is generally less focus on this than in counselling

psychology programs, and when taught, is taught in the context of a critique of the medical model assumptions underpinning diagnostic systems (PACFA Training Standards, 2020).

Counselling psychology training programs in Australia also provide much more education and training related to the assessment and diagnosis of psychopathology. When registered as psychologists, people with this background may also be granted permission to operate under a reserved act to diagnose psychopathology. Unlike counselling psychologists, counsellors are not qualified to diagnose mental health disorders. Similarly, counsellors do not administer restricted psychological tests. Psychological testing is integral to the training of psychologists, and to reduce the risk of harm to the public, many psychological tests are protected and restricted for use by psychologists who are competent in the use and interpretation of psychological tests, or to those working under the direct supervision of a psychologist (APS, 2021d). While other professions such as counsellors may administer assessments that could be regarded as psychological because they tap into psychological concepts, they can only use tests that are not protected, that do not have restricted access, and that are not strictly classified as 'psychological tests' (APS, 2021d).

Most counselling psychology programs also have a strong emphasis on understanding and conducting research. They typically subscribe to a scientist-practitioner model of education, with the intent that clinical practice is informed by research evidence. Undergraduate, honours, and postgraduate psychology programs contain a relatively high proportion of training in research and statistics. Although there is an emphasis on research in counselling programs that require a thesis – which is a relatively large document that presents the findings of a research project – they 'oftentimes embrace a scholar-practitioner training model whereby master's-level trainees become consumers of research rather than researchers themselves' (PACFA, 2020).

Career Considerations for Counsellors and Counselling Psychologists

Below are some tips you might want to consider when making your decision.

1. Look ahead: Do you want to become a counsellor or a counselling psychologist? Although some of the steps are similar, there are some significant differences to be aware of. These differences include, but are not limited to, different training requirements and scopes of practice. It's up to you to thoroughly research the educational training options and career outcomes to choose the practice that best suits your specific career goal. If you're unsure which direction to take while studying a three-year psychology undergraduate degree, you still have time to consider whether to continue on to the fourth year (e.g., honours), then on to postgraduate studies in psychology towards general registration as a psychologist, and then to complete further training to be eligible for an AoPE as a counselling psychologist, or whether to commence a postgraduate pathway towards registration as a counsellor. However, if you complete a counselling degree and then decide you want to pursue a career as a psychologist, considerable time and effort may be required as only an undergraduate degree accredited by the Australian Psychology Accreditation Council (APAC), completed at the required standard (GPA stipulations), make a candidate eligible to apply for the fourth year (honours), and subsequent master degree, followed by at least two years of supervised practice. Hence it's important to understand the pathways and requirements for the degree that you choose and know what your options are.

2. Understand registration requirements: In Australia, psychology is a government-regulated health profession, and it's against the law for anyone who is not registered with the Psychology Board of Australia to call themselves a psychologist. Counselling, on the other hand, is a self-regulated profession. While legally there are no restrictions for anybody wanting to provide counselling services, there is growing public and industry awareness of the importance of counsellors being suitably-trained and registered with PACFA or ACA. The ACA and PACFA websites provide information on which counselling and psychotherapy training is recognised as meeting their respective training standards.

Those interested in becoming registered counsellors and psychotherapists on the national ARCAP registry need to ensure they select a training pathway that will lead to membership in PACFA or the ACA. Whether you plan to become a counsellor or a counselling psychologist, you will need to check the registration requirements with the relevant regulatory authorities and/or professional associations.

3. Explore training providers: The Australian Psychology Accreditation Council website (APAC, 2021) has a list of accredited psychology programs. To pursue a career as a psychologist and to go on to gain an AoPE as a counselling psychologist, you will need to undertake study programs that are APAC-accredited. Therefore, it's important to ensure the study program you enrol in is accredited by APAC. You'll see the accreditation standards and all the competencies required for psychology training programs in the APAC Accreditation Standards for Psychology Programs (2019).

For the counselling profession, accredited counselling and psychotherapy training will cover core skills and competencies that are required in the ACA (Australian Counselling Association, 2012) and/or PACFA (2020) training standards. However, training providers will have their own training approaches. Some training programs may be more generalist in the modalities taught and encourage students to develop their own personal frame of practice. Others may have more of a specialist focus, perhaps prioritising training in a specific type of therapy. Some will emphasise the use of empirically-supported treatments that are emphasised in psychology programs, while others will emphasise more philosophically-derived, humanistic, creative, or diverse approaches to treatment.

Attendance requirements and educational formats will also vary. While all counselling courses will require some face-to-face attendance, distance classes may meet the attendance requirements in residential schools, while other training providers will require regular on campus attendance.

4. Check prerequisites – well in advance: Each psychology and counselling study program will specify pre-requisite courses, so when you decide on your program of study, make sure you follow the recommended enrolment plan if possible. If this is not possible, then seek some help from your university to ensure that your enrolment is correct. Psychology honours and master's degrees in Australia typically require research skills and knowledge to be taught, and some of these will require writing a thesis. The same applies for master's degrees in counselling. If you intend to undertake a doctoral program after a Master of Counselling, note that many doctoral programs require a master's thesis to demonstrate one's ability to complete a significant research project. Knowing prerequisites in advance will help you make decisions regarding program streams and/or elective courses that will keep doors open for your preferred next steps. You can investigate these requirements through using university program websites or connecting directly with counselling or psychology program or course coordinators. Programs and entrance requirements can change, therefore it's prudent to review the entrance requirements on the institution's websites or connect directly with relevant staff in your program(s) of interest rather than rely on past student advice.

5. Confirm admission requirements: Aside from specifying prerequisites, many university study programs will have other admission requirements. By exploring your chosen university early, you can ensure that your grades, volunteer or work experience, letters of reference, and other admission criteria meet or exceed the requirements and maximise your chances of being selected into your chosen program of study. Again, programs and entrance requirements can change, so it's prudent to ensure you gain information from the educational institution itself, and that the information is current.

6. Understand employer expectations: There will be regional differences as well as differences related to areas of specialisation and places of employment for both counsellors and psychologists. Consider the type of work that you'd like to do when you graduate and ensure that your course work, field training (practicum or internship) hours, supervisors' qualifications, professional designation, and work experience work together to prepare you well for work as a counsellor or counselling psychologist. Investigate your desired career options and clearly identify necessary qualifications *prior* to beginning your studies. Ensure the program you enrol in meets your desired career qualification requirements.

Making a Choice

There are so many similarities between counsellors and counselling psychologists, which can sometimes make it difficult to decide which profession you might like to pursue. This is where **Chapter 2** might be useful for you to read if you haven't done so already. When you make career decisions, it's important to have a good understanding of yourself and the influences on your career choices. Having a good understanding of your values, personality, interests, abilities, aptitudes, and skills is a great start. It's also important to understand other significant influences, such as where you live/want to live, the employment market, the availability of jobs in your chosen area, your age, your finances, and the political climate. Some people find it helpful to write a list of what is most important to them and weigh up each of those factors – for example, on a scale from 1 (least important) to 5 (most important). Examples of what people deciding between counselling and counselling psychology might identify as important to them might be: salary rate, type of training, length of training, cost of training, ability to work in a specific work context, being able to get a job in the area they want to live, being able to work in a variety of contexts, the professional title, flexible work options, ability to work under the Medicare system, and so on. The key thing is for you to decide what is most important to you and give each one of those things a relative weighting.

Once you've given each of your decision factors a relative weighting from 1-5, explore each of the different professions further in relation to those important decision factors. As you will see in **Table 2.2** in **Chapter 2**, you can find information about different occupations, such as weekly pay and future growth, from the Job Outlook website. Keep in mind that this information is typically based on averages, so it doesn't give you very specific information.

We hope the information in this chapter gives you a general understanding of counselling and counselling psychology, along with the similarities and differences between them. We encourage you to delve deeper by talking to people who are working as counsellors and counselling psychologists, particularly in the contexts within which you would ideally like to work (e.g., private practice, hospitals or health services, schools, community services, etc.) to find out more about their jobs. Also talk to higher education training providers to get more detailed information about the study and training requirements. Try to focus your questions mostly on the key factors you have identified as important to you when making a decision. Once you have sufficient information, you could rate how well each profession aligns with each of the important decision factors you've listed – again on a scale from 1 (doesn't align well) to 5 (aligns really well). Hopefully this will help if you're trying to decide between counselling and counselling psychology. Once you've made a decision, you're not bound by it if you change your mind down the track. For example, some students complete a three-year psychology degree and decide they don't want to pursue the pathway to psychology registration, or they may not meet the eligibility requirements for entry into the fourth year of psychology. Instead, they undertake a graduate counselling program and pursue a career as a counsellor. Alternatively, some students may decide to study a combined undergraduate degree which includes both counselling and psychology, while others may start studying counselling and decide to change to psychology.

Conclusion

Counselling and counselling psychology are both growing professions in Australia. While they're distinct professions, they share similar roots, serve clients of all ages dealing with a wide range of

problems in living, and work in similar contexts. Both counselling and counselling psychology offer diverse and engaging opportunities for work, career growth, and varied career paths. Some of the key differences are in the length and type of training. The training for psychologists is typically longer than for counsellors. This is influenced by the Australian Government's regulation of health professionals and the concomitant registration requirements for psychologists. At present, the counselling profession is self-regulated, as it has not been deemed necessary for the government to regulate it. Additionally, the title of 'Psychologist' is protected by law and only a person who has been granted general registration with the Psychology Board of Australia can call themselves a psychologist. The title of 'Counselling Psychologist' is also protected by law, with only registered psychologists with a Psychology Board of Australia-approved Area of Practice Endorsement able to call themselves a counselling psychologist. The title of 'Counsellor' is not currently protected, however, there are requisite standards for membership of PACFA and the ACA – the professional associations for counsellors and psychotherapists. Choosing between the two professions can be difficult, so think about who you are and what is important to you, and find out as much information as you can about the different options, including talking to counsellors and counselling psychologists and universities that provide the relevant training programs to help with your decision-making. Keep in mind there is some flexibility – particularly when you're completing your undergraduate studies or after you graduate with your three-year degree. You can easily change from psychology to counselling.

This chapter has been adapted by:

- Nathan Beel, Senior Lecturer (Counselling), University of Southern Queensland
- Nancey Hoare, Senior Lecturer (Psychology), University of Southern Queensland
- Michael Davies, Associate Professor, Australian Institute of Professional Counselling
- Denis J. O'Hara, Senior Lecturer, The University of Queensland
- Jan du Preez, Senior Lecturer (Psychology), University of Southern Queensland

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Send us your feedback: We would love to hear from you! Please send us your feedback.

REFERENCES

Allied Health Professionals Australia (AHPA). (2021). *Members: Australian Psychological Society*. https://ahpa.com.au/our-members/australian-psychological-society/

Armstrong, P. (2006). The Australian Counselling Association: Meeting the needs of Australian counsellors. *International Journal of Psychology, 41*(3), 156–162. https://doi.org/10.1080/00207590544000130

Australian Association of Psychologists Inc. (2021a). *Australian Association of Psychologists Inc.* [Home page]. https://www.aapi.org.au/

Australian Association of Psychologists Inc. (2021b). *Psychology jobs*. https://www.aapi.org.au/Web/CareersCPD/psychologyjobs/Web/Jobs-and-training/Psychology%20Job-Board.aspx?hkey=d2fbdd86-83f7-480d-bb91-8db62e743bd8

Australian Counselling Association. (2012). *Accreditation of counsellor higher education courses*. https://www.theaca.net.au/documents/ACA%20Accreditation%20of%20Counsellor%20Higher%20Education%20Programs%202013.pdf

Australian Counselling Association. (2020). *Scope of practice for registered counsellors* (2nd ed.). https://www.theaca.net.au/documents/Scope_of_Practice_2nd_Edition.pdf

Australian Counselling Association. (2021). *Membership.* https://www.theaca.net.au/becoming-a-member.php

Australian Government Department of Health. (2021a). *Better Access initiative*. https://www.health.gov.au/initiatives-and-programs/better-access-initiative

Australian Government Department of Health. (2021b). *National Registration and Accreditation Scheme.* https://www.health.gov.au/initiatives-and-programs/national-registration-and-accreditation-scheme

Australian Health Practitioner Regulation Agency. (2021). *National boards*. https://www.ahpra.gov.au/National-Boards.aspx

Australian Health Practitioner Regulation Agency. (2020). *Legislation*. https://www.ahpra.gov.au/About-Ahpra/What-We-Do/Legislation.aspx

Australian Psychological Society. (2007). *Code of ethics.* https://psychology.org.au/getmedia/d873e0db-7490-46de-bb57-c31bb1553025/18aps-code-of-ethics.pdf

Australian Psychological Society. (2018). *Evidence-based psychological interventions for the treatment of mental disorders: A review of the literature* (4th ed.). https://psychology.org.au/getmedia/23c6a11b-2600-4e19-9a1d-6ff9c2f26fae/evidence-based-psych-interventions.pdf

Australian Psychological Society. (2021a). *Counselling psychologists.* https://psychology.org.au/for-the-public/about-psychology/types-of-psychologists/counselling-psychology

Australian Psychological Society. (2021b). *Member Groups: APS College of Clinical Psychologists.* https://groups.psychology.org.au/cclin/

Australian Psychological Society. (2021c). *Member Groups: APS College of Counselling Psychologists.* https://groups.psychology.org.au/ccoun/

Australian Psychological Society. (2021d). *Psychological tests and testing: Position statement.* https://psychology.org.au/about-us/what-we-do/advocacy/position-statements/psychological-tests-and-testing

Australian Psychological Society. (2021e). *PsychXchange.* https://www.psychxchange.com.au/JobSearch.aspx

Australian Psychological Society. (2021f). *Types of psychologists-counselling psychologists.* https://psychology.org.au/for-the-public/about-psychology/types-of-psychologists/counselling-psychology

Australian Psychology Accreditation Council (APAC). (2019). *Accreditation Standards for Psychology Programs: Effective 1 January 2019 Version 1.2.* https://www.psychologycouncil.org.au/sites/default/files/public/Standards_20180912_Published_Final_v1.2.pdf

Australian Psychology Accreditation Council (APAC). (2021). *APAC-accredited psychology programs.* https://www.psychologycouncil.org.au/APAC_accredited_psychology_programs_australasia

Beckstead, D. J., Hatch, A. L., Lambert, M. J., Eggett, D. L., Goates, M. K., & Vermeersch, D. A. (2003). Clinical significance of the Outcome Questionnaire (OQ-45.2). *The Behavior Analyst Today, 4*(1), 86–97. http://dx.doi.org/10.1037/h0100015

Beel, N. (2017, May). "But we do that too"! Terminology and the challenges in differentiating the counselling profession from other professions who counsel. *PACFA eNews*, 16–17.

Bloch-Atefi, A., Day, E., Snell, T., O'Neill, G., Gaskin, C. (2021). A snapshot of the counselling and psychotherapy workforce in Australia in 2020: Underutilised and poorly remunerated, yet highly qualified and desperately needed. *Psychotherapy and Counselling Journal of Australia*, Advanced online publication, https://pacja.org.au/2021/10/a-snapshot-of-the-counselling-and-psychotherapy-workforce-in-australia-in-2020-underutilised-and-poorly-remunerated-yet-highly-qualified-and-desperately-needed/

Borgen, W. A., & Neault, R. A. (2019). Applications and careers for counsellors and counselling psychologists. In M. E. Norris (Ed.), *The Canadian handbook for careers in psychological science*. eCampusOntario. https://ecampusontario.pressbooks.pub/psychologycareers/chapter/applications-and-careers-for-counsellors-and-counselling-psychologists/

Brear, P. D., & Dorrian, J. (2010). Does professional suitability matter? A national survey of Australian counselling educators in undergraduate and post-graduate training programs. *International Journal for the Advancement of Counselling, 32*(1), 1–13. https://doi.org/10.1007/s10447-009-9084-2

Brown, J., & Corne, L. (2004). Counselling psychology in Australia. *Counselling Psychology Quarterly, 17*(3), 287–299. https://doi.org/10.1080/09515070412331317567

Burton, L., Westen, D., & Kowalski, R. (2019). *Psychology: Australia and New Zealand edition* (5th ed.). John Wiley and sons.

Cochrane Library. (2021). *About the Cochrane library*. https://www.cochranelibrary.com/about/about-cochrane-library

Cooper, M. (2009). Welcoming the other: Actualising the humanistic ethic at the core of counselling psychology practice. *Counselling Psychology Review*, 24(3&4), 119–129. https://mick-cooper.squarespace.com/new-blog/2021/5/1/welcoming-the-other-actualising-the-humanistic-ethic-at-the-core-of-counselling-psychology-practice

Davis-McCabe, C., Di Mattia, M., & Logan, E. (2019). Challenges facing Australian counselling psychologists: A qualitative analysis. *Australian Psychologist, 54*(6), 513–525. https://doi.org/10.1111/ap.12393

Day, E. (2015). Psychotherapy and counselling in Australia: Profiling our philosophical heritage for therapeutic effectiveness. *Psychotherapy & Counselling Journal of Australia*, *3*(1). http://pacja.org.au/?p=2413

Di Mattia, M., & Davis-McCabe, C. (2017). A profile of Australian counselling psychologists. *InPsych, 39*(2). https://www.psychology.org.au/inpsych/2017/april/dimattia

Di Mattia, M. A., Grant, J. (2015). Counselling Psychology in Australia: History, status and challenges. *Counselling Psychology Quarterly, 29*(2) 139–149. https://doi.org/10.1080/09515070.2015.1127208

Di Mattia, M., & Grant, J. (2016). Counselling psychology in Australia: History, status and challenges. *Counselling Psychology Quarterly, 29*(2), 139–149. https://doi.org/10.1080/09515070.2015.1127208

Flückiger, C., Del Re, A. C., Wampold, B. E., & Horvath, A. O. (2018). The alliance in adult psychotherapy: A meta-analytic synthesis. *Psychotherapy*. Advance online publication. http://dx.doi.org/10.1037/pst0000172

Gazzola, N. (2016). Is there a unique professional identity of counselling in Canada? In N. Gazzola, M. Buchanan, O. Sutherland, & S. Nuttgens (Eds.), *Handbook of counselling and psychotherapy in Canada* (pp. 1-12). Ottawa, ON: CCPA.

Goodyear, R. K., Lichtenberg, J. W., Hutman, H., Overland, E., Bedi, R., Christiani, K., & Young, C. (2016). A global portrait of counselling psychologists' characteristics, perspectives, and professional behaviors. *Counselling Psychology Quarterly*, *29*(2), 115–138. https://doi.org/10.1080/09515070.2015.1128396

Grant, J., Mullings, B., & Denham, G. (2008) Counselling psychology in Australia: Past, present and future- Part one. *The Australian Journal of Counselling Psychology, 9*, 3-14.

Haverkamp, B. E., Robertson, S. R., Cairns, S. L., & Bedi, R. P. (2011). Professional issues in Canadian counselling psychology: Identity, education, and professional practice. *Canadian Psychology, 52,* 256–264. https://doi.org/10.1037/a0025214

Hanna, F. J., & Bemak, F. (1997). The quest for identity in the counseling profession. *Counselor Education and Supervision*, *36*(3), 194–206. https://doi.org/10.1002/j.1556-6978.1997.tb00386.x

House of Representatives Select Committee on Mental Health and Suicide Prevention. (2021). *Mental health and suicide prevention – Final report*. Commonwealth of Australia.

https://parlinfo.aph.gov.au/parlInfo/download/committees/reportrep/024705/toc_pdf/MentalHealthandSuicidePrevention-FinalReport.pdf;fileType=application%2Fpdf

King, R. (2013) Psychological services under Medicare: Broken but not beyond repair. *Psychotherapy in Australia*, *19*(2), pp. 38–42.

Lewis, I. (2015). Vision for the future? The contribution of the Psychotherapy and Counselling. *Psychotherapy and Counselling Journal of Australia, 3.* Online. http://pacja.org.au/?p=2460

Littlefield, L. (2017). Ten years of Better Access. *InPsych, 39*(1), 7–10. https://psychology.org.au/inpsych/2017/february/littlefield

Meteyard, J., & O'Hara, D. J. (2015). Counselling psychology in Australia. *Counselling Psychology Review, 30*(2), 20–31.

McLeod, J. (2019). *An introduction to counselling and psychotherapy* (6th ed.). Open University Press.

Miller, S. D., & Duncan, B. L. (2000). *Outcome Rating Scale.* https://www.scottdmiller.com/fit-software-tools/

Miller, S. D., Duncan, B. L., & Johnson, L., (2002). *Session Rating Scale*. https://www.scottdmiller.com/fit-software-tools/

National Health and Medical Research Council. (2009). *NHMRC levels of evidence and grades for recommendations for developers of guidelines.* https://www.nhmrc.gov.au/sites/default/files/images/NHMRC%20Levels%20and%20Grades%20(2009).pdf

National Skills Commission. (n.d.). *Job Outlook – Counsellors*. https://joboutlook.gov.au/occupations/counsellors?occupationCode=2721

National Skills Commission. (n.d.). *Job Outlook – Other psychologists.* https://joboutlook.gov.au/occupations/other-psychologists?occupationCode=272399

National Skills Commission. (n.d.). *Job Outlook – Psychologists and psychotherapists.* https://joboutlook.gov.au/occupations/psychologists-and-psychotherapists?occupationCode=2723

Neault, R. A., Shepard, B. C., Benes, K. E., & Hopkins, S. (2013). Counseling in Canada. In T. H. Hohenshil, N. E. Amundson, & S. G. Niles (Eds.), *Counseling around the world: An international handbook* (pp. 305-314). American Counseling Association.

O'Donovan, A., Casey, L., van der Veen, M., & Boschen, M. (2013). *Psychotherapy: An Australian perspective*. IP Communications.

O'Hara, D. J., & O'Hara, E. F. (2014). The identity of counselling and psychotherapy and the quest for a common metatheory. *Psychotherapy & Counselling Journal of Australia*, *2*(1), https://pacja.org.au/2014/07/the-identity-of-counselling-and-psychotherapy-and-the-quest-for-a-common-metatheory-2/

Orlans, V., & Van Scoyoc, S. (2009). *A short introduction to counselling psychology*. Sage.

Paré, O., & Sutherland, O. (2016). Re-thinking best practices: Centring the client in determining what works in therapy. In N. Gazzola, M. Buchanan, O. Sutherland, & S. Nuttgens (Eds.), *Handbook of counselling and psychotherapy in Canada* (pp. 181–202). CCPA.

Pearson. (2017). *Future of skills: Employment in 2030*. https://futureskills.pearson.com/research/assets/pdfs/media-pack.pdf

Pelling, N. (2005). Counsellors in Australia: Profiling the membership of the Australian Counselling Association. *Counselling, Psychotherapy, and Health*, *1*(1), 1–18.

Prochaska, J. O., & Norcross, J. C. (2013). *Systems of psychotherapy: A transtheoretical analysis* (8th ed.). Brooks/Cole.

Psychology Board of Australia. (2020). *Code of conduct.* https://www.psychologyboard.gov.au/Standards-and-Guidelines/Code-of-conduct.aspx

Psychology Board of Australia. (2019). *Registration*. https://www.psychologyboard.gov.au/Registration.aspx

Psychology Board of Australia. (2019). *Registration standards.* https://www.psychologyboard.gov.au/Standards-and-Guidelines/Registration-Standards.aspx

Psychology Board of Australia. (2020). *Regulating Australia's psychologists*. https://www.psychologyboard.gov.au/

Psychotherapy and Counselling Federation of Australia College of Counselling. (n.d.). *Definition of counselling*. https://www.pacfa.org.au/common/Uploaded%20files/PCFA/Documents/College-of-Counselling-Definition_of_Counselling.pdf

Psychotherapy and Counselling Federation of Australia College of Psychotherapy. (n.d.). *Definition of psychotherapy*. https://www.pacfa.org.au/common/Uploaded%20files/PCFA/Documents/Definition-of-Psychotherapy.pdf

Psychotherapy and Counselling Federation of Australia. (2018). *Scope of practice for registered counsellors. Psychotherapy and Counselling Federation of Australia.* https://www.pacfa.org.au/wp-content/uploads/2018/09/Scope-of-Practice-for-Registered-Counsellors-2018.pdf

Psychotherapy and Counselling Federation of Australia. (2020). *Psychotherapy training standards*. https://pacfa.org.au/common/Uploaded%20files/PCFA/Documents/Documents%20and%20Forms/Psychotherapy-Training-Standards-2020.pdf

Psychotherapy and Counselling Federation of Australia. (2021a). *Colleges*. https://pacfa.org.au/Portal/About/PACFA-Colleges.aspx

Psychotherapy and Counselling Federation of Australia. (2021b). *College of Aboriginal and*

Torres Strait Islander healing practices. https://www.pacfa.org.au/portal/About/Colleges/Aboriginal-and-Torres-Strait-Islander-Healing-Practices/Portal/About/Colleges/CATSIHP.aspx?hkey=af54cb71-463b-4cdd-8e4e-3af58b086a1e

Psychotherapy and Counselling Federation of Australia. (2021c). *Membership*. https://www.pacfa.org.au/membership/

Psychotherapy and Counselling Federation of Australia. (2021d). *What is therapy?* https://www.pacfa.org.au/portal/Resources/What-is-Therapy/Portal/Community/What-is-Therapy.aspx?hkey=82d373a1-a258-4e7d-894b-dab78db8c6ea

Rogers, C. (1961). *On becoming a person: A therapist's view of psychotherapy*. Houghton Mifflin.

Schofield, M. J. (2008). Australian counsellors and psychotherapists: A profile of the profession. *Counselling and Psychotherapy Research*, *8*(1), 4–11. https://doi.org/10.1080/14733140801936369

Schofield, M. J., & Roedel, G. (2012). *Australian psychotherapists and counsellors: A study of therapists, therapeutic work, and professional development*. La Trobe University. http://www.pacfa.org.au/wp-content/uploads/2012/10/Australian-Psychotherapists-Counsellors_Schofield-Roedel-2012_Final-Research-Report.pdf

Schofield, M. J. (2013). Counseling in Australia: Past, present, and future. *Journal of Counseling & Development*, *91*(2), 234–239. https://doi.org/10.1002/j.1556-6676.2013.00090.x

Smith, M. L., & Glass, G. V. (1977). Meta-analysis of psychotherapy outcome studies. *American Psychologist, 32*(9), 752–760. https://doi.org/10.1037/0003-066X.32.9.752

Wampold, B. E., & Imel, Z. E. (2015). *The great psychotherapy debate: The evidence for what makes psychotherapy work* (2nd ed.). Routledge/Taylor & Francis Group.

Wills, G. H. (1999). A brief history of counselling psychology in Australia, 1945-1975. *Australian Journal of Counselling Psychology, 1*(1), 21–27. https://search.informit.org/doi/epdf/10.3316/ielapa.200010118

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CHAPTER 7.

SOCIAL PSYCHOLOGY

CARLA JEFFRIES AND RAQUEL PEEL

INTRODUCTION

Social Psychology is the scientific study of how our thoughts, feelings, and behaviours are affected by our social environments. Social Psychology Researchers use scientific methods to address issues that have profound importance for individuals and societies. In undergraduate Social Psychology classes, students have the opportunity to learn about diverse topics such as:

- perception
- identity formation
- attitudes and persuasion
- conformity, compliance, and obedience
- intimate relationships
- aggression and anti-social behaviours
- altruism and helping others
- stereotypes, prejudice, and discrimination
- group processes

One of the central themes of Social Psychology is that we are fundamentally motivated to be accepted by, and liked by, others, and maintain our social relationships with others (Baumeister & Leary, 1995). Further, our sense of self is comprised not only of our own unique traits, aptitudes and abilities, but is also based on the social groups to which we belong at a relational (i.e., our friend groups and families) andcultural level (e.g., institutions that we belong to, our ethnic and national identities; Tajfel, 1979). These themes of needing to belong and social identity speak to the social nature of humans and can also explain why individuals are so very attuned to, and affected by, their social environments.

Indeed, one of the consistently striking (and sometimes surprising) tenets of Social Psychology is the 'Power of the Situation'. For example, key findings in the literature show that one can engineer a situation where typical, everyday citizens agree to hurt a stranger if they are asked to do so by a perceived authority figure (Milgram, 1965; 1974); people will remain in a room that is filling with smoke if there are others in the room who seem unconcerned about the ostensible fire (Latané & Darley, 1968); or be willing to give what they know to be the wrong answer on a test if others around them are giving the wrong answer (Asch, 1955). These highly-cited and well-known findings within Social Psychology are instructive because they demonstrate the potency of our social environment on our behaviour. However, although the argument for

the power of the situation is compelling, it is clear that not everyone reacts in the same way to these situations. Although the majority of participants in the Milgram studies agree to administer electric shocks when directed to do so by an authority, some individuals refuse to administer any shocks at all. The variability in individuals' responses to strong contextual demands also speaks to the important influence of individual differences in determining our behaviour (Funder, 2008). Thus, our reactions to social situations will vary depending on factors including personality traits (e.g., agreeableness, extraversion), biological factors (e.g., sex, stress reactivity), cultural factors (e.g., the country in which we were raised, our religious beliefs), and other individual differences (e.g., self-esteem, attachment orientation). Further, in addition to these trait differences, our thoughts, feelings, and behaviour can be powerfully affected by the transient states such as mood, cognitive fatigue, or whether specific concepts are cognitively activated at a specific point in time.

Accordingly, the discipline of Social Psychology often adopts an interactionalist perspective. This means social behaviour is interpreted as the product of the interaction between specific individual characteristics that we might call person variables (e.g., personality traits, individual differences, cultural factors, biological factors, and states) and situational variables (such as the context in which the individual operates) to predict how we will think, feel, and behave. To illustrate, we will provide a specific example of an interaction of this sort. In an interesting study, Crocker and colleagues (1987) assessed whether self-esteem (a trait, or individual difference variable) interacts with group status (a situational variable) to predict in-group favouritism (a tendency to evaluate members of one's own group positively, and derogate members of an outgroup). They predicted that the effect of group status on the tendency to derogate outgroup members would be especially pronounced for individuals high in self-esteem, relative to those low in self-esteem. Members of the same sorority at a large University in the Unites States agreed to participate in the study. In pilot testing, different sororities were rated as being high or low in prestige (status). Approximately half of the participants were from sororities that were rated as low in status, and about half of the participants were from sororities that were rated as high in status. Participants were asked to complete a series of measures including the Rosenberg Self-Esteem Scale (Rosenberg, 1965). They were also asked to rank 'typical members' of each of six sororities (including their own sororities) on a number of positive (e.g., attractive, friendly, talented) or negative (e.g., arrogant, boring, unintelligent) attributes. For the positive items, the authors found that sorority sisters high in self-esteem were more likely to show ingroup favouritism (i.e., assign higher scores on the positive traits for a typical member of their own sorority, relative to typical members of other sororities). There was no effect of group status, and no interaction between self- esteem and group status. For the negative items, however, a score of ingroup favouritism was derived by subtracting the mean value of negative trait ratings for a typical member of one's own sorority from the mean value of the negative trait ratings for a typical member of other sororities. In this way, the measure of ingroup favouritism for negative traits meant that participants rated members of other sororities more negatively than they rated members of their own sororities. Crocker and colleagues found an interaction between self-esteem and group status, such that among those with low self-esteem, there was no difference between those from high or low-status sororities in terms of how much ingroup favouritism they exhibited. Among those with high self-esteem, however, those from low-status groups were more likely to exhibit ingroup favouritism than those from high status groups. The authors state that individuals high in self-esteem may be more likely than their low self-esteem counterparts to react to threat by derogating outgroup members in an effort to maintain their own self-esteem (which is consistent with Social Identity Theory, Tajfel & Turner, 1986).

Similarly, a recent study conducted by Iacoviello and Spears (2021) indicated that when members of a group shared a discriminatory attitude towards another group, favoring ingroup

norms was associated with higher self-esteem. This study used an imagined audience to compare ingroup and external groups entities. These findings suggest that ingroup favoritism can subjectively enhance group members' self-esteem. Here, we can see that a behaviour (ingroup favouritism) is dependent on both person variables (in this case, self-esteem, which is a trait) and situational variables (in this case, group status). An interaction is present, such that the relationship between one variable (group status) and the outcome (ingroup favouritism) is dependent on another variable (self- esteem). Put another way, the results of the study show that the answer to the question 'does ingroup favouritism vary as a function of group status?' is 'it depends'. More specifically, it depends on self- esteem. If one was low in self-esteem, then there was no evidence for a relationship between group status and amount of in-group favouritism. However, if one was high in self-esteem, then those from low status groups were more likely to exhibit in-group favouritism than those in high-status groups. This example illustrates the way that Social Psychology Researchers can assess research questions by testing interactions between person variables and situational variables, thereby allowing them to understand how different factors combine in complex ways to influence our affect, cognition, and behaviour.

METHODS IN SOCIAL PSYCHOLOGY

Social Psychology Researchers use scientific methods to test their hypotheses. While a complete review of methodology within Social Psychology would be beyond the scope of this chapter, we will introduce you to some of the primary distinctions among different methodologies used in Social Psychology. One of the advantages of receiving an undergraduate education in Psychology is that students gain insight into the logic underlying research methodology. There is no 'recipe' or step-by-step manual that will allow researchers to conduct a valid study. Instead, research methodology entails a series of decisions, and with every decision there will be some advantages and some disadvantages. Learning about research methodology helps students to understand the implications of these decisions, and how those implications will affect the conclusions that they can draw from their studies. Obviously, this is essential training for students who wish to go on to be scientists and conduct their own research. We argue, however, that an education in research methodology is important and beneficial for all students—and for everyone who will go on to be a consumer of information. In our everyday lives, we seek information from science. For example, if a family member is diagnosed with a medical condition, it is very common for people to turn to the internet to find out more about that condition. At times, the information can seem confusing or even contradictory. Having a solid grasp of research methodology will help individuals to assess and evaluate scientific research, allowing them to understand the implications of the research decisions that scientists made, which in turn provides a basis to make an informed decision about the validity of the claims reported, and the generalisability of the research to different contexts and populations.

Measurement

In all research, scientists need to measure the variables of interest in their study. The measurement of some variables is relatively straightforward. For example, if one wishes to assess how tall a person is, one would measure the person and record the person's height in centimetres. In Social Psychology, however, many of the variables we study are psychological constructs that are not directly observable. For instance, people will likely agree that traits such as shyness, self-esteem, and intelligence vary amongst individuals (e.g., some people have high self-esteem, others feel more negatively toward the self). These traits affect our thoughts and behaviours. However, these constructs are not directly or readily apparent, and so researchers must find a way to measure

these variables. There are a number of ways to do so. Very briefly, researchers can create a survey or measure to capture these traits (e.g., in 1965 Rosenberg created a 10-item scale to measure self-esteem that is still widely used today). In many cases, such self-report measures are appropriate to use. However, self-report measures can be biased (i.e., people may not want to accurately report their true beliefs, feelings, or behaviours). For example, if a researcher was interested in assessing attitudes and toward academic integrity, and asked the question 'Have you ever copied someone else's work on a test or assignment?', students who have cheated in this way may be reticent to admit it, either to avoid being viewed negatively by the researchers, or because they do not want to acknowledge this negative behaviour. This is sometimes called the 'Social Desirability Bias'. Further, sometimes people may not be able to answer a self-report question because they simply lack access to the 'true' answer. For instance, if a student were asked 'What made you decide to study Psychology?' they may be able to come up with answers that are true in the sense that they are credible reasons that may have influenced their decision. However, that student may lack access to other factors (e.g., response not known or not listed in a multiple choice questionnaire) that could have led to their decision to study Psychology (see Nisbett & Wilson, 1977).

If researchers choose not to employ self-report measures, there are a number of tools at their disposal. First, they can choose to directly assess behaviour, or assess a variable that can serve as a proxy for behaviour. For example, if a researcher was interested in assessing condom use behaviour as a dependent variable (i.e., the outcome of interest or desired response), the researcher could choose to assess intentions to use condoms with a self-report question (e.g., 'I intend to use condoms the next time that I engage in sexual intercourse'). If the researcher was concerned about the social desirability bias, that person could choose to employ a behavioural measure as well. As it might be impractical and unethical to assess condom use behaviour in a laboratory, researchers can choose a proxy for behaviour instead. For instance, Stone and colleagues tested whether inducing hypocrisy (asking participants to publicly state reasons why condom use is important, and then prompting them to recall instances in the past when they did not use a condom) led to greater condom use than a control condition (participants who neither publicly stated reasons to use condoms or recalled instances where they did not use condoms), a publicly stating reasons to use condoms only condition, or a recalling instances where they did not use condoms only conditions (Stone, Aronson, Crain, Winslow, & Fried, 1994). For their dependent measure, they assessed condom purchasing behaviour. All participants were paid $4.00 for completing the study, and were given the opportunity to buy condoms for 10 cents each (i.e., participants could choose to spend their earnings to buy condoms). Specifically, 140 condoms were placed in a large glass bowl and there was a plate with coins in it so that students could 'make change' if necessary. Importantly, participants were left alone in the room so that they would have privacy while they purchased the condoms. Consistent with predictions, participants in the hypocrisy condition were more likely to purchase condoms than participants in the other three conditions (control condition, stating reasons to use condoms condition, or recalling past instances where condoms were not used condition). Here, condom purchasing behaviour was used as a proxy variable for condom use behaviour.

In addition to self-report and behavioural measures (or behavioural proxy measures), researchers can use measures that can make inferences about participants' cognitive processes. Many of these tasks operate under the assumption that if a concept or construct is accessible, we will be faster to recognise that concept, relative to when it is not primed. For example, in the lexical decision task (Meyer & Schvaneveldt, 1971), participants are presented with words on a computer screen (e.g., apple, fight) and non-words (e.g., lopat, gern), and are simply asked to classify them as words or non-words by pressing keys on the keyboard. Their reaction times to make these classifications are recorded (in milliseconds). The logic of the lexical decision task is

that if participants are 'primed' with a concept, they should be faster to recognise words related to that concept than words that are unrelated to that concept. As a simple example, if participants are thinking about aggression, they should be faster to recognise the word 'fight' than the word 'apple'.

Social Psychology Researchers can use other techniques that employ reaction time data to make inferences about whether individuals hold positive or negative attitudes towards objects or people. Examples include using techniques such as the Associative Priming Task (APT; Fazio et al., 1995), the Implicit Attitudes Test (IAT: Greenwald et al., 1998), and the Affect Misattribution Procedure (AMP; Payne et al., 2005). The APT involves showing target images (photos or words) preceding exposure to positively or negatively valenced words. Participants then judge if the word presented was positive or negative. Response times are recorded, with the assumption that responses will be faster if the image and the word were affectively congruent and slower if the target and the words are affectively incongruent. The IAT assesses relative associations between the pairing of a target (in this case, the partner) with positively and negatively valenced words and images, with the logic that if individuals hold a positive attitude toward a target, response speed should be facilitated when the target is associated with positive stimuli, and impeded when the target is associated with negative stimuli. The AMP assesses attitudes toward a target by briefly exposing participants to the target (photos or words) before exposure to ambiguous stimuli (e.g., Chinese characters for non-Chinese readers). Later, participants evaluate the ambiguous stimuli. It has been demonstrated that participants' attitudes toward the target will be misattributed to the ambiguous stimuli that were paired with the target, such that ratings of these ambiguous stimuli are influenced by their evaluation of the target object.

Sometimes, Social Psychology Researchers are interested in assessing participants' physiological or neurological reactions to their environment. Put briefly, such measures can be relatively simple such as measuring heart rate or they can require laboratory analysis (e.g., assessing salivary cortisol levels) or complex technology (e.g., neuroimaging techniques such as electroencephalography (EEG, a technique that measures electrical activity in the brain) or functional magnetic resonance imaging (fMRI, a technique that measures changes in blood flow in the brain).

In general, Social Scientists often use questionnaires or surveys to assess their constructs of interest. However, the answers participants provide on these explicit, self- report assessments are quite deliberative, and may reflect what the participant believes to be true at a reasoned, conscious level. Further, through the filters of self-report, one's answers may also reflect biases. For this reason, researchers can use other measures such as behaviour, proxies for behaviour, cognitive, and/ or physiological measures as assessment tools.

Research Design

Although there are number of ways that one can classify research designs, we will focus on two main types of research methodology that are used in Social Psychology: Non- experimental and Experimental research. Non-experimental research seeks to examine whether two (or more) variables are related. Here, variables are measured, and researchers assess the degree of relationship among the variables. For example, if two measures are positively correlated (e.g., higher scores on one variable are associated with higher scores on the other variable), we know that the measures covary such that as one increases, the other increases (e.g., higher self-esteem scores are associated with higher scores of optimism). In contrast, if two measures are negatively correlated, (e.g., higher scores on one variable are associated with lower scores on the other variable), we know that the measures covary such that as one increases, the other decreases (e.g., higher self-esteem scores are associated with lower scores on a depression inventory).

It is important to recognise, however, that in a non-experimental design, a correlation does not necessarily imply causation. For instance, consider the correlation between playing violent

video games (or violent online games) and aggression (see Anderson et al., 2010, for a review of this literature). An example of a non-experimental study might be to recruit a sample of children and measure the frequency with which participants play violent video games (either through self-report measures, or programs that track computer activity) as the predictor variable, and measure aggressive behaviour (e.g., through asking teachers or parents to complete measures of aggressive behaviour exhibited by the children) as the outcome variable. In this type of study, both variables (violent video game playing and aggression) are measured, and then researchers use statistics to assess the direction (positive or negative) and the magnitude (strength) of the statistical association between these two variables. Generally, in studies assessing violent video game playing and aggression, researchers find a positive correlation, indicating that the more violent video games that children play, the more likely they are to exhibit aggressive behaviour (Anderson et al., 2010).

Thus, it is important to understand how to interpret correlation analyses. For instance, what does a positive correlation tell us about the nature of the relationship between playing violent video games and aggression? It may seem that this tells us that playing violent video games causes aggression in children. This may be true, but importantly there are other plausible ways to interpret this relationship. It could also be true that children who are aggressive are more likely to choose to play violent video games than those who are less aggressive. This is another type of causal explanation, but posits that the causality is the other direction (aggressive tendencies lead to greater violent video games). Further, it could be a bi-directional relationship, where both types of causality are true (kids who play violent video games become more aggressive, and kids who are aggressive are more likely to play violent video games). Another possibility is that there is no causal relationship between violent video games and aggression, but that both are linked to a third variable (i.e., the relationship between playing violent video games and aggression is spurious). For example, it could be that compared to children who are more engaged in social activities, those who spend more time alone are more likely to play violent video games, and more likely to engage in aggressive behaviours. If the design of the study is non-experimental (again, this means that the variables are measured, and the researcher assesses the direction and magnitude of the association between the variables), one cannot know whether (a) playing violent video games causes more aggression, (b) kids with aggressive tendencies choose to play violent video games, (c) both causal directions are true, or (d) there is no causal relationship in either direction, but both violent video game playing and aggression are associated with another variable. Students with an education in methodology are trained to evaluate whether the design of a study is non-experimental, and recognise that causality cannot necessarily be inferred.

In experimental research, the goal is typically to identify a causal relationship. Researchers manipulate the independent variable (the presumed causal variable), while holding everything else constant to see if it exerts a change on the dependent variable (the outcome variable). For example, a researcher could select a sample of students from a larger population (e.g., a group of Introductory Psychology students at a University) and recruit them to participate in an experiment. Participants would then be assigned to an experimental condition that allows the researcher to isolate and manipulate the independent variable of interest (in this case, playing violent video games). In this experiment, the researcher might choose to manipulate the independent variable by asking half of the participants to play a violent video game, and the other half of the participants to play a non-violent video game. In an experiment, the researcher would be sure to isolate the independent variable by manipulating only the type of video game (violent or non-violent), while holding everything else constant (e.g., all participants would play in the same room, be greeted by the experimenter in the same way, play the video game for the same amount of time). To be sure that it is truly type of video game (and not anything else) that exerts a difference in

the dependent variable, the researcher needs to know that the only difference between the violent video game condition and the non-violent video game condition is the type of game played.

A second critical feature of experiments is that participants are randomly assigned to a condition. Indeed, in our hypothetical experiment, if we gave participants a choice about which game they wished to play, it could be that those who choose to play the violent game are more aggressive than those who choose to play the non-violent game, which would make it impossible to tell whether playing the video game caused differences between the groups, or the groups varied on some other dimension that caused differences between the groups. Instead, through random assignment (where participants are randomly put in one of the two conditions, using a random numbers generator, or some other technique such as flipping a coin to determine which condition the participant will be assigned to), researchers can assume that at the outset of the experiment (i.e., before the manipulation of the independent variable, in this case the type of video game played), the two groups of participants were comparable on all dimensions prior to the experimental manipulation (in this case, playing a violent or non-violent video games). This means that any difference in the dependent variable observed after the manipulation can be attributed to the independent variable. That is, if we randomly assign students to a condition, we can assume that they are comparable on all aspects (including tendency toward aggression) at the start of the experiment. Then, if we manipulate what type of video game they play (half of our sample is randomly assigned to play violent video games, and half of our sample is randomly assigned to play non-violent video games) and hold everything else constant, and we find a difference in our dependent variable, we can infer that playing violent versus non-violent video games causes an increase in aggressiveness.

In this hypothetical study, the researchers would choose a dependent variable that would measure aggressive behaviour. Here, researchers are faced with an interesting challenge—they need to choose an outcome that is a valid operationalization of aggression that can be measured in a realistic and ethical way. Researchers can use self-report measures (such as the Conflict Tactics Scale, Straus, 1979), or scenario completion measures, where participants read about a hypothetical situation and are asked what they would do if faced with that scenario. These types of self-report measures are well-suited for some types of dependent measures, but as discussed above, in the case of aggression, people may be unwilling to say that they would respond with aggression because of the social desirability bias. Instead, researchers may choose to engineer a social situation in a laboratory that allows for the assessment of aggressive behaviour (for reviews see DeWall et al., 2013; McCarthy & Elson, 2018). Social Psychology Researchers studying aggression have employed techniques including administering fake electric shocks to a partner (e.g., Berkowitz & LePage, 1967; Taylor, 1967), administering blasts of loud noise to a partner (e.g., Anderson & Dill, 2000; Bushman & Baumeister, 1998), choosing how long a partner must hold their hand in a tub of very cold water (e.g., Pederson et al., 2014), choosing the difficulty level of yoga poses a partner must hold and the amount of time in these poses (e.g., Finkel et al., 2009), choosing how much hot (as in spicy) sauce to put on mashed potatoes that a partner must eat (e.g., Lieberman et al., 1999; Warburton et al., 2006), or counting the number of pins that participants stick in a doll that represents a partner (e.g., Voodoo doll task, Slotter et al., 2012). Some of these tasks might seem far-fetched at first glance, but many have been demonstrated to be valid and reliable measures of aggression. For instance, DeWall and colleagues (2013) conducted nine studies demonstrating that the Voodoo doll task correlates with measures of trait aggression, self-reported history of aggression, other accepted laboratory measures of aggressiveness such as administering louder and more prolonged blast of noise, and is reasonably consistent over time. Thus, DeWall and colleagues have used scientific method to demonstrate the validity of using this task to measure aggression.

In review, we have focused on how two principles of experimentation, isolation and manipulation of an independent variable and random assignment of participants to experimental condition, allow researchers to determine whether one variable (the independent variable) causes a change in an outcome variable (the dependent variable). It is important to note that finding that a variable causes a change in the dependent variable does not necessarily imply that reverse causality is not true as well. It could be that the causal direction works in both ways. Further, even if researchers do show that one independent variable causes a change in the dependent variable, it is important to note that this does not imply that the independent is the only cause of the dependent variable—there may be many potential variables that can cause a change in the dependent variable.

We have also commented on the challenges posed to researchers as they seek to measure constructs that cannot be directly observed, and as they attempt to manipulate variables in the laboratory. Some variables cannot be experimentally manipulated, because it would not be possible to manipulate the construct of interest. For example, if a researcher is interested in assessing a trait variable such as extraversion as a predictor variable, it is not possible to randomly assign people to be high or low in extraversion. Further, if a researcher is interested in assessing whether the individuals with siblings are more communicative than only children, one cannot randomly assign people to the sibling or non-sibling conditions—we either have siblings or we do not. In other cases, it is not ethical to randomly assign people to condition. There are many restrictions in place about administering potentially harmful substances to participants (e.g., some universities do not allow any study involving the administration of alcohol, those that do allow it have procedures and restrictions in place to ensure that the administration is safe). When it is impossible or unethical to manipulate an independent variable, social psychologists rely on non-experimental research, but are careful not to draw conclusions about causality. For a broader discussion on ethics, please refer to **Chapter 4**.

Students of Social Psychology often enjoy learning about the clever and creative ways that researchers operationalise very dynamic 'real-world' experiences in a way that can be concretely and ethically manipulated in the laboratory. As just one example, psychologists have conducted research assessing the profound ways that experiences of ostracism and social rejection affect our mental and physical health (for reviews, see Williams, 2001; DeWall & Bushman, 2011). Most people would agree that empirically studying the effects of social rejection on outcomes is a worthwhile goal. However, how can Social Psychology Researchers manipulate rejection in a way that is (a) powerful enough to simulate the experience of rejection in the 'real world' and (b) ethical, so that participants are treated with respect and there is no lasting harm? Researchers have developed a number of clever paradigms to manipulate rejection, so that participants can be randomly assigned to a rejection or non-rejection condition, allowing researchers to assess the extent to which rejection exerts a change in the dependent variable.

Cyberball

In one commonly employed paradigm called 'Cyberball' (Williams et al., 2000; Williams & Jarvis, 2006), participants are led to believe that they are playing an online game of 'catch' with two other participants who are represented by avatars. Participants are told that when they receive the ball, they can choose who to 'throw' it to by clicking on the avatar of the intended ball recipient. In reality, they are not actually playing with real people, but are interacting with a computer program. In the non-rejection condition, participants receive and throw the ball approximately one- third of the time, so they receive equal time with the ball, relative to the other two (computer-generated) 'players'. In the

rejection condition, however, participants initially receive the ball, but over time, the other two 'players' start to exclude the participant from the game, tossing the ball only to each other, thereby ignoring the participant. Interestingly, idea of the Cyberball paradigm originated with an actual experience that the creator of the paradigm, Kip Williams, had when he started playing Frisbee with two strangers, but then was excluded from the game. At first glance, one might assume that any rejection that one might experience by being excluded by two strangers during an online ball-toss game would be so mild as to be inconsequential. However, the experience of exclusion and rejection in the Cyberball paradigm is quite powerful, and there is evidence showing that relative to the non-rejected Cyberball condition, those in the rejection condition exhibit outcomes such as lower levels of self-esteem, more negative mood states, poorer performance on a cognitive task, greater susceptibility to social influence techniques, and more aggression (for reviews, see Gerber & Wheeler, 2009; Hartgerink et al., 2015).

This provides an example of a powerful, 'real world' phenomenon (rejection and ostracism) that can has been distilled to an experimental manipulation that can be readily employed in the lab (participants can be randomly assigned to condition). Although the short-term effects of Cyberball are impactful, it is an ethical design to use, as the participants can be easily debriefed (informed of the purpose of the study, and any deception that occurred during the study) and told that they were not actually being excluded.

APPLICATIONS OF SOCIAL PSYCHOLOGY

One of the reasons that the scientific study of human behaviour is so appealing and exciting is that what students learn is readily applicable to their own lives. Students of Social Psychology gain insight into processes and factors affecting our thoughts, feelings, and behaviour. It is intriguing and instructive to learn about why we systematically (and repeatedly!) make errors in our judgments, attributions, and predictions (how many times do we underestimate how long it will take us to complete a task such as writing an essay?; Buehler et al., 1994). Students can usually relate to examples of how they have been influenced by compliance techniques (Cialdini, 2009), such as the scarcity principle, which is when items seem more valuable when they are viewed as rare or hard to get (e.g., becoming more interested in purchasing a product when told "Act now, they are selling out fast!"). Further, social psychology can often provide students with theoretical frameworks that provide insight to their own social behaviours. For example, learning about adult attachment orientations (see Hazan & Shaver, 1987; Mikulincer & Shaver, 2012) can help students to understand their own tendencies to react in specific ways within the context of their romantic relationships, and potentially use this increased understanding to improve their own relationships. For example, understanding how attachment can influence conflict behaviour can help students recognise problematic patterns and respond more constructively when conflict arises. Finally, there is some research assessing the effects of "enlightenment" on future behaviour; meaning that learning about findings in Social Psychology can influence how we react to situations in our daily lives. For example, there is evidence to suggest that learning about the Milgram obedience study can lead to greater cognitive moral development among university students (Sheppard & Young, 2007).

Social Psychology is also very useful in its application to society. Much of the basic research that is conducted can have practical benefits. For example, if scientists understand factors that predict a pattern of behaviour, and identify the mechanisms underlying the relationship between predictors and outcomes, this knowledge can be applied to help encourage positive behaviours (e.g., increasing the efficacy of campaigns designed to encourage people to volunteer, recycle, or exercise) and prevent harmful behaviours (e.g., reduce the likelihood of workplace aggression,

bystander apathy, drinking and driving, or academic dishonesty). Social Psychology can be applied to a variety of contexts including the workplace (e.g., what variables predict employee commitment to their organisation?), the classroom (e.g., how can teachers motivate students to persevere when they face challenges?), sports and athletics (e.g., when is a team most likely to exhibit the 'home-field' advantage?), and the military and government (i.e., what types of leadership is most effective in different contexts?). Again, a thorough review of all the possible applications of social psychology would be beyond the scope of this chapter, but we will provide you with some illustrative examples (see also Gruman et al., 2016; Myers et al., 2018).

Social Psychology and Health

There are many ways that Social Psychological principles can be applied to health behaviours. For example, understanding persuasion and social influence can be applied to helping public health associations frame their messages so that their campaigns will be effective in encouraging healthy behaviours. This type of "Social Marketing" expertise is used to apply principles of persuasion and compliance in a way that will benefit individuals and society. For example, researchers have studied individual difference and contextual variables that influence the efficacy of framing a health behaviour in a way that emphasises promotion (e.g., "eating fruits and vegetables can help maintain good health") or prevention (e.g., eating fruits and vegetables can help prevent various types of cancers"; see Rothman & Salovey, 1997).

Further, many widely applied theories in Health Psychology are based on core findings in Social Psychology. For example, the Theory of Planned Behaviour (Ajzen, 1991) is a theoretical model that can be used to predict a variety of behaviours, including health behaviours. It states that one's attitudes towards a behaviour (whether we think our behaviours will produce certain outcomes, and our evaluation of those outcomes), subjective norms (whether we think that other will approve or disapprove of our behaviour, and our motivation to comply with their preferences), and perceived behavioural control (whether we think it is likely that we will be able to enact the behaviour) combine to form our intentions. Our intentions then predict our behaviour. This theory is readily applied to decisions to engage in a wide range of health behaviours, such as starting an exercise program, quitting smoking, applying sun-protection, condom use, and eating a more healthy diet. The Theory of Planned Behaviour also speaks to social influences on our decision-making, by positing that subjective norms are one of the three primary factors that influence our intentions to engage in behaviours.

Other researchers have applied Social Psychological principles to factors that promote mental health. Students of Social Psychology often find it amusing when they learn about biases, or "Positive Illusions" that individuals tend to hold about themselves (Taylor & Brown, 1988; Taylor, 1991). Indeed, researchers have established that non-depressed individuals make systematic errors when they make judgments about themselves. For example, individuals tend to rate themselves more positively than most other people would rate them (e.g., most people think that they are a better than average driver), they overestimate the degree of control they have over their environments, and they make unrealistically optimistic predictions about their futures (e.g., how long it will take them to complete tasks, how long their romantic relationships will endure). Taylor and colleagues have shown that these "illusions"—these consistent errors in judgment that we make about ourselves and our daily lives—are correlated with greater self-esteem, well-being, and health. In contrast, being realistic about our standing on various attributes or our chances of success is sometimes referred to as 'depressive realism' (Alloy & Abramson, 1979; Moore & Fresco, 2012).

Other Social Psychology Researchers have investigated the extent to which health is associated with the presence of, and quality of, our close relationships. There is much evidence to support

the hypothesis that people who feel connected to others and report high levels of satisfaction with their close relationships are likely to enjoy better mental health, better physical health, and longer lives (House et al., 1988). This social connectedness plays an important role in protecting health into older adulthood, through reducing stress and improving health behaviours (Umberson et al., 2010; Yang et al., 2015). Interestingly, relative to those who have close and rewarding relationships with others, those who are lonely or isolated with a lack of support are more likely to exhibit poorer self-reported health (Yang et al., 2015), increased risk of heart attack (Carroll et al., 2013; Case et al., 1992), worse blood pressure regulation (Carroll et al., 2013; Uchino et al., 1996), poor sleep efficiency (Cacioppo et al., 2002), worse cardiovascular functioning (Hawkley et al., 2003), and worse immune functioning (Carroll et al., 2013) and other conditions exacerbated by chronic inflammation (Yang et al., 2013). As an illustrative example, Pressman and colleagues (2005) invited 83 healthy first-year university students to participate in a study. The participants completed a variety of self-report measures to assess loneliness, depression, neuroticism, and health behaviours. They were also given a flu shot. The mechanism behind a flu shot is that a dormant version of the virus is injected, and in response, the immune system "kicks in" and produces antibodies, which will then be in place should a person contract the flu virus. Individuals with more healthy immune systems produce more antibodies in response to a vaccine than those with less optimal immune functioning. To test immune function, participants returned to the lab 1 month and 4 months after receiving their flu shot, and their blood was tested for flu antibodies. There was a negative correlation between loneliness and antibodies present in the blood, such those who reported more loneliness had fewer flu antibodies relative to those who were less lonely. Interestingly, the correlation between loneliness and flu antibodies was still evident after controlling for the effects of depression, health behaviours, and neuroticism. Studies such as these demonstrate the importance of social relationships for not just our mental health, but our physical health as well. Further, Social and Health Psychological Researchers have worked to identify the mechanisms underlying the association between satisfying relationships and physical health.

Social Psychology and the Legal System

Social Psychology can be readily applied to many aspects of the legal system including jury decision making and eye-witness testimony. A jury is a group of citizens tasked with reviewing evidence presented by both the prosecution and the defence team, and deciding whether a defendant is guilty. Social Psychological Researchers study relevant concepts such as majority influence (a common phenomenon when a numerical majority can persuade a numerical minority) and minority influence (a less common phenomenon such that when specific conditions are met, a numerical minority can persuade a numerical majority). Indeed, the classic movie "12 Angry Men" (Fonda et al., 1957, a movie which depicts a lone juror eventually persuading his 11 fellow jury members to reconsider their initial decision) is often shown in classes as a demonstration of the processes underlying minority influence.

Eyewitness testimony is when people who witnessed an event describe what they remember, and this is presented as evidence to the court. Social Psychological Researchers study processes such as how our attitudes and expectations can influence what we notice about an event, how we interpret an event, and what we remember about an event. There are many factors that can cause individuals to make errors at each step in this sequence (attention, encoding, and retrieval), and psychologists have studied factors that influence the veracity of eyewitness testimony. Interestingly, the cues that jurors use to make decisions about the credibility of eyewitnesses are sometimes unrelated, or even inversely related, to their accuracy. For example, Bell and Loftus (2006) found that jurors deem witnesses who can provide extensive details of background variables of the crime scene to be more credible than witnesses less able to provide such

descriptions. The relative credibility of the witness was impacted by the relative detail of witness testimony. However, in reality, witnesses who can describe background details have been found to be less accurate at identifying a perpetrator than those who cannot recall background details.

Social Psychology and the Workplace

Social Psychology is closely related to Organisational Psychology. **Chapter 10** includes a detailed overview of Industrial, Work and Organisational Psychology (IWOP) field. Principles of Social Psychology can be applied to benefit the organisation (e.g., assessing factors associated with increased productivity, efficiency, and employee commitment and loyalty) and the employees (e.g., assessing factors associated with workplace satisfaction, group morale, and the physical and mental health of employees). Further, the study of personality and individual differences can be applied to employee recruitment and personnel selection.

Many workplaces involve working collaboratively with other individuals or on teams. As such, core topics in Social Psychology such as social influence, conformity, group decision- making, interpersonal relationships, altruism, and aggression can all be applied to the goal of making workplaces effective, satisfying, and safe. For example, Social Psychological Researchers have studied topics such as Social Loafing (the tendency to work less hard on a group task relative to the effort that is expended when people work individually; Latané et al., 1979), Group Polarisation (the tendency for groups to make decisions that are more extreme than the individual members' starting position; Moscovici & Zavalloni, 1969) and Groupthink (the tendency for individuals in groups to be concerned with agreeing with the group, instead of raising disparate opinions; Janis, 1971). Importantly, Social Psychological Researchers have not only studied these group processes that can potentially undermine organisational efficiency, but they have studied ways to mitigate and prevent these processes.

Most workplaces employ leaders or managers at different levels who are responsible for motivating their teams to work productively and achieve goals, facilitating communication and positive relationships among group members, and provide performance feedback to their group members. Organisational Psychologists assess factors that make a good leader, different leadership styles (i.e., task leadership, transactional leadership, and transformational leadership) and the types of leadership that are most effective depending on the context (e.g., contingency leadership; Fiedler, 1967). In the workplace, this research can be applied to leadership training and promotion decisions.

Interestingly, some theories in the Interpersonal Relationships literature can be applied to the workplace. For example, the Investment Model (Rusbult, 1980) was introduced to the literature to explain commitment to a romantic relationship. Specifically, Rusbult posited that commitment to a relationship is determined by three predictors: Satisfaction, Investments, and Alternatives. Satisfaction refers to the presences of positive aspects, and the absence of negative aspects in our relationship, such that we are more likely to stay in a relationship if we find it satisfying. This is because our individual and social expectations will influence the choice we make when committing to romantic partners or our professional careers.

Accordingly, the seminal work of Sternberg (1986) theorises true love is a product of commitment, intimacy, and passion. But the reality is much more complex. For instance, Fletcher and colleagues (Fletcher & Simpson, 2000; Fletcher et al., 2004) argue that mate selection involves a trade-off of different desirable characteristics, such as kindness, physical attractiveness, and wealth. This is because, in reality, it is highly improbable that one individual will be able meet all these standards. Therefore, expectations are often modified to justify partner selection with compromises made to the "ideal standard" (Karantzas et al., 2019). This finding somewhat explains

why people might stay in romantic relationships even though they do not seem entirely satisfied or happy.

Generally speaking, commitment or investment refers to intangible or tangible things that we have put into a relationship that we will not recover if the relationship was to end (e.g., resources such as money, time put into the relationship, sacrifices we have made for the sake of the relationship). People who have invested more in their relationship are more committed. Finally, alternative refers to what we think our life would be like without the relationship (e.g., being single, being with a new [unknown] partner, or being in a relationship with a specific person that we think would be a potential new partner). If people believe that their current relationship is better than other relationships that they are likely to find (or being single), then they are likely to stay committed to the relationship. Interestingly, these same factors can be applied to whether we stay committed to our workplaces (Farrell & Rusbult, 1981; Oliver, 1990). When making stay or leave decisions, we consider our satisfaction with the workplace (e.g., "do I like coming to work? Am I fulfilled by this job"), the investments we have made (e.g., "will I lose my long service leave if I resign? Can I walk away from a place I have worked for 20 years?"), and the alternatives that we have (e.g., "Can I afford to be unemployed for a while? Will I be more fulfilled by taking this new position that has become available?).

CAREERS IN SOCIAL PSYCHOLOGY

The scientific study of how our thoughts, feelings, and behaviours are influenced by our social situations can help us understand, and relate to, others. Moreover, students with an undergraduate degree in Psychology typically receive strong training in research methodology and statistics, which are highly transferrable skills. Further, the study of Psychology entails not only rigorous methodological and statistical competencies, but higher-order conceptual and analytical skills. In particular, psychology students are taught to evaluate findings and observations from larger theoretical frameworks, to question underlying mechanisms for observed relationships, and identify the core underlying principles that guide our thoughts and behaviours. In other words, students of psychology are able to leverage a conceptual understanding of human behaviour, in addition to more specific research-related skillsets. For these reasons, psychology students are ideal candidates for a number of critical industry positions that require an understanding of industry-relevant human behaviour or functioning, using sound methodologies and analyses.

There are number of entry-level positions for students with an undergraduate degree in Psychology. Just a few examples include research analyst, policy analyst, research or lab assistant, human resource administration or in specialty areas (e.g., recruitment), and assistant or associate employment consultant roles with job network agencies. Additionally, with appropriate experience, graduates can pursue careers as probation and parole officers or case workers in fields such as social and human services.

Research Analyst

A number of industry and governmental agencies (e.g., marketing, health) require research analysts to help them conduct research relevant to their field and organisational mandate. Analysts may either assist the research activities of more senior analysts, or may organise and conduct their own research activities including survey development, data collection, data analysis, report writing, and producing or delivering presentations. This may include an assessment of the organisation's internal database, or the collection of data external to the organisation. Analysts may be asked to use their findings to make policy or program recommendations, depending on the nature of the research, the organisation, and one's position.

Policy Analyst

The research skills of psychology graduates can also be used to inform policy (e.g., education and health sectors). Policy analysts use evidence-informed research to develop short-term and long-term policies and procedures for the relevant agency. Some of these duties would overlap with those of a research analyst, but with the additional tasks of using research to inform policy development, which could include training materials and guides that support those policies.

Research or Lab Assistant

Students with an undergraduate degree in Psychology can apply their research skills by working in a lab as a research assistant at a university, hospital, or research agency. Research assistants typically work with graduate students and researchers by recruiting participants for research studies, collecting data, analysing data, and helping to summarise the research for presentations or publications.

Human Resources Advisor/ Specialist

There are some positions within human resource departments that do not require an advanced degree, and that utilise many of the skills and competencies acquired by undergraduates in psychology. In particular, psychology students can work as consultants in a human resources department in industry, or within an organisational development firm. Organisational development as a field involves the application of social psychological principles to help improve employee and organisational performance and effectiveness. Specifically, organisational developers help to produce change in an institution's systems, structures and processes, including the employees working within those systems The process of organizational development typically includes a diagnosis of organisational problems and current functioning through collection and analysis of data, designing and implementing interventions for change, and evaluating the effectiveness of those interventions afterwards (Cummings & Worley, 2009). Human resources advisors involve the application of research and statistical competencies in the recruitment and selection of personnel, employee training and development, and performance assessment and management (Boxall et al., 2007).

Human Resources Specialist often include the following titles: human resources assistant, human resources coordinator, human resources manager, human resources officer, human resources services advisor. Human Resource Specialists are involved in the recruitment process within an organisation and screen, interview, and recruit new employees. More recently, there has been a growth in initiatives that promote diversity, equity, and inclusion in the workplace (Rabenu, 2021) which rely on the principles that have come from social psychological research.

Polling Organisations

As part of an undergraduate education in Psychology, many students learn about survey design and test construction. This skill set can be applied to work at Polling organisations (e.g., AC Neilson Polling, Galaxy Polling, Newspoll, Roy Morgan, YouGov), where employees plan and design surveys and test instruments, conduct research to assess the psychometric properties of the instruments, collect data, and then analyse and summarise the data for presentation to the client. In this way, working at a polling organisation is specific type of consulting, specialising in test and survey construction, validation, and analysis. From this, researchers give marketers reliable and objective information with which to inform marketing and sales programs, or insight into public opinion pertaining to state and federal politics.

Market Research

Market researchers (also known as market research analyst, marketing specialist, marketing officer) use their research training to help companies become more productive and profitable by making sound economic, political, and social decisions. They monitor and forecast sales trends, and collect data about customers. For example, they may design surveys or conduct focus group research to assess customer satisfaction, marketing strategies, corporate branding, or factors that affect customer loyalty. They analyze these data, summarise their findings, and prepare reports to inform businesses how to best market their products or services.

Consulting Careers

Consultants use their skills, expertise, and knowledge to help individuals or organisations with a specific goal. One can work for a large consulting firm as a consultant or project manager (e.g., Bain Australia, KPMG Strategy, and Monitor Deloitte). It is also possible to specialise further to a specific type of consulting work. Specific examples of consultants include (but are not limited to) Trial Consultant, Media Consultant, Market Consultant, Executive Search Consultant, and Organisational Development Consultant.

Further Education in Social Psychology and Related Fields

An undergraduate degree in Psychology is a generalist degree, and graduates have well developed writing, research, and analysis skills. These skills offer a good foundation for jobs across government, research, human resources, welfare support, and administration sectors.

In addition to these professions, students can also pursue postgraduate training in Psychology or related disciplines. Students with an undergraduate degree in Psychology can go on to apply for a postgraduate (i.e., Master's or Doctoral degree) in Psychology. Typically, at the postgraduate level, students will specialise in a specific field or subdiscipline within Psychology (e.g., Social Psychology, Clinical Psychology, Developmental Psychology, Cognitive Psychology, Organisational Psychology, Neuropsychology, etc.). With a background in Psychology, it is also possible to seek graduate training in closely related programs outside of Psychology (e.g., graduate degrees in Education, Social Work, Counselling, Public Health, Public Policy, Epidemiology, or Marketing).

CAREER PATHS FOR THOSE WITH PHD IN SOCIAL PSYCHOLOGY

Academic Positions

Many students who graduate with a PhD in Social Psychology go on to work as an Academic or Lecturer at Universities. Academics conduct and publish research to advance the field of social psychology, supervise graduate and undergraduate student research activities, teach at the undergraduate and postgraduate levels, and are responsible for administrative duties. Lecturers typically focus on teaching duties, by utilising their knowledge of research methods and social psychological principles to teach courses at the undergraduate and postgraduate levels. Although many individuals with postgraduate training in Social Psychology go on to work in academic positions within Psychology Departments, others hold Academic or Lecturer positions in other departments, such as Business Schools.

Research Positions Outside of Academia

A PhD in Social Psychology can prepare students for a wide variety of research jobs outside of universities or colleges. Some examples are described below.

Research Scientists

Research Scientists work for governmental agencies such as the Defence Science and Technology Group, which is part of the Australian Department of Defence, and is tasked with providing science and technology support to protect Australian and its national interests. Additionally, the CSIRO (Commonwealth Scientific and Industrial Research Organisation), is Australia's largest government funded science agency responsible for scientific research. The use of theoretical frameworks, in addition to qualitative and quantitative methodological and statistical competencies, can be appealing and very relevant for this type of research, making graduates with a PhD in Social Psychology desirable candidates for such positions.

Further, the examples of career paths described as possible trajectories for individuals with an undergraduate education in Psychology (e.g., careers in Consulting, Policy Analysis, Market Analysis, Polling, Research Analysis, or Organisational Behavior) are also very good options for those with a PhD in Social Psychology. A graduate degree makes it possible to apply for positions that are higher than entry-level jobs, so a greater degree of options in these exciting career paths are available to those with a postgraduate degree.

Conclusion

There is a good reason to be optimistic about the job market for students with a PhD in Social Psychology. Understanding how people are influenced by their social environments, combined with the excellent training in research methodology and statistics, makes students with expertise in Social Psychology attractive to a number of different types of employers, such as those mentioned above. According to the APS, "wherever there are people, a psychologist can help ", whether it be as a psychologist with general registration, within an area of practice endorsement or an associated field with a combination of psychology and other vocational skills. Further, according to the APS (2021b), there will be career sector growth in related fields such as community services and counselling, business, education, health, forensic psychology and protective services.

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REFERENCES

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*, 179-211. https://doi.org/10.1016/0749-5978(91)90020-T

Alloy, L. B., & Abramson, L. Y. (1979). Judgment of contingency in depressed and

nondepressed students: Sadder but wiser? *Journal of Experimental Psychology: General*, *108*, 441-485. https://psycnet.apa.org/doi/10.1037/0096-3445.108.4.441

Australian Psychological Society (APS). (2021a). APS College of Organisational Psychologists. APS. https://groups.psychology.org.au/cop/

Australian Psychological Society (APS). (2021b). Careers in psychology. APS. https://psychology.org.au/careers

Anderson, C. A., & Dill, K. E. (2000). Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life. *Journal of Personality and Social Psychology*, *78*, 772-790. https://www.apa.org/pubs/journals/releases/psp784772.pdf

Anderson, C. A., Shibuya, A., Ihori, N., Swing, E. L., Bushman, B. J., Sakamoto, A., . . . Saleem, M. (2010). Violent video game effects on aggression, empathy, and prosocial behavior in Eastern and Western countries: A meta-analytic review. *Psychological Bulletin*, *136*, 151-173. https://www.apa.org/pubs/journals/releases/bul-136-2-151.pdf

Asch, S. E. (1955). Opinions and social pressure. Scientific American, 193, 31–35. https://www.lucs.lu.se/wp-content/uploads/2015/02/Asch-1955-Opinions-and-Social-Pressure.pdf

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*, 497-529. https://psycnet.apa.org/doi/10.1037/0033-2909.117.3.497

Bell, B. E., & Loftus, E. F. (2006). Degree of Detail of Eyewitness Testimony and Mock Juror Judgments, *Journal of Applied Social Psychology*, *18*(14), 1171–1192. doi:10.1111/j.1559-1816.1988.tb01200.x

Berkowitz, L., & LePage, A. (1967). Weapons as aggression-eliciting stimuli. *Journal of Personality and Social Psychology*, *7*, 202-207. https://psycnet.apa.org/doi/10.1037/h0025008

Boxall, P. F., Purcell, J., & Wright, P. M. (2007). *The Oxford handbook of human resource management*. Oxford University Press.

Buehler, R., Griffin, D., & Ross, M. (1994). Exploring the "planning fallacy": Why people underestimate their task completion times. *Journal of Personality and Social Psychology*, *67*, 366-381. https://psycnet.apa.org/doi/10.1037/0022-3514.67.3.366

Bushman B. J., & Baumeister R. F. (1998). Threatened egotism, narcissism, self-esteem, and direct and displaced aggression: Does self-love or self-hate lead to violence? *Journal of Personality and Social Psychology*, *75*, 219–229 http://persweb.wabash.edu/facstaff/hortonr/articles%20for%20class/Bushman%20and%20Baumeister.pdf

Cacioppo, J. T., Hawkley, L. C., Bernston, G. C., Ernst, J. M., Gibbs, A. C., Stickgold, R., & Hobson, J. A. (2002). Do lonely days invade the nights? Potential social modulation of sleep efficiency. *Psychological Science*, *13*, 384-387. https://doi.org/10.1111/1467-9280.00469

Carroll, J. E., Gruenwald, T.L., Taylor, S.E., Janicki-Deverts, D., Matthews, K. A., & Seeman, T.E. (2013). Childhood abuse, parental warmth, and adult multisystem biological risk in the Coronary Artery Risk Development in Young Adults study. *PNAS, 110*(42), 17149-17153.

Case R. B., Moss A. J., Case N., McDermott M., & Eberly S. (1992). Living alone after myocardial infarction. Impact on prognosis. *Journal of the American Medical Association, 267*, 515–519. https://pubmed.ncbi.nlm.nih.gov/1729573/

Cialdini, R. B. (2009). *Influence: Science and Practice*. Pearson Education.

Crocker, J., Thompson, L. L., McGraw, K. M., & Ingerman, C. (1987). Downward comparison, prejudice, and evaluations of others: Effects of self-esteem and threat. *Journal of Personality and Social Psychology*, 52, 907–916. https://psycnet.apa.org/doi/10.1037/0022-3514.81.6.1103

Cummings, T. G., & Worley, C. G. (2009) *Organization development & change* (9th ed.). South Western Cengage Learning.

DeWall, C. N., & Bushman, B. J. (2011). Social acceptance and rejection: The sweet and the bitter. *Current Directions in Psychological Science, 20,* 256–260. https://doi.org/10.1177%2F0963721411417545

DeWall, C. N., Finkel, E. J., Lambert, N. M., Slotter, E. B., Bodenhausen, G. V., Pond, R. S., … Fincham, F. D. (2013). The voodoo doll task: Introducing and validating a novel method for studying aggressive inclinations. *Aggressive Behavior, 39*, 419-439. https://doi.org/10.1002/ab.21496

Farrell, D., & Rusbult, C. E. (1981). Exchange variables as predictors of job satisfaction, job commitment, and turnover: The impact of rewards, costs, alternatives, and investments. *Organizational Behavior and Human Performance, 28*, 78-95. https://psycnet.apa.org/doi/10.1016/0030-5073(81)90016-7

Fazio, R. H., Jackson, J. R., Dunton, B. C., & Williams, C. J. (1995). Variability in automatic activation as an unobtrusive measure of racial attitudes: A bona fide pipeline? *Journal of Personality and Social Psychology, 69,* 1013–1027. https://psycnet.apa.org/doi/10.1037/0022-3514.69.6.1013

Fiedler, F. (1967). *A theory of leadership effectiveness*. McGraw-Hill.

Finkel, E. J., DeWall, C. N., Slotter, E. B., Oaten, M., & Foshee, V. A. (2009). Self-regulatory failure and intimate partner violence perpetration. *Journal of Personality and Social Psychology, 97*, 483-499. https://psycnet.apa.org/doi/10.1037/a0015433

Fletcher, G. J. O., & Simpson, J. A. (2000). Ideal standards in close relationships: Their structure and functions. *Current Directions in Psychological Science, 9*(3), 102-105. doi: 10.1111/1467-8721.00070

Fletcher, G. J. O., Tither, J. M., O'Loughlin, C., Friesen, M., & Overall, N. (2004). Warm and homely or cold and beautiful? Sex differences in trading off traits in mate selection.

Personality and Social Psychology Bulletin, 30(6), 659-672. doi: 10.1177/0146167203262847

Fonda, H. (Producer), Justin, G. (Associate Producer), Rose, R. (Producer), & Lumet, S. (Director). (1957). *12 angry men* [Motion Picture]. Nova Productions. https://en.wikipedia.org/wiki/12_Angry_Men_(1957_film)

Funder, David C. (2008). Persons, Situations, and Person–Situation Interactions. In *Handbook of Personality: Theory and Research*, Eds. John, Oliver P., Robins, Richard W., & Pervin, Lawrence A. Guilford Press, 568–80. https://www.researchgate.net/publication/315716463_Persons_situations_and_person-situation_interactions

Gerber, J., Wheeler, L. (2009). On being rejected: A meta-analysis of experimental research on rejection. *Perspectives on Psychological Science*, *4*, 468–488. https://doi.org/10.1111%2Fj.1745-6924.2009.01158.x

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The Implicit Association Test. *Journal of Personality and Social Psychology*, *74*, 1464- 1480. https://doi.apa.org/doi/10.1037/0022-3514.74.6.1464

Gruman, J., Schneider, F., & Coutts, L. (Eds.). (2016). Applied *social psychology*: Understanding and *addressing social and practical problems* (3rd ed.). Sage Publications.

Hartgerink, C. H., van Beest, I., Wicherts, J. M., & Williams, K. D. (2015) The ordinal effects of ostracism: a meta-analysis of 120 cyberball studies. *PLoS ONE* 10:e0127002. https://dx.doi.org/10.1371%2Fjournal.pone.0127002

Hawkley, L. C., Burleson, M. H., Berntson, G. G., & Cacioppo, J. T. (2003). Loneliness in everyday life: Cardiovascular activity, psychosocial context, and health behaviors. *Journal of Personality and Social Psychology*, *85*, 105-120. https://doi.org/10.1037/0022-3514.85.1.105

Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, 52, 511-524. https://psycnet.apa.org/doi/10.1037/0022-3514.52.3.511

House, J. S., Landis, K. R., & Umberson, D. (1988). Social relationship and health. *Science*, *241*, 540-545. https://doi.org/10.1126/science.3399889

Iacoviello, V. & Spears, R. (07 June 2021). Playing to the gallery: Investigating the normative explanation of ingroup favoritism by testing the impact of imagined audience. *Self and Identity.* https://doi.org/10.1080/15298868.2021.1933582

Janis, I. L. (1971). Groupthink. *Psychology Today*, *5*, 43-46. https://www.psychologytoday.com/au/basics/groupthink

Karantzas, G. C., Simpson, J. A., Overall, N. C., & Campbell, L. (2019). The association between attachment orientations and partner evaluations: An ideal standards perspective. *Personal Relationships*. doi: 10.1111/pere.12297

Latané, B., & Darley, J. M. (1968). Group inhibition of bystander intervention in emergencies. *Journal of Personality and Social Psychology, 10*, 308–324. https://psycnet.apa.org/doi/10.1037/h0026570

Latané, B., Williams, K., & Harkins, S. (1979). Many hands make light the work: The causes and consequences of social loafing. *Journal of Personality and Social Psychology, 37*, 822-832. https://psycnet.apa.org/doi/10.1037/0022-3514.37.6.822

Lieberman, J. D., Solomon, S., Greenberg, J. L., & McGregor, H. A. (1999). A hot new way to measure aggression: Hot sauce allocation. *Aggressive Behavior*, *25*, 331-348 https://psycnet.apa.org/doi/10.1002/(SICI)1098-2337(1999)25:5%3C331::AID-AB2%3E3.0.CO;2-1

McCarthy, R. J., & Elson, M. (2018). A conceptual review of lab-based aggression paradigms. *Collabra: Psychology*, *4*, 1-12. http://doi.org/10.1525/collabra.104

Meyer, D. E., & Schvaneveldt, R. W. (1971). Facilitation in recognizing pairs of words: Evidence of a dependence between retrieval operations. *Journal of Experimental Psychology, 90*, 227-234. https://psycnet.apa.org/doi/10.1037/h0031564

Mikulincer, M., & Shaver, P. R. (2012). Attachment theory. In P. Van Lange, A. Kruglanski, & Higgins (Eds.), *Handbook of theories of social psychology*. (pp. 160-180). SAGE Publications.

Milgram, S. (1965). Some conditions of obedience and disobedience to authority. *Human Relations, 18*, 57-76. https://doi.org/10.1177%2F001872676501800105

Milgram, S. (1974). *Obedience to authority: An experimental view*. Harper Collins.

Moore, M. T., & Fresco, D. M. (2012). Depressive realism: A meta-analytic review. *Clinical Psychology Review, 32*, 496-509. doi:10.1016/j.cpr.2012.05.004

Moscovici, S., & Zavalloni, M. (1969). The group as a polarizer of attitudes. *Journal of Personality and Social Psychology, 12*, 125-135. https://psycnet.apa.org/doi/10.1037/h0027568

Myers, D. G., Spencer, S. J., & Jordan, C. H. (2018*). Social Psychology* (7th Canadian ed.). McGraw-Hill.

Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review, 84*, 231-259. https://psycnet.apa.org/doi/10.1037/0033-295X.84.3.231

Oliver, N. (1990). Rewards, investments, alternatives and organizational commitment: Empirical and evidence and theoretical development. *Journal of Occupational Psychology*, *63*, 19-31. https://doi.org/10.1111/j.2044-8325.1990.tb00507.x

Payne, B. K., Cheng, C. M., Govorun, O., & Stewart, B. D. (2005). An inkblot for attitudes: Affect misattribution as implicit measurement. *Journal of Personality and Social Psychology*, *89*, 277-293. https://psycnet.apa.org/doi/10.1037/0022-3514.89.3.277

Pederson, W. C., Vasquez, E. A., Bartholow, B. D., Grosvenor, M., & Truong, A. (2014).

Are you insulting me? Exposure to alcohol primes increases aggression following ambiguous provocation. *Personality and Social Psychology Bulletin, 40,* 1037–1049 https://doi.org/10.1177%2F0146167214534993

Pressman, S. D., Cohen, S., Miller, G. E., Barkin, A., Rabin, B. S., & Treanor, J. J. (2005). Loneliness, social network size, and immune response to influenza vaccination in college freshman. *Health Psychology, 24,* 297-306. https://psycnet.apa.org/doi/10.1037/0278-6133.24.4.348

Rabenu, E. (2021). *Twenty-first century workplace challenges: Perspectives and implications for relationships in new era organizations*. Lexington Books.

Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton University Press.

Rothman, A. J., & Salovey, P. (1997). Shaping perceptions to motivate healthy behaviour: The role of message framing. *Psychological Bulletin*, *121*, 3-19. https://psycnet.apa.org/doi/10.1037/0033-2909.121.1.3

Rusbult, C. E. (1980). Commitment and satisfaction in romantic associations: A test of the investment model. *Journal of Experimental Social Psychology, 16,* 172-186. https://doi.org/10.1016/0022-1031(80)90007-4

Sheppard, J. P., & Young, M. (2007) The routes of moral development and the impact of exposure to the Milgram obedience study. *Journal of Business Ethics*, *75*, 315–333. https://doi.org/10.1007/s10551-006-9255-6

Slotter, E. B., Finkel, E. J., DeWall, C. N., Pond, R. S., Jr., Lambert, N. M., Bodenhausen, G. V., & Fincham, F. D. (2012). Putting the brakes on aggression toward a romantic partner: The inhibitory influence of relationship commitment. *Journal of Personality and Social Psychology, 102,* 291-305. https://psycnet.apa.org/doi/10.1037/a0024915

Sternberg, R. J. (1986). A triangular theory of love. *Psychological Review, 93,* 119-135. doi: 10.1037/0033-295X.93.2.119

Stone, J., Aronson, E., Crain, A. L., Winslow, M. P., & Fried, C. B. (1994). Inducing hypocrisy as a means of encouraging young adults to use condoms. *Personality and Social Psychology Bulletin, 20,* 116-128. https://psycnet.apa.org/doi/10.1177/0146167294201012

Straus, M. A. (1979). Measuring intrafamily conflict and violence: The Conflict Tactics (CT) scales. *Journal of Marriage and the Family*, *41*, 75-88. https://psycnet.apa.org/doi/10.2307/351733

Tajfel, H. (1979). Individuals and groups in social psychology. *British Journal of Social, & Clinical Psychology, 18,* 183-190. https://psycnet.apa.org/doi/10.1111/j.2044-8260.1979.tb00324.x

Tajfel, H., & Turner, J. C. (1986) The Social Identity Theory of Intergroup Behavior. *Psychology of Intergroup Relations*, *5*, 7-24. https://psycnet.apa.org/doi/10.4324/9780203505984-16

Taylor, S. (1967). Aggressive behavior and physiological arousal as a function of provocation and the tendency to inhibit aggression. *Journal of Personality*, *35*, 297–310. https://psycnet.apa.org/doi/10.1111/j.1467-6494.1967.tb01430.x

Taylor, S. E. (1991). *Positive illusions: Creative self-deception and the healthy mind*. Basic Books.

Taylor, S. E., & Brown, J. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin*, *103*, 193–210. https://psycnet.apa.org/doi/10.1037/0033-2909.103.2.193

Uchino, B. N., Cacioppo, J. T., & Kiecolt-Glaser, J. K. (1996). The relationship between social support and physiological processes: A review with emphasis on underlying mechanisms and implications for health. *Psychological Bulletin, 119*, 488-531. https://doi.org/10.1037/0033-2909.119.3.488

Umberson, D., Crosnoe, R., & Reczek, C. (2010). Social Relationships and Health Behavior Across Life Course. *Annual Review Sociology*, *36*, 139–157. doi:10.1146/annurev-soc-070308-120011.

Warburton, W. A., Williams, K. D., & Cairns, D. R. (2006). When ostracism leads to aggression: The moderating effects of control deprivation. *Journal of Experimental Social Psychology*, *42*, 213–220. https://psycnet.apa.org/doi/10.1016/j.jesp.2005.03.005

Williams, K. D. (2001). *Ostracism: The power of silence.* Guilford.

Williams, K. D., Cheung, C. K. T., & Choi, W. (2000). CyberOstracism: Effects of being ignored over the Internet. *Journal of Personality and Social Psychology*, *79*, 748-762. https://psycnet.apa.org/doi/10.1037/0022-3514.79.5.748

Williams, K. D., & Jarvis, B. (2006). Cyberball: A program for use in research on interpersonal ostracism and acceptance. *Behavior Research Methods*, *38*(1), 174–180. https://link.springer.com/article/10.3758%2FBF03192765

Yang, Y.C., Boen, C., Gerken, K., Li, T., Schorpp, K., & Harris, K.M. (2015). Social relationships and physiological determinants of longevity across the human life span. *PNAS, 113*(3), 578-583.

Yang, C.Y., McClintok, M. K., Kozloski, M & Li, T. (2013). Social Isolation and Adult Mortality: The Role of Chronic Inflammation and Sex Differences. *Journal of Health and Social Behaviour, 54*(2), 183–203. doi:10.1177/0022146513485244

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CHAPTER 8.

DEVELOPMENTAL PSYCHOLOGY

SUSAN ABEL; SAMANTHA BROWN; AND TANYA MACHIN

INTRODUCTION

This chapter was originally written by Kuhlmeier et al., (2019) for the Canadian version of this handbook. We've updated the chapter to ensure the information reflects the Australian context and is therefore relevant to psychology students in Australia. The chapter introduces you to developmental psychology and associated careers. You can also listen to three people talk about using their knowledge of this field in their work as a guidance counsellor, paediatric psychologist, and case manager.

WHAT IS DEVELOPMENTAL PSYCHOLOGY?

As a human progresses through life, they transition from a zygote to a crying infant, from a babbling toddler to a curious preschooler, from a quick-learning primary school student to a broody adolescent, from an independence-seeking emerging adult, to a mature, and then at last, a senior adult. Across the lifespan, there are numerous physical, cognitive, and social changes. The field of developmental psychology is focused on observing these changes and elucidating their underlying mechanisms.

People with training in developmental psychology have learned how to be scientists. Like all scientists, they know the key theories of their field, and importantly, they recognise how those theories came to be. They can create empirical research methodologies to test new hypotheses, and they analyse the resulting data. They know how to critically evaluate claims and effectively communicate findings to other scientists, as well as the broader community. Depending on their chosen career and level of education, people trained in developmental psychology may apply some or all of these skills in their work.

The specific area of interest for a psychologist or psychological scientist interested in developmental issues may differ greatly from the interests of other psychologists or scientists. It's arguably the most interdisciplinary of the traditional areas of psychology, as individuals may focus on development in relation to sensation and perception, cognition, reasoning and behaving in the social environment, personality, and brain systems. Within these topics, psychologists and scientists may focus on what we think of as normative development, as well as atypical development.

Because of this diversity, the questions psychologists and scientists interested in development can ask may seem disconnected from each other. Take a look at a typical introductory textbook

on developmental psychology and you will likely see research questions as wide-ranging as: When do infants perceive physical depth? How do children learn the meanings of words? How does moral reasoning change from early to later childhood? Is the development of theory of mind in humans different from that of other species? How do bullying experiences in childhood affect later victimisation experiences in adulthood? How do cultures differ in pedagogical practices? What is the role of parents in the development of emotion regulation? How does gender identity develop?

The thread that connects these diverse topics, though, is the approach that people interested in developmental psychology take. There is a shared interest in understanding the mechanisms of change by examining the interactions between nature (our genetic inheritance) and nurture (the physical and social environment). Within this framework, species-typical developmental paths can be observed, but intriguing individual differences may also be uncovered.

Perhaps one of the best ways to picture the general context of development is by considering Urie Bronfenbrenner's seminal Bioecological Model (Bronfenbrenner, 1979) shown in **Figure 8.1**. This model considers the multi-directional impact of environmental factors on a child's physical, social, emotional, and cognitive development. In the model, there are a series of nested systems, with the child (including his or her particular combination of genes, temperament, age, health, and physical appearance) at the center. The systems interconnect, and themselves exist within the 'chronosystem', which considers circumstances that change over time.

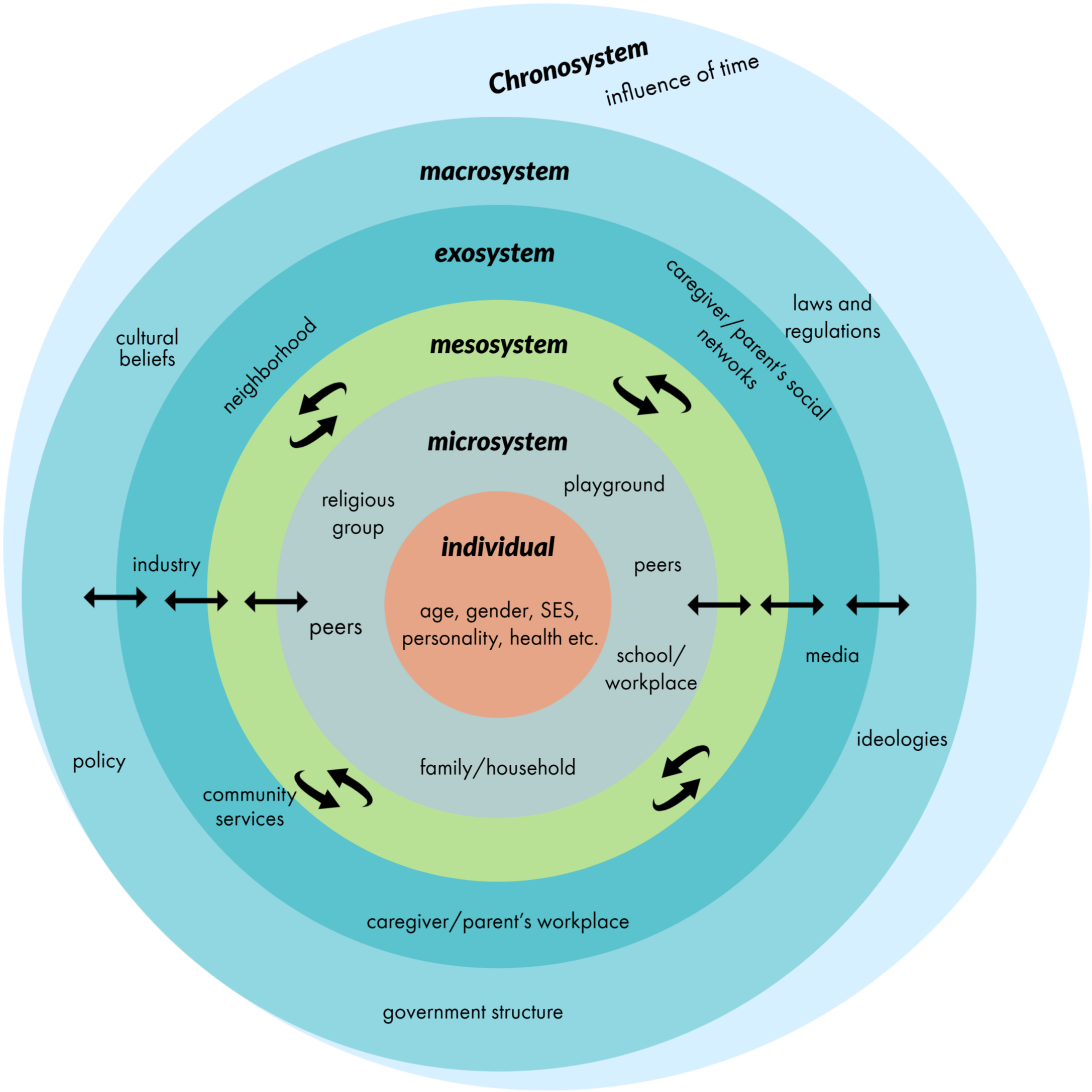

Figure 8.1: Bronfenbrenner's Bioecological Model Considers the Child's Environment as a Nested Series of Interconnected Systems. *[Source: Visual adaptation of Bronfenbrenner's bioecological model of child development (Bronfenbrenner, 1979), adapted from Jacqueline. Used under a CC-BY-SA licence. Note: SES = socioeconomic status.]*

When you consider this complexity, as well as the various domains of development that psychologists and psychological scientists examine, it may not be surprising that the methods used are quite varied. Some methods share commonalities with other areas of psychology: surveys, naturalistic or structured behaviour observation, verbal interviews, genetic assays, and neuroimaging with functional magnetic resonance imaging and electroencephalography, among others. A primary consideration within developmental research, though, is the age-appropriateness of the methods. This is particularly evident when testing infants who are not yet speaking and have limited motor ability, but applies to people of all ages, including older adults.

Another consideration is how development is to be examined. For example, does the research question pertain to whether an ability is present at a certain age? If so, psychological scientists might focus on one time point (e.g., five months of age). Alternatively, is a comparison to be made between certain ages? In this case, scientists may use a cross-sectional approach, comparing different groups of children of different ages, or they might create a longitudinal design in which

they follow the same children over a period of months or years. Yet another approach is the microgenetic design, in which scientists attempt to gain an in-depth understanding of the mechanisms of change. In a microgenetic design such as Westlund et al., (2016), the focus is on children who are thought to be on the cusp of a particular change, and the researchers make observations during a number of sessions over a short period of time.

Section Recap

People trained in developmental psychology have learned the historic and current theories of developmental science and have a critical understanding of how to conduct and interpret research. One individual's specific focus may differ greatly from another's (e.g., the development of numerical understanding versus gender development), but they will share a common interest in uncovering the mechanisms of change. In turn, these mechanisms are considered within the complex interactions between nature and nurture.

The last section of this chapter presents some of the many careers and educational paths related to developmental psychology. Before getting there, though, you'll see examples of research and how it continues to be extended and applied. These sections are divided into two areas of developmental research: social and cognitive. The lines separating these areas may seem 'fuzzy' at times – for example, a researcher interested in the development of a cognitive process will likely consider the role of the child's social experience (e.g., how is information being presented to the child by others?). Yet, the divisions provide an organisational scheme for presenting important themes and research methods within the larger field of developmental psychology.

SOCIAL DEVELOPMENT

The earliest social experiences for humans occur soon after birth, often with the immediate family. In typical development, for example, newborns show a marked attention to faces and soon can recognise the individual faces of those around them (e.g., Bartrip et al., 2001). This early interest in people is thought to start us on a developmental path toward the complex sociality that characterises our species.

This section will begin by considering what psychologists and psychological scientists have discovered about social experiences during infancy and early childhood. Focus will then turn to the development of social relationships, including the child's own social identity. Throughout, examples will be presented of how this knowledge has been extended and applied. The topics and examples are, of course, limited, but the aim is to present major themes and directions.

Early Social Experiences

Our species has a relatively long period of vulnerability – we are born helpless and unable to survive without a caregiver. To ensure infants' survival, and by extension, the survival of the species, infants and caretakers have developed a complex system of behaviours that fosters a strong relationship and motivates adequate caregiving (Simpson & Belsky, 2008), illustrated here in **Figure 8.2**.

Figure 8.2: *Young Infant Looking at a Caregiver's Face. By Marcin Jowiak. Used under an Unsplash licence.*

It was relatively recently, though, that we started to have a more complete understanding of the necessary features of human caregiving. Observations of children who were separated from their parents during World War II showed that these children were emotionally disturbed – even those who were in institutions that provided good physical care (e.g., Bowlby, 1953). What appeared to be missing, it was argued, was the opportunity to create socio-emotional bonds with caregivers. Relatedly, research by Harry Harlow in the 1950s demonstrated that infant rhesus macaque monkeys preferred to spend time in contact with a cloth-covered apparatus than a metal wire apparatus, even though the latter provided milk. In fact, the infant monkeys with access to a 'cloth mother' showed more species-typical behaviour, exploring the world and then returning to the soft apparatus as if it were a secure base.

Together, these findings formed the initial basis of Mary Ainsworth and John Bowlby's attachment theory. The ideas were expanded through studies suggesting that infants' early experiences with primary caregivers shape their social and emotional development. Through the interactions with a sensitive caregiver, infants form a 'working model of attachment', a mental representation or schema of positive social relationships. Without these early experiences – or with experience with an insensitive caregiver – children's social development can be compromised (see the text box **Case Study: Romanian Adoption Studies** below for more on this topic).

Since this initial research, psychological scientists have continued to expand our understanding of the significance of early social experiences. For example, there is evidence for both cultural universals and cultural variations – though the importance of attachment security appears to be universal, securely attached children in different cultures may differ in how often they're in close physical proximity to their mothers (e.g., Posada et al., 2013). Additionally, the research in this area has provided us with a foundation for creating interventions to improve parent-child interactions. Psychologists who specialise in developmental issues may work with clinical psychologists and other healthcare professionals to design and evaluate programs that focus on sensitive parenting behaviour. As one example, Professor Matt Sanders and colleagues from the Parenting and Family Support Centre at the University of Queensland in Australia developed the Triple P – Positive Parenting Program® to enhance parents' knowledge, skills, and confidence in managing family issues (Sanders, 2008). Meta-analysis has found the program can enhance parents' wellbeing and satisfaction as well as child social, emotional, and behavioral outcomes (Nowak & Heinrichs, 2008; Sanders et al., 2014).

Psychologists have further applied the research undertaken by psychological scientists on early social experiences to questions about the impact of non-parental childcare. For many families, parents hold jobs by necessity or choice, and children may spend time with other caregivers. Studies suggest that when childcare is high quality (e.g., low turnover of caregivers and a small

number of children per caregiver), children can still form secure attachments with their mothers when their mothers show sensitivity in their time together. Further, high-quality childcare can reduce disadvantage for vulnerable children living in families where caregivers receive limited personal or professional support in their parenting roles (Moore et al., 2012; Moore & McDonald, 2013).

Case Study: Romanian Adoption Studies

As you have just read, throughout the 1900s, developmental psychologists increased our understanding of the role of sensitive caregiving in early social development. It may come as a surprise, then, to learn that as late as the 1980s and 1990s, many children in Romania lived in institutions with relatively little contact with caregivers, as demanded by the political dictatorship at the time.

When the political power shifted, children were adopted by families in different countries. Across a series of studies, the development of these children was examined, often in comparison with both Romanian and non-Romanian children who had been adopted early in infancy (e.g., Nelson et al., 2007; Rutter et al., 2004). The studies found that Romanian children who were adopted at an older age (e.g., 12 to 24 months and 24 to 42 months) often showed atypical physical, social, and cognitive development as compared to children who had been adopted at a younger age, even after years of living in a loving and supportive environment.

These findings were important for the information they provided on the significance of early social experiences in human development and for the implications for public policy (Rutter et al., 2009). Also notable, though, were the research ethics considerations, such as the potential for exploitation, the risk/benefit ratio, and cultural sensitivity (Zeanah et al., 2006).

Development of The Self

It may seem strange to read about the development of 'the self' in a section on social development. Yet one's self-concept develops through interactions among all the systems in Bronfenbrenner's model (**Figure 8.1**), including, importantly, our interactions with others. Early in development, an emerging sense of self can be seen when infants recognise that they have agency and are able to control their environment (to some extent!). For example, at two to four months of age, infants show excitement when they can cause a mobile to move via a string attached to their kicking foot (e.g., Rovee-Collier, 1999). In the toddler years, children come to realise when looking in the mirror that they're looking at an image of themselves. The sense of self continues to become more elaborate during the preschool years – three- to four-year-olds will describe themselves in terms of their physical features ('I have brown hair') as well as their social relationships ('I have a brother'). During the primary school years, children increasingly engage in social comparison ('Other kids at school do better in math', e.g., Harter, 1999), and in adolescence, the importance of social acceptance by peers is strong (e.g., Damon & Hart, 1988).

Researchers and psychologists have now amassed a rich body of research on the development of the self, including focus on topics such as ethnic, sexual, and gender identity. In many cases, the research aims to be cross-cultural, as identity formation is influenced by the opportunities children and adolescents have, which in turn are impacted by economic, historical, and individual factors. While attitudes and expectations about gender identity and roles have become less stereotypical in western cultures in the recent past, the research is continually being applied to improve health and wellbeing (see the **Gender Development in Transgender Youth** text box below for an example in relation to gender identity).

Focus has also turned to one particular element of self concept: self-esteem. How we evaluate ourselves is related to life satisfaction. Low self-esteem in childhood and adolescence is associated with negative outcomes such as substance abuse, depression, and withdrawal from social interactions (e.g., Donnellan et al., 2005). Receiving praise can typically help to increase self-esteem. However, researchers have suggested that inflated praise ('You are the best at drawing!') can have detrimental effects on children with low self-esteem. In one study, children visiting a museum drew a picture and were told that it would be evaluated by a painter (there was no actual painter, only the experimenters). Some children received inflated praise ('You made an incredibly beautiful drawing!'), while others received no praise or non-inflated praise. Children with low self-esteem who received inflated praise were less likely to take on a new challenge than other children, suggesting the inflated praise backfired – perhaps because it set high standards these children did not feel they could meet (Brummelman et al., 2014). Discussion of this research has been valuable in educational settings as praise concerning participation rather than achievement has become more common.

Gender Development in Transgender Youth

Gender identity is typically defined as an individual's awareness of themself as male, female, or non-binary (e.g., non-binary, gender fluid, agender). A person's gender identity may not align with the sex assigned to them at birth, or their primary or secondary sex characteristics (American Psychological Association, 2015). Recent population-based estimates suggest around 1 per cent of Australians identify as transgender (Pang, nd). Some First Nations Australians also use terms such as 'brotherboy' and 'sistergirl' to describe trans and gender diverse people in their community. Gender identity is therefore different to sexual orientation, which is conceptualised in two parts. The first is a person's sense of the degree to which they feel sexually and/or emotionally attracted to other people (e.g., sexual, demisexual, asexual). Secondly, orientation refers to the direction of the attraction. An individual may be attracted to a person whose gender is the same and/or different to their own, or to people who have another gender identity (e.g., gender neutral or fluid). Some people also consider their attraction is not based on gender.

The TransYouth Project, led by developmental psychologist Dr Kristina Olson, examines transgender children's gender development. At the time of writing, it's an ongoing longitudinal study of transgender children from North America (ages 3 to 12 years at the start of the study), though some early findings have been published (for a summary, see Olson & Gülgöz, 2018). These children have socially transitioned (e.g., they are referred to by a pronoun not traditionally used for their natal sex) and thus have significant parental support of their gender identities. Because of this, the researchers are cautious in generalising the findings beyond similar samples.

The TransYouth Project is the first of its kind, researching gender development in transgender youth using quantitative empirical methodologies. The research thus far has examined the continuity and discontinuity of gender identity, researcher biases in assessing gender, and the implications of social support and transitioning on wellbeing in transgender and gender diverse youth. One finding thus far is that socially transitioned children's gender development is quite similar to gender-typical peers and gender-typical siblings. Future research directions include larger and more diverse samples with children who have and have not socially transitioned.

Peer Relationships

Psychologists and psychological scientists have long claimed that relationships with peers are integral to children's development. The interactions with similarly-aged 'equals' often allows the

free exchange of ideas and criticisms, which can lead to the development of new concepts about how the world works. Cooperation with peers helps children develop social and emotional skills valued in the culture.

Among the different types of peer relationships, the study of friendship – and how the concept of 'friend' changes during development – has provided a large body of research. Having close, reciprocated friendships as a child is linked with positive outcomes even into young adulthood (e.g., Bagwell et al., 1998). That said, friendships with individuals who promote dangerous or unhealthy behaviours can be costly (e.g., Simpkins et al., 2008).

Figure 8.4: Young Girl Being Socially Excluded and Rejected by Peers. By RODNAE Productions. Used under a CC0 licence.

Peer relationships can include aggression, harassment, and violence, in person or online (i.e., cyberbullying) for some children and adolescents. The consequences of being bullied (**Figure 8.4**) are broad and include academic difficulties, stress-related illness, loneliness, biological changes within the brain, and suicide. By some accounts, 25 per cent of students in Australia experience bullying at school (Price Waterhouse Coopers, 2018). Further, children who are more likely to be bullied are in vulnerable populations such as children who identify as non-cis gendered, LGBTQI+, have a disability, are culturally or linguistically diverse, or are First Nations Australians.

Researchers and psychologists have been working with organisations to connect science to practice and practice to science, in turn creating and evaluating programs that promote positive relationships. For example, the National Centre Against Bullying is an advocacy body comprising psychologists, educators, and industry experts. The group works to provide evidence-based information and advice to school communities, parents, children, and government bodies about bullying, the economic and social impact, and strategies to mitigate against bullying. They also host conferences to allow other researchers in the field to share their work with each other such as the Safe and Supportive School Communities Working Group (comprising representatives from all education jurisdictions in Australia). Supported by the Queensland Department of Education, the Safe and Supportive School Communities Working Group created the Bullying. No Way! **(Figure 8.5)** project that aims to provide schools, parents, and children with evidence-based resources. Research has found students are more confident in their ability to intervene in a bullying event in the playground after completing the Bullying No Way! program (McWilliam et al., 2016).

Figure 8.5: Bullying. No Way! By State of Queensland. Used under a CC-BY-NC licence.

Emotional Regulation

In developmental psychology, the study of emotions occurs at many levels: neural responses,

physiological responses such as heart rate, the subjective feelings associated with emotions, the recognition of others' emotions, and the cognitive processes that can influence these distinct levels (e.g., Siegler et al., 2018).

Here, we highlight one aspect of emotional development: the ability to regulate one's emotions. Though we have situated this discussion within the social development section of this chapter, the topic actually bridges social and cognitive development. Regulating emotions can entail cognitive processes, including inhibitory control, reassessment of goals, and creation of new behavioural strategies. But emotion regulation can also occur in a more social context, such as the co-regulation that can occur with parents or peers.

Emotion regulation plays a significant role in wellbeing, with implications for anxiety and depression. Researchers in both developmental and clinical psychology often work together to apply research findings in the creation of interventions. One example is the use of video games that allow children with moderate to elevated levels of anxiety to practice controlling their stress. The game MindLight, created by developmentalist Dr Isabella Granic, along with a team of researchers and game designers, lets children virtually explore a dark mansion with a light that becomes brighter as they relax. Because the game is fun and engaging, children get repeated experience controlling their own anxious emotions as they play. Evaluating the effectiveness of the game is ongoing, and comparisons are being made to existing interventions including traditional cognitive behavioural therapy (e.g., Schoneveld et al., 2016; Wols et al., 2018).

Section Recap

This section has provided a brief summary of social development, with emphasis on early interactions with caregivers, the development of a sense of self, and peer relationships. In each case, examples of how research findings have been applied — in various contexts (e.g., education, parenting) and with various goals (e.g., public policy) — have been presented.

Underlying our social interactions, though, are cognitive processes that support our interpretation of others' behaviour and guide our decision-making. In the next section, we'll provide an overview of some major research areas of cognitive developmental psychology and give examples of applications of the work.

COGNITIVE DEVELOPMENT

In a general sense, psychological scientists who specialise in cognitive aspects of development study how our abilities to acquire, store, and process information develop. A more specific definition of 'cognition', though, is the 'mental processes and activities used in perceiving, remembering, thinking, and understanding, and the act of using these processes' (Ashcraft & Klein, 2010, p. 9). Cognitive processes, therefore, are internal, occurring inside the brain. Because of this, cognition is typically inferred from behavioural or neural measures during carefully designed experiments.

This section will provide examples of research on cognitive development, noting how the findings can apply to other areas of the field of psychology, as well as other disciplines and non-academic communities. That said, many psychologists may conduct 'basic science', remaining agnostic about any application to, for example, health or education. Indeed, the basic science underlying any effective application or intervention will take many years to complete, and the potential applications may only be realised after a large body of findings have been amassed and

interpreted. Knowing this, it's important to approach the claims that specific toys or videos will make children 'smarter' with dose of healthy scepticism (e.g., Schellenberg & Hallam, 2005).

Perception and Early Cognitive Development

Decades of research with humans and non-human animals have led to the conclusion that the wiring of a species-typical brain is, in part, a result of experiences within a species-typical environment (e.g., voices, movement, three-dimensional objects). The brain is thus thought to 'expect' certain input from the environment to fine-tune itself by strengthening or pruning synapses. This experience-expectant plasticity has benefits (other areas may be able to take over when localised damage occurs), but it also has costs. If the 'expected' environmental information is not there, then development can be compromised.

Findings from infants who are born with cataracts that obscure vision demonstrate a cost of experience-expectant plasticity. Researchers have found that children who have cataracts medically removed later in development have greater visual impairment than those who have them removed earlier (see Maurer, 2017). Research such as this has led to modern practices of early removal of cataracts when surgery is possible, with the aim of providing the infant visual system with the experiences that are important for development.

But how do we even know what infants see when they can't verbally communicate to us about their perceptions? Though there are many methodologies that capitalise on different infant behaviours such as reaching or sucking, there has been a long history of measuring infants' looking behaviour. Experimental procedures using a habituation/dishabituation design, for example, capitalise on infants' initial interest in new things, as well as their waning interest over time. In a typical set-up, a visual stimulus (e.g., a striped object) is placed in front of an infant repeatedly. For the first few minutes, infants spend much of the time looking at the stimulus, but over time, they habituate to the stimulus and begin to look elsewhere more and more. When this looking-away behaviour reaches pre-determined criteria, a new stimulus is presented (e.g., a differently patterned object). Increased looking to this new stimulus is called *dishabituation* and suggests that an infant can differentiate between the two stimuli. Using this type of methodology, psychological scientists have been able to examine early perception and cognition in relation to objects (e.g., infants' early sense of number, discussed in the text box **Number and Mathematics**) and people.

A common methodology that is used to examine infant auditory discrimination is known as the *conditioned head turn procedure*. At the start, infants are trained that when a change in an ongoing sound occurs, a fun toy appears to their side. When they learn this association, they readily turn their head in the direction of the upcoming toy if they hear the change. Using this procedure, developmental psychologists have examined how infants discriminate among different speech sounds. For example, six-month-old infants growing up in monolingual English-speaking households in Sydney would turn their head when a speech sound common in English changed to a speech sound common in Thai. Intriguingly, nine-month-olds with no experience with Thai found it more difficult to differentiate these sounds than the six-month-old infants (e.g., Mattock & Burnham, 2006). Thus, there appears to be a time in early development in which our auditory perception allows for this discrimination, but with increased exposure to the predominant language in our environment, we narrow our perception. Although this may seem detrimental – and perhaps the opposite of how we usually think about development – the narrowing and focus may underlie the attainment of expertise.

Number and Mathematics

What does cognitive developmental neuroscience have to do with mathematics education? A lot, actually. Many developmental psychologists have been focusing their research on how children learn about numbers using both behavioural and brain-imaging methods.

Young infants (and many non-human animals) can notice the difference between an array of, say, eight dots and an array of four dots. We can estimate numerical magnitude and discriminate between magnitudes, even at a young age. To try an adult version of this task in which both arrays are presented together, quickly look at **Figure** 7 without explicitly counting the dots. Are there more yellow or blue dots?

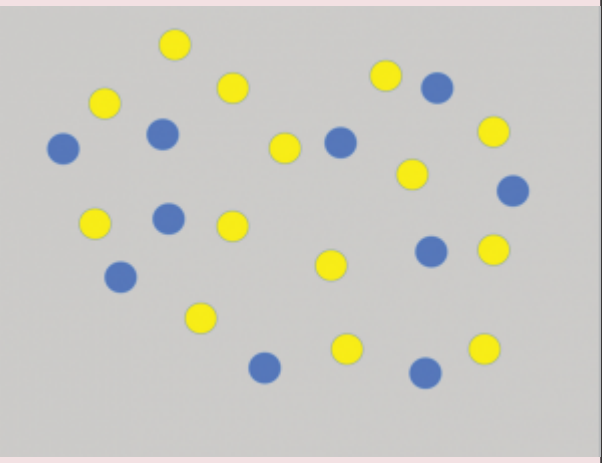

Figure 7: Without Counting, Can You Tell if there are More Yellow or More Blue Dots? *Humans and other animals can discriminate between numerosities – like the yellow and blue dots here — using a non-symbolic, approximate sense of quantity.*

Of interest to many researchers is the role these early representations play in the acquisition of symbolic numbers, such as Arabic numerals and number words (e.g., Feigenson et al., 2013; Sokolowski et al., 2017; Xenidou-Dervou et al., 2007). Does, for example, the development of basic magnitude processing impact the development of arithmetic skills? If so, what might this mean for mathematics education?

Researchers and psychologists are also examining children who have severe difficulties with arithmetic, called developmental dyscalculia (DD). For example, Dr Daniel Ansari uses behavioural and functional neuroimaging methods to study the causes and neural correlates of developmental dyscalculia (e.g., Bugden & Ansari, 2016). By partnering with psychologists who are interested in the educational field, he aims to apply research findings to the classroom. Dr Daniel Ansari explains dyscalculia in **Video 8.1** below.

Video 8.1: Understanding Dyscalculia: Symptoms Explained

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://usq.pressbooks.pub/psychologycareers/?p=226#oembed-1

Language Development

Psychological scientists have a long history of studying language development, considering important aspects such as the perception and discrimination of speech sounds and the ways in which children learn the meanings of words. Related research focuses on how children learn to read. The area is broad, and entire university courses can be designed to introduce the topic. Here, we'll focus specifically on the role of adults in children's language learning and critical periods within development.

Counterintuitively, adults don't actively teach language as much as you may think. Parents, for example, don't often explicitly teach grammatical rules. Instead, much of the learning comes from exposure to language. Parents will use infant-directed speech (higher pitch, with exaggerated intonation) when talking to an infant, and the speech emphasises words for objects in the environment. During these 'conversations' children will also pay attention to the speaker's focus

of attention (via eye gaze, pointing, etc.) and use these pragmatic cues to determine what object the speaker is likely labeling.

Imagine, however, if a child doesn't have any exposure to language. Fortunately, such a situation is rare, but there are documented cases of abused children who were not exposed to language with any consistency. Children who were rescued from abuse later in development didn't successfully learn language, even after living in a social and loving household. Similar findings also come from situations in which there was no abuse, yet children were not diagnosed with deafness and, thus, there was no exposure to sign language until later childhood. There appears to be a critical period in the first four to five years of life where exposure to language is integral to language development.

The study of bilingual children and adults further supports the importance of a critical period. Adults who were exposed to a second language during their first three years of life show brain activation patterns to the second language that are like the patterns in monolingual adults who are listening to their native language. Those who learn a second language later, however, show different patterns (e.g., Weber-Fox & Neville, 1996).

But how do children manage to learn two languages at once? A classic, but now unsupported view was that learning more than one language would negatively impact learning more generally. While it's the case that children learning two languages may learn each more slowly than children exposed to only one, the developmental 'lag' quickly disappears with age. These findings are important to policies around bilingual education, suggesting that immersion programs will not hinder learning (e.g., Holobow et a., 1991).

Understanding Others

Many topics already covered in this chapter relate to children's developing understanding of the people around them. Attention to faces in early infancy, forming attachments to parents, and perceptual systems that parse the sounds of human language all support our ability to make sense of others' behaviour and predict their future behaviour. In this section, we consider potential challenges to navigating the elaborate rules of social communication faced by people with developmental disabilities such as autism spectrum disorder (ASD) (see the text box on **Autism Spectrum Disorder** below).

Key to our mature understanding of others is the human-unique suite of social cognitive skills that researchers refer to as *theory of mind*. Theory of mind is our understanding that the behaviour of other people is caused by their internal mental states, such as their intentions, desires, and beliefs. We can't see others' beliefs, but we can infer them based on the context, past behaviour, and current behaviour. You will likely predict, for example, that a friend will look for his book on his desk where he left it, even if you borrowed it when he was away and left it on your own desk. You know that his belief as to the location of the book is different from your own knowledge.

This type of inference undergoes a major change in the preschool years. Psychological scientists have found that many social, cognitive, and neurodevelopmental factors shape the timeline of theory of mind development. Some studies, for example, use electroencephalography (EEG) – a procedure that measures electrical activity of the brain over time using electrodes placed on the scalp – to assess ways in which brain maturation might be specifically related to developments in preschoolers' theory of mind (e.g., Sabbagh et al., 2009). Related research considers the role of neurotransmitter systems (e.g., dopamine) in shaping children's social cognitive development (Lackner et al., 2012).

Our brains develop within our social and cultural environments, as you have likely recognised throughout this chapter. Thus, theory of mind research also considers how brain maturation interacts with relevant, everyday social experiences. For example, parents' use of mental state talk

with their young children is correlated with children's later theory of mind development (e.g., Ruffman et al., 2002). It's possible that mental state talk provides them with fact-based knowledge about mental states, and it might help children start to take the perspective of others by using their own perspectives as a comparison.

As noted, the ability to reason about others' mental states is integral to efficiently navigating our social world. There are, thus, direct applications of the study of theory of mind to the study of autism, but the applications can extend far more broadly. For example, those studying how children learn from others (social learning) consider how children differentiate knowledgeable from ignorant individuals (e.g., Poulin-Dubois & Brosseau-Liard, 2016), and researchers who are characterising the factors that encourage or discourage bullying and prosocial behaviour consider underlying social cognitive reasoning (e.g., Dunfield & Kuhlmeier, 2013). As a further example, clinical psychologists may work with psychological scientists to examine the role of theory of mind in the etiology, pathology, and phenomenology of depression in adolescents and adults (e.g., Zahavi et al., 2016).

Autism Spectrum Disorder (ASD)

Autism spectrum disorder (ASD) is a lifelong developmental condition found in approximately one in 100 Australians (Falkmer et al., 2019). While research suggests autism is four times as prevalent in boys as it is in girls, other studies suggest the diagnosis rates for women with autism are significantly understated (Arnold et al. 2020; Brugha et al. 2016). More recent research suggests one reason cisgender girls are diagnosed later than boys or not at all is due to the use of gendered diagnostic tools oriented towards behaviours associated with males (Beeger et al., 2013; Frazier et al., 2014). Gender identity is highly relevant to ASD as research suggest transgender and gender diverse people are more likely to have ASD than cisgender people (Strang et al., 2018, Warrier et al., 2020).

Presenting differently in each person, ASD affects a person's ability to communicate and interact with others. ASD can present challenges such as difficulties with social communication, sensory hyper (or hypo) reactivity, or restricted and repetitive behaviours. Some people with autism like neurodiversity advocate Ethan Lisi (see **Video 8.2** below) challenge the widely held notion that autism is a disease that needs curing, and posit that autism is simply another way thinking and looking at the world. Organisations such as the neurodivergent-led I Can Network work to promote inclusive education and employment for autistic people, and provide a peer-based mentoring program that celebrates autistic strengths.

Co-diagnoses such as intellectual impairment, attention deficit and hyperactivity disorder (ADHD), and language or anxiety disorders can have an enormous impact on how well a person with ASD copes with everyday life and their ability to live independently, or to need ongoing support. Developmental psychologists work with clinical psychologists and medical doctors to develop early interventions and therapy programs for children who need them.

Video 8.2: What it's Really Like to Have Autism

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://usq.pressbooks.pub/psychologycareers/?p=226#oembed-2

Section Recap

This chapter has thus far been divided into two areas of developmental research: social and cognitive. As you likely noticed, the lines separating the areas are at times 'fuzzy', yet there has been a tradition in developmental psychology to loosely organise around these two areas. This is not to suggest that the work occurs in two separate silos. For example, even research on children's developing understanding of objects – including their understanding about the number of objects – will also consider the social environment. Learning about objects relies on not only on children's perceptual development and recognition of physical causality, but also on how they learn from knowledgeable others about an object's function and name. Number cognition develops within cultural systems that have symbolic count words, artifacts such as calculators and the abacus, and mathematics notation.

Perhaps in part due to the breadth of developmental psychology as a field, there are many relevant career paths that incorporate its theory and methodology, either directly or indirectly. In the next section, we provide examples of these careers, as well as some of the educational pathways' students can take.

EDUCATIONAL PATHS AND CAREERS

Most of the studies and the applications of research findings described in this chapter are the result of projects led by psychological scientists who have completed a doctorate (i.e., PhD) degree. The basic science underlying any novel application or intervention can take many years to complete (indeed, basic science is often completed with no application in mind). Along the way, though, the work is only possible through the combined work of many individuals with many diverse types of educational backgrounds and job experience.

Before discussing different educational and career paths relevant to developmental psychology, it's important to consider a distinction that will often confuse students early in their undergraduate training: How do psychologists differ in their focus? More specifically, before reading this chapter, some students might have reasonably, though incorrectly, thought that only clinical psychologists consider and apply the findings of psychological research.

In Australia, educational and developmental psychologists (more on this title later in the chapter) use scientific evidence to investigate and examine the wellbeing of people across the lifespan. This means you can find endorsed educational and developmental psychologists in many different places including schools, disability services, or aged care. They can also work with psychological scientists to investigate specific developmental issues and produce interventions or treatments. Conversely, psychologists with general registration or endorsement in clinical psychology tend to emphasise the individual differences – particularly those relevant to psychological health and wellbeing.

Many psychologists who specialise in child development, such as Stacey Freebody (pictured in **Figure 8.9** and interviewed in **Video 8.3**), are primarily practitioners who've undertaken specialised training and supervision to work with children and their families.

Figure 8.9: Stacey Freebody is a Senior Paediatric Psychologist. *Image reproduced with permission.*

Video 8.3: [Interview With Stacey, a Senior Paediatric Psychologist]

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With this distinction in place, we can now consider the educational and career paths relevant to developmental psychology. As in most disciplines, the career opportunities will differ based on the level of education completed, so undergraduate training is presented separately from postgraduate training in this section. Also, like many disciplines, there are few 'hard and fast rules' – remember there are many routes possible to reach your goals.

Undergraduate Training

In Australia, undergraduate degrees in psychology are general and not specialised in a particular area like developmental psychology. Universities across Australia have courses in their undergraduate programs that cover human development in general (e.g., developmental psychology) and more advanced courses – typically in a postgraduate degree – that may provide a specific focus on developmental psychology.

Knowledge gained from developmental psychology courses provides good preparation for graduate training in psychology, social work, speech-language pathology, occupational therapy, teaching, law, and public policy, among others. Some students take developmental psychology courses to complement their undergraduate and graduate training in education, and even computer science (e.g., educational software development). Of course, some people may start their careers with a bachelor's degree without undertaking postgraduate study – it's never too early to start looking at job advertisements and reading the professional profiles of people who have a career that interests you!

Many students who have an undergraduate psychology degree often mistakenly think they can't work in developmental psychology. However, there are some jobs you can do with only an undergraduate degree and an interest in developmental psychology, including:

- job agencies

- child protection and safety
- government departments such as the Australian Bureau of Statistics (ABS)
- schools, including teacher aides
- aged care organisations
- mental health organisations such as Headspace.

For some people like Rebecca Smith (pictured in **Figure 8.10** and interviewed in **Video 8.4**), even short exposure to developmental psychology in their undergraduate degree can be enough grounding to enable them to start their professional careers.

Figure 8.10: Rebecca Smith Works as a Case Manager. *Image reproduced with permission.*

Video 8.4: Interview With Rebecca, a Case Manager

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Postgraduate Training

There are two types of postgraduate training that may interest students interested in developmental psychology: registration as a psychologist, and/or becoming a psychological scientist who investigates developmental psychology questions.

Firstly, for students who want to become a registered psychologist with a specific endorsement there is a lengthy training pathway to follow. Firstly, you will need to complete an APAC-accredited undergraduate degree in psychology, before completing a fourth year (typically referred to as honours) and then applying for a postgraduate program such as the Master of Professional Psychology to become a psychologist with general registration. Other psychology postgraduate programs can lead to endorsement in approved areas of practice such as educational and developmental psychology. You can find more more details about all the endorsements and pathways on the Psychology Board website. It's important to remember that in Australia, terms such as 'psychologist' or 'educational and developmental psychologist' are protected titles and

only those people who have completed the specific educational pathways and have recognised endorsement may use this title. However, many people who work in the field of developmental psychology have other titles such as guidance counsellor.

One of the pathways for people who hold the educational and developmental psychology endorsement like Emily Coote (pictured in **Figure 8.11** and interviewed in **Video 8.5**) is to become a guidance or school counsellor.

Figure 8.11: Emily Coote Works as a Guidance Counsellor. *Image reproduced with permission.*

Video 8.5: Interview With Emily, a Guidance Counsellor

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A non-practice pathway for students of developmental psychology is to become a psychological scientist and earn a PhD. PhD recipients are considered experts in their field and have strong research, data analytic, and critical thinking skills that can be applied to many different settings. They might be involved in projects such as the Longitudinal Study of Australian Children which has been following the development of 10,000 children and families across Australia since 2004 to investigate questions about parenting, family relationships, childhood education, non-parental child care and health. Graduates might also work for government organisations such as the Australian Institute of Family Studies which seeks to improve understanding of the issues affecting Australian families. Becoming a psychological scientist who specialises in developmental psychology is also a good option for people with other types of undergraduate degrees who are interested in learning more about developmental issues. For example, a counsellor interested in understanding the impact of a specific issue on family life, or a teacher interested in the impact of technology on the academic development of primary school children. Of course, students of psychology may also want to investigate research into specific developmental issues, and are ideally placed to do so. For example, two of the authors of this chapter (Susan and Tanya) are not registered psychologists, but have completed undergraduate degrees in psychology before undertaking PhD and further research in developmental issues.

Many students often mistakenly think that only 'smart' people can complete a PhD. However, postgraduate research training is perfect for people who enjoy discovery and problem-solving.

Perhaps an underemphasised trait, though, is having an entrepreneurial spirit that motivates you to create the career you want. Both those who are recognised as an endorsed educational and developmental psychologist as well as those who research developmental issues have successfully created careers within both the academic and nonacademic sectors, using their knowledge and skills in developmental psychology in many ways, including the following:

Research and teaching (typically with a PhD)

- universities/government/specialised research centres

Applied/consulting (typically with a master's degree or PhD)

- software development or online content curation marketing
- youth services or child welfare agencies
- organisations supporting vulnerable populations such as people with ASD and LGBTQI+ people
- education – curriculum and content education
- science writing for organisations such as museums
- toy design.

Conclusion

People trained in developmental psychology are well-versed in the key theories of their field. They can create empirical research methodologies to test new hypotheses, and they analyse the resulting data. They know how to critically evaluate claims and effectively communicate findings to other scientists, as well as the broader community. In some cases, research findings become relevant to the development of innovative programs and interventions, which themselves must be evaluated empirically before implementation and policy change. Depending on their chosen career and level of education, people trained in developmental psychology may apply some or all these skills in their work.

This chapter has been adapted by Susan Abel, Samantha Brown, and Tanya Machin, School of Psychology and Counselling, University of Southern Queensland. It has been adapted from Kuhlmeier, V. A., Mayne, K., & Craig, W. (2019). Developmental Psychology. In M. E. Norris (Ed.), *The Canadian Handbook for Careers in Psychological Science*. Kingston, ON: eCampus Ontario. Licensed under CC BY NC 4.0. Retrieved from https://ecampusontario.pressbooks.pub/psychologycareers/chapter/developmental/

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REFERENCES

Arnold, S., Salomon, C., Higgins, J., Desai, A., & Trollor, J. (2020). *Submission to the select committee on autism*. https://www.aph.gov.au/DocumentStore.ashx?id=d1e312a3-7be1-446d-9f96-6743a9e9d3e8&subId=686595

Ashcraft, M. H., & Klein, R. (2010). *Cognition.* Pearson Education Canada.

American Psychological Association. (2015). Guidelines for psychological practice with transgender and gender nonconforming people. *American Psychologist*, *70*(9), 832–864. https://doi.org/10.1037/a0039906

Bagwell, C. L., Newcomb, A. F., & Bukowski, W. M. (1998). Preadolescent friendship and peer rejection as predictors of adult adjustment. *Child Development*, *69*, 140–153. https://doi.org/10.2307/1132076

Bartrip, J., Morton, J., & de Schonen, S. (2001). Responses to mother's face in 3-week to 5-month-old infants. *British Journal of Developmental Psychology*, *19*(2), 219–232. https://doi.org/10.1348/026151001166047

Bowlby, J. (1953). *Child care and the growth of love*. M. Fry (Ed.). Penguin Books.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press.

Brugha, T. S., Spiers, N., Bankart, J., Cooper, S. A., McManus, S., Scott, F. J., Smith, J., & Tyrer, F. (2016). Epidemiology of autism in adults across age groups and ability levels. *British Journal of Psychiatry, 209*(6), 498–503. https://doi.org/10.1192/bjp.bp.115.174649

Brummelman, E., Thomaes, S., Orobio de Castro, B., Overbeek, G., & Bushman, B. J. (2014). "That's not just beautiful—that's incredibly beautiful!": The adverse impact of inflated praise on children with low self-esteem. *Psychological Science*, *25*(3), 728–735. https://doi.org/10.1177/0956797613514251

Bugden, S., & Ansari, D. (2016). Probing the nature of deficits in the 'Approximate Number System' in children with persistent developmental dyscalculia. *Developmental Science*, *19*, 817–33. https://doi.org/10.1111/desc.12324

Damon, W., & Hart, D. (1988). *Self-understanding in childhood and adolescence*. Cambridge University Press.

Donnellan, M. B., Trzesnieswski, K. H., Robins, R. W., Moffitt, T. E., & Caspi, A., (2005). Low self-esteem is related to aggression, antisocial behavior, and delinquency. *Psychological Science*, *16*, 328–335. https://doi.org/10.1111%2Fj.0956-7976.2005.01535.x

Dunfield, K. A., & Kuhlmeier, V. A. (2013). Classifying prosocial behaviour: Children's responses to instrmental need, emotional distress, and material desire. *Child Development*, *84*(5), 1766–1776. https://doi.org/10.1111/cdev.12075

Falkmer, M., Lennox, N. G., Urbanowicz, A., & Trollor, J. (2019). Cohort profile: The Australian longitudinal study of adults with autism (ALSAA). *BMJ Open*, *9*(12), 1–16. https://doi.org/10.1136/bmjopen-2019-030798

Feigenson, L., Libertus, M. E., & Halberda, J. (2013). Links between the intuitive sense of number and formal mathematics ability. *Child Development Perspectives*, *7*(2), 74–79. https://dx.doi.org/10.1111%2Fcdep.12019

Harter, S. (1999). *The construction of the self: A developmental perspective*. Guilford Press.

Holobow, N. E., Genesee, F., & Lambert, W. E. (1991). The effectiveness of a foreign language immersion program for children from different ethnic and social class backgrounds: Report 2. *Applied Psycholinguistics*, *12*(2), 179–198. https://doi.org/10.1017/S0142716400009139

Kuhlmeier, V. A., Mayne, K., & Craig, W. (2019). Developmental Psychology. In M. E. Norris (Ed.), *The Canadian handbook for careers in psychological science*. eCampus Ontario. https://ecampusontario.pressbooks.pub/psychologycareers/chapter/developmental/

Lackner, C. L., Sabbagh, M. A., Hallinan, E., Liu, X., & Holden, J. J. (2012). Dopamine receptor D4 gene variation predicts preschoolers' developing theory of mind. *Developmental Science*, *15*(2), 272–280. https://doi.org/10.1111/j.1467-7687.2011.01124.x

Mattock, K. and Burnham, D. (2006), Chinese and English infants' tone perception: Evidence for perceptual reorganization. *Infancy*, *10*(3), 241–265. https://doi.org/10.1207/s15327078in1003_3

Maurer, D. (2017). Critical periods re-examined: Evidence from children treated for dense cataracts. *Cognitive Development*, *42*, 27–36. https://doi.org/10.1016/j.cogdev.2017.02.006

McWilliam, K., King, R., Drennan, D., & Cunningham, S. (2016) Investigating the potential of peer-to-peer communications in Australian bullying campaigns targeting youth. *Communication Research and Practice*, *2*(2), 213–228. https://doi.org/10.1080/22041451.2016.1185929

Moore, T. G., McDonald, M., Sanjeevan, S., & Price, A. (2012). *Sustained home visiting for vulnerable families and children: A literature review of effective processes and strategies*. Centre for Community Child Health, Royal Children's Hospital. http://www.rch.org.au/uploadedFiles/Main/Content/ccch/resources_and_publications/Home_visiting_lit_review_RAH_processes_final.pdf

Moore, T. G., McDonald, M. (2013). *Acting early, changing lives: How prevention and early action saves money and improves wellbeing.* The Benevolent Society. https://www.communityhubs.org.au/wp-content/uploads/2017/10/acting-early-changing-lives.pdf

Nelson, C. A. III., Zeanah, C. H., Fox, N. A., Marshall, P. J., Smyke, A. T., & Guthrie, D. (2007). Cognitive recovery in socially deprived young children: The Bucharest early intervention project. *Science*, *318*, 1937–1940. https://www.jstor.org/stable/20051878

NICHD Early Childcare Network. (1997). The effects of infant child care on infant-mother attachment security: Results of the NICHD Study of Early Child Care. *Child Development*, *68*, 860–879. https://psycnet.apa.org/doi/10.1111/j.1467-8624.1997.tb01967.x

Nowak, C., & Heinrichs, N. (2008). A comprehensive meta-analysis of Triple P-Positive Parenting Program using hierarchical linear modeling: Effectiveness and moderating

variables. *Clinical Child and Family Psychology Review*, *11*(3), 114–144. https://doi.org/10.1007/s10567-008-0033-0

Olson, K. R., & Gülgöz, S. (2018). Early findings from the TransYouth project: Gender development in transgender children. *Child Development Perspectives*, *12(2)*, 93–97. https://doi.org/10.1111/cdep.12268

Pang, K. (n.d.). Gender research. Murdoch Children's Institute. https://www.mcri.edu.au/research/projects/gender-research

Posada, G., Lu, T., Trumbell, J., Trudel, M., Plata, S. J., Pena, P. P., … Lay, K-L. (2013). Is the secure base phenomenon evident here, there, and anywhere? A cross-cultural study of child behavior and experts' definitions. *Child Development*, *84*, 1896–1905. https://doi.org/10.1111/cdev.12084

Poulin-Dubois, D., & Brosseau-Liard, P. (2016). The developmental origins of selective social learning. *Current Directions in Psychological Science*, *25*(1), 60–64. https://doi.org/10.1177%2F0963721415613962

Price Waterhouse Coopers (2018). *The economic cost of bullying in Australian Schools.* https://www.ncab.org.au/media/3532/amf-report-190218-f.pdf

Sabbagh, M. A., Bowman, L. C., Evraire, L. & Ito, J. M. (2009). Neurodevelopmental bases of preschoolers' theory-of-mind development. *Child Development*, *80*, 1147–1162. https://www.jstor.org/stable/25592058

Sanders, M. R. (2008). Triple P-Positive Parenting Program as a public health approach to strengthening parenting. *Journal of family psychology*, *22*(4), 506-517. https://doi.org/10.1037/0893-3200.22.3.506

Sanders, M. R., Kirby, J. N., Tellegen, C. L., & Day, J. J. (2014). The Triple P-Positive Parenting Program: A systematic review and meta-analysis of a multi-level system of parenting support. *Clinical psychology review*, *34*(4), 337–357. https://doi.org/10.1016/j.cpr.2014.04.003

Schellenberg, E. G., & Hallam, S. (2005). Music listening and cognitive abilities in 10 and 11 year olds: The Blur effect. *Annals of the New York Academy of Sciences*, *1060*(1), 202–209. https://doi.org/10.1196/annals.1360.013

Schoneveld, E. A., Malmberg, M., Lichtwarck-Aschoff, A., Verheijen, G. P., Engels, R. C., & Granic, I. (2016). A neurofeedback video game (MindLight) to prevent anxiety in children:A randomized controlled trial. *Computers in Human Behavior*, *63*, 321–333. https://psycnet.apa.org/doi/10.1016/j.chb.2016.05.005

Siegler, R., Saffran, J. R., Graham, S., Eisenberg, N., DeLoache, J., Gershoff, E., & Leaper, C. (2018). *How children develop* (Canadian 5th ed.). Worth Publishers.

Simpkins, S. D., Eccles, J. S., & Becnel, J. N. (2008). The meditational role of adolescents' friends in relations between activity breadth and adjustment. *Developmental Psychology*, *44*, 1081–1094. https://doi.org/10.1037/0012-1649.44.4.1081

Simpson, J. A., & Belsky, J. (2008.). Attachment theory within a modern evolutionary framework: Theory, research, and clinical applications. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (2nd ed., pp. 131–157). Guilford.

Sokolowski, H. M., Fias, W., Ononye, C., & Ansari, D. (2017). Are numbers grounded in a general magnitude processing system? A functional neuroimaging meta-analysis. *Neuropsychologia*, *105*, 50–69. https://doi.org/10.1016/j.neuropsychologia.2017.01.019

Rovee-Collier, C. (1999). The development of infant memory. *Current Directions in Psychological Science*, *8*, 80–85. https://doi.org/10.1111/1467-8721.00019

Ruffman, T., Slade, L., & Crowe, E. (2002). The relation between children's and mothers' mental state language and theory of mind understanding. *Child Development*, *73*, 734–751. https://doi.org/10.1111/1467-8624.00435

Rutter, M., Beckett, C., Castle, J., Kreppner, J., Stevens, S., & Sonuga-Barke, E. (2009). *Policy and practice implications form the English and Romanian Adoptees (ERA) study: Forty-five key questions*. British Association for Adoption and Fostering.

Rutter, M., O'Connor, T. G., & The English and Romanian Adoptees (ERA) Study Team. (2004). Are there biological programming effects for psychological development? Findings from a study of Romanian adoptees. *Developmental Psychology*, *40*(1), 81–94. https://doi.org/10.1037/0012-1649.40.1.81

Weber-Fox, C., & Neville, H. J. (1996). Maturational constraints on functional specializations for language processing: ERP and behavioral evidence in bilingual speakers. *Journal of Cognitive Neuroscience*, *8*(3), 231-256. https://doi.org/10.1162/jocn.1996.8.3.231

Westlund, J. K., Gordon, G., Spaulding, S., Lee, J. J., Plummer, L., Martinez, M., … & Breazeal, C. (2016, March). Lessons from teachers on performing HRI studies with young children in schools. In *2016 11th ACM/IEEE International Conference on Human-Robot Interaction (HRI)* (pp. 383–390). IEEE. https://doi.org/10.1109/HRI.2016.7451776

Wols, A., Lichtwarck-Aschoff, A., Schoneveld, E.A., & Granic, I. (2018). In-game play behaviours during an applied video game for anxiety prevention predict successful intervention outcomes. *Journal of Psychopathology and Behavioral Assessment*, *40*, 655–668. https://doi.org/10.1007/s10862-018-9684-4

Xenidou-Dervou, I., Molenaar, D., Ansari, D., van der Schoot, M., & van Lieshout, E. C. (2017) Nonsymbolic and symbolic magnitude comparison skills as a longitudinal predictors of mathematical achievement. *Learning and Instruction*, *50*, 1–13. https://doi.org/10.1016/j.learninstruc.2016.11.001

Zahavi,A., Sabbagh, M., Washburn, D., Mazurka, R., Bagby, M., Strauss, J., Kennedy, J., Ravindran, A., Harkness K. (2016). Serotonin and dopamine gene variation and theory of mind decoding accuracy in major depression: A preliminary investigation. *PLOSOne*. *11*(3), Article e0150872. https://doi.org/10.1371/journal.pone.0150872

Zeanah, C. H., Koga, S. F., Simion, B., Stanescu, A., Tabacaru, C. L., Fox, N. A.,Nelson, C. A., BEIP Core Group. (2006). Ethical considerations in international research collaboration: The Bucharest early intervention project. *Infant Mental Health Journal, 27*(6) 559–576. https://doi.org/10.1002/imhj.20107

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CHAPTER 9.

NEUROSCIENCE AND CAREERS

NATALIE GASSON AND WELBER MARINOVIC

WHAT IS NEUROSCIENCE?

Neuroscience is a highly interdisciplinary science that explores the relationship between the nervous system, behaviour, cognition, and disease. While the study of the nervous system dates to Egyptian times, modern neuroscience combines aspects of physiology, anatomy, psychology, biology, and mathematics to explore how the nervous system works at the cellular, molecular, cognitive, and societal level (Squire et al., 2012). Broadly, neuroscientists are interested in understanding how cells in the brain (primarily neurons and glia) communicate with one another, how they are organised to form circuits, how external and internal stimuli influence these circuits, and how they might go awry in the context of disease or trauma. Recent technological innovations in the 20th century regarding both molecular biological and neuroimaging techniques have led to significant advancements in our understanding of brain function. However, despite these advances, exactly how the brain combines external and internal signals to create a perceptual reality remains elusive.

The last 50 years have seen a massive increase in Neuroscience research, incorporating expertise from a wide range of scientific disciplines. To begin to understand the current state of neuroscience, it is useful to briefly review some of the major milestones across the history of research into the nervous system.

HISTORY OF NEUROSCIENCE: SIGNIFICANT SCHOLARLY FINDINGS

Pre-18th Century

The study of the brain dates back millennia (see Kandel et al., 2013). The earliest written record referring to the brain dates from the 17th century BC, with an Ancient Egyptian medical text called the Edwin Smith Papyrus, which describes the symptoms associated with head injuries in two patients. Early descriptions of basic neuroanatomy have been found in Egyptian texts from the 3rd and 4th centuries BC, including reference to the cerebrum, cerebellum, and ventricles. The idea that the brain was the physical location of the mind was suggested as early as the 5th century BC by the Greek philosophers Alcmaeon of Croton and Hippocrates. This relationship between brain and mind was not universally accepted however, with Aristotle (4th century BC) believing that the brain acted to cool the blood, with intelligence instead located in the heart. The importance of the relationship between the brain and body was highlighted by the Roman physician Galen in the 2nd century AD, who correctly identified 7 of the 12 cranial nerves, proposing that these nerves carry fluid from the brain towards the rest of the body. While further detailed characterisation of the anatomy of the central nervous system would take place over the next 1500 years, including the contributions in 14th century by de Luzzi and da Vigevano,

in the 15th-16th century by da Vinci, Vesalius and in the 17th century by Willis, substantial advancements in understanding the detailed functionality of nervous tissue would not be seen until the late 18th century.

18th to Mid-19th Century

Luigi Galvani (1737–1798) was an Italian physician who first discovered the link between electricity and the activity of the body. By applying static electricity to a nerve in the leg of a dissected frog he revealed that electrical stimulation could produce contraction of the leg muscles. These experiments represent the origin of the discipline of electrophysiology. Demonstration that the brain and not the heart was the physical location of the 'mind' was not achieved until the 19th century, in part through the work of the French physiologist Jean Pierre Flourens (1794-1867). Working with rabbits and pigeons, Flourens lesioned areas of the brain and found impairments in sensory and motor skills. His work however was consistent with the prevailing view at that time that the brain was a unitary and indivisible organ, and that specific functions were not localised to specific brain areas. This view was ultimately challenged by explorations of linguistic deficiencies in humans. In the mid-19th century, the French neurologist Paul Broca described a patient who had suffered stroke resulting in specific impairments in his ability to speak, although his ability to understand language was seemingly unaffected. Following the death of the patient, Broca undertook a post-mortem examination and identified a specific region of the left frontal lobe that was damaged. Further studies of a total of eight similar individuals with similar speech production impairments and similar patterns of damage led Broca to the conclusion that specific functions, such as language, are associated with specific areas of the brain. Around the same time as Broca's findings, work conducted by the German neurologist Carl Wernicke identified a brain region particularly associated with language understanding, now known as Wernicke's area. These findings helped to solidify the concept of brain specialisation and greatly influenced our understanding of cognitive functions.

Late 19th Century

A few decades later, work from the Italian biologist Camillo Golgi (1843-1926) would produce a watershed in our conceptualisation of the organisation of tissue in the brain. In the 1870s, Golgi invented a procedure for staining brain tissue with silver chromate salts. This technique, still widely used today, has the remarkable effect of completely staining a small subset (1-5%) of neurons in the brain. There is still no clear explanation for why some cells take up this stain while others do not. This technique was employed extensively by Santiago Ramón y Cajal beginning in 1887, allowing him to detail the shapes of hundreds of individual neurons across many different parts of the brain. This led Cajal to various conclusions including that brain tissue was a network of individual cells, with individual cells varying dramatically in their shapes and complexities depending on their location within the brain. Despite this morphological variability, neurons all seemed to have a cell body to which were connected two types of process, with many branching dendrites providing the input to the neuron, and a single axon providing the output from the neuron. These observations were used by Cajal to strongly support the neuron doctrine, that the neuron is the fundamental unit of signalling in nervous systems. Golgi and Cajal were awarded the Nobel Prize in Physiology or Medicine in 1906, for their pioneering contributions to understanding of the fine anatomy and organisation of neural tissue. The legacy of these early microscopic anatomical studies is still clearly visible in neuroscience textbooks today, most of which still carry drawings of cells made by Golgi or Cajal, and invariably include images of Golgi-stained cells.

In the late 19th century, Emil du Bois-Reymond, Johannes Peter Müller, and Hermann von Helmholtz demonstrated that these neurons were electrically excitable and were therefore likely to be the cells carrying those signals that were first identified by Galvani. Furthermore, they found that electrically excited neurons were able to create changes in the electrical states of other nearby neurons.

20th to Early 21st Century

The question of exactly what caused the transmission of electrical activity from one neuron to another was finally answered in 1921 by the German pharmacologist Otto Loewi (1873-1961). In what has become a very famous experiment, Loewi took a frog heart which was bathed in a saline solution and electrically stimulated it via the vagus nerve, causing the heart to beat more slowly. He then took some of the surrounding solution and applied it to a second heart that had not been electrically stimulated and found that this caused the second heart to also beat more slowly. He concluded that electrical stimulation of the heart caused the release of a chemical into solution, and this chemical by itself was sufficient to stimulate the second heart to beat more slowly. The chemical was later identified as acetylcholine, which was the first of many neurotransmitters that would ultimately be identified. For this research, Loewi was awarded the Nobel Prize in Physiology or Medicine in 1936, together with Sir Henry Dale who was able to demonstrate that the active chemical from Leowi's experiments was indeed acetylcholine. Subsequent work by Sherrington found that these chemical messengers were usually released at small, specialised structures called synapses, where chemical messages allowed one neuron to either excite or inhibit another; research for which Sherrington was awarded the Nobel in 1932.

By the 1930s, an emerging picture of the central nervous system had thus been established. The brain was the physical location of the mind, and controlled thought, sensation, and movement. Brain tissue was composed of individual neurons each of which had an input and an output. Information was transmitted along neurons in the form of electrical impulses, with intercellular communication mediated by chemical messengers which we now call neurotransmitters. The last century has built upon this foundation with extraordinarily rapid advances in our understanding of the nervous system. Any summary of these advances will by its nature be very incomplete. We have chosen to review progress by focusing exclusively on those neuroscientists whose research has been awarded the Nobel Prize in Physiology or Medicine. Names and dates of Nobel prize awards are indicated in parentheses below after "NP".

The 20th century saw enormous advances in our understanding of neuronal communication, both in terms of how information is transmitted along an individual cell, and between different cells. New techniques that allowed visualisation and recording of electrical signals were developed in the 1920, and different neurons were shown to transmit electrical signals at different speeds, depending on the thickness of the neuron (NP: Erlanger & Gasser, 1944). These tools led to an elegant series of experiments by Hodgkin and Huxley that elucidated the molecular basis of electrical signaling. Using the giant axon of the squid they were able to record electrical potential across the neuronal membrane. By manipulating the ionic solution in which the neuron was bathed, and the electrical potential across the membrane, while recording the magnitude of current flowing across the membrane, they developed a model of how an electrical impulse is produced and propagated along neuronal axons, mediated by the flow of different types of charged ions both along and through the membrane. The Australian neurophysiologist John Eccles extended these findings by describing how electrical activity at the synapse could lead to excitation or inhibition of adjacent cells (NP: Eccles, Hodgkin & Huxley, 1963). Elucidation of the properties of individual ion channels that underlie changes in electrical currents across neuronal membranes was finally achieved through development of the patch-clamp technique, which allowed recording

of electrical activity across microscopically small areas of cell membranes (NP: Neher & Sakmann, 1991). In parallel with the detailed characterisation of electrical properties of neurons, other neuroscientists were focused on understanding the basis of the chemical signals that mediated communication between neurons at the synapse. Building upon the earlier work of Loewi and Dale which identified acetylcholine as the first neurotransmitter, von Euler and Axelrood described a second neurotransmitter norepinephrine, which functioned (in part) to regulate blood pressure and made the important observation that some antidepressants acted by blocking the reuptake of the neurotransmitter at the synapse. Katz demonstrated that neurotransmitters were stored in small vesicles in one neuron, with vesicles released into the synapse following electrical stimulation, in a mechanism that required changes in intracellular calcium signalling (NP: Katz, von Euler, Axelrod, 1970). The complex process of vesicle release was carefully elucidated by Südhof, Rothman, and Schekman (NP: 2013). Many additional neurotransmitters were also identified by other researchers including dopamine, the deficiency of which was associated with Parkinson's disease, leading to novel therapies for the disorder. Synaptic signalling was further refined with an understanding that while some neurotransmitters result in electrical changes in target cells, others change the chemical signalling environment of their targets, including mediating changes in synaptic strength as a form of learning and memory (NP: Carlsson, Greengard, & Kandel, 2000).

The above studies describe how signals move along neurons, and between closely adjacent neurons. However, signals can also be transmitted across much larger distances, in some cases by hormones that are released by the brain and that act on neuronal and non-neuronal targets throughout the body. Guillemin and Schally identified the specific factors that were released by the brain that cause the release of hormones from the pituitary gland at the base of the brain. To allow the effects of such hormones to be characterised, Rosalyn Yalow developed a technique that combined radioactive isotopes with highly specific antibodies to track levels of such hormones in the body (NP: Guillemin, Schally, & Yalow, 1977). In addition to hormones released by the brain acting on non-neuronal tissue, extensive work characterised the effect of other factors released by non-neuronal tissue on the brain. For example, Levi-Montalcini identified nerve growth factor (NGF) – a substance isolated from tumours in mice that would cause growth of the nervous system in chick embryos. This formed the basis of detailed characterisation of the role of various growth factors in the development and adaptation of the nervous system (NP: Cohen & Levi-Montalcini, 1986).

Beyond understanding the functionality of individual molecules and cells of the nervous system, other neuroscience pioneers explored various systems, including sensory systems by which the brain receives information from the outside world, and motor systems by which the brain acts on and interacts with the outside world. As an example of motor systems, early work on anesthetised cats revealed that weak electrical stimulation of the hypothalamic region of the brain could produce complex behavioural responses including both defensive and aggressive behaviours (NP: Hess & Moniz, 1949). For sensory systems, Nobel prizes have been awarded for the elucidation of both visual and olfactory systems. Collectively, Granit, Hartline and Wald pioneered research that enhanced our understanding of the operation of the retina, including characterising chemical changes that resulted from exposure to photons of light, the presence of different types of photosensitive cells resulting in colour vision, and how signals received by nearby retinal cells are compared within the retina to highlight contrasts in our visual fields (NP: Granit, Hartline, & Wald, 1967). In the following decades, Hubel and Wiesel explored how these retinal signals were then processed by the brain, with separate processing streams focused on different aspects of the visual input such as movement, contrast, and linear orientation (NP: Hubel & Wiesel, 1981). Research on the olfactory system was awarded the Nobel in 2004, for research demonstrating that

the rich diversity of smells that are detectable are the result of the combined actions of hundreds of different chemical receptors called olfactory receptors, which in turn are the product of hundreds of different olfactory receptor genes. Individual smells are the result of the combined signalling of different odorants across a wide spectrum of different receptors (NP: Axel & Buck, 2004).

Other advances of the last century that led to receipt of the Nobel Prize include an understanding of functional differences between the left and right hemispheres of the brain (NP: Sperry, 1981), characterisation of prions as agents of infectious disease (NP: Blumberg & Gajdusek, 1976; NP: Prusiner, 1997), and an understanding of how specific cells (termed place cells and grid cells) in the hippocampus and nearby entorhinal cortex contribute to the brain developing an internal map of the surrounding environment, and one's location within that environment (NP: O'Keefe, Moser, & Moser, 2014).

The above description of neuroscience advances represents the research of a small number of exceptionally talented and celebrated neuroscientists, and of course, represents a small fraction of the research output for the discipline. In Australia, the largest neuroscience conference – over 1,000 attendees – is organised by the Australasian Neuroscience Society. In addition, the Australasian Cognitive Neuroscience Society draws together people from a wide range of areas such as psychology, neuroscience, cognitive science, psychiatry, neurology, linguistics, and computer science to focus on the study of the brain, mental processes, and behaviour (www.acns.org.au). While much of the research in the field is not considered applied, basic research can lead to societal changes, both in the present and in the future. Abraham et al., (2022) report that the Australasian Neurosciences Society had its early origins the 1970s, becoming a formal society in the 1980s. These authors provide a brief history of the Society in *A brief history of the Australian Neuroscience Society*.

BRANCHES OF NEUROSCIENCE

Modern neuroscience can be broadly organised into several major branches:

- Cellular and Molecular neuroscience
- Systems Neuroscience
- Cognitive and Behavioural Neuroscience
- Social and Translational Neuroscience.

Cellular and Molecular Neuroscience

Cellular and Molecular neuroscientists are focused on understanding how cells of the nervous system express and respond to molecular signals. These scientists typically employ techniques and concepts of molecular biology to study how the brain develops, how cells communicate with one another, how genes and the environment might influence these processes, and how the brain can change and adapt ("neuroplasticity") over the course of one's lifetime.

Systems Neuroscience

Systems Neuroscience is a branch of neuroscience focused on understanding how different cell groups in the nervous system work together to create circuits, or pathways that have a functional outcome. For example, a systems neuroscientist might ask how specific anatomical regions and/or cell groups are involved in the higher order cognitive processes of learning and memory, or sensory functions such as vision. One branch of systems neuroscience is neuroethology, which involves the study of non-human model organisms to explore how certain sensory or cognitive

functions exist in other species. By contrast, neuropsychologists explore how specific neural substrates may be implicated in human behaviour (and how damage to specific brain regions may yield unique deficits in cognition or behaviour).

Cognitive Neuroscience

Cognitive neuroscience is the third major Neuroscience branch and emerged from the fields of psychology, physiology, and computer science. Cognitive neuroscientists are interested in understanding how specific brain circuits relate to higher order psychological functions such as learning and memory, language, and thought. The field of cognitive neuroscience has benefited greatly from advances in neuroimaging techniques such as functional magnetic resonance imaging (fMRI), positron emission tomography (PET) and diffusion tensor imaging (DTI), in addition to electroencephalography (EEG). Behavioural neuroscientists, also known as physiological or biological psychologists, use basic techniques of physiology, chemistry, and computer science to study the function of the nervous system, with a specific application to how cells and cell circuits relate to all aspects of behaviour. Most of the experimental literature has employed model organisms such as rodents or non-human primates, with more recent research using molecular biological techniques to explore how genes and epigenetics may influence behaviour.

Social and Translational Neuroscience

Social and translational neuroscience are the most recently developed fields of neuroscience. Social neuroscience borrows heavily from social psychology and seeks to understand how specific brain substrates, circuits, signals, and genes are related to behaviour, with an emphasis on domains of social behaviour. As humans are primarily a social species, this field has a focus on how higher order cognitive domains such as language and thought, as well as pathological conditions such as depression, may influence, and be influenced by, social behaviour. Related to social neuroscience, translational neuroscience is a field of study which translates study and knowledge of neuroscience to clinical applications. Translational neuroscientists are interested in applying technological advances in the field of neuroscience to address various societal needs, including novel treatments or therapies for neurological and psychiatric disease.

METHODS IN NEUROSCIENCE

Neuroscientists working within each of the major branches would typically apply a different set of techniques to answer questions about the brain (See Table 1 for a summary of some of the more common techniques). For example, while neuroscientists in general may be concerned with determining the neural basis for clinical depression, molecular-, systems-, cognitive-, and social-neuroscientists will employ differing techniques and methods to explore how proteins, cells, circuits, and brain regions may each be implicated in the aetiology of the disease.

Cellular and Molecular Neuroscience

A molecular neuroscientist may focus heavily on the application of molecular biology to the nervous system to answer questions regarding the pathophysiology of depression. For instance, they might be interested in identifying key changes in gene expression that are associated with depressive symptoms. This could be achieved by analysing expression levels of thousands of genes in various regions of the human brain using post-mortem tissues derived from individuals with and without depression. If the expression level of a specific gene was consistently higher or lower in the brains of people with depression compared to people without depression, it would suggest that the gene may have a functional role in depression. These genetic profiles can also give us

hints as to which proteins may be increased or decreased, and in which specific area of the brain. Furthermore, finding a biomarker that strongly correlates with depression has high diagnostic value in research and in medicine – a biomarker is an easily detectable molecule in our body that is correlated with, and used to predict the presence of disease, infection, symptom, or toxic exposure. To be useful, the biomarker must be detectable in tissues that can be easily obtained from patients (typically saliva, urine, or blood). There are extensive interactions between the central nervous system and the periphery – our bodies can tell us numerous things about our brains. As such, a molecular neuroscientist might be interested in searching tissues outside of the central nervous system for candidate biomarkers for the diagnosis of depression.

A major component of molecular neuroscience involves the manipulation of genes within model organisms (rats, mice, zebrafish) to understand the function of that gene, including potential functions in the development of disease. Manipulations include changing the amount of gene product, changing the timing or location of gene expression, or changing the actual protein product that is generated by the gene. Molecular neuroscientists might therefore be interested in studying one of the differentially expressed genes identified through gene expression studies. Potential research questions might include, "What is the importance of this gene during development?", "If we restore this gene back to 'normal' levels, what does it do to depressive-like symptoms?", or "If we change gene expression levels in a similar manner to those that were observed in gene expression studies, does it induce depressive-like behaviours?". Answering these questions requires the genetic engineering of non-human animals, a technique which has grown in prevalence over the last two decades as the technology becomes increasingly sophisticated, reliable, and affordable.

While genetic manipulations can alter the amount, location, or sequence of a protein, there are other methods for manipulating protein functions within cells. Pharmacological manipulations can include the use of competitive agonists (which activate proteins), competitive antagonists (which inactivate proteins), and neutralising antibodies that interfere with the ability of specific molecules to bind to their specific receptors. Whether by genetic-engineering, or pharmacological manipulation, molecular neuroscientists are concerned with the molecular and cellular changes that underpin diseases. Other techniques in the arsenal of the molecular neuroscientist include using radiolabelled tracers to visualise, in real-time, the movement of neurotransmitter-containing vesicles down an axon. Use of fluorescent or bioluminescent markers to visualise specific interactions between individual molecules (the fluorescence resonance energy transfer [FRET] or bioluminescence resonance energy transfer [BRET] techniques), such as for measuring the recruitment of receptors to the membrane, the coupling of a ligand to its receptor, the coupling of two or more receptors, and the change in conformation of an existing receptor. Researchers use microdialysis to measure the concentration of a specific molecule in the synapse between two neurons or use retrograde and anterograde tracers to determine the physical pathways linking one neuron to another. Ultimately, cellular and molecular neuroscientists interested in depression might employ a broad range of tools to understand how proteins and cells are implicated in disease, and whether these changes may represent either the cause or consequence of the disorder.

Systems Neuroscience

Questions about individual cells and molecules may also be of interest to a systems neuroscientist, but they would typically be exploring how cells and molecules modulate the function of brain regions, or circuits composed of multiple anatomical and functional components. One example to illustrate the systems neuroscience approach would be to investigate the hypothalamic-pituitary-adrenal (HPA) axis, which regulates the release of the stress hormone cortisol in humans (corticosterone in rodents) and has been heavily implicated in the aetiology of depression. Release

of the stress hormone is mediated by a cascade of signalling factors released from various organs including the brain and is regulated in a manner that involves multiple different brain regions. As an example, a systems neuroscientist might explore signalling interactions between the hippocampus and the hypothalamus (the hippocampus senses levels of stress hormone and suppresses any further release of the hormone from the hypothalamus). To that end, they may manipulate hippocampal function in one of many possible ways (including through using a transgenic animal model, or ablation, or by stereotaxic delivery of a drug to the hippocampus, or through electrical stimulation; see table 1 for details) and measure subsequent changes in hypothalamic hormone release. This could be followed by post-mortem analyses of brain tissues by immunohistochemistry to determine whether patterns or levels of expression of specific proteins has altered in several interconnected brain regions. In the context of depressive disorders, any or all the above could be explored in the context of how these manipulations also impact depressive symptoms in model organisms.

Cognitive and Behavioural Neuroscience

In the study of depression, a cognitive neuroscientist could ask questions regarding how depression might affect activity levels of different regions of the brain, by for example, using imaging techniques to search for changes in metabolic processes of specific brain regions between people with depression and people without depression. Cognitive neuroscientists heavily rely on modern neuroimaging techniques such as functional magnetic resonance imaging (fMRI, to measure cerebral blood flow), or positron emission tomography (PET, to measure the metabolism of glucose within brain regions). While MRI technologies have been used in diagnostic medicine since the 1970s, novel analysis of MRI sequences using specialised software developed by computer scientists allows for alternative forms of MRI such as diffusion tensor imaging (DTI) which allows high resolution mapping of the major connections that link and allow communication between different regions of the brain.

Electroencephalography (EEG) is another technique that can be used to measure the electrical activity of the brain. EEGs are an inexpensive means of measuring brain activity in awake humans. A cognitive neuroscientist might use EEG to explore differences in the patterns of electrical activity between people with and without depression while they are engaged in specific cognitive tasks that are designed to assess processes such as attention, decision making, movement preparation, working memory, or cognitive flexibility.

Behavioural neuroscience, wherein researchers are concerned primarily with physiological, genetic, and developmental mechanisms of behaviour, investigates the influence depression has on behaviour, and often involves use of animal models (such as rodents or zebrafish). Animal models could be generated by various methods including selective breeding for a desired trait (such as anxiety or aggression), by genetic mutation (such as metabolic diseases), or conditioning an animal to elicit a desired behaviour (such as social defeat paradigms and the production of a socially anxious animal). Behavioural neuroscientists have developed a wide array of behavioural paradigms to explore different aspects of depressive-like behaviour including measures of learned helplessness (to model despair), sucrose preference (to model hedonic feeding), food intake, or locomotor activity.

A wealth of behavioural neuroscience research involves humans. For example, researchers have established that anxiety, depression, and stress play a role in the development and maintenance of pathological gambling (Coman et al., 1997). In Melbourne, Australia, workshops were held to bring together neuroscientists, clinicians, and policy makers to improve outcomes for pathological gamblers. These workshops, titled *"Problem gambling: An interdisciplinary dialogue between neuroscientists, clinicians, and policy makers"* are a prime example of how neuroscientists can

contribute to important societal problems. Yucel et al. (2017) highlighted several key areas in which neuroscience may aid in the understanding of pathological gambling and how it may be treated. For example, studies using techniques such as ECG and fMRI have shown that 'near misses' when gambling are arousing and may lead to continued gambling (Dixon et al., 2011), and that the brain responses to 'near misses' are greater in pathological gamblers than in a control group (Sescousse et al., 2016). Building on these insights Yucel and colleagues (2017) suggested that neuroscience, when integrated with the social aspects of gambling, may help to identify problem gamblers, and provide targeted treatments.

Social and Translational Neuroscience

Social neuroscientists are fundamentally interested in how the brain mediates social interaction; behaviours that are meaningful, elicited by one's individual agency, directed towards another's individual agency, to receive a response. For example, social neuroscientists might be interested in how specific gene polymorphisms influence individual vulnerability to depression following exposure to bullying – both in humans and non-human animals. Translational neuroscientists apply basic neuroscientific research relating to the structure and function of the brain in a clinical setting. For example, basic research might indicate that cerebral stimulation has a significant positive effect on depression. A translational neuroscientist might then investigate the use of a transcranial magnetic stimulator (TMS) as a viable means for brain stimulation to decrease depressive symptoms, and determine the precise stimulation procedure (electrical frequency, duration, etc.) that generates the best results in people who have depression. In Australia, the Therapeutic Good Administration has approved the use of TMS for the treatment of major depression since 2007. Research exploring the use of neuroscientific techniques in treatment contexts is emerging. For example, Lawrence and colleagues (2018) used transcranial direct current stimulation (tDCS) alongside a computerised cognitive training program to investigate the treatment outcomes for people with Parkinson's who have mild cognitive impairment. The tDCS only group showed significant improvements on the working memory and attention measures while the tDCS and cognitive training treatment groups showed improvements across a broader range of outcomes (i.e., executive functioning, attention, and memory). Corti et al., (2022) reported preliminary evidence that tDCS may reduce pain in people with chronic lower back pain; and Green et al., (2020) have published a protocol paper for the use of tDCS in the treatment of Obsessive-Compulsive Disorder. In addition, translational neuroscientists might explore new pharmaceutical drugs for the treatment of psychiatric or neurological disease, determining appropriate dose and duration of the drug to maximise efficacy. Neurorehabilitation is another area encompassed in translational neuroscience, wherein researchers develop, test, and optimise sensory prostheses for the implantation into humans experiencing sensory loss.

Animal Ethics in Neuroscience Research

The use of animals in experimental research has always been a point of controversy. However, the use of animals in research is highly regulated, with use most carefully controlled for animals with higher sentience (primates, then other mammals, then other vertebrates and certain molluscs). As such, research that induces suffering in any capacity (e.g., pain, adverse changes in psychological states, stress) must be stringently justified, and will often not be approved. That is, the expected benefits from the proposed research must outweigh the potential suffering of the animal. Governing the subjective nature of such decision-making is an institutional animal care committee comprised of both scientists and members of the non-scientific community who decide whether the research merits the use of animals. In Australia, the state and territory governments

have regulatory responsibility for animal welfare which includes the care and use of animals in research (see the Australian Code for the Care and Use of Animals for Scientific Purposes.). Developed and overseen by the National Health and Medical Research Council (NHMRC) the code has been adopted into legislation in all states and territories in Australia. All research involving animals must be approved by an Animal Ethics Committee and adhere to the framework of "Replacement, Reduction, and Refinement" (NHMRC, 2019).

Table 1: Examples of common techniques in Neuroscience

Name of the technique	Description/Purpose of the technique
Imaging and Microscopy	
Magnetic resonance imaging (MRI)	Use of strong magnetic fields and electrical currents to visualise brain structure in a non-invasive manner
Functional magnetic resonance imaging (fMRI)	Form of MRI that measures changes in blood flow to brain regions, from which localised brain activity can be inferred
Diffusion tensor MRI	Form of MRI that reveals major pathways of communication between regions of the brain
Computerised tomography (CT)	Use of X-rays to visualise brain structure in a non-invasive manner
Cerebral angiogram	Use of X-rays and an injected iodine tracer to visualise blood vessels in brain
Positron emission tomography (PET)	Use of injected radioactive tracers combined with imaging techniques to measure metabolic activity in brain
Electroencephalography	Use of external electrodes on the scalp to measure electrical activity of the cortex
Functional Near-Infrared Spectroscopy (fNIRS)	A non-invasive neuroimaging method that uses near-infrared light to measure changes in blook osygenation within the brain
Light microscopy	Visualise microscopic brain structure (i.e., neurons, glia)
Fluorescence microscopy	Visualise microscopic brain structures that have been tagged with a fluorescent marker, allowing the location of specific known molecules to be seen
Electron microscopy	Visualise microscopic brain structures at considerably higher magnification than is possible through light microscopy
Rodent behavioural paradigms	
Rotarod	Measure of coordinated movement
Vertical pole test	Measure of balance
Visual cliff assay	Measure of visual acuity
Morris water maze	Measure of cue-associated spatial learning and memory
Radial arm maze	Measure of spatial learning and memory
Novel object recognition	Measure of non-spatial learning and memory
Social approach/avoidance	Measure of social behaviours
Open field test	Measure of anxious behaviours
Elevated plus maze	Measure of anxious behaviour
Forced swim test	Measure of disparity
Tail suspension assay	Measure of learned helplessness
Sucrose preference test	Measure of anhedonia
Surgical manipulations	
Stereotaxic surgery	Surgery that reproducibly targets a very specific region of the brain
Cannulation	Introduction of a cannula into a specific region of the brain to allow for controlled delivery of drug or electrode
Microdialysis	Continuously samples extracellular fluid from the brain allowing concentra tion of specific molecules to be determined in real time

Ablation	Removal/destruction of a specific brain region to investigate normal func tion of that region
Manipulation of cells and tissues	
Cell culture	Living cells are grown in vitro, allowing various manipulations to be tested in controlled living systems
Electrophysiology	Use of electrodes placed on or in cells to manipulate and record electrical activity, to explore factors that affect excitability of neurons
In situ hybridisation	Labelled nucleic acid sequences are used to visualise the location and concentration of RNA molecules generated from specific genes
Immunohistochemistry	Labelled antibodies are used to visualise the location and concentration of specific proteins in slices of tissue
Immunocytochemistry	Labelled antibodies are used to visualise the location and concentration of specific proteins in cells
Anterograde and retro grade tracers	Use of chemicals that travel along cells in the same direction or opposite direction compared to the flow of information, to determine anatomical connections between cells
Molecular biology, genetics, and genomics	
Southern/Northern/ Western blots	Semi-quantitative methods to detect specific molecules of DNA/RNA/pro teins
Immunoprecipitation	Use of an antibody to precipitate a specific protein out of solution, concen trating the solution, and potentially identifying other molecules to which the target protein binds
Enzyme-linked immunosorbent assay	Detection and quantification of peptides, proteins, hormone, and antibodies
Selective breeding paradigms	Selectively breeding animals over many generations to enrich for genetic variants that may underlie specific traits
Genetic modification of animals	Model organisms have specific genes modified, inserted, or removed, to determine the function of the gene
Viral vector-mediated gene transfer	Use of viruses modified to contain specific genetic sequences, to introduce gene expression changes into animal tissues
Optogenetics	Insertion of light-sensitive receptor into membrane of neurons. Give experiment control over neuron excitation/ inhibition
Genome-wide associa- tion studies (GWAS)	Analysis of DNA variation across the genome to screen for genes that associate with specific diseases or characteristics
Whole genome sequencing	Sequencing of the entire genome to screen for mutations, or genetic varia tions that are associated with specific diseases or characteristics
Bisulphite sequencing	Modified DNA sequencing paradigm used to detect epigenetic (methyla tion) signatures on DNA molecules
Polymerase-chain reac tion (PCR)	Amplification of DNA and RNA molecules
Real-time PCR	PCR-based quantification of DNA/RNA (commonly used for determining levels of gene expression)
RNA-seq/whole tran scriptome sequencing	High-throughput sequence analysis of RNA extracted from tissues, to determine amounts of all genes expressed in those tissues
Non-invasive stimulation and other techniques in biological psychology	
Eye Tracking	Used to measure the movement of the eye, gaze, or pupil dilation in response to visual stimuli or cognitive tasks

Skin conductance	Used to measure changes in the skin's ability to conduct electrical currents, often used to assess emotional arousal or the stress response
Transcranial Direct Current Stimulation (tDCS)	Uses low direct current to modulate cortical excitability (faciliatory or inhibitory effects)
Transcranial Magnetic Stimulation (TMS)	Application of electromagnetic pulses generated by a coil placed over the scalp, inducing electrical currents within the brain to stimulate specific neural regions
Transcutaneous Vagus Nerve Stimulation (tVNS)	Stimulation of the vagus nerve through the skin using electrical impulses, typically via electrodes placed on the left outer ear

The above techniques were often developed in the context of academic research and remain used in that setting. However, neuroscientists use these and other techniques while working in a range of different settings and careers.

NEUROSCIENCE AND CAREERS

What Do Neuroscientists Do?

Neuroscientists are scientists who are engaged in activities that seek to improve our understanding of the nervous system and its relationship to behaviour and/or disease. Neuroscientists who are principal investigators (and who therefore determine their own research directions) have typically followed a training path consisting of an undergraduate degree in Science (B.Sc.) or Arts (B.A.), usually followed by a Master's degree, then a Ph.D. in Neuroscience or a related discipline. For those wishing to pursue an academic career, it is common to complete one or more post-doctoral positions, typically at an internationally reputed laboratory. Postdoctoral positions (commonly referred to as postdocs) involve working in the research laboratory of a principal investigator and leading individual research projects. Post-doctoral fellows also typically take on supervisory responsibilities for other members of the research laboratory, including undergraduate and postgraduate students. However, unlike undergraduate or postgraduate studies, post-doctoral positions do not involve any course work. Instead, the focus is on developing research skills, acquiring skills in new techniques, and publishing research. An academic appointment at a university is the typical desired outcome for people who have pursued each step of this pathway. However, these jobs have been relatively scarce in the past decade. In a university environment, neuroscientists may be spread across many different academic units or in departments fully dedicated to the discipline of Neuroscience. For example, neuroscientists may be housed in a department of Psychology, Biology, Pharmacology, Medicine, Cognitive, or Computer Science. From a program perspective, this can be challenging, as students who wish to obtain a degree in Neuroscience often may find that their degree has no 'home base', and instead consists of courses that may have a focus on neuroscience, but are housed in multiple, related units. Further compounding this issue is that neuroscience is not commonly taught in high school but may sometimes be included as part of a biology curriculum. As such, many students graduate from high school not being aware that neuroscience does exist as a discipline of study. That said, neuroscience has been growing over the last few decades, and is becoming more defined as a stand-alone discipline. There are now more than 10 universities in Australia offering a Bachelor of Neuroscience which is the most direct pathway to this career. However, people with a bachelor's degree in a related field (e.g., biology, physiology, psychology) are eligible to apply to study a Masters of Neuroscience. In addition, people can pursue a PhD in a neuroscience-related area after completing a degree in another field (e.g., psychology).

Common Misconceptions About What Neuroscientists Do

There are several common misconceptions regarding what neuroscientists do. For example, it is common to confuse a doctoral (PhD) degree with a medical (MD) degree. However, neuroscientists (who have earned a PhD) are not trained to deliver therapy and they do not treat patients with medicine (as would someone with an MD). Neurologists are specialised medical practitioners who have earned an MD followed by residency training in neurology. Neurologists treat individuals with neurological disorders such as stroke, epilepsy, and Parkinson's disease. Neurosurgeons have earned a medical degree followed by residency training in neurosurgery; as a surgical profession, neurosurgeons would operate on patients with any damage or trauma to their nervous systems (e.g., tumor excision).

Similarly, there are branches of psychological practice that often are confused with neuroscience. Clinical Neuropsychologists are individuals who have completed an APAC (Australian Psychology Accreditation Council) accredited Master of Psychology (Clinical Neuropsychology) and who have been endorsed as a Clinical Neuropsychologist by the Psychology Board of Australia. These individuals have the training to do both research and clinical practice, though they do not have training in medicine. Moreover, they are specialised to assess, diagnose, and treat clients with either congenital or acquired brain injury. Although a fundamental understanding of how the nervous system works is a key component of each of these above-mentioned disciplines, it is important to emphasise that research neuroscientists do not treat or provide therapy to patients.

COMMON CAREERS IN NEUROSCIENCE

Undergraduate Degrees

Students graduating with an undergraduate degree in Neuroscience will have developed a range of technical and analytical skills, and the ability to synthesise and communicate research findings in an effective manner. For example, they have developed investigative and research skills in the collection, organisation, analysis, and interpretation of data, use of appropriate laboratory techniques, application of logical reasoning and critical/analytical thinking, proficiency in computing skills, familiarity with a wide range of scientific/lab equipment, and extensive oral and written communication skills. They are creative thinkers, can work effectively both as individuals and as part of a team, and they have advanced time-management skills. As with many university degrees, neuroscience does not lead directly into a specific and defined career. Instead, training received as an undergraduate provides students with an excellent foundation for a range of possible careers. Based on our experience over the last decade, over half of the students who graduated with an undergraduate degree in Neuroscience have secured employment in either a scientific research setting, in health care, or are in continuing education. Common research paths for Neuroscience graduates include coordinating clinical research trials or working as research scientists and research technicians in the government, academia, or industry. While many graduates are therefore directly employed in a scientific environment, other students chose to pursue postgraduate degrees in neuroscience or a related discipline (including psychology, biology, biochemistry, pharmacology, ethics).

Postgraduate Degrees

Postgraduate degrees can lead towards careers within academia or increase a student's opportunities of employment and higher salaries in non-academic environments. Health care professions are very popular with Neuroscience graduates. Neuroscience graduates have

successfully pursued continuing education to train in a variety of professions including as psychologists, speech pathologists, occupational therapists, medical assistants, nurses, or polysomnographic technicians. While science, healthcare, and future education are the main career paths pursued by neuroscience graduates, almost as many of our graduates have followed alternative routes including training as schoolteachers, working for government funding agencies, regulatory agencies, or the civil service, working in knowledge brokerage, law, or following careers as emergency responders (police, ambulance, firefighters).

Some of the areas into which neuroscience graduates work include basic research (in government and clinical laboratories), drug development and evaluation, education, audiology, behavioural research, brain imaging, policy development in the private or public sector, and many more.

While it is impossible to predict the major growth areas in terms of neuroscience career paths, some of the more promising areas for future expansion are described in the following section.

APPLICATIONS OF NEUROSCIENCE IN SOCIETY

Medical

Over 1000 neurological and neurodegenerative diseases affect the lives of approximately 10.6 million people in Australia alone (Productivity Commission, 2019), and neuroscience research has led to a diversity of therapeutic approaches to the treatment of diseases including mood disorders, chronic pain, neurodegeneration, stroke, and addiction. Many of these treatments are pharmacological, with widespread use of drugs including antidepressants, anti-anxiety medication, attention deficit hyperactivity disorder medication, though non-pharmacological treatments have also been supported by neuroscientific research, including behavioural/lifestyle modification or non-invasive brain stimulation.

Unfortunately, many of the pharmacological interventions have been successful in only a subset of patients, with individuals often having to try several different treatment paths before finding one that is successful. This may be due to many disorders being commonly diagnosed through somewhat imperfect tests, often including self-report measures. A specific disease, defined by a collection of symptoms, may not be a unitary condition but instead a spectrum of related disorders, which collectively have a diversity of different potential origins and associated cellular and molecular signatures. While symptoms may be similar across individuals, the best route for treatment may be very different. An example of this is Parkinson's disease where it is now accepted that many combinations of factors (such as environmental and genetic) manifest uniquely in the individual disease trajectories of people who have been diagnosed (Farrow et al., 2022). In fact, the Michael J Fox Foundations (n.d.) states "…when you've met one person with Parksinon's, you've met *one* person with Parkinson's". Current research attempts to better define subsets of patients for various diseases, to facilitate more efficient targeting of specific treatment to the individual. Understanding the specific cellular and molecular deficits in an individual may be informative as to which molecules would be the best targets for pharmacological treatment.

Public Health: Recreational Drugs

Outside of drug development for medical purposes, there is a need for still more neuroscience research on recreational drugs. Use of legislation to control the misuse of recreational drugs (i.e., the 'war on drugs') has been of limited success, with a growing interest towards tolerance and education. In Australia, the national framework underpinning the government drug strategy proposes three pillars of action: Demand Reduction, Supply Reduction, and Harm Reduction (Commonwealth of Australia [Department of Health], 2017). We are continually exposed to the

use of drugs that alter brain activity including drugs that are common and largely accepted (e.g., nicotine, caffeine, alcohol), drugs prescribed to patients but for which dependency develops (e.g., the current opioid crisis), classical illegal drugs that stimulate our reward systems (e.g., cocaine, heroin) or alter consciousness (e.g., amphetamine, MDMA), drugs used to improve performance (e.g., Ritalin and Adderall for exam performance), or drugs that have been weaponised and used widely (including the date-rape drugs GHB or Rohypnol). An important part of any strategy to deal with drug use and misuse is to understand the biological effects (both in the short and long terms) of these various drugs, for which additional neuroscience research and outreach to the community is required.

Public Health: Neurological and Psychiatric Illness

On a related topic, one of the most compelling (and difficult to measure directly) applications of neuroscience on public health has been the impact of increased understanding of the role of the nervous system in psychiatric and neurological disease. Indeed, over the last 50 years, we have made great strides in our understanding of how key neural circuits and signals are disrupted in several disorders, including (but not limited to) depression, anxiety, schizophrenia, substance use disorders, attention deficit hyperactivity disorder, dementias (such as Alzheimer's) and neurodegenerative disorders (such as Parkinson's Disease), among others. These advances have led to the development of pharmacotherapeutics for the treatment of these disorders, but also, crucially, the destigmatisation of mental health. More specifically, when we educate the public around the role of brain (dys)function underlying psychiatric disorders, it can lead to increased awareness and knowledge, and reduced blame for mental illness (Corrigan & Watson, 2004).

Neuroscience and Technology: Neural Interface Devices

In addition to pharmacological interventions, neuroscience research is likely to result in growth in the number, efficacy, and complexity of neural interface devices. Devices are being developed that both enhance existing sensory inputs (including replacing deficiencies in inputs) or enhance/replace motor outputs. The range of applications is diverse, from the purely medical, to military, to recreational. Neurobionics, a rapidly advancing subfield of neuroscience, explores bionic therapies for sensory and motor impairments.

One example of bionic therapy is for blindness, which affects millions of people worldwide, with a subset of that population suffering from complete retinal degeneration. Among potential treatment options is sensory substitution, wherein an inoperable sensory organ is replaced with an artificial sensor. Most recently, cortical prostheses have taken a leap forward, featuring arrays that are upwards of 192 electrodes in size that are molded to the occipital lobe of experimental participants. Miniaturised computers connecting the electrode plates to light-sensing glasses worn by the participant can simulate a small, but promising, degree of vision (Maghbami, Sodagar, Lashay, Riazi-Esfahani, & Riazi-Esfahani, 2014). There are currently several groups of researchers actively engineering and developing visual prosthetics to better the quality of life for those suffering from blindness, Groups such as the Centre for Eye Research Australia (CERA), the Monash Vision Group, and Bionic Vision Technologies, among others, are progressing research in this area. Many of these projects combine an external visual processing source (i.e., a camera attached to the frames of glasses), a processor that breaks down visual images into similar bits of information that the brain uses to construct visual images, and a transducer that turns such bits of information into patterns of activation on the microarray of electrodes which then stimulates the visual cortex. Other prostheses exist that are also integrating neural interfaces, such as prosthetic

hands that give amputees a functional hand, or cochlear implants that restore function back to the deaf and hearing-impaired.

Neuroscience and The Law

The legal and ethical ramifications of current and future research in neuroscience are likely to be diverse, from which a few examples will be introduced. In criminology, identification of structural and/or functional correlates of criminal behaviour will lead to questions of free will and determinism, and debates about the concept of criminal responsibility. Remaining with the judicial system, neuroscientific research of memory has clear implications for reliability and accuracy of eye-witness testimony. Within pharmacology, there is limited and contentious evidence to support the efficacy of current brain-enhancing drugs (termed "nootropics") such as Ritalin and Adderall, yet such drugs are widely used in college campuses to improve performance. If the efficacy of these, or other drugs, was clearly demonstrated, it may lead to the need for drug testing analogous to that employed in competitive sport, especially in the context of examinations that are viewed as a component of competitive entry to certain career or funding opportunities.

The last decade has seen dramatic proliferation of wearable biometric technology. Most of our mobile phones are quietly collecting information about our daily activity. Some phones can sense when you are looking directly at the screen. Our watches may be constantly collecting data on our heart rate, while we may be inputting data on our sleep patterns, our meditation routines, and/or our patterns of eating and drinking, to name a few. There are important ongoing conversations around the ownership, privacy, and security of these data. The coming decades are likely to see growth of biometric inputs to incorporate limited neural data – data that, as with heart rate, we are often unaware of inputting to our devices.

FUTURE CONSIDERATIONS FOR THE DISCIPLINES OF NEUROSCIENCE AND PSYCHOLOGY

The discipline of neuroscience has clearly grown and thrived over recent decades. International and national funding opportunities related to neuroscience and brain health suggest that the study of the nervous system and its application to other disciplines, like psychology, will continue to grow. For example, the Australian NHMRC (National Health and Medical Research Council) is providing up to $3 million to support Australian-based researchers who are participating as partners in applications for the Network of European Funding for Neuroscience Research (NEURON).

The combination of neuroscience and psychology as distinct yet complementary disciplines cannot be understated, reflecting the strong ongoing interest in the brain and behaviour relationship. There are now some psychology degrees offered in Australia that have a "cognitive neuroscience" specialty; and new areas of research are continuing to emerge in which psychology and (cognitive) neuroscience are well placed to have impact. New opportunities harnessing the collective insights of neuroscience and psychology such as in the realms of artificial intelligence and technology are clearly on the rise. For example, the development, utilisation, and ethical implications of Generative AI products using large language model algorithms (e.g., ChatGPT) draw upon principles from both disciplines. These efforts can help us create and benefit from human-like algorithms safely as well as opening doors for further exploration and innovation.

Despite the dramatic advances in our understanding of the nervous system over the last century, we are just starting to make sense of the enormous complexity that underlies the structure and function of the human brain and how it underlies all thought, behaviour, and perception.

Further information on the synergies between psychology and neuroscience can be found o the Australasian Cognitive Neuroscience Society (ACNS) website.

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REFERENCES

Abraham, W. C., Geffen, L. B., McLachlan, E. M., Richards, L. J., & Rostas, J. A. P. (2022). A brief history of the Australasian Neuroscience Society. *Journal of the History of the Neurosciences: Basic and Clinical Perspectives, 31*(4), 1-16. https://doi.org/10.1080/0964704X.2021.1970481

Coman, G. J., Burrows, G. D., & Evans, B. J. (1997). Stress and anxiety as factors in the onset of problem gambling: Implications for treatment. *Stress Medicine, 13,* 235-244. https://doi.org/10.1002/(SICI)1099-1700(199710)13:4<235::AID-SMI748>3.0.CO;2-4

Commonwealth of Australia [Department of Health], (2017). National Drug Strategy 2017-2026. Publications Number: 11814.

Corrigan, P. W., & Watson, A. C. (2004). At Issue: Stop the stigma: Call mental illness a brain disease. Schizophrenia Bulletin, 30(3), 477-479. https://doi.org/10.1093/oxfordjournals.schbul.a007095

Corti, E., Nguyen, A. T., Marinovic, W., Gasson, N., & Loftus, A. M. (2022). Anodal-tDCS over left DLPFC modulates motor cortex excitability in chronic lower back pain. *Brain Sciences, 12*(12), 1654. https://doi.org/10.3390/brainsci12121654.

Dixon, M. J., Harrigan, K. A., Jarick, M., MacLaren, V., Fugelsang, J. A., & Sheepy, E. (2011). Psychophysiological arousal signatures of near-misses in slot machine play. *International Gambling Studies, 11*(3), 393-407.

Farrow, S. L., Cooper, A. A., & O'Sullivan, J. M. (2022). Redefining the hypotheses driving Parkinson's diseases research. *Parkinson's Disease, 8*(45). https://doi.org/10.1038/s41531-022-00307-w.

Green, P. E., Loftus, A. M., & Anderson, R. A. (2020). Protocol for transcranial direct current stimulation for Obsessive-Compulsive Disorder. *Brain Sciences, 10*(12), 1008. https://doi.org/10.3390/brainsci10121008.

Kandel, E. R., Schwartz, J. H., Jessell, T. M., Siegelbaum, S. A., & Hudspeth, A. J. (Eds.). (2013). Principles of neural science (5th ed.). New York, NY: McGraw Hill

Lawrence, B., Gasson, N., Johnson, A. R., Booth, L., & Loftus, A. M. (2018). Cognitive training and transcranial direct current stimulation for Mild Cognitive Impairment in Parkinson's disease: A randomised controlled trial. *Parkinson's Disease.* https://doi.org/10.1155/2018/4318475.

Sescousse, G., Janssen, L. K., Hashemi, M. M., Timmer, M. H. M., Geurts, D. E. M., Ter Huurne, N. P., Clark, L., & Cools, R. (2016). Amplified striatal responses to mear-miss outcomes in pathological gamblers. *Neuropsychopharmacology, 41*(10), 2614-23. https://doi.org/10.1038/npp.2016.43.

Squire, L., Berg, D., Bloom, F. E., du Lac, S., Ghosh, A., & Spitzer, N. C. (Eds.). (2012). Fundamental neuroscience (4th ed.). Cambridge, MA: Academic Press.

Stead, J., Wiseman, A., & Hellemans, K. (2019). Neuroscience and careers. In M. E. Norris (Ed.), The

Canadian Handbook for Careers in Psychological Science. Kingston, ON: eCampus Ontario. Licensed under CC BY NC 4.0. Retrieved from https://ecampusontario.pressbooks.pub/psychologycareers/chapter/neuroscience-and-careers/

Yucel, M., Carter, A., Allen, A. R., Balleine, B., Clark, L., Dowling, N. A., Gainsbury, S. M., Goudriaan, A. E., Grant, J., Hayes, A., Hodgins, D., van Holst, R., Lattimore, R., Livingstone, C., Lorenzetti, V., Lubman, D., Murawski, C., Parkes, L., Petry, N., … Hall, W. (2017). An interdisciplinary dialogue on gambling: Perspectives on the role for neuroscience in gambling policy and treatment. *The Lancet Psychiatry.* https//doi.org/10.1016/S2215-0366(16)30369-8.

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CHAPTER 10.

INDUSTRIAL, WORK, AND ORGANISATIONAL PSYCHOLOGY

PETER MACQUEEN AND TONY MACHIN

INTRODUCTION

'Psychology is a science and a profession' (O'Gorman, 2007, p. 1). And thus begins John O'Gorman's book titled *Psychology as a Profession in Australia*. In presenting subsequently as a panellist at QUT in Brisbane during Psychology Week 2011, O'Gorman expanded on this by observing that 'Psychology is about people'. He also reminded the audience – which included school students – that mental health is only one small, albeit important, part of psychology's relationship with human existence. On the other hand, work is an integral part of life for nearly all people, extending over many decades. Industrial, work, and organisational psychology (IWOP) plays an important role in understanding the interplay between people and organisations, and even society, through the lens of work. It helps us understand the impact of work – beyond the economic component – and with designing appropriate systems and interventions. IWOP strives to enhance organisational effectiveness while keeping the wellbeing of the individual clearly in focus. The following sections will describe some of the different areas where industrial, work, and organisational psychology can be applied, and outline the role of professional organisations. We also highlight the wide range of work contexts where people can apply their expertise in IWOP, and suggest some suitable career pathways into this profession.

THE DISCIPLINE AND PROFESSION OF INDUSTRIAL, WORK, AND ORGANISATIONAL PSYCHOLOGY

While the term 'organisational psychology' is used mainly in Australia, as well as in New Zealand/Aotearoa, there are several alternative designations in use elsewhere. North America, Singapore, Japan, and South Africa use 'industrial and organizational psychology', whereas Europe and Brazil use the label 'work and organizational psychology'. In the UK, 'occupational psychology' is the term most frequently used, while in Germany, there is a section of the German Psychological Society (DGPs) called 'Work, Organizational, and Business Psychology'. Finally, Chile has a 'Society of Psychology and Organizational Behavior'. It might seem confusing to students, employers, profession regulators, and to elected members of the government that there are so many different terms used to describe this profession. We recognise that this confusion may have contributed to an ongoing struggle to demonstrate its impact.

It seems timely for a new, overarching term to emerge: industrial, work, and organisational psychology (IWOP). [1] In early 2021, a draft of the IWOP Declaration of Identity (Kożusznik & Glazer, 2021) was released following consultation with various participants and bodies over

1. Although the term 'IWO psychology' has been used previously (e.g., Anderson, Herriot & Hodgkinson, 2001), this is the first time a coherent and globally accepted term – 'IWOP' – has been publicised by a professional body.

several years. The introduction to this Declaration states that 'The IWOP profession is concerned with both individual work-related wellbeing and effective performance'. It also claims that IWOP is now considered a profession, and that professions affect societies. The introduction to the Declaration continues with 'IWOP has a responsibility as a profession to support difficult decisions at the societal, organizational and group level, so as to always ensure that workers and worker-eligible people are reaping benefits rather than harm, by their work engagements'.

The IWOP Declaration of Identity is expanded through the inclusion of ten draft statements organised around four major themes: communication, contextualisation, dissemination, and integration. There are various elements within each of these statements, but the key components include the following:

- We value wellbeing and human welfare.
- We bridge organisational science and practice.
- We ideate and innovate in all working situations and environments.
- We balance individual needs with organisational goals.
- We strive to employ ethical, evidence-based influence on decision-makers.
- We ask rigorous and relevant questions to address critical issues.
- We communicate broadly and are active partners in social dialogues.

The declaration makes a strong case for the IWOP profession to be recognised as contributing to all areas of work, whether from an employee, organisational, or governance perspective.

The development of the IWOP Declaration of Identity involves many organisations, and reflects the desire for global cooperation that is a very positive feature of IWOP. The Alliance for Organizational Psychology is a 'federation of Work, Industrial, & Organizational psychologies from around the world'. The main members are four organisations: the Society for Industrial and Organizational Psychology (SIOP), the European Association of Work and Organizational Psychology (EAWOP), the International Association for Applied Psychology (IAAP) Division 1 – Work and Organizational Psychology, and the Canadian Society for Industrial and Organizational Psychology (CSIOP). In early 2020, the Alliance created a new global partnership called the 'Big Tent', and many IWOP societies around the globe have now joined the Big Tent, including the New Zealand Institute of Organisational Psychology, part of the New Zealand Psychological Society (NZPsS).

As of April 2022, there are sixteen network partners in the Alliance. Currently, Australia is represented only by the Society for Industrial and Organisational Psychology Australia (SIOPA). Formed in 2016, it's an autonomous Western Australia-based body which is not part of the Australian Psychological Society (APS) and is not affiliated formally with SIOP in the USA. However, at the time of preparing this chapter, the College of Organisational Psychology (COP) – one of the colleges within the peak professional body, the APS – was not part of the Alliance Big Tent. Given the challenges and opportunities facing IWOP in Australia, as well as globally, we (the authors) believe it's important for mainstream organisational psychology in Australia to make every effort to join the Alliance as a matter of priority, initially via the Alliance 'Big Tent'.

The final organisation we want to highlight in this section is a relatively new organisation: the Asian-Australian Organisational Psychology Inc (AAOP). This organisation aims to enhance the Asian-Australian organisational psychology identity and to promote cultural equality for Asian-Australians. This reflects a more specific focus than the other industrial, work, and organisational psychology bodies we have reviewed.

WHAT DOES AN IWO PSYCHOLOGIST DO AND WHERE DO THEY WORK?

You can learn more about becoming an IWO psychologist by:

- talking with IWO psychologists – perhaps by attending a local meeting
- searching for information online
- talking with a psychology academic or careers advisor
- perusing texts (particularly handbooks – we particularly like the three-volume *The SAGE Handbook of Industrial, Work and Organizational Psychology* 2nd ed.) which provide material reflecting the breadth, depth, and growth of IWOP globally. The astute student will strive to secure insights from local as well as North American, UK and European publications, and even beyond.
- joining or following a LinkedIn group such as Organisational Psychology in Australia or SIOP
- reading the eight career profiles towards the end of this chapter.

Another useful source is O*NET OnLine. Not only is this a very useful online tool for career exploration, but it's also considered an essential starting point for any work or job analysis. See the text box on **Using O*NET OnLine** below for some suggestions about how to use this site. While you're researching this field, it's important to note that IWOPs work under many different job titles. You'll see some examples of reported job titles in the report.

Using O*NET OnLine

- Go online to www.onetonline.org
- Enter "organisational psychologist" in the Occupation Search box
- Click on 'Industrial-Organizational Psychologists' and read carefully, noting that this is all-encompassing, and that an organisational psychologist is very unlikely to be engaged in all of the tasks listed (there are 24 in total)
- Complete the O*NET Interest Profiler by going to https://www.mynextmove.org
- Click the 'Start' button under 'I'm not really sure'
- You'll see results that align with the well-known Holland's hexagon model of vocational choice (RIASEC) and be able to explore recommended vocational choices based on your levels of education, training, and experience

The APS COP website (2021) lists the following areas of practice where IWO psychologists can demonstrate their expert skills and knowledge:

- workforce planning and role definition
- recruitment and selection (including psychological testing and assessment)
- learning and development
- coaching, mentoring, and career development

- workplace advice and advocacy
- change management
- organisational development
- measuring employee opinions and other workplace research
- performance management
- wellbeing, stress, and work-life balance
- occupational health and safety
- human resources program evaluation
- consumer behaviour and marketing.

IWO psychologists work in a variety of settings. While some are employed in government departments, the Australian Defence Force (see **Chapter 15**), or large commercial enterprises, many also work in academia and as consultants. Such consultancies can be small (such as sole traders) or much larger and comprised of fellow consultants from human resources, industrial relations, and business in general. Recent technological advances in fields such as personnel assessment and selection mean IWO psychologists may now be working with software engineers or data scientists. Research and consulting centres incorporated as part of a university are increasing in number. One of the examples later in this chapter is from Sharon Parker, Director of The Centre for Transformative Work Design at Curtin University in Western Australia. The field of work design can be added to the COP list above and represents an additional area of opportunity for IWOPs.

This raises an important issue: the publicised impact of some of our IWO psychology scholars. On November 10 2021, *The Australian* released its *Research Magazine 2021* containing a list of 40 'superstars of research'. Two of the five lifetime achievers in research nominated for the Business, Economics & Management category, Neal Ashkanasy and Sharon Parker – both IWO psychology scholars – share their stories later in this chapter.

Another key area missing from the COP list is human factors. The University of Adelaide offers a Master of Psychology (Organisational and Human Factors), and several Australian IWO psychologists work as human factors specialists within the aviation industry and road traffic and safety authorities. One such a psychologist, Allison McDonald, the Managing Director of SystemiQ, shares her story later in this chapter. Human factors are also referred to as 'engineering psychology' (Rogelberg, 2007) or 'human engineering' (Landy & Conte, 2004). In essence, the field of human factors endeavours to align the demands of the work environment with the characteristics and requirements of individuals. This can be accomplished via knowledge of human capabilities in designing effective processes, system linkages, and training initiatives. The addition of tools and techniques to enhance performance also forms part of the overall approach to human factors or ergonomics. Furthermore, we (the authors) are confident that IWOPs will make an important contribution to the growing field of cyberpsychology. Dalal et al. (2021) outline how organisational researchers could contribute to the important area of cybersecurity, as well as how this could represent a new and challenging area of professional practice.

The discipline of human factors highlights key issues such as human decision-making and error management, and stresses that these are a critical part of system design. When we consider human factors, it's important to examine how the person and the environment (or system) can interact to influence human behaviour. Kurt Lewin's famous field theory (1951) summarised this approach in an equation B=f (PxE), where behaviour is described as a function of the person

and their environment. The P-E perspective is also discussed in **Chapter 2** of this book. The notion of 'fit' between person and environment underpins one of the traditional mainstays of IWO psychologists: personnel selection – a topic addressed later in this chapter. Further, several large global organisations adapt this approach through the mantra of 'systems shape behaviour', and some of these organisations are focused on the design and implementation of comprehensive behaviourally-oriented leadership and management systems (e.g., Macdonald, Burke & Stewart, 2006).

THE HISTORY OF IWO PSYCHOLOGY: WITH AN AUSTRALIAN FOCUS

Kelloway (2019) claims the first two books in IWO psychology were *Increasing Human Efficiency in Business* (Scott, 1911) and *Psychology and Industrial Efficiency* (Münsterberg, 1913). In the early 1900s, economic and social trends resulted in a glorification of industrialisation and progress (Viteles, 1932). Any field that claimed to advance the interests and tenets of capitalism was widely accepted. We suggest that anyone wanting to understand the history of IWO psychology consult:

Koppes Bryan, L. L. (Ed.). (2021). *Historical perspectives in industrial and organizational psychology* (2nd ed.). Routledge. https://doi.org/10.4324/9780429052644

Vinchur, A. J. (2018). *The early years of industrial and organizational psychology.* Cambridge University Press. https://doi.org/10.1017/9781107588608

Koppes, L. L. (Ed.). (2007). *Historical perspectives in industrial and organizational psychology.* Routledge.

Vinchur (2018) provides a good deal of information beyond the USA, while Koppes (2007) and Koppes Bryan (2021) are very US–centric. The contributors to the 2021 edition are solely North American, as are the five testimonials in the book. Students can also consider the European perspective provided by Chmiel, Fraccaroli and Sverke (2017) in *An Introduction to Work and Organizational Psychology: An International Perspective* (3rd ed.). Similarly, a useful book with many well-known UK authors is *Organizational Effectiveness: The Role of Psychology* (Robertson, Callinan & Bartram, 2002).

Zickar and Gibby (2021) have developed four themes which they claim differentiated IWO psychology in the USA from other countries and cultures, while also distinguishing it from other disciplines such as industrial sociology, labour economics, and industrial engineering. These four themes are:

- an emphasis on productivity and efficiency
- an emphasis on quantification (and quantitative versus qualitative methodologies)
- a focus on selection and differential psychology
- the interplay between science and practice (this issue is addressed later in this chapter).

When reflecting on his highly productive career, Sackett (2021) noted the increasing tendency to focus on 'organizational' psychology rather than 'industrial' psychology. Industrial psychology often examines individual performance or agency and is more likely to use sophisticated measurement and quantitative methodologies. Personnel selection is a good example of 'industrial' psychology. Further, Luthans (2017), albeit an organisational behaviour scholar (i.e., an 'O' person), called for 'dropping the outdated term "industrial" from I-O' (p. 579). Thus, Zickar and Gibby (2021) needs to be evaluated against this background.

Feitosa and Sim (2021) provide a perspective on IWOP beyond the USA, but include very limited information on Australian history, and are incorrect in citing a 2006 publication stating psychologists have to register with the Psychology Board of Australia. This Board was only

established in 2009. A more substantial discussion of Australian IWOP is provided by Hesketh, Neal and Griffin (2018). Bordow (1971), using a survey completed by 94 respondents, contributed an interesting snapshot of the state of the 'industrial psychologist' in Australia fifty years ago in terms of education, employment, and job functions. However, for a relatively recently published history of psychology in Australia, Buchanan (2012) provides a good starting point.

Vinchur (2018) claims Bernard Muscio was Australia's leading early proponent of improving efficiency through use of industrial psychology. In 1916, Muscio 'delivered a series of talks on industrial psychology in Sydney, which later appeared in print as *Lectures in Industrial Psychology* (1917)' (Vinchur, 2018, p.163). O'Neil (1977; 1987) previously had elevated Muscio to pioneer status in Australian psychology. A Sydney graduate, Muscio undertook further studies in mental philosophy at Cambridge and then commenced pioneering work in industrial psychology in the UK with the First World War Industrial Fatigue Research Board (later the Industrial Health Research Board). Returning to Australia in the early 1920s, he delivered a series of lectures to the Worker's Educational Association in Sydney, with the publication of these lectures being viewed as groundbreaking, globally (O'Neil, 1977). Vinchur (2018) noted that Muscio had once been an advocate of scientific management (Taylor, 1911), but had come to reject the analogy of the worker as a machine. Blackburn (1998), a lecturer in history, has provided a detailed account of the rise of industrial psychology in Australia in the period immediately following World War I, until the Depression era. He noted that Muscio focused on the then drive for 'industrial efficiency' in Australia, and founded the Australasian Journal of Psychology and Philosophy. This journal promoted 'using industrial psychology to promote efficiency'(p. 122).

The earliest formal structure for IWOP in Australia was probably the Australian Institute of Industrial Psychology, established in 1927 in Sydney by A.H. Martin (Clark, 1958; Hesketh et al., 2018). It appeared to be modelled on the UK's National Institute of Industrial Psychology (which suspended its operations in August 1973 and finally closed in 1977). This genesis reflects the strong influence the UK (and subsequently the USA) has had on the development of psychology in Australia. Until 1965, the APS was a Branch of the British Psychological Society (BPS).

World War II acted as a catalyst for progress in applied psychology in fields such as selection and assessment, training, human factors (or ergonomics), and career planning (Hesketh et al., 2018). However, it wasn't until more recent decades that there was substantial growth in the field of IWO psychology. Commencing in Melbourne and Sydney, management consultancies started providing IWOP services from the postwar years (Young, 1977) – particularly from the late 1950s onwards. However, Hesketh et al. (2018) attributes much of the growth in IWOP to the reciprocity between Australian and overseas research units, and the cross-fertilisation of the knowledge and skills which subsequently flowed through to students studying IWOP in universities. Historically, psychology has differentiated itself from other professions such as law through its strong university and scholar base (O'Gorman, 2007), although this distinction is not as clear in more recent times.

While psychology has not always been at the forefront of changes in society, during COVID -19 there has been much greater emphasis on psychological matters. However, this attention has typically been focused on mental health issues, rather than broader behavioural and social science implications. A major activity near the end of this chapter invites students to explore how pandemics may be better managed by decision-makers making more informed use of IWO psychology and related fields.

Through this brief review of the developments associated with IWOP in Australia, it's possible to see that multiple factors influenced the growth of IWOP. The early trend for IWOP to develop in tandem with international trends seems to continue and may even be accelerating. Nevertheless, there's one historical element we believe requires closer attention.

The Role of Fred Emery in Shaping IWOP in Australia

Fred Emery – regarded as one of Australia's greatest social scientists – secured a significant reputation globally for his work on socio-technical systems (STS) and semi-autonomous work groups (e.g., Emery & Trist, 1965). Emery (1969; 1981) was a pioneer in applying behavioural and systems perspectives to the emerging field of organisation development, and he was the inaugural recipient of the APS COP Elton Mayo Award in 1988. Elton Mayo was another famous Australian psychologist and was associated with the classic Hawthorne studies (see Muldoon, 2012). The British Library provides a nice summary of Mayo's life and these studies. Hesketh et al. (2018), in citing O'Driscoll (2007), speculated that Emery's ideas may well account for the relatively large focus on teams and groups in Australian IWOP Conferences. These events – launched in Sydney by Beryl Hesketh in 1995 – have typically featured the most prominent international IWO psychologists and contributed to the growth of IWO psychology in Australia.

Pasmore, Winby, Mohrman and Vanasse (2019) observed that socio-technical thinking (STS) is likely to re-emerge given the advancement in new technologies (see **Self-Reflection Exercise 10.1**). The rapid rise of artificial intelligence and machine learning is likely to pose challenges unforeseen even just a few years ago. Further, the emergence of the global pandemic subsequent to the release of their 2019 article is likely to provide further support for refinement in STS theory and its application given the global disruption and the impact at all levels of society.

Socio-Technical Systems Design (Self-Reflection Exercise 10.1)

STS emerged as a means of addressing issues in the British coal industry.

- Access the following article:

Pasmore et al. (2019). Reflections: Sociotechnical systems design and organization change. *Journal of Change Management*, *19*(2), 67–85. https://doi.org/10.1080/14697017.2018.1553761

- Look at Table 1. and the classic STS design principles – do these still apply now more than 65 years later?
- What about the STS design for the future (pp. 77–79)?
- Does the O*NET OnLine platform and content need to be updated to reflect significant technological change over recent years?
- Do you think the design and conduct of the STAR Lab is appropriate?
- Look at Figure 3. on p. 78 and note the design elements and the three levels of outcomes. This mirrors the tripod on which stands IWOP: 3 levels of analysis in terms of individual, group and organisation, but is extended to societal considerations.

Finally, consider **Career Story: Making Work Better Through Evidence and Practice** later in this chapter.

Is IWOP a Friend or Foe to the Employee?

Carey (1976) provided a critical perspective on how industrial psychology and sociology have misused the evidence from a range of studies, including the Hawthorne studies. He stated that 'Mayo and the Hawthorne researchers had been frankly paternalistic toward workers' (Carey, 1976, p. 233). He also challenged the work of Herzberg and his model which downplayed the importance of pay as a motivator for employees. However, Carey is not the only person to have

questioned the Hawthorne studies, or the interpretation of the data. Highhouse (2021) – a US scholar critical of the use of intuition at the expense of objectivity in decision-making – revisited what is known as the 'Hawthorne Effect'. In explaining the enhanced productivity of the workers in the original study, Highhouse offered alternative possibilities involving human relations and group dynamics, or even being observed as a research participant.

Zickar (2004) analysed the apparent indifference towards labour unions by IWO psychologists in the USA. In doing so, he investigated the history of sociology and economics, and concluded that the neglect of labour union issues by psychologists may be attributed to the lack of early, 'pro-union' psychologists, and a hesitancy in appreciating the existence of conflict between employers and employees. He also noted that his analysis would be enhanced by reference to research and trends outside of the USA. Kevin Murphy, a former editor of the *Journal of Applied Psychology*, acknowledged the increasing focus of IWO psychology on work-family relationships, but was still concerned by the narrow focus on the concerns of managers and shareholders, rather than utilising 'a broader set of perspectives' (Murphy, 2007, p. 22).

Perhaps a more positive picture is emerging in recent times. In a keynote address delivered during the 28th International Congress of Applied Psychology in Paris in 2014, Emeritus Professor of Organizational Psychology and Human Resource Management at King's Business School David Guest presented a perspective which supported the view that contemporary human resource practices have enhanced both organisational performance and employee wellbeing. He concluded by noting that human resource management had provided a great opportunity for IWO psychologists to have a positive influence on policy and practice in the workplace. Nevertheless, in response to an article in the *European Journal of Work and Organizational Psychology*, Guest and Grote (2018) remarked that they were concerned about undue emphasis being placed on individual agency in recent IWOP research. They argued for the need to, for example, look beyond analysis of the individual and focus more on job and organisational design for a diverse workforce. And, in another acknowledgment of the need to look beyond one's immediate boundaries, they emphasised the importance of interdisciplinary collaboration and how this could connect 'organisational measures with regional, national and international approaches' (p. 555).

Highhouse and Schmitt (2013) provide another perspective on the discipline of IWOP. They identified the discontent that has been percolating in SIOP for many years, particularly with the somewhat outdated name 'industrial – organizational psychology'. They then proceed to comment on the various tensions that appear to exist in the field, namely: 'I' versus 'O', psychology (departments) versus business (schools), and science versus practice. However, these two 'I'-oriented psychologists observed that tensions are not always bad, referencing Lewin (1951, p. 3) in noting that tension may be required for positive change. Nevertheless, the potential for tension between subgroups in work settings (for example, between management and employees), and the associated impact on IWO psychologists, reinforces the need for clear ethical guidelines. This is discussed in the next section.

ETHICAL PRACTICE: A KEY COMPETENCE IN IWOP

In a session at the 28th International Congress of Applied Psychology in Paris in 2014, the incoming president of the IAAP, Janel Gauthier (Canada), remarked that the only element the various sub-disciplines of psychology across nations globally had in common was ethical behaviour. This information and discussion session was part of a lengthy project under the guidance of Sverre Nielsen (Norway), culminating in the *International Declaration on Core Competences in Professional Psychology* (2016). This document has been adopted by the two main international professional psychology bodies: IAAP, and the International Union of Psychological

Sciences (IUPsyS). It has also been adopted by many national societies, including the APS. The Work Group – including two psychology professionals from New Zealand/Aotearoa – behind this important project continues its efforts, and an international conference is being planned for July 2022 in Slovenia. Representations and presentations from a broad cross-section of psychology sub-disciplines, and countries, are likely.

Key ethics resources for psychology students (and all psychologists) include the APS Code of Ethics (2007) and ancillary documents such as practice guides which provide valuable information and guidance even for experienced practitioners and scholars. As of April 2022, the Psychology Board of Australia (PsyBA) is developing a Code of Conduct to replace the current use of the 2007 APS Code of Ethics (AHPRA, 2020). In addition, the reader is encouraged to consult **Chapter 4** of this publication. However, ethical practice should not be viewed as a self-contained segment within a course on psychology. Instead, it should permeate everything that we do.

In the area of IWOP, students, practitioners, and even scholars, can gain great value from *The Ethical Practice of Psychology in Organizations* (2006), edited by Rodney Lowman. Although it's aimed at IWO psychologists in the USA, Lowman's case study approach provides explicit guidance on how ethical principles can be applied in different settings. It's very relevant to IWO psychologists in Australia. For example, in Case Study 10, he cited the example of a US psychologist who moved to Paris and failed to provide feedback to an individual client following an assessment centre involving psychological testing. This reluctance by the psychologist didn't mirror the cultural norms in Europe and the UK – and for that matter, Australia. In reviewing this case against the APA Ethics Code standards, Lowman (2006) acknowledged the competence and ethical practice of the psychologist from a psychometric perspective, but this psychologist did not adapt their approach when working in a different culture.

We consider this issue further in **Self-Reflection Exercise 10.2** below, which is well-suited as a group or class exercise.

Ethical Issues for IWO Psychologists (Self-Reflection Exercise 10.2)

Read **Chapter 4** of this book, 'The Essence of Ethics for Psychologists and Aspiring Psychologists', by Tanya Machin and Charlotte Brownlow. You may also wish to dive into Allan and Love's *Ethical Practice in Psychology* (2010), which provides some background on the development of the APS guidelines.

- How do these ethical principles align with Lowman?

Consider Lowman's case studies (cited above), as well as Lowman (2018) in *The SAGE handbook of industrial, work and organizational psychology*: *Personnel psychology and employee performance* (2nd ed., Vol. 1, pp. 39–51). http://dx.doi.org/10.4135/9781473914940.n3

The September 2021 issue of *Industrial and Organizational Psychology: Perspectives on Science and Practice* also includes a focal article by Joel Lefkowitz on ethical dilemmas, as well as 11 subsequent commentaries.

EVIDENCE-BASED PRACTICE AND THE SCIENTIST–PRACTITIONER MODEL

Gary Latham is a proud Canadian who has been actively involved in international IWO psychology for many years, particularly through IAAP's Division 1 (Work and Organizational Psychology). Further, he has functioned as a director of the large US-based Society for Human Resource Management (SHRM), with over 250,000 members. He is a co-developer of a highly

influential theory of goal setting (Locke & Latham, 2002). In Latham (2019), he describes himself as a 'practitioner-scientist'. In his 2009 book *Becoming the Evidence-based Manager: Making the Science of Management Work for You*, Latham demonstrated how the principles of IWO psychology can be applied by managers in organisations. One particular case study he mentioned concerned a workforce with 1,600 people which was not performing well across a number of dimensions according to the views of their employees. A new vice-president instigated a series of 'measurable action steps', which included:

- developing a vision statement
- conducting a job analysis (sometimes called a 'work analysis' or a similar name)
- selecting high performing employees based on job requirements (using structured, situational interviews)
- building behavioural appraisals based on the job analysis
- coaching employees based on the behavioural appraisals
- increasing employee motivation through goal setting.

In another section of this book, Latham expanded on the above and included commentary on job simulations, the realistic job preview (RJP), and the effective use of cognitive ability and personality tests (or 'questionnaires' – a term preferred by some psychologists) in personnel selection. All of the above initiatives are examples of evidence-based practice. These activities are typically grounded in solid meta-analytic evidence (mentioned briefly in the next section), with relevant research appearing in respected peer-reviewed publications.

This raises the question: To what extent do IWO psychologists operate in an evidence-based manner? British scholar Rob Briner is well known for challenging IWO practitioners to engage in practices which are substantiated by accepted evidence. Although most of his presentations and publications (including podcasts) appear to be related to evidence-based practice for management, he is also focused on evidence-based practice for the profession of IWO psychology. For example, you can watch his presentation at the BPS Division of Occupational Psychology (DOP) annual conference in Glasgow in January 2015 below (**Video 10.1**).

Video 10.1: Why Isn't Organizational Psychology More Evidence-Based?

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://usq.pressbooks.pub/psychologycareers/?p=294#oembed-1

Evidence-based practice can be considered alongside what's known as the scientist-practitioner model. There are various perspectives on this model, but it has been discussed globally over the decades.

O'Gorman (2001) outlined the history of the scientist-practitioner model and positioned the origin of this model at a conference held in Boulder, Colorado in 1949. With a focus on training programs for clinical psychologists, it appears the representatives at this conference were almost unanimous in the view that 'the training of clinical psychologists should lay equal emphasis on research and practice' (p. 164). It's beyond the scope of this chapter to delve more into how the then views of science have evolved, but you can see Popper (2002) and also Chalmers (2013) for

more information. O'Gorman outlined a further criticism when noting that supporters of the model in its purest form were dismissive of tacit knowledge (Eysenck, 1953; Kanfer, 1990).

Apart from identifying that practitioners rarely conduct research, O'Gorman (2001, p. 168) highlighted an underlying tension that has existed in psychology for many years – one based on observation, measurement, and experimentation (psychology's 'laboratory' base), and the other 'based on holism and humanism'. Psychology emerged out of natural philosophy, with its emphasis on observation. Grayling (2019), in the Introduction to his book *The History of Philosophy*, mentions the rise of science and the birth of psychology. He continues with a brief commentary on artificial intelligence, cognitive science, neuroscience, and neuropsychology, observing that contributions are continuing.

Thus, it's perhaps no surprise that the scientist-practitioner model and evidence-based practice can be viewed and applied in different ways within disciplines, and across time and cultures.

The perceived existence of a scientist-practitioner 'divide' is an important issue that was alluded to earlier in the history section of this chapter when citing Zickar and Gibby (2021). This divide challenges various psychological societies (including SIOP), and this matter can emerge when designing national and international psychology conferences. How to balance the needs of scholars or researchers against the needs of practitioners? The potential for different perspectives is also evidenced in recent survey results (n = 557) of SIOP members on the topic of the rated prestige and relevance of IWOP and management journals (Highhouse, Zickar & Melick, 2020). One-third of the qualitative comments from respondents were directed towards just two classifications: 'research – practice gap' and 'over – abundance of theory'. These recent representative comments (see p. 287) suggest there's still some way to go to close the gap. Islam and Schmidt (2019) called for IWO psychologists to be less focused on theory per se, and more focused on addressing the applications of IWO psychology relevant to business practice. In essence, challenging fads and acting as 'debunkers and testers of business practice'.

Should the scientist-practitioner model continue to be the basis of professional training in Australia, and is it an appropriate model for developing our professional competencies? In taking the views of Lapierre et al (2018) a step further, perhaps the establishment of a better-structured, coordinated, and active process for research partnerships between academics and practitioners and organisations would assist with 'closing the gap'. This could produce valuable results for all stakeholders over time – and for IWOP. This issue is addressed in the text box on **Evidence-Based Practice and the Scientist-Practitioner Model** below.

Evidence-Based Practice and the Scientist-Practitioner Model

This is not an easy topic to examine, but it is important. This exercise is probably best-suited to students who have completed at least two years of undergraduate psychology studies. It's well suited to class discussions, with the structuring of the topic not necessarily having to be on an adversarial basis.

Try to access some of the resources mentioned above, and in particular:

- Latham, G. P. (2009). *Becoming the evidence-based manager: Making the science of management work for you.* Davies-Black.
- Briner (2015) **(Video 10.1)** (You can also Google 'Briner AND evidence-based practice')
- O'Gorman, J. G. (2001). The scientist-practitioner model and its critics. *Australian Psychologist, 36*(2), 164–169. https://doi.org/10.1080/00050060108259649

- Anderson, N., Herriot, P., & Hodgkinson, G. P. (2001). The practitioner-researcher divide in industrial, work and organizational (IWO) psychology: Where are we now, and where do we go from here? *Journal of Occupational and Organizational Psychology, 74*(4), 391–411. https://doi.org/10.1348/096317901167451

Search online for other materials via SIOP, BPS Division of Occupational Psychology (DOP), and EAWOP. This should provide a range of perspectives.

- What are your thoughts regarding evidence-based practice and the scientist-practitioner model?
- Is this 'tension' necessarily 'bad'? (Consider Lewin's comments.)
- Reflect: How have you tackled this potential divide?

SCIENTIFIC ENQUIRY AND RESEARCH METHODS IN IWOP

We now turn to the issue of how we generate new knowledge in IWOP. First of all, consider this question: Is your work experience a good predictor of your future job performance? Most people would say 'yes', and the more years the better. However, this isn't supported by the meta-analytic evidence (e.g., Van Iddekinge, Arnold, Frieder & Roth, 2019). These authors found that typical measures of pre-hire experience are, statistically, poor predictors of future job performance and turnover. Accordingly, hiring managers are strongly encouraged to use alternative or additional measures when making personnel selection decisions. This is a practical example of the importance of research. Please refer to **Chapter 3** of this book for more about the research process.

Earlier material in this chapter described how psychology emerged from natural philosophy, and with it, an emphasis on observation and measurement. Taking this further, Austin, Scherbaum, and Mahlman (2002) outline the history of research methods in IWOP. Although their entry could be critiqued for being too focused on the USA, and the publication of articles appearing in the *Journal of Applied Psychology*, it nevertheless provides an insight into the changes and increasing sophistication of the methods used across three key domains – namely, measurement, design, and analysis. In discussing a century of progress in the field of IWOP, Salas et al. (2017) reinforced the centrality of these three components to the field.

These developments have been enhanced greatly by advances in technology and computing power, and more recently through artificial intelligence and machine learning. New fields or terms have emerged, such as 'computational psychometrics' (von Davier, Deononic, Yudelson, Polyak & Woo, 2019). Advances in statistical techniques include the alignment method (Asparouhov & Muthén, 2014), which can assist in streamlining the process of revealing differences between large groups – including countries – on constructs of interest such as personal values.

Stone-Romero (2011, p. 39) identified three general purposes for conducting research. The following list represents a slight adaptation of his material:

- to assess relationships between (and among) unobservable constructs using manipulations or measures of variables that serve to operationally define the constructs – for example, establishing the relationship between general cognitive ability and job performance
- to determine the effects of various types of manipulations of unobservable constructs on criterion constructs – for example, the impact of RJPs on subsequent employee turnover (recall, Latham (2009) discussed the RJP in his evidence-based manager book)

- to determine whether causal or non-causal relationships between (and among) variables that are found in a study with a given set of units, treatments and observations generalise across other types of units, treatments and observations – for example, is a stress reduction intervention as effective for police officers in a child protection police unit as it is for surgeons in a trauma centre?

The claims of scientific enquiry can only be established when there is confirming evidence using new data. That is, the findings of the original study can be replicated. Nosek and Errington (2019), in examining the social and behavioural sciences, stated that across six replication efforts, only 47 per cent of the 190 claims replicated successfully. In 2020, SIOP established a Replication Task Force, with the brief to consider the establishment of an online publication devoted to publishing replications. Putting aside whether the replication is a direct or conceptual replication, it's evident that this is an issue, particularly within social psychology:

The replication of findings is one of the defining hallmarks of science. Scientists must be able to replicate the results of studies or their findings do not become part of scientific knowledge. Replication protects against false positives (seeing a result that is not really there) and also increases confidence that the result actually exists (Diener & Biswas-Diener, 2020).

Where replication is in question it should not be assumed that an original study is faulty and that the latest replication attempt is better because of its modernity. Perhaps findings from the original study are not as generalisable as thought initially, but the original study was still sound. Has the data from the studies been analysed accurately, and within the bounds of the assumptions or limits underpinning the measurement model that is being used? For example, when scaling data using what is known as item response theory (IRT), with its 'strong assumptions' about the nature of the data being analysed, it's important that the variable under consideration is relatively homogenous – or internally consistent. This can be problematic when using powerful IRT-based techniques – for example, to evaluate between country differences on Openness (to experience), one of the dimensions in the widely accepted Five Factor Model (FFM) of personality.

On a related theme, Ioannidis, Salholz-Hillel, Boyack and Baas (2021) published an article which included over 200,000 publications in their analysis of COVID-19-related papers. Of the top fifteen sub-fields with the highest rates of authors, there are zero entries from the behavioural or social sciences. Although Ionnadis et al. (2021) generally welcomed the proliferation of published articles, they did offer clear warnings in terms of:

- '…the consistent finding of the high prevalence of low-quality studies across very different types of study designs suggests that a large portion (perhaps even the large majority) of the immense and rapidly growing COVID-19 literature may be of low quality' (p. 11)
- 'Such fundamentally flawed research may then even pass peer-review, since the same people populate also the ranks of peer-reviewers. Flaws go beyond retractions, which account for less than 0.1% of published COVID-19 work' (pp. 11–12).

It appears concerns over false claims in social media about COVID-19 are not necessarily dispelled when consulting 'scientific' papers produced during a period of rampant publishing.

Putting this massive – and at times hurried – influx of studies to the side, scholars and practitioners can usually gain increased surety by making effective use of meta-analytic findings. Oh (2020), in citing Schmidt and Hunter (2015), describes the primary purpose of meta-analysis, a technique which is fundamental in much of modern research in psychology. With this analytical technique, existing research findings from primary studies can be quantitatively evaluated by reviewing correlation coefficients or other bivariate effect sizes. The opening paragraph of this

2020 publication took this further with the secondary use of meta-analytic data (SUMAD), citing Schmidt and Hunter's (1998) classic review paper which curated, summarised, and tabulated eighty-five years of meta-analytic research findings on the validity (both operational and incremental) of many selection procedures. All researchers, students, and practitioners with an interest in personnel selection should be aware of this 1998 study and an important update by Schmidt et al. (2016)[2]. The study cited above (van Iddekinge et al., 2019) was based on a meta-analysis involving 44 independent samples with combined case numbers (N) of nearly 12,000.

Validity and reliability are essential concepts in quantitative research – and subsequent practice – in IWO psychology. For a useful summary of the concept of validity, and the process of validation, see Sackett, Putka and McCloy (2012) in *The Oxford Handbook of Personnel Assessment and Selection*, edited by the prolific Neal Schmitt, an early mentor of many current top tier scholars.

The above discussion is focussed on quantitative methods. However qualitative methods also are used in IWO research, particularly within business and management schools. Pratt and Bonaccio (2016) provided data indicating that 18 per cent of articles in the highly-regarded *Academy of Management Journal* contained studies that involved qualitative methods, at least in part. On the other hand, APA's *Journal of Applied Psychology* published less than 1 per cent of such articles, reflecting its strong focus on research with a deductive approach encapsulating theory and empiricism (see Spector et al., 2014, discussed later in this section). *Administrative Science Quarterly* and *Organization Science* both had solid representation (over 20 per cent) of studies with a qualitative element.

Qualitative methods are an important part of psychology. Locke and Golden-Biddell (2002) presented a useful matrix comparing the modernist, interpretivist, and postmodernist paradigms. It's not practical to discuss the history and philosophy of qualitative research here, but the following three qualitative methods, drawn in main part from Locke and Golden-Biddle (2002), are relevant:

- **Action Research –** This grew out of Kurt Lewin's (1951) field theory and the conceptualisation of planned organisational change. The Tavistock Institute of Human Relations (TIHR) is a good source of examples of Action Research.
- **Ethnography –** Informed by cultural theory, ethnographists can take a very personalised approach, using participant observation and unstructured interviewing as the prime data gathering techniques. Archival documents and various records can also be used, with technology and computer-aided interpretive textual analysis greatly assisting in recent years. One of the criticisms of the personalised approach is how the presence of an observer may change the fundamental dynamics of a situation. A 'hidden' observer raises clear ethical concerns, however. Margaret Mead's (1928) *Coming of Age in Samoa* is a prime example of the ethnographic approach. Despite being strong supporters of applied measurement theory and empirical approaches, Zickar and Carter (2010) advocated a 'reconnection with the spirit of ethnography' in organisational research.
- **Grounded Theory –** With its association with sociology, grounded theory is very much involved with the study of life at work. Instead of developing theories prior to data

2. Sackett et al. (2021) published a significant paper in December 2021 in the highly rated Journal of Applied Psychology. This paper challenges the corrections used in establishing predictor-criterion relationships in personnel selection. The authors conclude that current selection procedures are still useful, but relationships are not as strong as previously thought. Expect to see more publications on this matter during 2022 and beyond. (Note: Frank Schmidt died August 2021). Sackett, P. R., Zhang, C., Berry, C. M., & Lievens, F. (2021, December 30). Revisiting Meta-Analytic Estimates of Validity in Personnel Selection: Addressing Systematic Overcorrection for Restriction of Range. Journal of Applied Psychology. Advance online publication. http://dx.doi.org/10.1037/apl0000994

gathering, known as 'a priori' theorising, models or theories are generated using an inductive process. From the 'ground up', in effect. Locke and Golden-Biddell (2002) cited a well-known grounded theory study aimed at exploring perceptions and interactions involving medical staff, dying patients, and families within a hospital setting.

It shouldn't be assumed that inductive research precludes the use of quantitative or empirical methods – in fact, it can be quite data–driven. Spector et al. (2014) highlighted the shift from exploratory and empirical approaches to one which can be called 'deductive theory-based hypothesis confirmation'. In this special inductive research issue of the *Journal of Business Psychology*, Spector et al. (2014, p. 499) noted that 'the field needs more inductive research to serve as the basis for theory'. These five highly regarded authors expressed a desire to see the pendulum swing back from the undue focus on deductive approaches – with a priori theorising – to a position where exploratory approaches are once again employed. In doing so, the development of new theories or models is likely to be advanced, and with it an enhanced understanding of behavioural phenomena. However, the focal article by Pratt and Bonaccio (2016) painted a picture of little change, with still limited qualitative research appearing in the top IWO psychology journals.

Other qualitative methods are discussed in Gephart (2013) and Wilhelmy and Kohler (2021). In a special issue of the *European Journal of Work and Organizational Psychology* (December 2000), the repertory grid technique is featured – a moderately popular methodology used in the UK. Based on the personal construct theory of Kelly (1955), one of this chapter's authors (Peter Macqueen) has used this technique to supplement psychometric and standard interview approaches in vocational and career assessment. This 2000 publication also contained an article describing a semi-structured co-research model, with the two authors affiliated with either a local government centre or a business school (Hartley & Benington, 2000).

Generational Differences and Cross-Sectional Design

- Before reading the reference below, discuss in small groups whether you think there are differences in values between the generations: Baby Boomers, Gen X, Gen Y, and Gen Z. Discuss whether you think there are/are not differences, and why.
- Putting on your IWOP hat, how would you go about evaluating the nature and extent of possible differences?
- What are some of the issues you would need to consider in conducting this research?
- Now, read the following chapter:

Gentile, B., Wood, L. A., Twenge, J. M., Hoffman, B. J., & Campbell, W. K. (2015). The problem of generational change: Why cross-sectional designs are inadequate for investigating generational differences. In C. E. Lance & R. J. Vandenberg (Eds.), *More statistical and methodological myths and urban legends*: *Doctrine, verity and fable in organizational and social sciences* (pp. 100–111). Routledge.

- Does this change your views? Do you need to consult the literature further? Does it change your approach to drawing conclusions which are based primarily on personal experience? Is terminology also an issue here?
- Engaging in a potential research project? Third- and fourth-year students, and postgraduates, are encouraged to consult not only the above book by Lance & Vandenberg, but

also their original 2009 publication, *Statistical and Methodological Myths and Urban Legends.*

EDUCATIONAL REQUIREMENTS FOR IWO PSYCHOLOGISTS: NECESSARY? AND SUFFICIENT?

Hesketh et al. (2018) concluded their chapter with a discussion of matters pertinent to the education and registration of psychologists who have pursued postgraduate training in their niche field, known as an Area of Practice Endorsement (AoPE) for registration purposes via the PsyBA. In Australia, there are currently nine such AoPEs, including organisational psychology, whereas there are only four vocational Scopes of Practice in New Zealand/Aotearoa: clinical, counselling, educational, and more recently, neuropsychology.

Hesketh et al. (2018) make a strong case for students to look beyond the core subjects as stipulated by the body which controls educational standards for psychology in Australia, the Australian Psychology Accreditation Council (APAC). It's appointed as an external accreditation entity for the psychology profession in Australia under the Health Practitioner Regulation National Law Act 2009. On the APAC website, you can click on the 'Students' tab, then go down to 'Pathways to registration' to view a schematic illustrating the different pathway options. A great deal of other information is available on this website, including a listing of the current accreditation status of educational providers of psychology programs in Australia. Hesketh et al. (2018), and the chapter you're currently reading, bring to light the changing scene in Australia. The profession is becoming much more health-oriented in this country, but this may also be a global phenomenon according to senior IWO psychologists overseas. However, it's our understanding that other jurisdictions such as New Zealand/Aotearoa and the UK have less onerous or restrictive systems, while still providing adequate protection for the public. We agree with Hesketh et al. (2018) that this argument needs to be advanced.

It's beyond the scope of this chapter to discuss the European educational system for psychologists. However, Lunt, Peiró, Poortinga and Roe (2015, Appendix 5, p. 213) outline the development and requirements of the European Certificate in Psychology – commonly referred to as the 'EuroPsy' – which is aimed at least at a bachelor level. Apart from the usual array of course content in the domain of 'knowledge', the EuroPsy framework for first phase, as it is known, includes (knowledge of) non-psychology theories from epistemology, philosophy, sociology, and anthropology.

Our conclusion provides a recommendation for Australian psychology undergraduates to study at least some of these subjects.

The standard of psychological science training in Australia is well-regarded. Nevertheless, we recommend you consider the following:

- Where do you want to channel your talents? What are your interests, and even values?
- Is it important for you to call yourself a 'psychologist', or become an endorsed 'organisational psychologist'?
- Plan to enrich your educational experience by pursuing non-psychology subjects.
- Secure some relevant work experience to assist your decision-making.
- Discuss your thoughts with a range of people, including those in quality business schools.

But keep in mind that that some (endorsed) psychologists, after much effort and some early sacrifices, may be vulnerable to a cognitive bias related to the 'sunk cost fallacy' (Thaler, 1980; Kahneman, 2011).

For most professionals, postgraduate qualifications will be increasingly expected, and this trend is likely to continue. This is something to keep in mind, although it doesn't mean you need to pursue the six years of fulltime equivalent study as a psychology student, followed by a period being supervised as a provisional registrant, unless you want to be eligible to be registered and have the endorsed area of practice of 'organisational psychologist'. Alternative postgraduate pathways may be available, as outlined by Hesketh et al. (2018), although this is likely to compromise your ability to use the title of 'psychologist' or 'organisational psychologist'.

But some employers can place more weight on the qualities of the psychology trained applicant rather than their qualifications or registration status.

For example: A leading psychology student at a top-tier Australian university moved to Sydney after completing his fourth year of studies just a few years ago. Now in his late twenties, he is a senior analyst in London, working with an information technology and services company with over 2,000 employees. During his undergraduate studies he had demonstrated outstanding academic ability as well as initiative, entrepreneurship, and good interpersonal skills. The Sydney consultancy recognised his talents and potential, even though he had completed only four years of university education.

THE RICHNESS OF IWOP INCLUDING AUSTRALIAN EXAMPLES

Given that IWO psychology addresses issues at the individual, group and organisational levels – and even at a societal level – it's no surprise that this is reflected in the vast array of publications available to those interested in IWO psychology. SIOP has been prolific in its publication efforts, particularly with respect to a range of books published via Jossey-Bass and Routledge. In **Figure 10.1** below, 56 SIOP books are displayed on bookshelf, from *Organizational Climate and Culture* (1990) in the top right, through to *Social Networks at Work* (2020) in the bottom left. We recommend that all students start a similar library and build their collection of resources across their career.

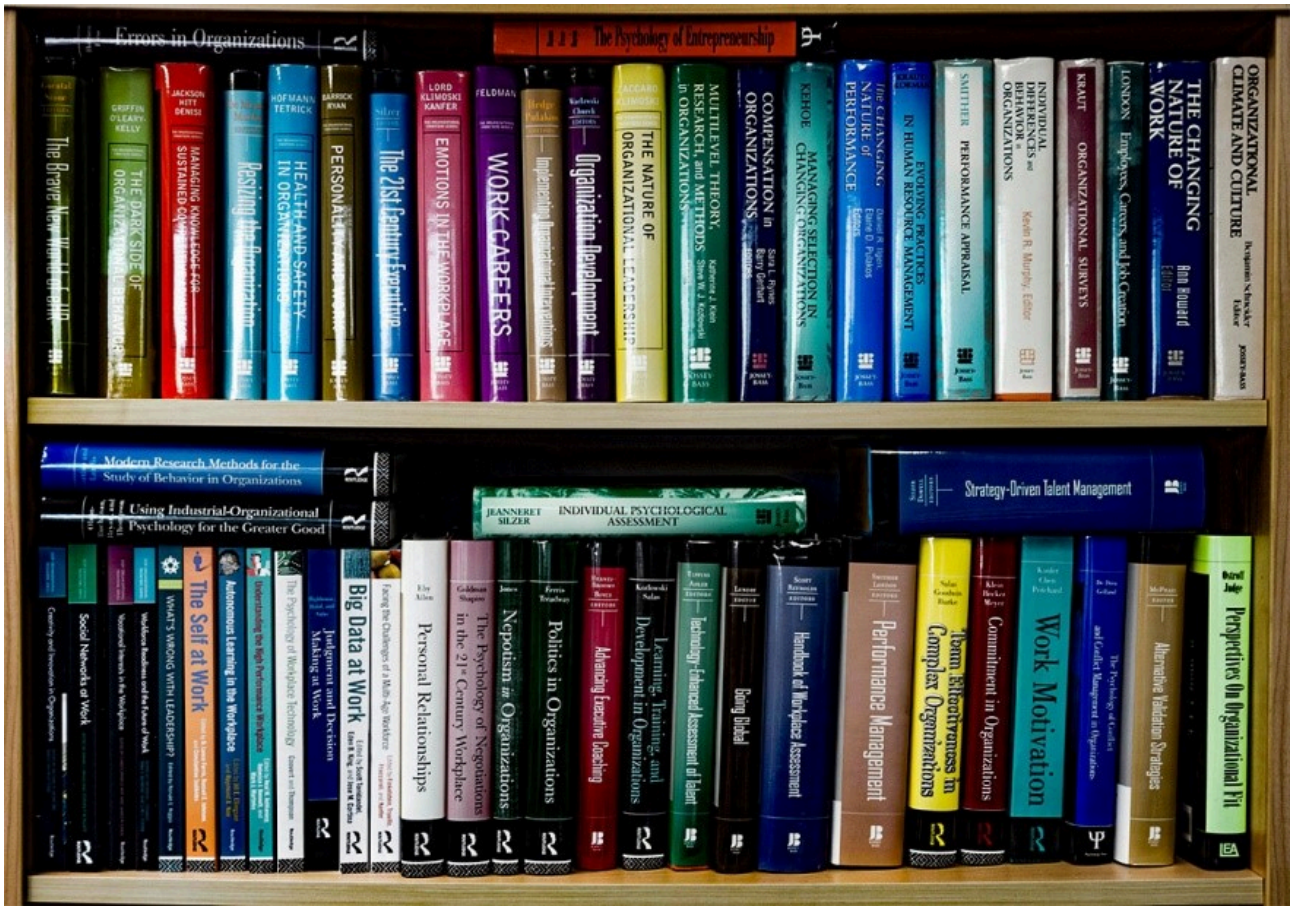

Figure 10.1: Library of IWO Psychology Books Published By Jossey-Bass and Routledge. *Photography by chapter authors.*

The Richness of IWOP: Beyond Traditional Boundaries

Look closely at **Figure 10.1** – you'll notice an extensive array of topics, with books from more recent years reflecting the increasing importance and impact of big data and technology. All books are edited, with chapters from various authors addressing different but related themes, and perhaps adopting different approaches or methodologies.

Look at topics which may be considered non-traditional. These topics are revealed in titles such as *The Psychology of Entrepreneurship* (2007), *Errors in Organizations* (2011), and more recently, *Using Industrial/Organizational Psychology for the Greater Good: Helping Those Who Help Others* (2013).

In *Using Industrial/Organizational Psychology for the Greater Good*, there's a chapter co-authored by Michael Frese, a former president of IAAP. He's a also co-editor of the other two books mentioned, and is a good example of an IWOP scholar who has worked successfully at various levels with organisations and across countries. With joint appointments from Singapore and Germany, he has researched matters such as personal initiative, training, and learning from errors and experiences. In particular he has focussed on the development of entrepreneurship and poverty reduction programs in emerging economies, taking a scientist-practitioner perspective and an action theory approach.

In *Using Industrial/Organizational Psychology for the Greater Good*, there is a chapter co-authored by Stuart Carr, Professor of Psychology at Massey University, Aotearoa/New Zealand, globally renowned for his use of IWOP for humanitarian purposes. Another chapter is co-authored by Michael Gielnik and Michael Frese, addressing entrepreneurship and poverty reduction, and the application of IWO psychology in developing countries. Back in Australia, there is the work of

Charmine Härtel. As part of her inclusive entrepreneurship program, Härtel recently released some fascinating and relevant findings in the fourth most influential journal in the field of management, the *Journal of Business Venturing.* This study (Mafico, Krzeminska, Härtel, & Keller, 2021) – conducted with one of her PhD students and his other supervisors – has shown how different intellectual experiences of migrants show up in the way they organise their enterprises. For example, immigrants who had early experiences of inclusion tended to balance social and commercial goals and staff enterprises with individuals from their host and heritage cultures. In contrast, immigrants who had early experiences of exclusion tended to focus on social goals directed at their heritage country and to staff their enterprises with individuals from their heritage culture. It also found that the cultural gender expectations immigrant women grew up with influenced the degree to which they pursued social and gender normative organisational goals. Härtel and her colleagues are now seeking to leverage their findings to help migrants successfully start up and run businesses.

Stories From Australian IWO Psychologists

The section above highlights some of Härtel's recent work, with implications for migrants and business. The following reveals some of her background and professional journey, as well as that of seven other Australian IWO psychologists: four practitioners and four scholars in total (represented in **Figure 10.2**), although at times the lines are blurred.

Figure 10.2: IWOP Across Australia

Career Story: Emotions at Work

Neal M. Ashkanasy OAM, PhD

My journey began many years ago when I first set eyes on a construction site. I knew then that my career would be in civil engineering. I loved maths and science at school and could not wait to begin my chosen career. I studied at Monash University because it was a new and exciting institution at the time, and I was not disappointed. My major interest was in water resources engineering, so upon graduation in 1966, I enrolled in the water engineering master's program at the University of New South Wales, and soon had a job with the Queensland State Water Authority. My first job, however, was not what I expected. I was given a crew of 180 men (yes, all men in those days) and told to go out into the bush and build a town to accommodate 1,500 workers and their families![1] That was how I first learnt that the main requirement for an engineering career was not technical, but people skills.

After 18 years in my engineering career, I managed to achieve some level of success,[2] but I became concerned that engineers – while good at the technical side of their work – were paradoxically all too often failing in the (all important) people management side. To try to understand this paradox, I enrolled in the psychology program at the University of Queensland, eventually graduating with a PhD in social and organisational psychology.[3] I also made up my mind that I would move to an academic research career to study how organisational leaders could improve their performance as people managers. I soon came to realise, however, that cognitive and behavioural theories of leadership failed to explain organisational leaders' performance failings, and that this was because leadership researchers had ignored the importance of emotions in leadership and decision-making. After coming to that realisation, I decided to devote my research career to studying the role emotions play in organisations and especially in organisational leadership. Over my 35-year career as an organisational psychology researcher, I have managed to publish over 750 books and scientific papers. I like to believe that I have accomplished at least a little of what I set out to do, and that my work has been recognised by my peers, including the 2011 Elton Mayo Award for Distinguished Research and Teaching.[4] I am especially proud that my work has helped organisational leaders to understand that improving their emotional intelligence is an essential key to success.

References

Ashkanasy, N. M., & Dorris, A. D. (2017). Emotions in the workplace. *Annual Review of Organizational Psychology and Organizational Behavior, 4*, 67–90. https://doi.org/10.1146/annurev-orgpsych-032516-113231

[1] The town was the construction township for Fairbairn Dam, located near Emerald in Queensland's Central Highlands.

[2] Chair of the Institution of Engineers' National Committee on Hydrology and Water Resources.

[3] My thesis topic was *Supervisors' responses to subordinate performance*.

[4] See https://en.wikipedia.org/wiki/Neal_Ashkanasy.

Career Story: Behavioural Economics

Phil Slade, Co-Founder of Decida

Following a relatively successful professional career in the arts as a composer for film and theatre, I

transitioned to psychology in my early thirties. I was always curious about how music, sound, lighting, and story-telling influence people's emotions and perceptions, and figured that this was a natural step in pursuing that curiosity. The role that emotion, cognitive bias, and awareness has on decision-making was the focus of my thesis during my Master of Organisational Psychology program, and I have never looked back since.

Working in the field of judgement and decision-making means my organisational psychological journey has had to cover areas such as emotion, behavioural economics, individual differences, social psychology, politics, and traditional economics. There are many fantastic books that can help you to start exploring this space, and my top recommendations appear bellow.

This mix of expertise has led to working with a raft of major institutions (most notably Westpac, NAB, Suncorp, Queensland Health, SunSuper, ASIC, APRA, The World Bank, Queensland Treasury, and the Saudi Arabian Monetary Authority) to help assess and develop products and services that lead to better financial decision for customers.

My work is mostly a combination of presentations to boards and executive leadership teams, leadership and emotional intelligence workshops, developing and delivering ethical assessments of financial products and services, coaching for influential decision-makers, overseeing and helping deliver large scale change and innovation initiatives, and playing the role of lead negotiator in sensitive negotiations.

This work has also graciously led to many opportunities to write and publish. This has included two books –*Behavioural Economics for Business* (2016) and *Going Ape S#!t* (2020) – a regular column for *Money Magazine*, many podcast interviews, and being a regular commentator in the media generally regarding the psychology of financial decision-making and emotional reactivity. This part of my work is particularly satisfying because I believe it helps demystify key psychological concepts and helps make our society better decision-makers collectively and individually.

Through our work with digital innovation and transformation, we were able to develop products (both digital and physical products) that improve mental health and emotional intelligence. This has led to experimentation with artificial intelligence, big data, digital user experiences, and wearable tech applications. One of the most exciting developments is a check in and emotional 'switch' app that is being used in schools and workplaces to track and improve mental health and wellbeing and increase emotional intelligence. Bridging the gap between psychological insights and embedded behaviour change is immensely satisfying, and it all started with organisational psychology.

Recommended Reading

- *Thinking Fast and Slow* (Daniel Kahneman, 2001)
- *Going Ape S#!t* (Phil Slade, 2020)
- *Looking For Spinoza* (Antonio Domasio, 2003)
- *Freakonomics* (Steven Levitt and Stephen Dubner, 2005)
- *The Ethics of Influence* (Cass Sunstein, 2016)

Career Story: A Consulting Journey: Career Musings

Dr Doug MacKie, CSA Consulting

In my final year as an undergraduate studying psychology (in the UK), we got the opportunity to learn about the applied domains from practitioners in the field. Clinical appealed to me as I came from a medical family so the territory was familiar, and it offered significant job security due to the high

barriers of entry and almost unlimited demand. Being accepted into the postgraduate training program in clinical psychology was highly competitive and required experience which I obtained as a research assistant on a project on the neuropsychology of Alzheimer's disease. I was fortunate to be successful with my first application and completed the two-year Master of Science (MSc) at Manchester University in the UK. What really engaged me about the course was the applied component – we would literally be taught a subject one day and be applying it in a clinical setting the next.

There was no shortage of jobs available on graduation so I took the opportunity to travel for a year and undertook a locum in a psychiatric hospital in Brisbane as part of my trip. On return to the UK, I specialised in adult mental health and general medicine and moved relatively quickly up the career structure within the public sector in the UK. I was several years into my clinical career before I felt the dissatisfaction creeping in. Clinical training had provided a rarefied and protected environment in which to practice, but full-time work exposed me to the politics and turf wars that had been largely hidden. This combined with the limited vision of success – clients were discharged on symptom remission which to me seemed like the time to increase engagement, not remove it. Positive psychology held a strong ideological and increasing empirical pull for me, and organisational psychology offered the opportunity to work with those already high functioning to see if I could add value in that setting. The final issue that completed my disillusionment with the clinical pathway was the realisation that the over-reliance on clinical skills had not prepared me in any way for the organisational, political, and leadership demands of senior clinical roles. Levelised leadership had been completely overlooked in clinical training.

After retraining in organisational psychology, and enduring the obligatory time in a consultancy practice, I opened my own business in Brisbane. The erratic income and uncertainty of business development was more than compensated for by the autonomy and sense of personal responsibility that comes from both designing and delivering a bespoke solution to the client's needs. It took me a while to realise the importance of purpose in my work, and helping organisations flourish and deal responsibly with the emerging climate crisis has sustained me for the last twenty years. Coming from an academic family, research has always played a significant role in my work. Driven by a desire to enhance the evidence-base in workplace and leadership coaching, I initiated a doctorate in strength-based leadership, really sharpening my appreciation of the literature and credibility in the field.

When I first considered my transition from clinical to organisational psychology (to which I have added health and coaching along the way), a number of senior organisational practitioners advised me against it, telling me that it was destined to fail. This was poor advice. There is significant variety within the domain of applied psychology and transitions are easier than you think. Modular training programs and specialist titles and registrations tend to emphasise the differences rather than similarities in the various areas of applied psychology. Taking a step back and down in terms of experience and expertise was challenging but ultimately worth it.

My final advice is to really reflect on and understand the costs and benefits of different employment models and match them to your career stage. Very few individuals have the business acumen to go immediately from university into private practice. Most will want and need to hone and develop their skills in the context of a supportive and nurturing environment that provides the essentials like access to clients and peer support. Do not underestimate the value of these opportunities in your own development. I am convinced that my own experience within the clinical domain – that gave me insights into the public sector as well as a deep and profound insight into human motivation, resistance to change, behavioural and cognition models of mood, cognitive bias, and human development – has made me a far more effective practitioner that would otherwise be the case. As I consider my next transition to environmental and climate change psychology, the confidence acquired in previous domains undoubtedly underpins the optimism I feel that it will be a successful and engaging one.

Career Story: Human Factors and Safety

Allison McDonald, Managing Director, SystemiQ

Human Factors is a multidisciplinary field, drawing upon a range of professional disciplines such as psychology, biomechanics, anthropometrics, and systems engineering. It is an exciting and rewarding career pathway, closely linked with both organisational psychology and cognitive psychology. I first encountered the field of human factors when working on a project with a mining research organisation for my Master of Organisational of Psychology thesis. I immediately enjoyed the applied research focus, and the opportunity to work with people and technology in complex and fascinating industries. Since then, my human factors specialisation has enabled me to work at an operational and strategic level with organisations such as Queensland Rail and Qantas in Australia, and Etihad Airways in the Middle East. It has also more recently provided incredible opportunities to travel and work with many different airlines across Europe, Asia, and the Middle East in a consulting role.

Human factors applies an understanding of the human sciences – including psychology – to optimise the design and operation of systems. It uses structured methods to understand the way in which people interact with equipment, their surroundings, information, and other elements of systems to perform their tasks. This understanding of human-system interaction is used to help designers to consider the needs, abilities, and limitations of people who will use the systems. The integration of human factors in design (often referred to as 'human-centred design') aims to make systems safe, effective, and comfortable for human use.

Human factors professionals work in a wide range of contexts, from the design of products and built environments that we use in everyday life, to the design and operation of complex high-reliability systems in industries such as aviation, rail, health care, energy, or process industries. Human factors involves working closely with the people who perform safety-critical work in these complex systems and environments to understand their tasks and the context in which the tasks are performed.

In addition to being involved in design processes, human factors professionals may work in operational settings focused on safety management. In this context, they help organisations to understand the factors that affect human performance – both in understanding what keeps operations safe and effective, and in identifying the factors contributing to incidents and adverse outcomes. Integrating human factors into safety and risk management contributes to safer outcomes by identifying improvements required to equipment, procedures, job design, training, and other performance-shaping factors within the organisational system.

Human factors is a growing field of practice, and as technology continues to advance rapidly, the focus on how people interact with complex systems will only continue to increase in importance. Human factors is a rewarding field of work which directly contributes to systems that better support the people who interact with them.

Useful Resources:

- Video: 'What is human factors science?'
- International Standards Organisation (ISO). (2019). *Ergonomics of human-system interaction – Part 201: Human-centred design for interactive systems.* ISO 9241-210:2019(E). Geneva: ISO.
- Wickens, C. D., Lee, J., Liu, Y., & Gordon-Becker, S. (2014). *An introduction to Human factors engineering* (2nd ed). Pearson Education.
- Wilson, J. R., & Sharples, S. (2015). *Evaluation of Human Work* (4th Ed.). CRC Press.

Career Story: Organisational Development: OB and Broader Applications of Social Science in Organisational Life

Charmine E. J. Härtel, Distinguished Professor of Management, Inclusive Employment and Entrepreneurship

I come from a blue-collar background, growing up first on isolated islands and a native community in Alaska, and later a small country town in Montana. My early experiences were of a collectivist society where I was a valued child of the community and oblivious to notions of race or exclusion, i.e., I did not know I was white nor did it affect my belongingness. When I left that small Alaskan community, I ventured to parts of the world where I was confronted with acts of racism and exclusion. It was bewildering to me to see how unkind people could be when I knew from the community of my childhood how embracing of diversity humans could be. This fuelled in me a strong desire to do work that encouraged the best of humanity to shine through. I decided to do this through obtaining a PhD in I/O psychology after vocational interest inventories I took revealed to me my interest in research and science, and that pursuing a PhD would be a good path for me to achieve meaningful work for myself. I/O psychology provided the ideal grounding to pursue my passion for supporting the employment and entrepreneurship of disadvantaged groups, as it coupled a deep scientific understanding of human behaviour with rigorous methods for studying it and developing practical actionable solutions.

Fast forward to now, and I'm proud to say I am a recipient of the Australian Psychological Society's prestigious Elton Mayo Award for scholarly excellence, a Fellow of the (U.S.) Society for Industrial and Organizational Psychology (SIOP), and a Fellow of the Academy of Social Sciences in Australia (ASSA) amongst other recognitions. The two research streams I have established have had both academic and practical impact.

The first of these – my inclusive employment program – has identified the features of positive work environments inclusive of all individuals (Härtel & Ashkanasy, 2011), introduced the construct of diversity/dissimilarity openness/closeness (Härtel, 2004; Härtel, Douthitt, Härtel & Douthitt, 1999), developed a human wellbeing-centred approach to HRM (Härtel & Fujimoto, 2014) developed a positive work environment toolkit (McKeown, Härtel, Bryant, Hanley, Kirk-Brown & Howell, 2010), developed a workgroup emotional climate (WEC) scale (Liu, Härtel & Sun, 2014), advanced understanding and practices of disability inclusive workplaces (Härtel, Krzeminska & Carrero, 2020) and Aboriginal peoples (Härtel, Appo & Hart, 2013), amongst a host of other things. Now, I am currently working on solutions to embracing neurodiversity in the workplace. Most recently, I co-published with a colleague and two of our research students a widely-publicised industry report on the findings of a global survey on autism employment. You can read our findings, many of which are myth busting.

References

Härtel, C. E. J. (2004). Towards a multicultural world: Identifying work systems, practices and employee attitudes that embrace diversity. *The Australian Journal of Management*, *29*(2), 189–200. https://doi.org/10.1177/031289620402900203

Härtel, C. E. J., Appo, D., & Hart, B. (2013). Inclusion at societal fault lines: Aboriginal Peoples of Australia. In B. M. Ferdman & B.R. Deane. (Eds.), *Diversity at work: The practice of inclusion* (pp. 520–545). Jossey-Bass Publishers, SIOP Professional Practice Series.

Härtel, C. E. J., & Ashkanasy, N. M. (2011). Healthy human cultures as positive work environments. In N. M. Ashkanasy, C. P. M. Wilderom and M. F. Peterson (Eds.), *The handbook of organizational culture and climate* (2nd ed., pp. 85–100). Sage Publications, Inc.

Härtel, C. E. J., Douthitt, S. S., Härtel, G. F. & Douthitt, S. Y. (1999). Equally qualified but unequally

perceived: Openness to perceived dissimilarity as a predictor of race and sex discrimination in performance judgments. *Human Resource Development Quarterly, 10*(1), 79–89.

Härtel, C. E. J. & Fujimoto, Y. (2014). *Human resource management* (3rd edition). Pearson Education Australia.

Härtel, C. E. J., Krzeminska, A., & Carrero, J. (2020). Disabled persons in the workplace. In J. Syed & M. Özbilgin (Eds.), *Managing diversity and inclusion: An international perspective* (2nd ed., pp. 220-260). Sage.

Krzeminska, A., Härtel, C. E. J, Carrero, J., & Samayoa Herrera, X. (2020). *Autism @ work: New insights on effective autism employment practices from a world-first global study*. Final Report. Autism CRC. https://www.autismcrc.com.au/sites/default/files/reports/3-054RI_New-insights-on-effective-employment-practices_Final-Report_2021.pdf?v=29A0321

Liu, X., Härtel, C. E. J., & Sun, J. J. (2014). The workgroup emotional climate scale: Theoretical development, empirical validation and relationship with workgroup effectiveness. *Group & Organization Management*, *39*(6), 626–663. https://doi.org/10.1177/1059601114554453

Mafico, N., Krzeminska, A., Härtel, C. E. J., & Keller, J. (2021, May). The Mirroring of Intercultural and Hybridity Experiences: A Study of African Immigrant Social Entrepreneurs. *Journal of Business Venturing*, *36*(3). https://doi.org/10.1016/j.jbusvent.2021.106093

McKeown, J. T., Härtel, C. E. J., Bryant, M., Hanley, G., Kirk-Brown, A., & Howell, A. (2010). *How positive is your work environment: The positive work environment toolkit.* Commissioned research and report awarded through competitive tender for Victorian Public Sector Commission. https://vpsc.vic.gov.au/resources/how-positive-is-your-work-environment/

Adelaide

Career Story: Resilience at Work

Kathryn McEwen, Global Lead Working With Resilience

After a career that has involved most facets of organisational psychology, I now specialise in workplace resilience.

Around a decade ago I started to notice an increase in the number of people struggling at work. Change, work pressures, and having to do more with less were the main sources. I became curious about how people could sustain performance and wellbeing in challenging work environments.

I started by searching the literature for work resilience assessments and found nothing that seemed fit for purpose. This started a journey of developing my own! I have since published three books on the topic and led the research and development of the Resilience at Work (R@W) Toolkit. This includes measures of personal, team, and leader resilience. It's been an exciting journey to take my expertise as a practitioner and use it to inform research.

Now, a typical week focuses on training and supporting a global network of more than 500 practitioners who use my work. I continue to develop new resources for them and hold webinars and community of practices where we come together to share ideas and experiences. In five countries I have regional leads who work with me in supporting and growing our R@W Community.

To keep my perspectives and skills fresh and relevant, I continue to coach leaders, mediate workplace conflict, facilitate workshops, and work with teams in trouble. With constant workplace change, it's important to continue to experience firsthand the challenges on the ground.

As a practitioner, it is humbling that my work is also being used in more than 12O university studies internationally. Resilience is very topical so there is a lot of scope for research – especially post-pandemic. In psychology we emphasise the science-practitioner approach and I have been privileged to bridge these spaces.

Organisational consulting involves marketing. It's been an interesting parallel journey for me understanding brands, being active on social media, producing videos and developing websites and assessment platforms. I've also had to learn all aspects of running an international business.

My latest venture – which I would never have imagined would have been part of my career – is developing the R@W Team app and dashboard. It's been exciting partnering with technical experts to deliver a product that promotes team productivity and wellbeing.

Our work as organisational psychologists continues to evolve and we will never be quite sure of the surprises ahead…

References

McEwen, K., & Boyd, C. M. (2018). A measure of team resilience: Developing the resilience at work team scale. *Journal of Occupational and Environmental Medicine*, *60*(3), 258–272. https://doi.org/10.1097/JOM.0000000000001223

McEwen, K. (2016). *Building team resilience*. Mindset Publications.

McEwen, K. (2016). *Building your resilience: How to thrive in a challenging job*. Mindset Publications.

McEwen, K. (2011). *Building resilience at work*. Australian Academic Press.

Winwood, P. C., Colon, R., & McEwen, K. (2013). A practical measure of workplace resilience: Developing the resilience at work scale. *Journal of Occupational and Environmental Medicine*, *55*(10), 1205–1212. https://doi.org/10.1097/JOM.0b013e3182a2a60a

Perth

Career Story: Personnel Selection and Assessment

Patrick Dunlop

I completed my masters and PhD in industrial and organisational psychology at the University of Western Australia (UWA), and prior to that, I worked for a small consultancy that specialised in assessing candidates for jobs. Since then, I've been working in teaching and research roles at UWA and Curtin University.

My research is focused on the psychology of talent acquisition. This area is sometimes called 'personnel psychology'. I am interested in understanding the processes involved with attracting talent to an organisation, identifying the most important characteristics in candidates, and working out how to measure those characteristics, and in making selection decisions. Sitting over these processes includes how the rapid adoption of technology is changing recruitment and assessment process, the experience of an application process from candidates' perspectives (Woods et al., 2019), and how organisations can manage and improve diversity through better recruitment, assessment, and selection practices.

Most recently, I have been focused on how technology has changed the interviewing process. Over the last eight or so years, organisations have been embracing the 'asynchronous video interview' (AVI), which is where a candidate logs into an online platform using a device with a camera and microphone, and provides video-recorded responses to interview questions. The adoption of this technology was

accelerated by the COVID-19 pandemic, which triggered a need for social distancing practices. It also offers many benefits to employers including giving reach to candidates from all parts of the world, and scalability. While AVIs do allow candidates to complete their assessments at times and places of their choosing, there are concerns that this technology does not provide a positive candidate experience overall, because the AVIs are highly impersonal, awkward for candidates, do not allow candidates to ask questions, and are seen as creepy or invasive by some (Likacik et al., 2021). Candidates are also concerned about how these interviews are evaluated, with many proprietors claiming to be able to use 'AI' or 'machine learning' to analyse video interview responses, giving rise to multiple ethical concerns (Tippins et al. 2021). In my research, along with several colleagues, I am working with an AVI provider to identify ways that employers can improve the experience of completing AVIs.

While this is just one example of where I am focused now, it is my hope that the research we do will help build an evidence-base for improving selection practices across the world.

References

Lukacik, E.-R., Bourdage, J. S., & Roulin, N. (2021). Into the void: A conceptual model and research agenda for the design and use of asynchronous video interviews. *Human Resource Management Review*, Article 100789. doi: https://doi.org/10.1016/j.hrmr.2020.100789

Tippins, N. T., Oswald, F. L., & McPhail, S. M. (2021). Scientific, legal, and ethical concerns about AI-based personnel selection tools: A call to action. *Personnel Assessment and Decisions, 7*(2). https://doi.org/10.25035/pad.2021.02.001

Woods, S. A., Ahmed, S., Nikolaou, I., Costa, A. C., & Anderson, N. R. (2019). Personnel selection in the digital age: a review of validity and applicant reactions, and future research challenges. *European Journal of Work and Organizational Psychology*, *29*(1), 1–14. https://doi.org/10.1080/1359432X.2019.1681401

Career Story: Work Design: Making Work Better Through Evidence and Practice

Sharon K. Parker

Much of my career as a researcher in organisational psychology has been dedicated to the creation of work that is intrinsically meaningful. This is ironic since various extrinsically-motivated choices led me to this career. Upon graduating with a bachelor's degree in psychology at UWA, I took a research assistant job at Curtin University (which happened to be on work design) with John Cordery because its location was conveniently close to where I was living and the job met my salary criteria. Then, inspired primarily by the opportunity for overseas travel, I decided to pursue a PhD in occupational psychology at the University of Sheffield, UK, with Toby Wall.

It was in Sheffield I really fell in love with work design. Working with an electronics company in Leicester in which self-managing teams were introduced, I was astounded by the transformation I saw in the workers. To this point, I had observed that the work design literature had a heavy focus on outcomes like job satisfaction and organisational commitment, but this fell short of capturing the ways in which workers changed with good work. When the workers of this company became more autonomous in their work, they became more active and energised, more engaged and thoughtful. One of the people I talked to told me, 'We've grown up, we've become more adult in our workplace'. I became a convert to the transformational power of work design, and I remain so to this day.

The importance of work design has heightened in recent years. Today, the global workforce faces many challenges, including a crisis of poor mental health (often due to excessively demanding work) and advances in digital technologies which can undermine the nature and quality of many jobs (Parker

& Grote, 2020). These challenges represent an opportunity to create work that is optimal for human flourishing. This is the fundamental question of work design, concerned with the 'content and organisation of one's tasks, relationships, and responsibilities' (Parker, 2014, p. 662).

Unfortunately, work design often does not receive the attention that it deserves among organisations and professionals. When things go wrong – like impaired productivity or job stress – most people do not 'naturally' think about work design as a cause. I see work design as 'under the iceberg' – a very powerful, yet unseen, force that influences the visible behaviours of job performance, absence, and turnover, for example (Parker & Jorritsma, 2021). My mission has been to bring work design to the surface, and this is starting to happen, helped by our SMART work design model we created to summarise the research.

SMART work is stimulating, mastery-oriented, agentic, relational, and has tolerable demands. I hope you get SMART work in your career.

References

Parker, S. K. (2014). Beyond motivation: Job and work design for development, health, ambidexterity, and more. *Annual Review of Psychology*, *65*, 661–691. https://doi.org/10.1146/annurev-psych-010213-115208

Parker, S. K., & Grote, G. (2020). Automation, algorithms, and beyond: Why work design matters more than ever in a digital world. *Applied Psychology*. https://doi.org/10.1111/apps.12241

Parker, S. K., & Jorritsma, K. (2021). Good work design for all: Multiple pathways to making a difference. *European Journal of Work and Organizational Psychology*, *30*(3), 456–468. https://doi.org/10.1080/1359432X.2020.1860121

CHALLENGES AND OPPORTUNITIES FOR IWO PSYCHOLOGISTS

The following provide a mix of clear challenges (such as the regulatory environment confronted by Australian IWOP), as well as topics providing a blend of challenge and opportunity (such as with artificial intelligence). The fourth and fifth topics introduce the tough questions: How can IWOP assist, locally and globally, in dealing with major environmental concerns, or pandemics?

The first two topics have been chosen deliberately to lead the way in this section, given:

(a) Registration of psychologists – its significant impact on course curricula, and the whole IWOP profession.

(b) Test adaptation – it provides an opportunity which can be grasped by psychology, and relatively quickly, thus securing early 'runs on the board'. It ties in with the International Declaration on Core Competences in Professional Psychology, as discussed earlier, societal change, and even with the Closing the Gap initiative of the Australian Government.

The National Registration and Accreditation Scheme for Health Practitioners (NRAS)

Over the years, the issue of the licensing (or registration) of IWO psychologists has arisen several times as a topic for discussion. In 2017, a special issue of *Industrial Organizational Psychology: Perspectives on Science and Practice* (a publication of SIOP) included a focal article on this topic, with associated commentaries from various authors. O'Gorman and Macqueen (2017) provided a summary of some of the issues from an Australian perspective and supported the view that a dual register system for psychologists in Australia would likely reduce some of the negative impacts resulting from a 'one size fits all' approach to registration. A dual register system would be consistent with that proposed by the APA in its 2010 model of licensing. The two registers or classifications under the broad banner of 'applied psychologist' are general applied psychologist

(GAP) and health service provider (HSP). An IWO psychologist who sees themself also as a health service provider should be able to register with the HSP classification as well as GAP. These two registers could have different requirements and restrictions, with implications, for example, for the use of testimonials in advertising or social media, or for course accreditation and curricula requirements, and even aspects of professional supervision for registration purposes.

It's worth noting the views of IWO psychologists in countries similar to Australia. In discussing the licensing views of IWO psychologists in Canada, Zugec and Michela (2017) reported that a survey of members of CSIOP resulted in over 89 per cent rejecting mandatory licensing. Further, 21 out of 22 past CSIOP Chairs were also against mandatory licensing.[3]

Feitosa and Sim (2021) referred to the 'identity crisis faced by many I-O psychologists in other parts of the world' (p. 73), specifically identifying the rigorous standards for registration and psychology course accreditation in Australia. Some could well argue that these standards are not only 'rigorous', but also unduly 'restrictive' and inappropriate in part when applied to a discipline which is very much connected to the social sciences and other fields. The positioning of IWOP in the world of science and knowledge will be touched on further in the conclusion to this chapter.

In foreshadowing changes to IWOP programs, Hesketh et al. (2018) surmised that with ongoing adherence to the current NRAS system, introduced in 2009, future programs are likely to produce graduates with blended skills including clinical and counselling psychology. While not stated, such inclusion must lead to a dilution of IWOP content. The changes in the regulatory and course accreditation requirements for psychologists have acted as a catalyst for the development of university programs producing graduates having business-oriented IWO psychology skills. However, such a development, as Hesketh et al. (2018) observed, is likely to dilute the link between IWO psychology and the core disciplines of psychology. Certainly, as traditional postgraduate programs in organisational psychology decline in numbers in Australia, the number of business psychology programs is likely to expand. However, in Australia graduates from such programs are unlikely to be able to call themselves a psychologist, let alone an organisational psychologist. Unfortunately, this trend is probably too advanced now to be reversed.

Psychological Testing: Test Adaptation and Effective Use of Tests

A theme of increasing importance for psychologists in Australia in general (and not just IWO psychologists) is the need for a better approach to the use of psychological tests, particularly where the principles of test adaptation should be employed (International Test Commission [ITC], 2017; Iliescu, 2017; Oakland, 2016). Psychological testing is undertaken across many domains (work, education, health, forensic and so forth). However, this testing has often included tests (and at times norms or comparative standards) which have been transported directly from the source country (for example the UK or USA), but without appropriate adaptation, and with inappropriate or unsubstantiated assumptions about what is really being measured – that is, the constructs. A rigorous approach to test adaptation entails more than just use of forward and backward translation techniques. It also requires an investigation into the construct equivalence and measurement or scalar equivalence between the source and target tests.

The need for good test adaptation is particularly true in assessing First Nations people, but language and cultural appropriateness can also be questioned when working within various ethnic communities, and where English is not the first language of the test taker. Furthermore, the test itself is only one part of the assessment process. Using a model (after Bartram, 2010)

3. This article by Zugec & Michela (2017) was published in the SIOP newsletter (TIP), but a nearly identical article by these two authors appeared in the 2017 licensing issue of *Industrial and Organizational Psychology: Perspectives on Science and Practice*. It sits alongside the Australian commentary by O'Gorman & Macqueen. TIP is a valuable resource and recommended.

corresponding to that used in project management and human factors, an effective approach to psychological testing has three connected elements which need to be addressed, namely: Product (the quality of a fit for purpose test), People (the competence of the test user – often a psychologist), and Process (the systems and context associated with the test use). For testing with First Nations people all three are critical. The importance of 'community' and the cultural competence of the test user should not be underestimated. But as Byrne et al. (2009) observed, typically psychometricians are poor cross-cultural psychologists, and vice versa.

To raise standards in psychological testing globally, and to supplement university and subsequent training, the International Test Commission (ITC) has recently launched a four+ module online self-paced program.

For a summary of the history of psychological testing in Oceania, the keen reader is referred to O'Gorman, St George and Macqueen (2022). The need for much greater cultural awareness and accommodation by mainstream psychology is an important issue. The necessary development of cultural competence for IWOP practitioners and scholars started to be addressed a few years ago in New Zealand/Aotearoa (e.g., Bryson & Hosken, 2005), but there has been very limited movement in Australian IWOP.

Artificial Intelligence (AI) and Technology: An Increasingly Key Issue

Given recent strides in technology and computing power, it's not surprising to witness the development of, for example, automated job interview systems, use of facial recognition algorithms to predict personality or other characteristics, game-based assessments (GBAs), automated essay scoring, and multimedia simulations to name just a few. Further, with the rapid growth in artificial intelligence, there is clear scope for digital footprints – such as a person's 'likes' on Facebook – to be used to evaluate someone, particularly in employment settings. Rust, Kosinski and Stillwell (2021) devoted one chapter to this topic, namely 'Employing digital footprints in psychometrics' (pp. 129–151). The next and final chapter in this small publication is titled 'Psychometrics in the era of the intelligent machine' (pp. 152–171). The authors went on to call for legislation to be enacted to control the inappropriate use of AI. (Note: The authors are, or were, closely associated with the Cambridge Psychometrics Centre, and the early work of Stillwell and Kosinski was used in the 2016 Cambridge Analytica saga. However, they quickly dissociated themselves from any involvement in this nefarious affair.)

Technological advances raise key concerns around ethical practice, as well as 'transparency' and what is called 'explainability'. With advanced AI – such as deep machine learning – it's not clear how an AI system may produce certain results, given the 'neural network' at its core. The initial algorithm is transformed by the 'intelligent machine', but the initial training data may be biased through human error. You can read a short white paper on artificial intelligence on the Compass Consulting website (Macqueen, 2021).

This is a rapidly moving field, but the people and ethical issues highlighted in several comprehensive reports on artificial intelligence published in Australia and globally during 2019 are still very pertinent. We will come back to this topic in the conclusion to this chapter.

Environmental Sustainability

The issue of climate change is frequently discussed in the media and in popular scientific publications such as *New Scientist,* leading to polarised positions. Some large superannuation funds are now critically evaluating their portfolio, with climate change viewed from the perspective of risk management, if not a potential ethical issue. This risk assessment includes the risk of litigation by individuals. The case of a 25-year-old Australian man successfully suing

the then $57 billion Retail Employee Superannuation Trust (Rest) (which has over 1.8 million members) for not disclosing how it was managing the risks climate change poses to its investments is a good example.

Globally, psychology's professional societies are supporting behaviourally-oriented programs to address climate change. A meeting in Lisbon, Portugal in November 2019 was attended by leaders from over 40 psychological societies, resulting in a signed proclamation in support of action.

Ones, Dilchert, Wiernik and Klein (2018) provide a taxonomy of employee green behaviour (ECB), referring to the 'green five'. Further, the authors present a table (Table 16.2) summarising the meta-analytic relationships between individual differences and pro-environmental behaviours. Psychology's connection with environmental matters is not new. The Essential Psychology series by Methuen included the publication *Psychology and the Environment* (Lee, 1976), although its focus was on the built environment. A more modern take on this is perhaps the emerging field of environmental neuroscience (e.g., Berman, Stier & Akeelik, 2019).

One of the practitioner stories above (**A Consulting Journey – Dr Doug MacKie, CSA Consulting**) describes a psychologist's transition from clinical and IWO psychology to environmental and climate change psychology.

Pandemics and IWO Psychology

COVID-19 has had significant effects on the world beyond that of a potentially dangerous virus invading human bodies. Various publications (since mid-2020) and the media continue to be awash with the behavioural impact on many aspects of life including, but not limited to, mental health and anxiety, increased substance abuse, working from home, and the effect of remote learning – particularly for school children and their parents or guardians and teachers. This is separate from the economic and political issues. Furthermore, various concerns have emerged in relation to the efficacy and fairness of lockdowns (state, regional, or local government area). Contrasting perspectives on 'science', the 'collective good', and 'individual freedom' have added to the occasionally heated discussion.

In a special issue of *Industrial and Organizational Psychology: Perspectives on Science and Practice*, a focal article (Rudolph et al., 2021) was accompanied by sixty commentaries providing diverse perspectives. Some commentaries took the approach of examining the issue via a particular profession (such as nursing), while other commentaries viewed COVID-19 as an opportunity for introducing positive change during the pandemic, or to research the theme of leadership during a crisis, for example. An Australian contribution by Luksyte et al. (2021) approached the issue in terms of the potential to disrupt volunteering during the pandemic. (It's not uncommon for 'volunteers' and smaller organisations to be overlooked in IWOP research.) The prestigious *Journal of Applied Psychology* has regularly published similar articles since edition 105 (8) in August 2020. Clustered in a sub section titled "Understanding Work and Employment in the COVID-19 Pandemic", the articles typically reflect a deductive methodology and an a priori theorising approach. It also appears that collaborative research with other disciplines is missing in the above submissions.

Ironically, a relevant publication appeared in late 2019, just prior to the onset of the pandemic. Steven Taylor, a UK clinical psychologist, considered the role of psychology in dealing with pandemics. Taylor delved into emotional and psychosocial elements, as well as conspiracy theories and vaccination hesitancy. However, the index to the publication doesn't include terms such as culture, stereotyping (although 'stigma' is listed), work, behavioural economics, nudging, and decision-making.

A book edited by the renowned Cary Cooper (2021), *Psychological Insights for Understanding COVID-19 and Work*, has provided models relevant to the world of work (such as the Job Demands-

Resources Model of Burnout). Several of the articles had been published previously. Nevertheless, with contributions from authors from several countries – including Australia – it appears to be a publication well worth reviewing in addressing some of the questions below. A parallel publication is titled *Psychological Insights for Understanding COVID-19 and Society* (Haslam, 2021). Alex Haslam, from the University of Queensland, is a global authority on social identity theory (SIT). This particular publication includes chapters related to leadership, politics, trust, exclusion, and a range of community or societal issues.

Two Global Issues: What Can IWOP Contribute?

This is a challenging final activity, designed for relatively advanced students most likely, and as a group activity.

Before commencing, read the conclusion of this chapter and review prior material including the eight career stories from Australian IWOP scholars and practitioners.

The two topics above (environmental sustainability and pandemics) are both underpinned, generally, by 'hard science'. (Although it's acknowledged that some individuals believe some of the claims within these debates are overstated.)

Psychology has a role to play in how we deal with both issues, although it seems that the medical science field, and politicians, firmly control the COVID-19 agenda. The key questions for group discussion and research are as follows:

- Where are the 'gaps' between the current situation and the (realistic) future 'ideal' situation for both issues?
- What are the key forces at play – either enabling or constraining satisfactory resolution of these issues?
- How is IWO psychology currently contributing to dealing with these issues?
- How can IWO psychology contribute further in closing the gap mentioned above?
- Are there any models – such as Lewin's B=f (PxE) – that would assist in some way? What about suggesting or designing a relevant research project?
- Do you see a role for inclusion of a Behavioural and Social Sciences Unit – with a seat at the top table – advising National Cabinet in Australia on COVID-19? Your reasons? (HINT: see www.sbst.gov. In 2015 President Obama established a similar body to assist US federal government and federal agencies.)
- And if so, what should be its Terms of Reference? What would be the structure, member composition and size of this unit? How would you establish the selection criteria for members of this this unit? What would these selection criteria look like? And how would you select people meeting or exceeding these criteria?
- Would you have an 'onboarding' process of some form for the members?
- What resources should be allocated to develop and assist this unit?
- Anything else to consider?

(HINT: this webpage from the World Health Organization may assist, in part, in addressing these questions.)

EMPLOYMENT PROSPECTS FOR IWO PSYCHOLOGISTS IN AUSTRALIA

The employment data and prospects for IWO psychologists are not clear in Australia, with any relevant data collected by the Department of Health (or collected by Health Workforce Australia prior to 2014) overshadowed by the dominance of, and focus on, health-oriented psychologists.Workforce planning by the department probably doesn't include IWO psychologists. In the USA, the US Bureau of Labor Statistics, just prior to COVID-19, had estimated good employment growth for IWO psychologists over the following decade, but the latest US projection is for only average growth. Health and school-oriented psychologists, however, are likely to be in great demand for a period.

Reliable data from the UK and Europe appear difficult to obtain without further research. And in the case of at least the UK, it's difficult to determine the employment trends of IWO psychologists. As in Australia, there are numerous IWOP-trained individuals in the UK who may not be registered as occupational psychologists, but who perform a similar function.

The PsyBA publishes useful quarterly registration statistics, with tables in both MS Word and PDF formats. It's difficult to draw firm conclusions from the data, particularly as COVID-19 appears to have produced a change in the mix of registrants. However, in reviewing the June 30 tables from June 2016 to June 2021 for those on the 'general' register (but excluding those provisionally registered or non-practising), the following statistics emerge:

- As of June 30 2021, there were 33,556 general registrants, 603 of whom were endorsed as organisational psychologists. This represented 4.1 per cent of the total number of endorsements.[4]
- In 2016, organisational psychologists represented 4.4 per cent of total endorsements, and this has fluctuated as follows over subsequent years: 4.3 per cent (2017), 4.2 per cent (2018), 4.15 per cent (2019), 4.2 per cent (2020).
- In broad terms, endorsed organisational psychologists represent about 1.8 per cent of the total number of psychologists on the 'general' register.

A clearer picture of registration trends for psychologists should emerge over the next two years.

However, it shouldn't be assumed that the current endorsement structure will be retained, nor the current college system within the APS, which was mirrored by the PsyBA when considering endorsed areas of practice.

Regardless, an important point made by Hesketh et al. (2018), and with which we agree, is the not insignificant number of non-endorsed 'organisational psychologists' who are well-qualified, successful professionals who operate as behavioural experts, management consultants, human factors specialists, organisation development specialists, talent management or human resource executives, and so forth. Some are registered as psychologists but missed an opportunity to take advantage of the endorsement grandparenting window in 2010, and/or see little need to undertake a relatively time-consuming and expensive supervisory process – particularly if they're already highly regarded by their clients, employer, or colleagues. The limited number of accredited supervisors with solid or relevant experience also limits the appeal for individuals who already are highly functioning psychology professionals.

4. The figures in the endorsement tables published by PsyBA show the total number of psychology area of practice endorsements recorded on the National Register of Practitioners. Psychologists who hold more than one endorsement are counted for each endorsement they hold. Currently, about 93 per cent of endorsed psychologists hold just one endorsement, and this figure is increasing slowly as the effect of 'grandparenting' arrangements from 2010 is diluted with retirements, or as individuals decide to focus on just one area of practice endorsement.

Others may have completed an advanced or accredited postgraduate psychology program in the field of organisational psychology, but have not registered even as a psychologist, seeing little need in terms of their prospective career progression. And others may have completed a non-APAC accredited Master of Business Psychology which doesn't allow them to register as a psychologist, but which can provide skills very relevant to the business world. Discussion of comparisons with a Master of Business Administration (MBA) or similar is best left to another forum.

IWOP AND ITS FUTURE DIRECTION: INNOVATION RATHER THAN 'TENSION'

In updating the discussion about professional identity (Ryan & Ford, 2010), Zickar and Highhouse (2017) expressed concern about the increasing disconnect between IWO psychology (in business schools) and mainstream psychology, particularly about the reduced influence of (a) the experimental tradition, and (b) psychology's strong focus on individual differences and their measurement. Other submissions in this December 2017 issue of *Industrial and Organizational Psychology*: *Perspectives on Science and Practice* questioned the positioning of IWO psychology in the future, noting the increasingly strong link between IWO psychology offered in business schools with organisational behaviour, and systems theory approaches. Consistent with observations by Hesketh et al. (2018), such developments have the potential to loosen the solid association of IWOP with not only traditional psychology programs, but also with newer fields such as the cognitive sciences.

However, it's important to highlight what a well-trained IWO psychologist has to offer. We have what might be called a 'unique value proposition' with our focus at three levels: individual, group, and organisation. In taking a broader perspective, we can also consider domains such as industry, community/society, and country/region. Thus, IWOP has a strong connection with cross-cultural psychology, with the GLOBE leadership project providing a good example of such.

Assessment (or diagnosis) and intervention initiatives can be mapped against these three levels, as shown in the example below (after Lowman, 2016).

Individual

- Career assessment (assessment focused)
- Coaching (intervention)

Group

- Role analysis (assessment focused)
- Tavistock groups[5] (intervention)

Organisational

- Culture assessment (assessment focused)
- Scanlon Plan[6] (intervention)

Accordingly, an effective approach could involve drawing on the offerings from traditional experimentation, individual differences, organisational behaviour, and systems theory, with perhaps more inductive research. This is likely to require much better collaboration between

5. Tavistock group (conferences) are likely to take a psychodynamic approach to working in groups, incorporating a range of immersive activities exploring both conscious and unconscious elements within and between people.
6. Scanlon plans embrace a multi-faceted approach to sharing and gaining of information and resources for the benefit of both management and employees, with high involvement and engagement.

IWO professionals and other professionals, as well as application of Avolio (2017)'s call for a balance between rigour and relevance rather than seeking a seamless approach between science and practice. Such a call also brings into play the question: Are there benefits to having a moderate level of 'tension', as has been discussed througout this chapter? After all, such a dynamic may well lead to innovation and improvements in outcomes for individuals and organisations – the objective of IWOP.

COVID-19 has highlighted the importance of agility, adaptability, and innovation for individuals, groups, and organisations. While technology, artificial intelligence, and big data provide challenges and opportunities for IWOP (e.g., see Landers, 2019), the 'people factor' will still be vital. Further, we suspect a multilevel perspective will be increasingly required. Accordingly, the keen student, practitioner, or scholar would benefit from considering such an approach by reading a timely book out of SIOP: Creativity and Innovation in Organizations (2020), edited by Mumford and Todd.

Conclusion

Regardless of the future of traditional IWO psychology programs in Australia – and the question about whether IWO psychology should continue to be affiliated as a subordinate body within the peak Australian member-based psychology organisation (the APS) – it's important to look more broadly, especially globally.

It's evident that IWO psychologists with the best employment prospects and career choices will be those with sound research and data analytic skills to accompany good critical thinking skills and well-honed interpersonal and communication skills – both written and oral. For those working primarily in research roles – including in a commercial enterprise – data analytic and research skills will be critical. Knowledge of cognitive sciences will also be useful not only in human factors, but also in emerging fields such as robotics and autonomous vehicle technology. Thus, an IWO psychologist may be working with computer scientists and software engineers, and König et al. (2020) provides advice to psychologists who may be considering such a work assignment. Taking this further, it appears commercial organisations are leading the way in introducing novel approaches in fields such as talent identification and employee selection by adapting emerging technologies (e.g., see Rotolo et al., 2018).

However, in a paper cited by Perth-based Patrick Dunlop (in the career story **Personnel Selection and Assessment** featured above), Tippins et al. (2021) raise clear scientific, legal, and ethical concerns about (at least some) such technology-based developments. This, in part, echoes an earlier call by Gonzales et al. (2019) for IWO psychologists to take a collaborative approach in working with computer scientists, legal scholars, and other professions. Responding to a need perceived by many, a lengthy joint project between the ITC and the Association of Test Publishers (ATP) has resulted in the early 2022 release of a 150+ page draft of their *Guidelines for Technology-Based Assessment** for public review and comment.

Increasingly, we are likely to see IWO psychologists working in non-HR roles within government or regulatory bodies, as behavioural interventions are implemented to supplement the traditional legal and economic approaches. For example, in 2019, the *Australian Financial Review* published a series of relatively prominent articles reporting and commenting on the then actions of the financial regulator, Australian Securities and Investment Commission (ASIC). ASIC had appointed an external 'organisational psychologist' to sit in the boardrooms of some top Australian companies, with article headings, unfortunately, including terms such as 'shrinks' and 'board whisperer'. Based largely on a Dutch model, the aim was to improve the culture within the boards of such companies, and thus enhance investment integrity and safeguard the interests of all stakeholders, including the community. Travelling forward to October 2021, ASIC appointed a psychologist to work alongside economists and

others, rather than (just) working in an OD or HR role. The appointment reflected the increased appreciation of the skill set an IWO psychologist brings in terms of research rigour, and knowledge of theories and frameworks to inform consumer-based interventions and policy. This psychologist completed her dual Master of Organisational Psychology and PhD in Australia, gaining a range of supervised practice experiences before working for a period in research roles with a consultancy focused on safety culture assessment and change.

The US Department of Homeland Security also recognises IWOP as a STEM discipline (see Industrial and Organizational Psychology in the DHS STEM Designated Degree Program List at Federal Register :: Update to the Department of Homeland Security STEM Designated Degree Program List) highlighting the use of data-driven research and analysis to address individual and organisational issues that impact on organisational effectiveness and employee engagement.

Boyack, Klavans and Börner (2005), in providing a visual representation of the field of science, identified social psychology and clinical psychology as two related but distinct hubs. Employing a sophisticated approach to evaluating numerous citations in science-oriented publications, the authors noted the strong alignment between the social sciences and psychology, while also recognising psychology's link to medicine through the field of neurology.

It can also be fruitful to identify those fields which are considered to be our 'competitors'. In his presidential address at ICAP 2006 in Athens, Michael Frese nominated economists as 'our' major competitor. During his keynote address at IOP 2011 in Brisbane, Tim Judge – a prolific author in the Journal of Applied Psychology – also identified economists as our major competitor. In between these two presentations, Borghans, Duckworth, Heckman and ter Weel (2008) published a significant paper addressing economics, psychology and personality. Three of the authors had a solid affiliation with the prestigious Chicago School of Economics, with James Heckman notable as a 2000 Nobel Laureate.

Accordingly, a budding well-rounded IWO psychologist is encouraged to study a range of non-psychology subjects during their undergraduate years. Such subjects could include anthropology, sociology, economics, and business management. Those with a strong leaning towards mathematics or statistics may also want to consider these subjects, as well as data and computing sciences in general. In fact, mathematics is regarded as having at least an indirect or partial link within many fields of endeavour. Moreover, the use of data visualisation skills would be well appreciated in a broad range of settings, as a means of effectively presenting data to a non-technical audience. Consider also the future environment you may want to operate in – keeping in mind that several of our eight Australian IWOP examples have revealed relatively significant changes over their working life. And of course, your education – both formal and informal – shouldn't end when you complete your initial undergraduate degree. Further, you're encouraged to engage with conferences (local, national, and international). Physical attendence of international conferences can enhance not only your content knowledge, but also connection with people and perspectives from other countries and cultures.

There are many avenues one can traverse as an IWO psychologist. There is much choice available. The richness within IWOP is revealed in the eight narratives that have been provided in this chapter, from **Emotions at Work** (Neal M. Ashkanasy, in Brisbane) to **Work Design** (Sharon Parker, in Perth). In effect 'people' and 'work' are intertwined. And this is just a sample of where practitioners and scholars can contribute to the dual objectives of enhancing organisational effectiveness and individual wellbeing.

IWO psychologists with a strong set of relevant professional competencies, and an enquiring mind, will have much to contribute, and enjoy.

**This document is class leading in terms of its overview and rigour. However, it is likely that bodies such as the APS Tests and Testing Expert Group will draw on this and adapt for local and more functional use by practicing psychologists, particularly where small scale testing is involved: as is often the case in Australia.*

This chapter has been written by Peter Macqueen, Compass Consulting and Griffith University and Tony Machin, School of Psychology and Counselling, University of Southern Queensland.

Send us your feedback: We would love to hear from you! Please send us your feedback.

REFERENCES

Allan, A., & Love, A. (Eds.) (2010). *Ethical practice in psychology: Reflections from the creators of the APS code of ethics.* Wiley-Blackwell.

American Psychological Association. (2010). *Model act for state licensure of psychologists.* American Psychological Association. https://www.apaservices.org/practice/ce/state/model-act

Anderson, N., Herriot, P., & Hodgkinson, G. P. (2001). The practitioner-researcher divide in industrial, work and organizational (IWO) psychology: Where are we now, and where do we go from here? *Journal of Occupational and Organizational Psychology, 74*(4), 391–411. https://doi.org/10.1348/096317901167451

Asparouhov, T., & Muthen, B. (2018). Multiple-group factor analysis alignment. *Structural Equation Modelling: A Multidisciplinary Journal, 21*(4), 495–598. https://doi.org/10.1080/10705511.2014.919210

Australian Psychological Society. (2007). *APS code of ethics 2007.* https://psychology.org.au/about-us/what-we-do/ethics-and-practice-standards/aps-code-of-ethics

Avolio, B. (2017). The practice and science connection: Let's not obsess over minding the gap. *Industrial and Organizational Psychology: Perspectives on Science and Practice, 10*(4), 558–569. https://doi.org/10.1017/iop.2017.56

Bartram, D. (2010, July 20). The role and function of international guidelines and standards in testing and test use. In D. Bartram (Chair), *Issues of policy, ethics, professionalism and training in multinational testing* [Symposium]. 7th Conference of the International Test Commission (ITC), Hong Kong.

Baum, J. R., Frese, M., Baron, R. (Eds.). 2007. *The psychology of entrepreneurship*. Lawrence Erlbaum Associates.

Berman, M. G., Stier, A. J., & Akeelik, G. N. (2019). Environmental neuroscience. *American Psychologist*, *24*(9), 1039–1052. https://doi.org/10.1037/amp0000583

Blackburn, K. (1998). The quest for efficiency and the rise of industrial psychology in Australia, 1916–29. *Labour History*, *74*(1), 122–136. https://doi.org/10.2307/27516557

Bordow, A. (1971). The industrial psychologist: His education, employment history and job functions. *Australian Psychologist*, 6(2), 80–90. https://doi.org/10.1080/00050067108259666

Borghans, L., Duckworth, A. L., Heckman, J.J., & ter Weel, B. (2008). The economics and psychology of personality traits. *The Journal of Human Resources, 43*(4), 972–1059. https://doi.org/10.1353/jhr.2008.0017

Boyack, K. W., Klavans, R., & Börner, K. (2005). Mapping the backbone of science. *Scientometrics, 64*(3), 351–374. https://doi.org/10.1007/s11192-005-0255-6

Bryson, J. & Hosken, C. (2005). What does it mean to be a culturally competent I/O psychologist in New Zealand? *New Zealand Journal of Psychology, 34*(2), 69–76. https://www.psychology.org.nz/journal-archive/NZJP-Vol342-2005-1-Bryson.pdf

Buchanan, R. D. (2012). Australia. In D. B. Baker (Ed.), *The Oxford handbook of the history of psychology: Global perspectives* (pp. 18–33). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780195366556.013.0002

Bucklow, M. (1977). Applied psychology in Australia – the history. In M. Nixon & R. Taft (Eds.), *Psychology in Australia: Achievements and prospects* (pp. 23–34). Pergamon Press.

Byrne, B., Oakland, T., Leong, F. T. L., van de Vijver, F. J. R., Hambleton, R. K., Cheung, F. M., & Bartram, D. (2009). A critical analysis of cross-cultural research and testing practices: Implications for improved education and training in psychology. *Training and Education in Professional Psychology*, 3(2), 94–105. https://doi.org/10.1037/a0014516

Carey, A. (1976). Industrial psychology and sociology in Australia. In P. Boreham, A. Pemberton & P. Wilson (Eds.), *The professions in Australia* (pp. 220–255). University of Queensland Press.

Carr, S. C., Eltayeb, S., MacLachlan, M., Marai, M., McAuliffe, E. McWha, I. (2013). Aiding international development: Some fresh perspectives from industrial-organizational psychology. In J. A. Olson-Buchanan, L. Koppes Bryan, & L. F. Thompson (Eds.), *Using industrial/organizational psychology for the greater good: helping those who help others* (pp. 490–528). Routledge.

Chalmers, A. F. (2013). *What is this thing called science?* (4th ed.). University of Queensland Press.

Chmiel, N., Fraccoroli, F., & Sverke, M. (Eds.) (2017). *An introduction to work and organizational psychology: An international perspective* (3rd ed.). John Wiley & Sons.

Clark, J. F. (1958). Psychology in the public service, business, and industry. *Australian Journal of Psychology*, *10*(1), 30–41. https://doi.org/10.1080/00049535808255952

Cooper, C. L. (Ed.) (2021). *Psychological insights for understanding COVID-19 and work.* Routledge.

Dalal, R. S., Howard, D. J., Bennett, R. J., Posey, C., Zaccaro, S. J., & Brummel, B. J. (2021). Organizational science and cybersecurity: abundant opportunities for research at the interface. *Journal of Business Psychology*. https://doi.org/10.1007/s10869-021-09732-9

Diener, E., & Biswas-Diener, R. (2020). The replication crisis in psychology. In R. Biswas-Diener & E. Diener (Eds.), *Noba textbook series: Psychology.* DEF publishers. http://noba.to/q4cvydeh

Emery, F. E. (Ed.) (1969). *Systems Thinking.* Penguin Books.

Emery, F. E. (Ed.) (1981). *Systems Thinking: Vol 2.* Penguin Books.

Emery, F. E., & Trist, E. L. (1965). The causal texture of organizational environments. *Human Relations*, *18*(1), 21–32. https://doi.org/10.1177/001872676501800103

Eysenck, H. J. (1953). *Uses and abuses of psychology*. Penguin Books.

Feitosa, J., & Sim, J. (2021). I-O psychology around the world. In L. Koppes Bryan (Ed.), *Historical perspectives in industrial and organizational psychology* (2nd ed., pp. 63–82). Routledge.

Frese, M. (2006, July 16). *What if applied psychology mattered in the world?* [Lecture (President)]. 26th International Congress of Applied Psychology (ICAP), Athens, Greece. http://www.evidence-based-entrepreneurship.com/content/downloads/talks/2006/what_if_ap_mattered_in_the_world_athens_frese.pdf

Gentile, B., Wood, L. A., Twenge, J. M., Hoffman, B. J., & Campbell, W. K. (2015). The problem of generational change: Why cross-sectional designs are inadequate for investigating generational differences. In C. E. Lance & R. J. Vandenberg (Eds.), *More statistical and methodological myths and urban legends*: *Doctrine, verity and fable in organizational and social sciences* (pp. 100–111). Routledge.

Gephart, R. P., Jr (2013). Doing research with words: Qualitative methodologies and industrial/organizational psychology. In J. M. Cortina & R. S. Landis (Eds.). *Modern research methods for the study of behavior in organizations* (pp. 265–317). Routledge.

Gielnik, M. M., & Frese, M. (2013). Entrepreneurship and poverty reduction: Applying I-O psychology to microbusiness and entrepreneurship in developing countries. In J. A. Olson-Buchanan, L. Koppes Bryan & L. F. Thompson (Eds.), *Using industrial/organizational psychology for the greater good: helping those who help others* (pp. 394–438). Routledge.

Gonzalez, Manuel F., Capman, John F., Oswald, Frederick L., Theys, Evan R., &Tomczak, David L. (2019). Where's the I-O? Artificial intelligence and machine learning in talent management systems. *Personnel Assessment and Decisions*, *5*(3), Article 5. https://doi.org/10.25035/pad.2019.03.005

Grayling, A. C. (2019). *The history of philosophy*. Penguin Random House.

Guest, D. (2010, July 12). *Human resource management and the search for the happy productive worker: The contribution of w/o psychology* [Division 1 Keynote Lecture]. 28th International Congress of Applied Psychology (ICAP), Paris.

Guest, D., & Grote, G. (2018). Captured by neo-liberalism: what hope for WOP? *European Journal of Work and Organizational Psychology*, *27*(5), 1–2. https://doi.org/10.1080/1359432X.2018.1488685

Hartley, J., & Benington, J. (2000). Co-research: A new methodology for new times. *European Journal of Work and Organizational Psychology*, *9*(4), 463–476. https://doi.org/10.1080/13594320050203085

Haslam, S. A. (Ed.) (2021). *Psychological insights for understanding COVID-19 and society.* Routledge.

Hesketh, B., Neal, A., & Griffin, B. (2018). Industrial, work and organizational psychology in Australia and New Zealand. In D. S. Ones, N. Anderson, C. Viswesvaran & H. K. Sinangil (Eds.), *The SAGE handbook of industrial, work and organizational psychology: Managerial psychology and organizational approaches* (2nd ed., Vol. 3, pp. 76–90). SAGE Publications. http://dx.doi.org/10.4135/9781473914964.n4

Highhouse, S. (2021). The dubious legacy of early "o"-side interventions. In L. Koppes Bryan (Ed.), *Historical perspectives in industrial and organizational psychology* (2nd ed., pp. 184–202). Routledge.

Highhouse, S., & Schmitt, N. W. (2013). A snapshot in time: Industrial-Organizational psychology today. In N. W. Schmitt & S. Highhouse (Eds.), *Handbook of psychology: Industrial and organizational psychology* (Vol. 12, pp. 3–13). John Wiley & Sons.

Highhouse, S., Zickar, M. J., & Melick, S. R. (2020). Prestige and relevance of the scholarly journals: Impressions of SIOP members. *Industrial and Organizational Psychology: Perspectives on Science and Practice, 13*(3), 273–290. https://doi.org/10.1017/iop.2020.2

Hofmann, D. A., & Frese, M. (Eds.) (2011). *Errors in organizations.* Routledge.

Iliescu, D. (2017). *Adapting tests in cultural and linguistic situations.* Cambridge University Press. https://doi.org/10.1017/9781316273203

International Project on Core Competences in Professional Psychology. (2016). *International Declaration on Core Competences in Professional Psychology.* https://www.psykologforeningen.no/foreningen/english/ipcp

International Test Commission. (2017). *The ITC guidelines for translating and adapting tests* (2nd ed.). http://www.intestcom.org

Ioannidis, J. P. A., Salholz-Hillel, M., Boyack, K. W., & Baas, J. (2021). The rapid, massive growth of COVID-19 authors in the scientific literature. *Royal Society Open Science, 8*(9). https://doi.org/10.1098/rsos.210389

Islam, S., & Schmidt, G. R. (2019). Getting in the game: I-O psychologists as debunkers and testers of business practice. *Industrial and Organizational Psychology: Perspectives on Science and Practice, 12*(3), 243–246. https://doi.org/10.1017/iop.2019.54

Judge,T. (2011, June 24). *The illusions under which we labour: A practical challenge to organisational psychology*. [Keynote address]. 9th Industrial and Organisational Psychology Conference (IOP), Brisbane, Australia. http://www.timothy-judge.com/BPS%20Talk%201.13.11.pdf

Kahneman, D. (2011). *Thinking, fast and slow*. Farrar, Straus and Giroux.

Kanfer, F. H. (1990). The scientist-practitioner connection: A bridge in need of constant attention. *Professional Psychology: Research and Practice*, *21*(4), 264–270. http://doi.org/10.1037/0735-7028.21.4.264

Kelly, G. A. (1955). *The psychology of personal constructs: A theory of personality* (Vol. 1).*W. W. Norton.*

Kelly, G. A. (1955). *The psychology of personal constructs: Clinical diagnosis and psychotherapy* (Vol. 2). W. W. Norton.

Kelloway, E. K. (2019). Industrial/organizational psychology. In M. E. Norris (Ed.), *The Canadian handbook for careers in psychological science*. eCampusOntario. https://ecampusontario.pressbooks.pub/psychologycareers/chapter/industrial-organizational-psychology/

König, C. J., Demetriou, A. M., Glock, P., Hiemstra, A. M. F., Iliescu, D., Ionescu, C., Langer, M., Liem, C. C. S., Linnenbürger, A., Siegel, R., & Vartholomaios, I. (2020). Some advice for psychologists who want to work with computer scientists on big data. *Personnel Assessment and Decisions*, 6(1), Article 2. https://doi.org/10.25035/pad.2020.01.002

Koppes, L. L. (Ed.). (2007). *Historical perspectives in industrial and organizational psychology.* Lawrence Erlbaum Associates.

Koppes Bryan, L. L. (Ed.). (2021). *Historical perspectives in industrial and organizational psychology* (2nd ed.). Routledge.

Kożusznik, B., & Glazer, S. (2021). *IWOP declaration of identity*. International Association of Applied Psychology. https://iaapsy.org/divisions/division1/declaration-of-identity/

Lance, C. E., & Vandenberg, R. J. (Eds.) (2009). *Statistical and methodological myths and urban legends*: *Doctrine, verity and fable in organizational and social sciences.* Routledge.

Lance, C. E., & Vandenberg, R. J. (Eds.) (2015). *More statistical and methodological myths and urban legends*: *Doctrine, verity and fable in organizational and social sciences.* Routledge.

Landers, R. N. (Ed.). (2019). *The Cambridge handbook of technology and employee behavior.* Cambridge University Press. https://doi.org/10.1017/9781108649636

Landy, F. J., & Conte, J. M. (2004). *Work in the 21st century: An introduction to industrial and organizational psychology* (2nd ed.). Blackwell Publishing.

Lapierre, L. M., Matthews, R. A., Eby, L. T., Truxillo, D. M., Johnson, R.E., & Major, D.A. (2018). Recommended practices for academics to initiate and manage research partnerships with organizations. *Industrial and Organizational Psychology: Perspectives on Science and Practice, 11*(4), 543–581. https://doi.org/10.1017/iop.2018.83

Latham, G. P. (2009). *Becoming the evidence-based manager: Making the science of management work for you.* Davies-Black.

Latham, G. P. (2019). Perspectives of a practitioner-scientist on organizational psychology/ organizational behaviour. *Annual Review of Organizational Psychology and Organizational Behaviour, 6,* 1–16. https://doi.org/10.1146/annurev-orgpsych-012218-015323

Lee, T. (1976). *Psychology and the environment*. Methuen & Co.

Lefkowitz, J. (2021). Forms of ethical dilemmas in industrial-organizational psychology. *Industrial and Organizational Psychology: Perspectives on Science and Practice, 14*(3), 297–319. https://doi.org/10.1017/iop.2021.65

Lewin, K. (1951). *Field theory in social science: selected theoretical papers.* In D. Cartwright (Ed.). Harper & Row.

Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist*. *57*(9), 705–717. https://doi.org/10.1037/0003-066X.57.9.705

Locke, K., & Golden-Biddle, K. (2002). An introduction to qualitative research: Its potential for industrial and organizational psychology. In S. G. Rogelberg (Ed.), *Handbook of research methods in industrial and organizational psychology* (pp.99–118). Blackwell Publishing Ltd.

Lowman, R. L. (Ed.) (2006). *The ethical practice of psychology in organizations* (2nd ed.). American Psychological Association.

Lowman, R. L. (2016). *An introduction to consulting psychology: Working with individuals, groups, and organizations.* American Psychological Association. https://doi.org/10.1037/14853-000

Lowman, R. L. (2018). Ethical issues and standards in research and applications of industrial, work and organizational psychology. In D. S. Ones, N. Anderson, C. Viswesvaran, & H. K. Sinangil (Eds.), *The SAGE handbook of industrial, work and organizational psychology:*

Personnel psychology and employee Performance. (2nd ed., Vol. 1, pp.39–51). SAGE Publications. http://dx.doi.org/10.4135/9781473914940.n3

Lundt, I., Peiró. J. M., Poortinga, Y., & Roe, R. A. (2015). *EuroPsy: Standards and quality in education for psychologists.* Hogrefe Publishing.

Luksyte, A., Dunlop, P. D., Holtrop, D., Gagné, M., Kragt, D., & Farid, H. M. (2021). The challenges of volunteering during the COVID-19 pandemic. *Industrial and Organizational Psychology: Perspectives on Science and Practice, 14*(1-2), 286–289. https://doi.org/10.1017/iop.2021.62

Macdonald, I., Burke, C., & Stewart, K. (2006). *Systems leadership: creating positive organisations*. Gower Publishing.

Macqueen, P. (2021). *Artificial Intelligence.* Compass Consulting. http://www.compassconsulting.com.au/page/News_Articles/White_Papers/

Mafico, N., Krzeminska, A., Härtel, C.E.J., & Keller, J. (2021, May). The mirroring of intercultural and hybridity experiences: A study of African immigrant social entrepreneurs. *Journal of Business Venturing*, *36*(3). https://doi.org/10.1016/j.jbusvent.2021.106093

Mead, M. (1928). *Coming of age in Samoa; a psychological study of primitive youth for western civilisation.* William Morrow & Co.

Muldoon, J. (2012). The Hawthorne legacy: A reassessment of the impact of the Hawthorne studies on management scholarship, 1930–1958. *Journal of Management History*, *18*(1), 105–119. https://doi.org/10.1108/17511341211188682

Mumford, M. D., & Todd, E. M. (Eds.) (2020). *Creativity and innovation in organizations.* Routledge. https://doi.org/10.4324/9781315192598

Münsterberg, H. (1913). *Psychology and industrial efficiency*. Houghton.

Murphy, K. R. (2007). Organisational psychology's greatest hits and misses: A personal view (pp. 11–25). In A. I. Glendon, B. M. Thompson & B. Myors (Eds.), *Advances in organisational psychology*. Australian Academic Press.

Nosek, B. A., & Errington, T. M. (2020). What is replication? *Plos Biology*. https://doi.org/10.1371/journal.pbio.3000691

Oakland, T. (2016). Testing and assessment of immigrants and second-language learners. In F. T. L. Leong, D. Bartram, F. M. Cheung, K.F. Geisinger, & D. Iliescu (Eds.), *The ITC international handbook of testing and assessment* (pp. 318–332). Oxford University Press. https://doi.org/10.1093/med:psych/9780199356942.003.0022

O'Driscoll, M. P. (2007). Organisational psychology in Australia and New Zealand: Reflections on the recent past and issues for future research and practice (pp. 465–481). In A. I. Glendon, B. M. Thompson & B. Myors (Eds.), *Advances in organisational psychology*. Australian Academic Press.

O'Gorman, J. G. (2001). The scientist-practitioner model and its critics. *Australian Psychologist, 36*(2), 164–169. https://doi.org/10.1080/00050060108259649

O'Gorman, J. G. (2007). *Psychology as a profession in Australia*. Australian Academic Press.

O'Gorman, J., & Macqueen, P. (2017). Licensing organizational psychologists: The Australian experience. *Industrial and Organizational Psychology: Perspectives on Science and Practice.* 10(2), 217–223. https://doi.org/10.1017/iop.2017.14

O'Gorman, J., St George, R., & Macqueen, P. (2022). A brief history of testing and assessment in Oceania. In S. Laher (Ed.), *International histories of psychological assessment* (pp. 269–294). Cambridge University Press. https://doi.org10.1017/9781108755078

Oh, I-S. (2020). Beyond meta-analysis: Secondary use of meta-analytic data. *Annual Review of Organizational Psychology and Organizational Behaviour, 7*, 125–153. https://doi.org/10.1146/annurev-orgpsych-012119-045006

Olson-Buchanan, J., Koppes Bryan, L., & Foster Thompson, L. (Eds.) (2013). *Using industrial-organizational psychology for the greater good.* Routledge.

O'Neil, W. M. (1977). Teaching and practice of psychology in Australia in the first phases. In M. Nixon & R. Taft (Eds.), *Psychology in Australia: Achievements and prospects* (pp. 2–22). Pergamon.

O'Neil, W. M. (1987). *A century of psychology in Australia*. Sydney University Press.

Ones, D. S., Dilchert, S., Wiernik, B. M., & Klein, R. M. (2018). Environmental sustainability at work. In D. S. Ones, N. Anderson, C. Viswesvaran & H. K. Sinangil (Eds.), *The SAGE handbook of industrial, work and organizational psychology: Managerial psychology and organizational approaches* (2nd ed., Vol. 3, pp. 351–373). SAGE Publications. http://dx.doi.org/10.4135/9781473914964.n17

Pasmore, W., Winby, S., Mohrman, S. A., & Vanasse, R. (2019). Reflections: Sociotechnical systems design and organization change, *Journal of Change Management*, 19(2), 67–85. https://doi.org/10.1080/14697017.2018.1553761

Popper, K. (2002). *The logic of scientific discovery* (2nd ed.). Routledge.

Pratt, M. G., & Bonaccio, S. (2016). Qualitative research in I-O psychology: Maps, myths and moving forward. *Industrial and Organizational Psychology: Perspectives on Science and Practice*, *9*(4), 693–715. https://doi.org/10.1017/iop.2016.92

Robertson, I. T., Callinan, M., & Bartram, D. (Eds.) (2002). *Organizational effectiveness: The role of psychology*. John Wiley &Sons.

Psychology Board of Australia. (2021). *Statistics*. https://www.psychologyboard.gov.au/About/Statistics.aspx

Rogelberg, S. C. (Ed.). (2007). *Encyclopedia of industrial and organizational psychology* (Vol. 1). SAGE Publications. http://dx.doi.org/10.4135/9781412952651

Rogelberg, S. C. (Ed.). (2002). *Handbook of research methods in industrial and organizational psychology*. Blackwell Publishers. http://dx.doi.org/10.1002/9780470756669

Rotolo, C. T., Church, A. H., Adler, S., Smither, J. W., Colquitt, A. L., Shull, A. C., Paul, K. B., & Foster, G. (2018). Putting an end to bad talent management: A call to action for the field of industrial and organizational psychology. *Industrial and Organizational Psychology: Perspectives on Science and Practice, 11*(2), 176–219. https://doi.org/10.1017/iop.2018.6

Rudolph, C. W., Allan, B., Clark, M., Hertel, G., Hirschi, A., Kunze, F., Shockley, K., Shoss, M., Sonnentag, S., & Zacher, H. (2021). Pandemics: Implications for research and practice in industrial and organizational psychology. *Industrial and Organizational Psychology: Perspectives of Science and Practice, 14*(1–2), 1–35. https://doi.org/10.1017/iop.2020.48

Rust, J., Kosinski, M., & Stillwell, D. (2021). *Modern psychometrics: The science of psychological assessment* (4th ed.). Routledge. https://doi.org/10.4324/9781315637686

Ryan, A. M., & Ford, J. K. (2010). Organizational psychology and the tipping point of professional identity. *Industrial and Organizational Psychology: Perspectives on Science and Practice, 3*(3), 241–258. https://doi.org/10.1017/S1754942600002352

Sackett, P. R. (2021). Reflections on a career studying individual differences in the workplace. *Annual Review of Organizational Psychology and Organizational Behaviour, 8*, 1–18. https://doi.org/10.1146/annurev-orgpsych-012420-061939

Sackett, P. R., Putka, D. J., & McCloy, R. A. (2012). The concept of validity and the process of validation. In N. Schmitt (Ed.). *The Oxford handbook of personnel selection and assessment* (pp. 91–118). Oxford University Press. http://doi.org/10.1093/oxfordhb/9780199732579.013.0006

Salas, E., Kozlowski, S. W., & Chen, G. (2017). A century of progress in industrial and organizational psychology: Discoveries and the next century. *Journal of Applied Psychology*, *102*(3), 589–598. https://doi.org/10.1037/apl0000206

Schmidt, F. L., & Hunter, J. E. (2015). *Methods of meta-analysis: Correcting error and bias in research findings*. 3rd ed.). SAGE Publications. https://dx.doi.org/10.4135/9781483398105

Scott, W. D. (1911). *Increasing human efficiency in business*. Macmillan.

Shultz, K. S., Whitney, D. J., & Zickar, M. J. (2021). *Measurement theory in action: Case studies and exercises* (3rd ed.). Routledge. https://doi.org/10.4324/9781003127536

Spector, P. E., Rogelberg, S. G., Ryan, A. M., Schmitt, N., & Zedeck, S. (2014). Moving the pendulum back to the middle: Reflections on and introduction to the inductive research special issue of *Journal of Business and Psychology*. *Journal of Business Psychology*, *29*(4), 499–502. https://doi.org/10.1007/s10869-014-9372-7

Stone-Romero, E. F. (2002). The relative validity and usefulness of various empirical

research designs. In S. G. Rogelberg (Ed.), *Handbook of research methods in industrial and organizational psychology* (pp.77–98). Blackwell Publishing Ltd.

Taylor, F. W. (1911). *The principles of scientific management*. Harper & Row.

Taylor, S. (2019). *The psychology of pandemics: Preparing for the next global outbreak of infectious disease.* Cambridge Scholars Publishing.

Thaler, R. (1980). Toward a positive theory of consumer choice. *Journal of Economic Behavior and Organization, 1*(1), 39–60. https://doi.org/10.1016/0167-2681(80)90051-7

Tippins, N. T., Oswald, F. L., & McPhail, S. M. (2021). Scientific, legal, and ethical concerns about AI-based personnel selection tools: A call to action. *Personnel Assessment and Decisions, 7*(2). https://doi.org/10.25035/pad.2021.02.001

Van Iddekinge, C. H., Arnold, J. D., Frieder, R. E., & Roth, P.E. (2020). A meta-analysis of the criterion-related validity of prehire work experience. *Personnel Psychology, 72*(4), 571–598. https://doi.org/10.1111/peps.12335

Vinchur, A. J. (2018). *The early years of industrial and organizational psychology*. Cambridge University Press. https://doi.org/10.1017/9781107588608.

Viteles, M. S. (1932). *Industrial psychology*. Norton.

von Davier, A. A., Deonovic, B., Yudelson, M., Polyak, S. T., & Woo, A. (2019). Computational psychometrics approach to holistic learning and assessment systems. *Frontiers in Education, 4*(69). https://doi.org/10.3389/feduc.2019.00069

Young, J. P. (1977). Private practice of occupational psychology. In M. Nixon & R. Taft (Eds.), *Psychology in Australia: Achievements and prospects* (pp. 216–222). Pergamon.

Zickar, M. J. (2004). An analysis of industrial-organizational psychology's indifference to labor unions in the United States. *Human Relations, 57*(2), 145–167. https://doi.org/10.1177/0018726704042925

Zickar, M. J., & Carter, N. T. (2010). Reconnecting with the spirit of workplace ethnography: A historical review. *Organizational Research Methods*, *13*(2), 304–319. https://doi.org/10.1177/1094428109338070

Zickar, M. J., & Gibby, R.E. (2021). Four persistent themes throughout the history of I-O psychology in the United States. In L. Koppes Bryan (Ed.), *Historical perspectives in industrial and organizational psychology* (2nd ed., pp. 63–82). Routledge.

Zickar, M. J., & Highhouse, S. (2017). Where has all of the psychology gone? (Twenty years later). *Industrial and Organisational Psychology: Perspectives on Science and Practice*, 10(4), 616–615. https://doi.org/10.1017/iop.2017.66

Zugec, L., & Michela, J. (2017). International practice forum: The licensure issue in industrial-organizational psychology: Recent ongoings within Canada. *The Industrial-Organizational Psychologist (TIP), 54*(4). https://www.siop.org/Research-Publications/TIP/TIP-Back-Issues/2017/April/ArtMID/20299/ArticleID/1544/International-

Practice-Forum-The-Licensure-Issue-in-Industrial-Organizational-Psychology-Recent-Ongoings-Within-Canada

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CHAPTER 11.

PSYCHOLOGY AND LAW IN AUSTRALIA

ALFRED ALLAN AND MARIA M. ALLAN

INTRODUCTION

The extensive interaction between psychology and law – which we broadly define as the legal, corrective, investigative, and justice systems (Allan, 2020) – is sometimes referred to as the *psycholegal* field (as it will be in this chapter). The field can be divided into four levels: the law of psychology, psychology *and* law, psychology *of* law, and psychology *in* law, which we will use to structure this chapter. We will identify the roles and careers psychologists can have at each level, and where relevant, refer to research at this level. We will then briefly discuss how one qualifies to work at each of these levels, before concluding by explaining what it's like to work in the psycholegal field.

THE LAW OF PSYCHOLOGY

Psychologists, like all citizens and professionals, should obey the law. Australian law can be found in the federal and state or territory *common* (i.e., as laid down in cases) and *statutory* (legislation) law. Most are familiar with criminal law where the government prosecutes people who have allegedly committed criminal offences, but there are two other areas of law that are of particular importance to psychologists: *civil law* which governs the legal relations between private persons and/or organisations, and *administrative law* which consists of the regulations governmental agencies follow and enforce.

The Privacy Act 1988 is an example of Commonwealth legislation that is important for most private practicing psychologists because it governs the collection, use, disclosure, and disposal of clients' private information. One state and territory statute that is important to practising psychologists is the Health Practitioner Regulation National Law Act passed by the parliament in the jurisdiction where they work (e.g., the Health Practitioner Regulation National Law Act, 2009 [National Law Act, 2009] in Queensland). These statutes together provide for a national accreditation and registration scheme for psychologists in Australia and the formation of the Psychology Board of Australia (PsyBA). Anyone who calls themself a psychologist or practises psychology without registration with the PsyBA can be found guilty of committing criminal offences (Ahpra v Hickman, 2021; Health Practitioner Regulation National Law Act, 2009). The PsyBA, assisted by the Australian Health Practitioners Agency (Ahpra), registers suitably qualified and competent applicants if they meet the PsyBA's registration requirements as provisionally or generally registered psychologists (Part 7 of the National Law Act, 2009). These two bodies also regulate provisionally and generally registered psychologists, and investigate any notifications or complaints made to the PsyBA about psychologists' professional conduct. Part 8 of the Act provides that the PsyBA can take steps against psychologists who – because of their health, conduct, or lack of competency – place the public at risk of harm. The PsyBA must refer serious

matters to a *tribunal*– a type of court that deals with administrative matters, that can suspend or cancel the psychologist's registration (section 196[2] of the National Law Act, 2009).

Tribunals and the PsyBA take psychology's ethics into account when they judge the professional conduct of psychologists (Allan, 2021a). The PsyBA adopted the Australian Psychological Society's Code of Ethics (APS, 2007), and this will most likely remain an important code even though the PsyBA has indicated that it plans to develop its own code of conduct (PsyBA, 2020). The roots of the APS Code (see Allan, 2021a) go back to the Code of Professional Ethics of the Australian Overseas Branch of the British Psychological Society (1949), and it has been applied in several legal cases (e.g., PsyBA v Knobel, 2021). The preamble to the APS Code states that psychologists must act in accordance with the laws of the jurisdictions (i.e., state or territory) in which they practise, and that the APS Code should be interpreted with reference to these laws. The APS Code should also be interpreted with reference to any organisational rules and procedures to which psychologists might be subject, and if there is a conflict between the demands of the Code and the rules, they must seek a constructive resolution of the conflict that upholds the principles of the Code (standard B.12, APS, 2007). Ethics is more aspirational than law, considers both psychologists' motivation and their behaviour, and is sometimes stricter than law. Law for instance, doesn't prohibit psychologists from having sexual relationships with other consenting adults, but standard C.4.3(a) of the APS Code makes it unethical for them engage in sexual activities with their clients or anybody who is closely related to one of their clients (Allan & Thomson, 2010). The APS Code is based on aspirational principles that have been combined into three overarching general principles with standards that sets out the minimal behavioural requirements expected of psychologists (Allan, 2011).

A principle of importance to this chapter is the social justice principle that requires psychologists to contribute to the interests of society. One way they do this is by providing relevant information when courts require such information to resolve legal disputes. Psychologists must therefore obey any subpoenas (i.e., court orders instructing them to testify and/or provide documents to the court) they receive. Psychologists who fail to obey a court order and who haven't been excused by the court from testifying can be found guilty of contempt of court. It's important to understand the different forms testimony can take. The general rule is that witnesses may only testify about factual material they observed through their senses. These witnesses are sometimes called *witnesses of fact*. There is, however, an exception to this rule. Courts can allow experts to further express opinions in their field of expertise based on the facts they have collected. These witness are called *expert witnesses*. Unlike witnesses of fact, expert witnesses can't generally be compelled to testify, but will be asked by the lawyers of one of the litigants to testify about a specific issue. Expert witnesses are usually experienced researchers who have published peer-reviewed papers in a specific area. We'll return to them later in this chapter. Psychologists who are subpoenaed to testify about their clients are usually called as witnesses of fact, but courts can also allow them to express opinions, such as the diagnosis of their clients. In psychology, they're often referred to as *treatment witnesses* (see Allan, 2015).

The APS Code is complemented by the APS' Ethical Guidelines (available to members only) (APS, 2019), which explain and expand the application of the principles and standards of the Code in specific areas (e.g., working with young people). Psychologists are considered to have acted unethically if their actions aren't consistent with these Guidelines (APS, 2007). Psychologists who do research should further be familiar with the provisions of the Australian Code for the Responsible Conduct of Research (National Health and Medical Research Council, 2018).

PSYCHOLOGISTS' CONTRIBUTION IN THE LAW OF PSYCHOLOGY AREA

Psychologists should be aware of any laws (and ethics) relevant to their profession, but some psychologists have specialised knowledge of the law, and specifically the law of psychology. Psychologists with legal qualifications can work both as lawyers and psychologists, using their broader knowledge to provide services that someone with only one of these qualifications would not be able to provide. A lawyer who is also a psychologist will, for instance, better understand what the implications of the Privacy Act 1988 are for psychologists than those who are not dually-qualified. Psychologists with dual qualifications are well-equipped to investigate notifications and complaints against other psychologists. The PsyBA and other organisations such as the APS use them in this way, but these bodies also often use non-legally qualified psychologists who have expertise in ethics as investigators. These experts report their findings to the institution that instructed them, and they might testify as expert witnesses if there are legal proceedings against the psychologist under investigation. There are so few Australian psychologists with legal qualifications – and they come from such diverse backgrounds and work in such unique settings – that it's difficult to assess their contribution as a group.

PSYCHOLOGY AND LAW

Law's primary purpose is to regulate human behaviour. Psychology can be defined as the science of human behaviour (Haney, 1980) – therefore it comes as no surprise that lawyers have been interested in psychology since its early development as a science. Two pupils of German psychologist Wilhelm Wundt – the pioneer of psychology as a science – were probably the first psychologists who testified in court cases as expert witnesses. In 1896, Albert von Schrenk-Notzing testified in a criminal case in Munich about the credibility of witnesses. Then in a civil case in Frieburg in 1911, Karl Marbe was called to testify whether a driver of a train engine could have prevented a railway accident by stopping his train sooner. The court accepted his evidence that data on people's reaction times showed the driver could not have stopped the train any earlier.

Psychology researchers' interest in the psychology and law field continued into the twentieth century. This led to well-known studies such as the Stanford prison project (Haney et al., 1973), which demonstrated some of the ethical difficulties of doing research in the field (see Le Texier, 2019; Savin, 1974; Zimbardo, 1974). Lawyers' quest for information also contributed to the early development of experimental psychology across the world, and specifically, psycholegal research in Australia (Allan et al., 2018). By the early 1980s, a prominent psychologist concluded that the interest in psychology and law had reached 'epidemic proportions' (Haney, 1980, p. 149), and this interest has not abated since. The area is so vast that it's impossible to cover all the research, but we'll briefly discuss four prominent areas.

INVESTIGATIONS AND INVESTIGATORS

Flaws in the investigations that precede criminal and civil court cases (litigation) can have negative outcomes such as wasted costs, criminals remaining undetected, wrongful convictions, and unfair awards of damages in civil cases. Investigators must therefore use legally defensible techniques that are based on research data, and optimally effective in collecting reliable evidence that can be used during litigation. Early researchers found that people often have trouble recalling events accurately and identifying people who were involved in incidents. Researchers also found that people's memories change if they receive new information after events, and that it's possible to manipulate people' memories by changing the way questions are asked (Loftus, 1975; Loftus et

al., 1978). In one experiment, researchers showed participants visual material of a staged accident at a Stop sign, but when they asked them whether they 'saw the Yield sign', participants agreed that they did. Later when they had to give their own account of the event, they referred to a 'Yield' sign rather than a Stop sign. Psychologists therefore advise investigators to avoid any leading questions (e.g., 'Did you see the man with the knife?'), and rather ask open questions such as 'What did you see?' during interviews. Fisher and Geiselman (1992) used their research and that of other researchers (including Australian researchers such as Professor Donald M. Thomson – see Thomson, 1972; Tulving & Thomson, 1973) to develop a cognitive interview technique. Investigators using this approach allow witnesses to describe what they saw without interrupting them, and then probe by asking open questions (e.g., 'Was there anything unusual about the person's appearance?') that might prod witnesses' memory. Doing this can, however, be very distressing for some people – this technique therefore has to be adapted when working with people who have suffered traumatic events (Risan et al., 2020). Researchers such as Australian professor Martine Powell have also developed special techniques for interviewing children (Powell & McMeeken, 1998) and people from other cultures (Powell, 2000). Investigators use police *line-ups* (also called 'identification parades') to help identify suspects during their investigations. If these line-ups are flawed, it can lead to false identifications and wrongful convictions (Innocence Project, n.d.) (see **Video 11.1**). Psychologists were at the forefront of developing guidelines to make identification parades fairer (Wells, 2014; Yarmey, 2003) and finding and promoting alternative methods such as photo, video (Fitzgerald et al., 2018) and voice (McGorrery & McMahon, 2017) identification techniques.

Video 11.1: Linda Sachs: Problem Police Lineups

One or more interactive elements has been excluded from this version of the text. You can view them online here: https://usq.pressbooks.pub/psychologycareers/?p=103#oembed-1

Investigators should avoid interviewing methods that could lead to false confessions, because even though you might find it unthinkable that an inocent person would confess to serious crimes they did not commit, there is ample evidence that this occurs (Innocence Project, n.d.). Psychologists have identified factors that contribute to false confessions, such as people's tendency to focus on short-term goals (escaping an unpleasant interrogation situation) rather than long-term consequences such as a prison sentence (Kassin et al., 2010; Kassin & Gudjonsson, 2004). A major problem facing investigators is judging the honesty of those they interview because research shows people who anticipate that they might become involved in litigation are often dishonest. Cartwright and Roach (2016) found that 25 per cent of their 197 participants reported they would exaggerate existing symptoms, 9 per cent would fabricate non-existent symptoms, and 21 percent would report actual symptoms unrelated to an accident. Researchers have long tried to find methods investigators and forensic psychologists can use to avoid being deceived by people who malinger by faking or exaggerating mental health symptoms (Rogers, 2001; Rogers, 2018). More recently, psychologists have been addressing the risk that investigators' own values might bias their objectivity (Neal & Grisso, 2014; Zapf & Dror, 2017) and lead them to prepare inaccurate and unethical reports (Allan & Grisso, 2014).

CREDIBILITY OF TESTIMONY AND JURY DECISION-MAKING

Law makes several key assumptions that underpin the fairness of court decisions. One is that

honest witnesses are also reliable witnesses, and that skilful cross-examination (**Video 11.2**) will expose any flaws in their testimony. Many lawyers and social and cognitive psychologists have long questioned this assumption, but it was only after courts started using DNA data in the 1990s that they could conclusively demonstrate the inaccuracy of testimony, especially eyewitness testimony (e.g., Innocence Project, n.d.) (**Video 11.3**). Psychologists including Australian professor Neil Brewer therefore try to find ways of improving eyewitness identification evidence and developing guidelines to assist investigators and courts (Wells et al., 2020). Psychologists have also examined key assumptions such as that jury members are competent, unbiased, and able to understand and follow the instructions of judges (Semmier & Brewer, 2002), and are able to ignore irrelevant evidence the judge orders them to disregard (Goodman-Delahunty & Martschuk, 2020).

Video 11.2: Cross Examination By Prosection – The Effect of Interpreters

Video 11.3: How Reliable is Eyewitness Testimony?

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ORIGINS, PREDICTION, AND MANAGEMENT OF OFFENDING BEHAVIOUR

It's a common assumption that we all have a free will and that street (but not corporate or white collar) crime is the product of poor choices autonomous people make because they are evil, immoral, or have personality disorders (Haney, 2020). During the nineteenth and early twentieth centuries, sociologists, biologists, lawyers, philosophers, psychiatrists, psychologists, social anthropologists, and criminologists (those who study crime and deviant behaviour) looked for the causes of crime within people. They related criminal behaviour to people's skulls (size and shape, craniometry), brain pathology (phrenology), inherited criminal traits (e.g., intellectual disabilities, genetics), and biological traits that help them survive (instinct theory). Researchers have since debunked these pseudoscientific fields, and modern psychologists who study crime and criminal justice consider crime a function of social and individual factors (e.g., Megargee, 1976). They argue that social factors like exposure to family disorganisation, violent behaviour, and poverty as a child play a significant role in criminal behaviour, and use comprehensive developmental theories such as Garmezy and Masten's (1986) five-component model to explain why some people become offenders. These theories suggest many offenders are exposed to *risk factors* –events and experiences that are also called *criminogenic needs* (Bonta & Andrews, 2017) – as children that are statistically associated with a greater likelihood of criminal behaviour. Known risk factors include early traumatic events and lack of appropriate parental guidance. Many offenders further experienced *stressors* that are 'any change in the environment which typically – in the average person – induces a high degree of continual tensions and interferes with normal patterns of response' (Garmezy & Masten, 1986, p. 6). Common stressors are the death of a loved one, parental discord, frequently moving locations and/or schools, and poor scholastic performance. Stressors' impact depend on their duration, co-occurrence, intensity, timing (e.g., the age at which they occur), quantity, and whether children experience them across multiple systems such as family, neighbourhood, peer, and school (Ainsworth, 1989). People's ability to respond to these stressors depend on their *coping mechanisms,* and some children's circumstances preclude them from developing functional coping mechanisms, or they might develop situation-specific coping mechanisms (e.g., to survive in a violent neighbourhood) that are dysfunctional

in other settings. Children who are exposed to these stressors might still not offend as adults depending on the absence or presence of two other factors. Their cognitive ability, health, and prior experience can increase their *vulnerability*, especially when their youth might deprive them of the ability to 'perceive, interpret, and deal with stressors' (Masten & Garmezy, 1985, p. 37). Neglect, as an example, appears to have 'its most pervasive impact during the first decade of life' (Van der Kolk et al., 2005, p. 399). *Protective factors* conversely shield otherwise vulnerable children when they experience trauma, and include good bonds with siblings and good cognitive abilities and athletic skills. It's the cumulative effect of experiencing many risk factors and stressors simultaneously for a long time in the absence of coping mechanisms and protective factors that lead to negative life outcomes. Masten (2021) summarises the developmental systems perspective which includes concepts such as pathways, cascades, promotive factors, and protective factors. Her five-components in the 'Resilience Framework for Action' provide an excellent framework for mitigating risk, identifying the available resources, and optimising the adaptive systems.

Criminal behaviour causes individuals emotional, physical, and financial hardship, and is a financial burden on society. Psychologists are on the forefront of developing theoretical models and instruments to reduce crime in several ways. Andrew and Bonta's (1994) Risk-Need-Responsivity model is commonly used in Australia to assess, and develop rehabilitation programs for offenders. The model requires that programs should match offenders' risks, criminogenic needs and their learning style and abilities (responsivity). Key assumptions of this model are that higher risk offenders require higher intensity programs, and that cognitive social learning methods will be effective in modifying offenders' criminal behaviour (Bonta & Andrews, 2017). Other psychologists developed theories and instruments that assist sentencing judges, parole boards, and prison administrators with predicting the likelihood that offenders will reoffend – particularly violently (Harris et al., 2016) or sexually (Hart et al., 2003). Many of these instruments were developed in North America and the United Kingdom, and their predictive ability in Australia is uncertain, especially when used to assess Indigenous people's risk of reoffending (Allan et al., 2019; Allan et al., 2020). This is a concern because Indigenous people – especially youths – are over-represented in Australian prisons. It's therefore important to understand Indigenous offending, and Australian psychologists are doing research to identify the underlying factors associated with offending by Indigenous people (see Allan et al., 2006) and developing interventions to address those factors (Daffern et al., 2018; Day, 2003).

PSYCHOLOGISTS' CONTRIBUTION IN THE PSYCHOLOGY AND LAW AREA

Australian psychologists working mostly as full- or part-time researchers at universities and/or Departments of Justice or Corrections or other institutions have made a notable contribution to the psychology and law knowledge base (see Brewer & Douglass, 2019). Lawyers, investigators, practising psychologists, and psychiatrists use this knowledge, and their findings can have a significant impact on people' rights and interests. This places an ethical burden on researchers to ensure their research products are reliable to avoid any unfair impact (Allan, 2020). An inherent problem within some areas of psycholegal research is that practical and ethical realities require it to be undertaken in simulated circumstances, which raises questions about the ecological validity of such research findings in real life settings. Researchers can't, for instance, do experiments during legal proceedings to determine the impact ordered versus voluntarily-given apologies have on the outcome (Allan & Allan, 2021). Critics have also complained that psychologists have in the past focused too much on individual pathology when they do research about offenders (e.g., Haney, 2020).

Psychologists' research is nevertheless generally well-received and much-used (Allan, 2020),

even though Allan (2021b) points out that psychologists might not always be good at translating their research into practice. Some psychologists, however, make a career of translating their and others' research into practice by acting as consultants who advise lawyers, for instance, of what to ask in cross examination or, in some jurisdictions, whose selection on juries to oppose or support.

PSYCHOLOGY OF LAW

Law can have an intended and unintended impact on people's psychological functioning and lawyers interested in this phenomenon of law work under the therapeutic jurisprudence banner (see Wexler & Winnick, 1996). Psychologists don't necessarily work under this banner, but they have contributed to the psychology of criminal law by examining questions such as whether prison sentences deter people from offending, and what type of interventions work best to reduce offending (McGuire, 1995). Psychologists' contribution to the psychology of civil law includes examining the impact of the stress litigants experience when they're involved in court proceedings – so-called 'litigation response syndrome' (Lees-Haley, 1988). This is an important issue in personal injury cases where courts decide what defendants who caused damages to plaintiffs should pay them as compensation. Defendants should only be held liable for the symptoms they caused, not those caused by the litigation, but there is a risk that courts might order defendants to compensate plaintiffs for damages they didn't directly cause if they ignore stress caused by the litigation. Conversely, courts might conclude plaintiffs are malingering the symptoms caused by the litigation, not believe what they say about the symptoms caused by the primary trauma, and award them a lesser amount of compensation than is fair.

Psychologists have also contributed to the modification of legal procedures to minimise their negative emotional impact on those involved, and ideally improve their behaviour and emotional functioning. This includes critical examinations of drug and mental health courts (Fox et al., 2021), restorative justice, the use of apology in legal procedures (Allan, 2008), and the management of offenders in prisons (Birgden, 2004). Mental health law is a specific focus in the psychology of law and therapeutic jurisprudence research area where researchers examine questions such as how to best manage situations where governments exercise their coercive powers to protect their citizens from harm. An unintended impact of these interventions is that they often have short- and/or long-term negative psychological consequences for those subject to them because they violate their moral and legal rights and interests (Allan, 2003). The best-known example of these interventions is where the state detains people with psychiatric disorders in psychiatric hospitals because they pose a risk of harm to themselves or other people (e.g., Mental Health Act 2014). Force-feeding people suffering from Anorexia Nervosa to save their lives is another example of an intervention that could make clients' long-term treatment more problematic (see Hebert & Weingarten, 1991).

PSYCHOLOGISTS' CONTRIBUTION IN THE PSYCHOLOGY OF LAW AREA

Much of psychologists' contribution to the psychology of law area has been at a theoretical level, but some researchers have conducted studies in this field that still lacks research. A problem facing researchers working in this area is that the ecological validity of the research is often not good (Allan & Allan, 2021; Allan et al., 2021). Some psychologists have nevertheless undertaken research that has influenced policy and legislation (see Wexler & Winnick, 1996). Psychologists with the necessary experience might provide consultation services to corrections, disability, and mental health systems or as advocates for people in them.

PSYCHOLOGY IN LAW

Some psychologists are embedded in law, providing psychological services that are ultimately to the benefit of the broader society and often don't require them to interact with the people of professional interest to them. When these psychologists interact with these people of interest to them, they normally call them clients, but it's important to note that the word client here has a different meaning from what it would have in areas such as clinical and counselling psychology. We'll discuss psychologists' contribution to the psychology in law field under six discrete headings, even though the psychologists providing these services often use the same knowledge and skill set and apply the same psychological instruments.

Forensic Psychology

Judicial decision-makers such as judges, parole officers, and administrators of correction facilities who need psychological information about people that will allow them to make legal decisions often ask psychologists to undertake investigations and provide reports and/or testify. These forensic psychologists provide a wide range of services in both criminal and civil law, and their forensic assessments differ notably from conventional psychological assessments (Allan, 2015). The most obvious difference is that their clients are generally parties to legal proceedings, their lawyers or legal decision-makers who need psychological information to answer specific legal questions, such as whether people had, or have, the ability to make decisions that have legal implications. A court might, for example, have to decide whether a person suffering from dementia had the legal capacity to enter a contract to buy a house.

In criminal law, forensic psychologists might on their own or as part of a larger team assess people accused of crime who have intellectual disabilities and/or might have suffered severe mental illnesses when they allegedly committed offences. The legislation of the different states and territories in Australia differs regarding the management of people who are mentally incapable, but all this legislation is based on the moral assumption that it's wrong to punish people who, by reason of mental incapacity, are or were incapable of making voluntary and rational decisions. Accused found to be unfit to stand trial can be detained in institutions until they are fit to stand trial or if that is unlikely to happen, the justice system considers it safe to discharge them – usually with conditions regarding treatment and/or supervision. Few accused are found unfit to stand trial and/or not criminally responsible because there's an assumption of sanity in Australian law, but if they are found unfit, they're usually detained and treated in mental health facilities as opposed to prisons. They can be discharged with or without conditions once a designated statutory body decides it's appropriate to do so. Psychologists frequently prepare pre-sentencing reports to assist courts with better understanding how offenders' mental health or psychosocial histories might have contributed to their offending. The role of these psychologists is to help courts better understand offenders' criminal behaviour, and not to justify or excuse their offending. Psychologists will often make recommendations regarding how such offenders should be managed to reduce their risk of reoffending. Psychologists might in the process of preparing pre-sentence assessments or other reports to courts or at the request of prison administrators assess the risk that offenders will reoffend and how the risk can be best managed. They generally collect and consider information about offenders' static (historical and unchangeable, such as criminal history) and dynamic (potentially changeable, such as substance use) risk factors and protective factors that decrease the likelihood of recidivism. When they make recommendations regarding the management of offenders, they focus on the dynamic risk factors or criminogenic needs of offenders, what the best method would be to provide the intervention, and how it might be possible to optimise offenders' protective factors. Forensic psychologists in a multicultural

country such as Australia must have the necessary cultural competencies when they assess offenders from other cultures or use cultural consultants when necessary (Allan et al., 2020; Ogloff et al., 2017).

Psychologists might also assess victims of crime – primarily those who apply for compensation or when courts require information regarding what the impact of the offence was on the victim. Psychologists do similar assessments in civil law to determine what impact traumatic events such as motor vehicle accidents or workplace accidents might have had on the mental health of victims, and what compensation they require to assist them with dealing with the legally relevant losses they suffered (Morgan & Palk, 2013). Civil courts frequently need to decide whether people have the competency to make decisions that have legally binding consequences or undertake certain activities, such as parents' ability to care for their children, or a person's ability to care for their self or their property, consent to treatment, and make wills. A recent development is that Australian legislators have specified that psychologists may assess the decision-making capacity of terminally ill people who request access to voluntary assisted dying (see Voluntary Assisted Dying Act 2017). Psychologists can also be appointed by the Family Court or parties to proceedings in this court to undertake assessments. This most commonly occurs when the court appoints psychologists as single expert witness to assess the needs of children whose parents are involved in family court proceedings.

Corrective and Prison Psychology

Psychologists providing corrective services in criminal law can work in the community, but most work as corrections or prison psychologists in adult or juvenile correctional facilities (see Polaschek et al., 2019, for more information). These psychologists assess sentenced offenders to determine their mental health and criminogenic needs and then develop intervention plans for them. A big part of their work is to provide well-structured group rehabilitation programs to groups of offenders aimed at reducing their risk of reoffending. They seldom provide interventions at individual level, but sometimes develop and oversee the implementation of behavioural programs for disruptive prisoners, and might assess detainees approaching key events such as parole hearings or discharge to gauge the progress they've made in addressing their criminogenic needs and determine their risk of reoffending.

Investigative and Police Psychology

For centuries, investigators have been trying to find methods for identifying whether somebody is lying – some of which are quite bizarre. For instance, in 1000 BC, Chinese people considered those who spit out dry rice powder after chewing it to be liars (Vrij et al., 2010). Criminal profiling is another topic both psychologists and investigators have long been interested in – Sir Arthur Conan Doyle's fictional detective Sherlock Holmes is an early example of a criminal profiler. While investigators are keen to involve psychologists in their investigations, and psychologists have conducted interesting research in headline-attracting areas such as lie detecting and profiling offenders, in reality, their involvement has been ethically and practically controversial (see Grisso, 2001). Psychologists can become involved in investigative work, but only if they use methods that generate scientifically reliable data (Allan, 2018), and the absence of such reliable methods is currently limiting their involvement in investigative work in Australia. Psychologists involved in lie detection for instance use methods that are sometimes based on flawed assumptions (e.g., that there's a link between nervous behaviour and lying) or have failed to produce research data that meet the legal or scientific thresholds for acceptance of their methods (see Vrij & Fisher, 2020).

These two fundamental problems have also been raised regarding criminal profiling (see Kocsis & Palermo, 2015).

Psychologists could also assist law enforcement with preventing crime (Fein et al., 1999) or reducing offenders' risk of reoffending by analysing data police lawfully collect during undercover police operations work (e.g., Grisso, 2001; Schafer, 2001). Psychologists are increasingly working as members of joint mental health and police threat assessment teams to identify people with mental health problems who pose a risk to others and to manage such threats (see Riddle et al., 2019). The threat of terrorist attacks has shone the light on the activities of these teams, but it's not only people with ideological motives that pose a threat to specific people (e.g., celebrities) or the public. Some people's mental health problems can lead them to become fixated on injuring or killing others, whether it's an ex-partner, family, or merely a group of people going about their everyday lives.

Therapeutic and Counselling Services

Psychologists might provide conventional therapeutic or counselling services to individuals and/or groups of offenders in detention facilities or in the community but subject to correction orders. The focus of these psychologists is to provide beneficial psychological services to offenders, but they also have responsibilities to their employers (e.g., a Department of Corrections) – therefore the level of confidentiality they can offer these clients is limited. They would, for instance, have to report any reasonable suspicion they form that a prisoner might plan to escape to prison authorities. One of the major functions of these psychologists is to identify and manage offenders who are at risk of harming themselves.

Employment Services

Working in the corrective, investigative, and justice systems is stressful, and this stress increases if staff work with people who are challenging, disruptive, or have suffered severe trauma (see Rønning et al., 2020). Staff sometimes also work with distressing material such as the exhibits of murder scenes and child exploitation material (see Krause, 2009). These systems therefore have an obligation to protect their staff's psychological health and appoint psychologists to assist them in selecting appropriate staff and supporting staff who experience work-related stress disorders. Systems frequently outsource mental health support services to external organisations, but some provide internal psychological services. Psychologists assist in the assessment and placement of applicants who want to work in systems associated with law (e.g., in corrective and police services – see Aamodt, 2004).

Consultation and Training

Psychologists with the necessary knowledge and skill sets might provide consultative and training services at various levels. Lawyers working for the state or privately could ask psychologists to assist them in their preparation for litigation (e.g., by helping them understand psychological reports) or cross-examination of psychologists called by the opposite legal team. Australian lawyers rarely, if ever, use psychologists to help them decide which jurors to object to as is the practice in some jurisdictions. The administrators of detention facilities might consult psychologists who specialise in the assessment and provision of rehabilitative services to offenders. They also they often engage them to provide training to their staff, which can include psychologists and other professionals such as psychiatrists, social workers, and parole workers. Training can include helping staff to identify their unconscious biases and understand how they might impact on their service delivery (see James, 2017), as well as teaching them how to work

with people who have mental disorders (Morrissey et al., 2009) and negotiate with hostage-takers and terrorists (Augustin & Fagan, 2011).

PSYCHOLOGISTS' CONTRIBUTION IN THE PSYCHOLOGY IN LAW AREA

Psychologists generally work in this area as employees of government and police departments. The largest employers of corrective and prison psychologists are adult and juvenile correction institutions, but other government departments might also appoint psychologists with the necessary knowledge and skill set – for instance departments providing services to people with disabilities. Many forensic psychologists work as private practitioners who provide services to private lawyers or institutions (e.g., insurance companies) and government departments as private contractors. Working as a psychologist in law can be stressful and difficult, and especially those working in corrective and prison psychology can find it difficult to maintain their professional boundaries, and consequently might act unethically. The legal ethical burden of psychologists working in law as discussed in this section is significant because their decisions, reports, and testimony can have a major impact on people's legal rights and interests (Allan, 2013, 2018; Allan & Grisso, 2014). Their work is also often public, with the media reporting on what they say and do, and there's also a risk that they'll bring the profession into disrepute if lawyers, judges, and the public question the quality and credibility of their services. Their services must therefore be of the highest standard, and there is a concern that some psychologists claim to be able to do assessments that are not currently supported by research. One such area is lie detection – even with the assistance of sophisticated physiological (Synnott et al., 2015) and imaging methods (Spence, 2008), psychologists can't detect with certainty whether someone is lying (Denault et al., 2020). Another is the inappropriate use of psychological assessment instruments (e.g., using projective tests – see Areh et al., 2021) and other methods such as hypnosis (McConkey, 1995).

No matter where they work, psychologists play an integral and essential role in law and there is a demand for their services. It's also an exciting field to work in for psychologists who have a critical and investigative mindset.

QUALIFYING TO WORK IN THE PSYCHOLEGAL FIELD

No Australian university currently offers joint postgraduate law and psychology degrees as some US universities do. Some universities offer degrees that focus on the interaction between law and psychology, but their main emphasis is generally psychology and not law. Those who want to work in the psycholegal field with or without a legal degree must have a good knowledge of the basic principles of psychology taught during the undergraduate years – the cognitive and social psychology units are especially important. Units that are of importance to those who want to work in law as psychologists are psychopathology and psychological assessment. All who want to work in the psycholegal field need an honours degree in psychology, ideally with a major in criminology or justice, or in the case of those who intend on working in the psychology in law area – a major in substance abuse and addiction studies.

Psycholegal researchers don't need to qualify as psychologists, but will generally have a PhD in an area of psychology. Most psychologists who work in the psycholegal field, however, want to call themselves forensic psychologists, but this is a protected title in Australia and psychologists must be endorsed by the PsyBA to use it. There are several pathways for psychologists who want to apply for endorsement – the simplest is completing an applicable postgraduate qualification and supervised practice. There is, however, currently a lack of training opportunities for psychologists who want to work in this field (see Allan et al., 2018). Universities find it difficult and expensive under current accreditation standards to provide forensic psychology programs.

One major problem is that psychologists working in the field need knowledge and skills from other specialist areas of psychology (e.g., clinical psychology or neuropsychology). Students must therefore do coursework and placements from these areas on top of their forensic coursework and placements. As the previous section demonstrated, the range of activities forensic psychologists undertake is broad. Subsequently, programs should cover many topics, but doing this in a single course is difficult. Few universities in Australia offer these courses, but Swinburne University of Technology offers an accredited Doctor of Psychology (Clinical and Forensic Psychology), while the University of New South Wales offers an accredited Master of Psychology (Forensic) and joint PhD/Master of Psychology (Forensic). Those programs don't accept many students, therefore most people interested in becoming forensic psychologists do a postgraduate psychology degree (masters or professional doctorate) in another speciality that will lead to endorsement – for instance as clinical psychologists or neuropsychologists. The accreditation and registration standards allow universities to offer bridging programs that will make it possible for such endorsed psychologists to qualify as forensic psychologists. The Swinburne University Graduate Diploma in Forensic Psychology (post-masters bridging) degree is the only such course that we are aware of within Australia. Other endorsed psychologists who are interested in doing forensic work generally develop the necessary psycholegal knowledge, skills, and experience through self-study, professional development, and working under supervision of endorsed forensic psychologists. They might also find it useful to join professional bodies such as the Australian and New Zealand Association of Psychiatry, Psychology and Law (ANZAPPL) and the APS College of Forensic Psychologists.

Conclusion

This chapter shows that psychology and law overlap in many ways, and that there are many opportunities for psychologists to be become involved in the psycholegal field as researchers, consultants, providers of various psychological services, and in other roles that we don't have the space to discuss, such as acting as mediators between parties in disputes. Those interested this field should bear in mind that the psycholegal field is interdisciplinary and requires knowledge beyond what most psychology degrees offer. Researchers should have a good enough understanding of law to develop ecologically valid research projects. Providers of psycholegal services should have the appropriate forensic knowledge, skills, and experience to meet the unique practical and ethical (Grisso, 2001) challenges found in this field. Those who want to become involved in the psycholegal field will therefore have to make an extra commitment, but it can be worthwhile for those who are looking for a non-mental health focused career in psychology.

This chapter has been written by Alfred Allan and Maria M. Allan, Discipline of Psychology and Criminology, School of Arts and Humanities, Edith Cowan University.

Send us your feedback: We would love to hear from you! Please send us your feedback.

REFERENCES

Aamodt, M. G. (2004). *Research in law enforcement selection*. Brown Walker Press.

Ainsworth, M. D. (1989). Attachment beyond infancy. *American Psychologist, 44*, 709–716. https://doi.org/10.1037/0003-066X.44.4.709

Allan, A. (2003). The past, present and future of mental health law: A therapeutic jurisprudence analysis. *Therapeutic jurisprudence* [Special issue]. *Law Context, 20*(2), 24–53.

Allan, A. (2008). Functional apologies in law. *Psychiatry, Psychology and Law, 15*(3), 369–381. https://doi.org/10.1080/13218710802101589

Allan, A. (2011). The development of a code for Australian psychologists. *Ethics and Behavior, 21*(6), 435–451. https://doi.org/10.1080/10508422.2011.622176

Allan, A. (2013). Ethics in correctional and forensic psychology: Getting the balance right. *Australian Psychologist, 48*(1), 47–56. https://doi.org/10.1111/j.1742-9544.2012.00079.x

Allan, A. (2015). Psychologists and the courts: Ethical issues. In S. Morrissey, P. Reddy, G. R. Davidson & A. Allan (Eds.), *Ethics and professional practice* (2nd ed., pp. 103–110). Cengage.

Allan, A. (2018). Moral challenges for psychologists working in psychology and law. *Psychiatry, Psychology and Law, 25*(3), 485–499. https://doi.org/10.1080/13218719.2018.1473173

Allan, A. (2020). Structuring the debate about research ethics in the psychology and law field: An international perspective. *Psychiatry, Psychology and Law, 27*(3), 397–411. https://doi.org/10.1080/13218719.2020.1742243

Allan, A. (2021a). The Australian code of ethics. In K. L. Parsonson (Ed.), *Handbook of international psychology ethics: Codes and commentary from around the world* (pp. 77–93). Routledge.

Allan, A. (2021b). Disconnect between research and policy. *Psychiatry, Psychology and Law, 28*(1), 149–161. https://doi.org/10.1080/13218719.2021.1926368

Allan, A., & Allan, M. M. (2021). Prompted versus voluntary apologies: What does psychological research tell us? In R. Carroll, N. Brutti & P. Vines (Eds.), *Apologies in the legal arena: A comparative perspective* (pp. 251–270). Bonomo Editore.

Allan, A., Cole, A. D., Thomson, D. M., & Parry, C. L. (2018, October). An overview of psychology and law and forensic psychology in Australia. *Newsletter of the Division 10 Psychology and Law.* https://iaapsy.org/site/assets/files/1668/newsletter_2018_october.pdf

Allan, A., Dawson, D., & Allan, M. M. (2006). Prediction of the risk of male sexual reoffending in Australia. *Australian Psychologist, 41*(1), 60-–68. https://doi.org/DOI:10.1080/00050060500391886

Allan, A., De Mott, J., Larkins, I., Turnbull, L., Warwick, T., Willet, L., & Allan, M. M. (2021). The impact of voluntariness of apologies on victims' responses in restorative justice: Findings of a quantitative study. *Psychiatry, Psychology and Law*. https://doi.org/10.1080/13218719.2021.1956383

Allan, A., & Grisso, T. (2014). Ethical principles and the communication of forensic mental health assessments. *Ethics and Behavior 24*(6), 467–477. https://doi.org/10.1080/10508422.2014.880346

Allan, A., Parry, C. L., Ferrante, A., Gillies, C., Griffiths, C. S., Morgan, F., Smallbone, S. W., Tubex, T., Spiranovic, C., & Wong, S. C. P. (2019). Assessing the risk of Australian Indigenous sexual offenders reoffending: A review of the research literature and court decisions. *Psychiatry, Psychology and Law, 26*(2), 274–294. https://doi.org/10.1080/13218719.2018.1504242

Allan, A., Parry, C. L., Tubex, H., Spiranovic, C., & Morgan, F. (2020). Forensic experts' perspectives on Australian Indigenous sexual offenders and factors important in evaluating the risk of recidivism. *International Journal of Offender Therapy and Comparative Criminology, 65*(15). https://doi.org/10.1177/0306624X20967941

Allan, A., & Thomson, D. M. (2010). The regulation of sexual activity between psychologists and their clients and former clients. In A. Allan & A. W. Love (Eds.), *Ethical practice in psychology – Reflections from the creators of the APS Code of Ethics* (pp. 149–160).

Andrews, D. A., & Bonta, J. (1994). *The psychology of criminal conduct*. Anderson.

Areh, I., Verkampt, F., & Allan, A. (2021). Critical review of the use of the Rorschach in European courts. *Psychiatry, Psychology and Law*. https://doi.org/10.1080/13218719.2021.1894260

Augustin, D., & Fagan, T. J. (2011). Roles for mental health professionals in critical law enforcement incidents: An overview. *Psychological Services, 8*(3), 166–177. https://doi.org/10.1037/a0024104

Australian Health Practitioner Regulation Agency. (2021, February 9). *Suspended psychologist convicted and fined by New South Wales court*. https://www.psychologyboard.gov.au/News/2021-02-09-Suspended-psych-convicted-and-fined.aspx

Australian Overseas Branch of the British Psychological Society. (1949). *Code of professional ethics*. Australian Overseas Branch of the British Psychological Society.

Australian Psychological Society. (2007). *Code of ethics*. https://www.psychology.org.au/getmedia/d873e0db-7490-46de-bb57-c31bb1553025/APS-Code-of-Ethics.pdf

Australian Psychological Society. (2019). *Ethical guidelines* (15th ed.). Australian Psychological Society. https://www.psychology.org.au/for-members/publications/news/2019/APS-Ethical-Guidelines-15th-Edition-now-available [Members only.]

Birgden, A. (2004). Therapeutic jurisprudence and responsivity: Finding the will and the way in offender rehabilitation. *Psychology, Crime and Law, 10*(3), 283–295. https://doi.org/10.1080/10683160410001662771

Bonta, J., & Andrews, D. A. (2017). *The psychology of criminal conduct* (6th ed.). Routledge

Brewer, N., & Douglass, A. B. (2019). *Psychological science and the law*. Guilford Publishers.

Cartwright, A., & Roach, J. (2016). Fraudulently claiming following a road traffic accident: A pilot study of UK residents' attitudes. *Psychiatry, Psychology and Law, 23*(3), 446–461. https://doi.org/10.1080/13218719.2015.1080148

Daffern, M., Simpson, K., & Chu, H. A. S. (2018). The impact of an intensive inpatient violent offender treatment programme on intermediary treatment targets, violence risk and aggressive behaviour in a sample of mentally disordered offenders. *The Journal of Forensic Psychiatry and Psychology, 29*(2), 163–188. https://doi.org/10.1080/14789949.2017.1352014

Day, A. (2003). Reducing the risk of reoffending in Australian Indigenous offenders. *Journal of Offender Rehabilitation, 37*(2), 1–15. https://doi.org/10.1300/J076v37n02_01

Denault, V., Plusquellec, P., Jupe, L. M., St-Yves, M., Dunbar, N. E., Hartwig, M., Sporer, S. L., Rioux-Turcotte, J., Jarry, J., Walsh, D., Otgaar, H., Viziteu, A., Talwar, V., Keatley, D. A., Blandón-Gitlin, I., Townson, C., Deslauriers-Varin, N., Lilienfeld, S. O., Patterson, M. L., … van Koppen, P. J. (2020). The analysis of nonverbal communication: The dangers of pseudoscience in security and justice contexts. *Anuario de Psicología Jurídica, 30*(1), 1–12. https://doi.org/10.5093/apj2019a9

Fein, R., Vossekuil, B., & Título. (1999). Assassination in the United States: An operational study of recent assassins, attackers, and near-lethal approachers. *Journal of Forensic Science, 44*(2) 321–33. https://cdn.fedweb.org/fed-96/2/AAFC_Assassinations%2520in%2520the%2520US_1999.pdf

Fisher, R. P., & Geiselman, R. E. (1992). *The cognitive interview*. Charles C Thomas.

Fitzgerald, R. J., Price, H. L., & Valentine, T. (2018). Eyewitness identification: Live, photo, and video lineups. *Psychology, Public Policy, and Law, 24*(3), 307–325. https://doi.org/10.1037/law0000164

Fox, B., Miley, L. N., Kortright, K. E., & Wetsman, R. J. (2021). Assessing the effect of mental health courts on adult and juvenile recidivism: A meta-analysis. *American Journal of Criminal Justice*. 1–21. https://doi.org/10.1007/s12103-021-09629-6

Garmezy, N., & Masten, A. S. (1986). Stress, competence, and resilience: Common frontiers for therapist and psychopathologist. *Behavior Therapy, 17*(5), 500–521. https://doi.org/10.1016/S0005-7894(86)80091-0

Goodman-Delahunty, J., & Martschuk, N. (2020). Mock jury and juror responses to uncharged acts of sexual misconduct: Advances in the assessment of unfair prejudice. *Zeitschrift für Psychologie, 228*(3), 199–209. https://doi.org/10.1027/2151-2604/a000410

Grisso, T. (2001). Reply to Schafer: Doing harm ethically. *The Journal of the American Academy of Psychiatry and the Law, 29*(4), 457–460. http://www.psychcoalition.org/uploads/3/4/9/5/34959080/grisso-_doing_harm_ethically.pdf

Haney, C. (1980). Psychology and legal change: On the limits of factual jurisprudence. *Law and Human Behavior, 4*(3), 147–199. https://doi.org/10.1007/BF01040317

Haney, C. (2020). *Criminality in context: The psychological foundations of criminal justice reform*. American Psychological Association. https://doi.org/10.1037/0000172-000

Haney, C., Banks, W. C., & Zimbarbo, P. G. (1973). Interpersonal dynamics in a simulated prison. *International Journal of Criminal Penology, 1*, 69–97.

Harris, G. T., Rice, M. E., & Quinsey, V. L. (2016). *Violence risk appraisal guide – Revised (VRAG-R).* Queen's University Library.

Hart, S. D., Kropp, P. R., Laws, D. R., Klaver, J., Logan, C., & Watt, K. A. (2003). *The risk for sexual violence protocol (RSVP)*. Simon Fraser University.

Health Practitioner Regulation National Law Act 2009 (Qld) (Austl.). https://www.legislation.qld.gov.au/view/whole/html/inforce/current/act-2009-045#sec.107

Hebert, P., & Weingarten, M. (1991). The ethics of force feeding in anorexia nervosa. *Canadian Medical Association Journal, 144*, 141–144.

Innocence Project. (n.d.). *About*. https://innocenceproject.org/about/

James, T. (2017, December 23). Can cops unlearn their unconscious biases? *The Atlantic.* https://www.theatlantic.com/politics/archive/2017/12/implicit-bias-training-salt-lake/548996

Kassin, S. M., Drizin, S. A., Grisso, T., Gudjonsson, G. H., Leo, R. A., & Redlich, A. D. (2010). Police-induced confessions: Risk factors and recommendations. *Law and Human Behavior, 34*(1), 3–38. https://doi.org/10.1007/s10979-009-9188-6

Kassin, S. M., & Gudjonsson, G. H. (2004). The psychology of confessions: A review of the literature and issues. *Psychological Science in the Public Interest, 5*(2), 33–67. https://doi.org/10.1111/j.1529-1006.2004.00016.x

Kocsis, R. N., & Palermo, G. B. (2015). Disentangling criminal profiling: Accuracy, homology, and the myth of trait-based profiling. *International Journal of Offender Therapy and Comparative Criminology, 59*(3), 313–332. https://doi.org/10.1177/0306624×13513429

Krause, M. (2009). Identifying and managing stress in child pornography and child exploitation investigators. *Journal of Police and Criminal Psychology, 24*, 22–29. https://doi.org/10.1007/s11896-008-9033-8

Le Texier, T. (2019). Debunking the Stanford prison experiment. *American Psychologist, 74*(7), 823–839. https://doi.org/10.1037/amp0000401

Lees-Haley, P. R. (1988). Litigation response syndrome. *American Journal of Forensic Psychology, 6*(1), 3–12.

Loftus, E. F. (1975). Leading questions and the eyewitness report. *Cognitive Psychology, 7*, 560–572. https://doi.org/10.1016/0010-0285(75)90023-7

Loftus, E. F., Miller, D. G., & Burns, H. J. (1978). Semantic integration of verbal information into a visual memory. *Journal of Experimental Psychology: Human Learning and Memory, 4*(1), 19–31. https://doi.org/10.1037/0278-7393.4.1.19

Masten, A. S., (2021). Resilience in developmental systems, In M. Ungar (Ed.) *Multisystemic resilience*. Oxford University Press https://dx.doi.oeg/10.1093/oso/9780190095888.003.0007

Masten, A. S., & Garmezy, N. (1985). Risk, vulnerability, and protective factors in developmental psychopathology. In B. B. Lahey & A. E. Kazdin (Eds.), *Advances in Clinical Child Psychology* (pp. 1–52). Springer. https://doi.org/10.1007/978-1-4613-9820-2_1

McConkey, K. M. (1995). Hypnosis, memory and the ethics of uncertainty. *Australian Psychologist, 30*(1), 1–10. https://doi.org/10.1080/00050069508259594

McGorrery, P. G., & McMahon, M. (2017). A fair 'hearing': Earwitness identifications and voice identification parades. *The International Journal of Evidence & Proof, 21*(3), 262–286. https://doi.org/10.1177/1365712717690753

McGuire, J. (1995). *What works: Reducing reoffending: Guidelines from research and practice*. John Wiley & Sons.

Megargee, E. J. (1976). The prediction of dangerous behavior. *Criminal Justice and Behavior, 3*, 3–22. https://doi.org/10.1177%2F009385487600300101

Mental Health Act *2014* (WA) s. 25 (Austl.). http://classic.austlii.edu.au/au/legis/wa/consol_act/mha2014128/s25.html

Morgan, S., & Palk, G. (2013). Pragmatism and precision: Psychology in the service of civil litigation. *Australian Psychologist, 48*(1), 41–46. https://doi.org/10.1111/j.1742-9544.2012.00075.x

Morrissey, J. P., Fagan, J. A., & Cocozza, J. J. (2009). New models of collaboration between criminal justice and mental health systems. *American Journal of Psychiatry, 166*(11), 1211–1214. https://doi.org/10.1176/appi.ajp.2009.09050670

National Health and Medical Research Council. (2018). *Australian code for the responsible conduct of research*. Australian Government. https://www.nhmrc.gov.au/about-us/publications/australian-code-responsible-conduct-research-2018.

Neal, T. M. S., & Grisso, T. (2014). The cognitive underpinnings of bias in forensic mental health evaluations. *Psychology, Public Policy, and Law, 20*(2), 200–211. https://doi.org/10.1037/a0035824

Ogloff, J. R. P., Pfeifer, J. E., Shepherd, S. M., & Ciorciari, J. (2017). Assessing the mental health, substance abuse, cognitive functioning, and social/emotional well-being needs

of Aboriginal prisoners in Australia. *Journal of Correctional Health Care, 23*(4), 398–411. https://doi.org/10.1177/1078345817723345

Polaschek, L. L. D., Day, A., & Hollin, C. (Eds.). (2019). *The Wiley international handbook of correctional psychology*. Wiley.

Powell, M., & McMeeken, L. (1998). "Tell me about the time when ….": 9 golden rules of interviewing a child about a multiple offence. *Australian Police Journal, 52*(2), 104–108.

Powell, M. B. (2000). PRIDE: The essential elements of a forensic interview with an Aboriginal person. *Australian Psychologist, 35*(3), 186–192. https://doi.org/10.1080/00050060008257477

Privacy Act *1988* (Cth) (Austl.). http://www5.austlii.edu.au/au/legis/cth/consol_act/pa1988108/

Psychology Board of Australia. (2020). *Code of conduct*. https://www.psychologyboard.gov.au/standards-and-guidelines/code-of-conduct.aspx

Psychology Board of Australia v Knobel (2021) VCAT 64 (Austl.). http://www.austlii.edu.au/cgi-bin/viewdoc/au/cases/vic/VCAT//2021/64.html

Riddle, F. J., Ferriman, M., Farmer, D. G., & Baillie, K. M. (2019). Towards a national strategy for managing fixated persons in Australia. *Psychiatry, Psychology and Law, 26*(3), 457–467. https://doi.org/10.1080/13218719.2018.1506722

Risan, P., Milne, R., & Binder, P.-E. (2020). Trauma narratives: Recommendations for investigative interviewing. *Psychiatry, Psychology and Law, 27*(4), 678–694. https://doi.org/10.1080/13218719.2020.1742237

Rogers, R. (2001). *Handbook of diagnostic and structured interviewing*. The Guilford Press.

Rogers, R. (2018). Structured interviews and dissimulation. In R. Rogers & S. D. Bender (Eds.), *Clinical assessment of malingering and deception* (pp. 422–448). Guildford Press.

Rønning, L., Blumberg, J., & Dammeyer, J. (2020). Vicarious traumatisation in lawyers working with traumatised asylum seekers: A pilot study. *Psychiatry, Psychology and Law, 27*(4), 665–677. https://doi.org/10.1080/13218719.2020.1742238

Savin, H. B. (1974). Ethics for gods and men. *Cognition, 2*(2), 257. https://doi.org/10.1016/0010-0277(72)90015-7

Schafer, J. R. (2001). The ethical use of psychology in criminal investigations. *Journal of the American Academy of Psychiatry and the Law, 29*(4), 445–446. http://jaapl.org/content/29/4/445

Semmier, C., & Brewer, N. (2002). Using a flow-chart to improve comprehension of jury instructions. *Psychiatry, Psychology and Law, 9*(2), 262–270. https://doi.org/10.1375/pplt.2002.9.2.262

Smith, S. M., Ternes, M., Stephens, S., & Carter-Rogers, K. (2019). Psychology and the law in Canada. In M. E. Norris (Ed.), *The Canadian handbook for careers in psychological science*. eCampusOntario. https://ecampusontario.pressbooks.pub/psychologycareers/chapter/psychology-and-the-law-in-canada/

Spence, S. (2008). Playing Devil's advocate: The case against fMRI lie detection. *Legal and Criminological Psychology, 13*(1), 11–25. https://doi.org/10.1348/135532507X251597

Synnott, J., Dietzel, D., & Ioannou, M. (2015). A review of the polygraph: History, methodology and current status. *Crime Psychology Review, 1*(1), 59–83. https://doi.org/10.1080/23744006.2015.1060080

Thomson, D. M. (1972). Context effects in recognition memory. *Journal of Verbal Learning, 11*(4), 497–511. https://doi.org/10.1016/S0022-5371(72)80033-1

Tulving, E., & Thomson, D. M. (1973). Encoding specificity and retrieval processes in episodic memory. *Psychological Review, 80*(5), 352–373. https://doi.org/10.1037/h0020071

Van der Kolk, B. A., Roth, S., Pelcovitz, D., Sunday, S., & Spinazzola, J. (2005). Disorders of extreme stress: The empirical foundation of a complex adaptation to trauma. *Journal of Traumatic Stress, 18*(5), 389–400. https://doi.org/10.1002/jts.20047

Voluntary Assisted Dying Act 2017 (Vic) (Austl.). http://www.austlii.edu.au/cgi-bin/viewdb/au/legis/vic/consol_act/vada2017302/

Vrij, A., & Fisher, R. P. (2020). Unraveling the misconception about deception and nervous behavior [Perspective]. *Frontiers in Psychology, 11*(1377). https://doi.org/10.3389/fpsyg.2020.01377

Vrij, A., Granhag, P. A., & Porter, S. (2010). Pitfalls and opportunities in nonverbal and verbal lie detection. *Psychological Science in the Public Interest, 11*(3), 89–121. https://doi.org/10.1177/1529100610390861

Wells, G. L. (2014). Eyewitness identification probative value, criterion shifts, and policy regarding the sequential lineup. *Current Directions in Psychological Science, 23*(1), 11–16. https://doi.org/10.1177/0963721413504781

Wells, G. L., Kovera, M. B., Douglass, A. B., Brewer, N., Meissner, C. A., & Wixted, J. T. (2020, Feb). Policy and procedure recommendations for the collection and preservation of eyewitness identification evidence. *Law and Human Behavior., 44*(1), 3–36. https://doi.org/10.1037/lhb0000359

Wexler, D. B., & Winnick, B. J. (1996). *Law in a therapeutic key: Developments in therapeutic jurisprudence*. Carolina Academic Press.

Yarmey, A. D. (2003). Eyewitness identification: Guidelines and recommendations for identification procedures in the United States and Canada. *Canadian Psychology, 44*(3), 181–189. https://doi.org/10.1037/h0086938

Zapf, P. A., & Dror, I. E. (2017). Understanding and mitigating bias in forensic evaluation: Lessons from forensic science. *International Journal of Forensic Mental Health, 16*(3), 227–238. https://doi.org/10.1080/14999013.2017.1317302

Zimbardo, P. G. (1973). On the ethics of intervention in human psychological research: With special reference to the Stanford prison experiment. *Cognition, 2*(2), 243–257. https://doi.org/10.1016/0010-0277(72)90014-5

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CHAPTER 12.

SPORT PSYCHOLOGY

ANDREA LAMONT-MILLS

INTRODUCTION

Sport and exercise psychology is the scientific study and application of human behaviour in the sport and exercise contexts (Gill et al., 2017). Sport and exercise psychology is often studied with one of two objectives in mind: 1) to understand the psychological impact on human performance, and 2) to understand how sport and exercise participation impacts an individual's psychological development and health (Weinberg & Gould, 2019). Exploring psychology from this framework has allowed for many significant discoveries, including the development of theories and models which aim to account for the effects of variables such as stress and exercise on outcomes like health and performance.

There are many careers related to sport and exercise psychology. Perhaps the most common career identified by students is 'sport psychologist'. In Australia, psychologists who have the appropriate postgraduate qualifications and who have completed a Psychology Board of Australia (PsyBA) registrar program in sport and exercise psychology are called 'sport and exercise psychologists'. Some may spend most of their time providing direct services to athletes and teams, however many won't. These sport and exercise psychologists will work with a wide range of clients depending on their training and competency. Although overlapping in some regards, sport and exercise psychologists and clinical psychologists have different scopes of professional practice. That said, there's an emerging specialisation in sport psychology called *clinical sport psychology,* where emphasis is on the mental health and wellbeing of athletes and coaches rather than on enhancing performance. From this perspective, psychological distress is considered for how it may manifest differently in sport contexts with clinical interventions being applied in ways that are specific to athletes and coaches (Marks et al., 2021).

This chapter will provide a brief overview of common methods and significant findings in foundational aspects of sport and exercise psychology. It will also explore more recent developments within the field, as well as career paths, scopes of practice, and educational training paths for psychologists working in this field.

INTRODUCTION TO SPORT AND EXERCISE PSYCHOLOGY

Sport and exercise psychology is a relatively young scholarly discipline in comparison to other areas of study in psychology. It has its beginnings in the latter part of the nineteenth century when American psychologist Norman Triplett wanted to understand why athletes sometimes performed better in groups than alone. Since that time, the field has grown tremendously. In this chapter, we'll focus primarily on the 'sport' aspect of psychology, while acknowledging that the 'exercise' aspect is highly related but is often considered to be a separate field of study. Even so, we'll use 'sport and

exercise psychologist' throughout the chapter as in Australia this is the endorsed area of practice term that the Australian Health Practitioner Registration Agency (Ahpra) registers.

With respect to training to be a sport and exercise psychologist, you need to undertake an evidence-based postgraduate training program, typically in the country that you want to practice in. There are multiple national and international societies and organisations supporting the research and/or practice of sport and exercise psychology such as the Australian Psychological Society (APS) College of Sport and Exercise Psychologists, the International Society of Sport Psychology (ISSP), and the Asian-South Pacific Association of Sport Psychology (ASPASP). Such growth in research and practice demonstrates that there's demand for knowledge and service in these areas of expertise.

Particularly in the context of sport performance, increased media attention along with the recognition and acceptance of sport psychology as a performance-enhancing tool has led to increased numbers of athletes, coaches, and sport organisations seeking out sport and exercise psychologists for their expertise and services. For example, sport and exercise psychologists are now commonly found practicing in sports such as golf, rugby union, netball, soccer, and hockey. Sport psychology has become integrated into many Australian sports, including cricket. For example, Dr Michael Lloyd has been working as the Lead Psychologist for Cricket Australia for 15 years and was a part of their team staff during the 2019 Ashes series. The Australian Olympic team has had sport psychologists working with Olympic athletes for over 30 years, and in 2021 Georgia Ridler was the Lead Psychologist for the Australian Olympic Team.

Demand for the integration of sport psychology into the sport environment is evident as professional development opportunities are now often included in both coach and support staff training. For example, Sport Australia's Intermediate Coaching General Principles course includes a module on sport psychology, with more general aspects of sport psychology such as goal setting being incorporated into the Community Coaching General Principles course. Sport professionals including exercise physiologists, sport medicine physicians, nutritionists, physiotherapists, and strength and conditioning coaches often take sport psychology courses as requirements or electives during their university training.

Both sport and exercise psychologists and related sports professionals serve an integral part of integrated support teams (ISTs) in the Australian sport system. Integrated support teams include coaches, sport and exercise psychologists, strength and conditioning specialists, nutritionists, and medical staff, among other experts whose purpose is to help support and provide resources for athletes and coaches. A sport and exercise psychologist also has a unique role that is different to other members of the IST. Like the other professionals, they support athletes and coaches through education and skills development (mental skills in this case). However, as their training is firmly as psychologists, this also enables them to assist and provide expertise in enhancing the mental wellbeing of athletes, coaches, and their support networks (e.g., partners, parents, children). In addition to this, sport and exercise psychologists have skills and expertise that can assist in the functioning of the IST itself, helping bring professionals from differing disciplines together by enhancing communication and team dynamics. Additionally, they can support other professionals in their work by providing guidance on topics such as the psychology of injury rehabilitation, and coach-athlete management.

The ability of sport and exercise psychologists to work across both performance enhancement and mental health areas is a unique aspect of the Australian training system. Unlike the Canadian and American systems – where most psychology training takes place at the postgraduate level – in Australia, this training starts at the undergraduate level. This means sport and exercise psychologists have the same base level skills and knowledge of psychological disorders and interventions as clinical, educational and developmental, or counselling psychologists. Thus, sport

and exercise psychologists can work with mental health as well as performance presentations. Increased conversations and visibility surrounding mental health issues in sport has raised awareness of athlete and coach mental health and wellbeing.

Research has examined the link between sport and exercise participation and their relationship to mental health, as well as the impact of physical activity on the prevention and treatment of mental health challenges and conditions (see Schinke et al., 2017). In addition to research, well-recognised and successful athletes such as Darius Boyd (rugby league), Ian Thorpe (swimming), and Lauren Jackson (basketball) have openly discussed their challenges with mental health issues. This has created an opportunity for other athletes to express and discuss more openly their own mental health experiences. Although more complex clinical mental health issues may be beyond the scope of practice of some sport and exercise psychologists, the mental health of athletes, coaches and umpires remains an important topic of research, discussion, and practice for those interested in the field of sport and exercise psychology. Demonstrating the importance of sport and mental health, the Australian Institute of Sport (AIS) has recently established a national network of 30 Athlete Wellbeing and Engagement managers across a range of sports as well as an AIS Athlete and Wellbeing and Advisory Engagement Committee.

SIGNIFICANT RESEARCH FINDINGS

Although there is a myth that sport psychology is only applicable to elite sport performers, research and applications from this field have far-reaching impact. For example, there's a significant body of research exploring the psychological impact of early specialisation in youth sport. Research demonstrates that young children will not benefit from early sport specialisation in the majority of sports, and they may have a greater risk of overuse injury and burnout from concentrated participation (e.g., LaPrade, et al., 2016). Research in sport and exercise psychology has also demonstrated positive benefits of sport and physical activity participation in adults. For example, Defence veterans with a disability have a greater sense of independence and choice when engaging in quality physical activity experiences (Shirazipour et al., 2017). Perhaps gaining more mainstream attention, research has demonstrated that sport-related concussions may be associated with increased risk of mood disturbances and depression (Covassin et al., 2017). Consequently, it's important to recognise that the study of sport psychology is relevant to many contexts and settings beyond the competitive field of play.

Further demonstrating the widespread applicability of sport psychology, there's a substantial body of evidence to support the notion that physical activity – including sport participation – can both help prevent and treat some forms of mental health challenges and illness. For example, a systematic review conducted by Mammen and Faulkner (2013) found a significant, inverse relationship between physical activity at baseline and depression at follow-up in 25 of 30 longitudinal studies. Furthermore, their results suggested that any level of physical activity might help prevent depression. Moreover, an earlier and well-cited longitudinal study by Camacho et al. (1991) found a relationship between inactivity and the incidence of depression over the course of almost 20 years of research.

Recently, more attention has been focused on the impact of physical activity – including sport participation – on the treatment of mental health challenges such as depression and anxiety. Hu and colleagues (2020) conducted a systematic review of meta-analyses examining the effect of exercise as an intervention and prevention for depression in non-clinical populations. They identified eight meta-analysis studies, and found that across six of these, exercise significantly reduced depressive symptoms in adults, the elderly, children, and adolescents. Using a clinical population, Rosenbaum et al. (2014) conducted a systematic review of studies using physical

activity interventions. They found that physical activity reduced symptoms of depression in people with mental illness, and discovered a reduction of symptoms associated with schizophrenia and improvements in other physical health markers in people diagnosed with schizophrenia.

More recently, White and colleagues (2017) examined the impact of domain-specific physical activity on mental health. That is, 'Does the context in which one performs a physical activity (e.g., leisure versus work-related physical activity) have an impact on one's mental health?' Using a meta-analytic approach, they found that leisure-time physical activity and transport physical activity both had a positive relationship with mental health. They also found that leisure-time physical activity and participation in school sport had an inverse relationship with mental ill-health (the greater the participation, the lower levels of ill health). However, work-related physical activity had a positive relationship with mental ill health – if an individual's main sources of physical activity were performed at the workplace, it may have a negative impact on one's mental health.

COMMON FRAMEWORKS FOR RESEARCH IN SPORT PSYCHOLOGY

Weinberg and Gould (2019) state that the ultimate goal of psychological skills training is self-regulation. They define self-regulation as the ability to work toward your goals by monitoring and managing your thoughts, feeling, and behaviours. They also describe psychological skills training as the systematic and consistent practice of mental skills for the purpose of enhancing performance, and increasing pleasure and satisfaction in sport participation – thus leading to greater abilities in self-regulation. The field of sport psychology has examined and shown support for a number of basic psychological skills found to enhance performance and overall satisfaction. The following section briefly describes these skills, and some significant findings that support the implementation of these skills.

Goal Setting

Goal setting is one of the most used performance enhancement strategies (Forsblom et al., 2019). Goal setting is commonly used to improve motivation and focus, and thus, performance. Generally, goal setting in sport involves helping athletes to identify and set defined goals (i.e., outcome, performance, and process goals), and to identify and set goals for varying contexts (i.e., practice and competition goals) appropriate to the athlete's performance expectations. Effective goal setting involves setting both long-term (e.g., this year) and short-term (e.g., today or this week) goals, and includes goal setting evaluation (e.g., 'Did I achieve my goals?').

Overall, goal setting has shown to be an effective technique for increasing the likelihood of achieving one's goal (Kyllo & Landers, 1995). Research examining the relationship between various types of goals and performance across a variety of contexts generally indicates that goals associated with moderate to high levels of difficulty are linked to better performances (see Weinberg, 2000; Weinberg, 2004 for reviews). Goal setting also seems to be most effective on simple tasks rather than those that are very complex (Burton, 1989).

Stress/Arousal Management

A significant amount of research in sport psychology has theorised about and examined the impact of arousal on sport performance. Arousal is the combination of physiological and psychological activation that ranges from deep sleep to intense excitement (Weinberg & Gould, 2019). A variety of theories and models attempt to account for the impact of specific physiological and cognitive states/traits on performance. Such states and traits include stress, anxiety, and excitement. For the purpose and scope of this chapter, one's level of arousal or activation will be the preferred term.

Many theories and models have been developed to explain the relationship between arousal and performance, and to discuss them all in sufficient detail for accuracy would be beyond the scope of this chapter. Instead, to provide a broad conceptual overview, only those theories and models that have received significant attention in the field will be overviewed, and the focus will be on the broad concept of arousal/activation rather than the specific state(s) or trait(s).

One of the first theories proposed to account for the relationship between arousal and performance was drive theory (Spence & Spence, 1966). This theory describes the relationship between arousal and performance in a positive linear fashion where a greater level of arousal leads to a greater level of performance. Although drive theory may be suitable for some tasks (e.g., powerlifting), most sport psychology researchers were dissatisfied with its ability to predict performances across a variety of tasks. The field thus turned to the *inverted-U hypothesis* (**Figure 12.1**), which posits that as arousal increases, so too does performance. However, once arousal reaches a certain limit, performance is expected to decrease. Both very high and very low levels of arousal elicit poor performances, whereas moderate levels of arousal result in optimal performance levels (Landers & Arent, 2010).

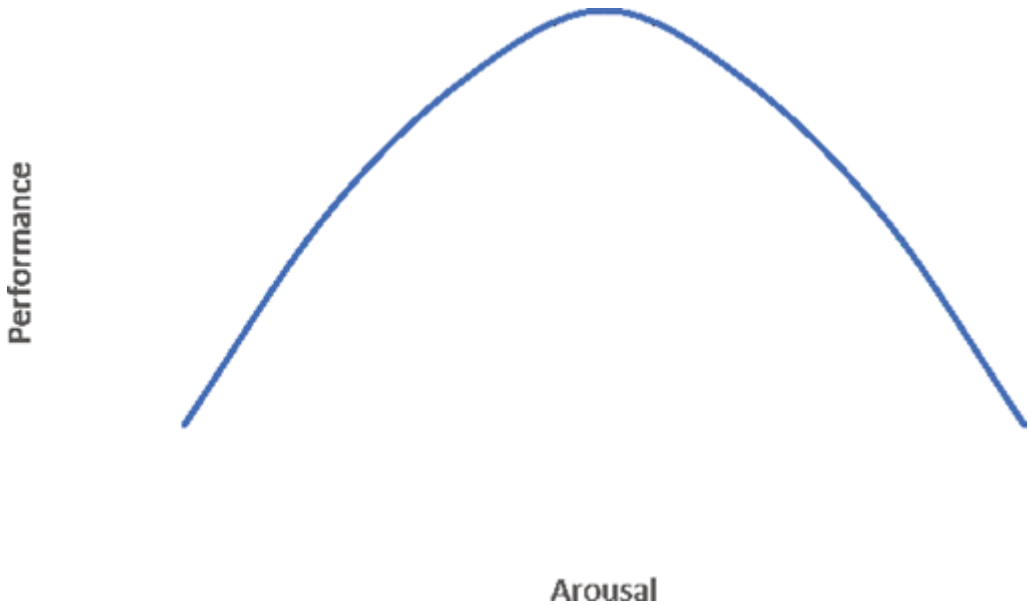

Figure 12.1: The Inverted-U Hypothesis

Although a more inclusive model, the inverted-U hypothesis lacks the ability to account for individual differences, and differences across sport or tasks. That is, moderate levels of arousal may be optimal for hockey, but perhaps not for archery or sprinting. This challenge of accounting for individual and situational variations lead to Hanin's (2007) model of individualised zones of optimal functioning (IZOF). Simply stated, this model posits that each individual has their own zone of optimal functioning where anxiety levels can vary from one individual to another. Outside of this zone, athletes perform poorly. Hanin's IZOF model was unique in that an athlete's 'zone' didn't have to be at a moderate level of arousal for optimal performance to occur. For example, Athlete 1's optimal zone could be at a high level of arousal, whereas Athlete 2's would be a low-moderate level of arousal. Hanin also suggested that the optimal arousal level was not simply a point on a scale, but more of a zone or bandwidth. This model has been supported in the research with regards to its relationship with performance. However, it is criticised for having a lack of theoretical support (Gould & Tuffey, 1996).

Through understanding how arousal impacts athletic performance, sport and exercise psychologists can educate and support athletes in managing arousal and stress levels so that the athletes can achieve optimal performance in a variety of circumstances. To achieve this,

sport and exercise psychologists first help the athlete to become aware of their levels of arousal and activation during training and performance (Weinberg & Gould, 2019). Sport and exercise psychologists have several techniques to assist with arousal management. These techniques are often categorised into either *physiological* arousal or anxiety reduction techniques, and *cognitive* arousal or anxiety reduction techniques. Physiological techniques for arousal and stress management include, but are not limited to, breath control, progressive muscle relaxation, and biofeedback. Cognitive techniques for arousal and stress management include, but are not limited to, relaxation response and desensitisation (Weinberg & Gould, 2019).

There can be some overlap in the techniques whereby engaging in physiological techniques may also impact one's level of cognitive arousal. For example, when an individual engages in a breathing exercise aimed at managing physiological arousal, it can also have a positive impact on their cognitive arousal. Research conclusively supports that arousal and stress management can result in better performance. Rumbold et al. (2012) conducted a review of 64 intervention studies where the goal was to reduce stress and increase performance. They found that 81 per cent of the studies showed improvement in stress management, and 77 per cent of the studies found improvements in performance. It also seemed that multimodal approaches (using more than just one strategy) were more effective than single modalities.

Imagery

Many sport and exercise psychologists have reported that imagery – also referred to as visualisation – is a tool athletes often use both in competition and in practice. As a spectator, you may have observed athletes engaged in imagery, or you, yourself, may use imagery as a tool for enhancing performance (or use daydreaming as a distraction!). The premise of imagery is the creation of an image in our minds – either by recalling actual events, or by constructing our own images of events we hope for, or want to avoid, happening. The term imagery is often preferred to visualisation as it's not restricted to simply one sense, as the term visualisation suggests. In addition to vision, imagery can include one's auditory sense (the sounds of the crowd), one's sense of smell (the smell of chlorine at the swimming pool), one's sense of touch (the feel of the ball in your hands), one's kinaesthetic sense (the feeling of your limbs while executing a dive from the platform), and even one's sense of taste (the salty taste of sweat while running long distances). Imagery is also a tool that can be used to rehearse performances mentally, whether the goal is learning a new routine (learning a new gymnastics floor routine) or helping to manage emotions in a high-pressure situation (imaging a large crowd at a grand final match).

Research examining the effectiveness of imagery can be complex, particularly because it's not possible to actually *see* what the athlete is imaging. However, some case studies have shown that the use of imagery enhances performance and other psychological variables such as confidence and the ability to cope with anxiety (Evans et al., 2004; Post et al., 2012).

Confidence

Research has indicated that confidence is the most consistent factor for differentiating between the most and least successful athletes (Jones & Hardy, 1990). In sport psychology, self-confidence is defined as the belief that you can successfully perform a behaviour (Weinberg & Gould, 2019). Vealey and Chase (2008) further describe sport self-confidence as a social cognitive construct. They differentiate between state self-confidence (e.g., how confident you feel today, before a particular competition) and trait self-confidence (e.g., how you generally feel in the day-to-day), and suggest that sport self-confidence can be viewed more as a trait than a state, depending on the context. Closely related to sport confidence as defined by Vealey and Chase is the concept

of self-efficacy. Bandura (1997) defines self-efficacy as the perception of an individual's ability to successfully perform a task. Thus, one could consider self-efficacy to be situation specific self-confidence. For the purpose and scope of this chapter, these constructs will be combined when discussing relevant research.

Confidence has been shown to impact other sport-related psychological factors. For example, confidence can impact how an athlete interprets their level of anxiety. Specifically, when an athlete is high in confidence, they're more likely to interpret anxiety as facilitative, as compared to when an athlete is low in confidence (Jones & Swain, 1995). Confidence has also been shown to influence perceptions of effort: athletes high in confidence, when compared to athletes low in confidence, tend to perceive that they expend less effort on a particular task (Hutchinson et al., 2008). Most importantly, confidence has also been shown to influence performance: athletes higher in confidence tend to perform better than those lower in confidence (Feltz, 1984; Moritz et al., 2000). Because confidence can be considered as more of a psychological trait or a modifiable state depending on the context (as opposed to a skill), sport and exercise psychologists will often use tools such as goal setting and imagery in training over time to enhance self-confidence, and thus impact performance.

Focus

The ability to focus – or to ignore distractions and pay attention to relevant cues at the correct time – is one of the most important skills an athlete can possess. Perhaps even as a student, you've had difficulty focusing on the task at hand while being distracted by your electronic devices, the environment around you, or even your own thoughts. In sport psychology, we use the terms focus, concentration, attention, and managing distractions interchangeably as they all refer to the same skill of being able to direct our attention to the appropriate cue at the appropriate time.

Individuals may often report that they have trouble paying attention or concentrating. However, the reality is that we're always paying attention to *something*. If we find ourselves distracted or having difficulty focusing, it usually means we're not focusing on the appropriate cues. Nideffer (1976) and colleagues (Nideffer & Segal, 2001) described attentional focus along two dimensions: width (i.e., broad or narrow) and direction (i.e., external or internal) (**Figure 12.2**). A broad attentional focus would be beneficial when an athlete must be aware of and react to many changing cues in their environment. A narrow attentional focus would be helpful when an athlete must only focus on one or two cues, such as a target or finish line. An external focus of attention refers to attention focused on an external cue such as an object in the environment. Lastly, an internal focus of attention refers to attention focused inwardly such as one's own thoughts and feelings.

		Direction	
		External	*Internal*
Width	*Broad*	Assess the environment	Analyse a situation
	Narrow	Focus on one target	Focus on your breath

Figure 12.2: Four Types of Attentional Focus With Relevant Examples

To assess an individual's attentional style (i.e., a person's typical attentional disposition), Nideffer (1976) developed the Test of Attentional and Interpersonal Style (TAIS). Some research has supported the idea that focused attention is most beneficial when it's directed externally as compared to internally. Indeed, Wulf's (2013) review found that an external focus of attention was more beneficial across a number of tasks including speed, endurance, and accuracy types of tasks

than an internal focus of attention. Ways to train and improve concentration skills include using simulations, predetermined cues, establishing good habits, routines, and competition plans, and overlearning skills (Weinberg & Gould, 2019).

Team Dynamics

A significant number of sports aren't played alone – athletes often compete as a member of a team. Even in individual sports such as athletics, athletes may compete as an individual but are members of a larger team all competing for points, in addition to individual medals. The study of groups, or teams, has been a popular area of research in sport psychology, just as it has been in related fields such as organisational psychology and social psychology. These disciplines share many theories and models in their study of group performance.

There are a variety of approaches to group dynamic research in sport, but areas that have received significant attention, both in research and practice, are cohesion and collective efficacy. Cohesion in sport has been defined as a dynamic process in which a team has a tendency to stick together and stay united in pursuit of its goal and/or for the satisfaction of its members (Eys et al., 2020). Widmeyer et al. (1985) developed the Group Environment Questionnaire (GEQ) to measure cohesion in sport, and in doing so, conceptualised group cohesion into two major categories: group integration (i.e., perception of the group as a unit), and individual attraction to the group (i.e., a member's personal attraction to the group or team). Further, each of these categories can then be divided into either task or social aspects leading to a four-factor model of group cohesion. A meta-analytic review including 46 studies examining the relationship between group cohesion and performance in sport found a moderate to large effect size such that increased group cohesion is associated with increased performance outcomes (Carron et al., 2002).

Collective efficacy is a 'group's shared belief in its conjoint capability to organize and execute the courses of action required to produce given levels of attainment' (Bandura, 1997, p.477). Essentially, collective efficacy reflects a team's level of confidence. Research has demonstrated that collective efficacy has a positive impact on team performance and that prior team performance can also have an impact on collective efficacy (Feltz & Lirgg, 1998; Myers, Feltz, et al., 2004; Myers, Payment, et al., 2004).

CONTEMPORARY METHODS AND DEVELOPMENTS

Mindfulness

Have you ever noticed yourself getting distracted during a task and then felt feelings of upset like anger, guilt, or frustration *because* you got distracted? This type of experience is a common one. While thoughts and events can distract a person from their point of focus (studying, communicating, performing a known skill), the evaluations or judgements that follow the distraction can become even more distracting. Researchers have theorised that these evaluations and judgements can lead to lowered performance in sport because of a focus on task-irrelevant thoughts (Gardner & Moore, 2004; Kaufman et al., 2009). They highlight the importance of bringing the focus of attention back to what is most important here and now: your task.

The practice of mindfulness can help in moments of distraction, improving performance in daily tasks and athletic pursuits alike. Some may think of being mindful as simply having a calm demeanour in stressful situations, but it's much more than this. Being mindful involves being present with one's circumstances intentionally and without judgment (Kabat-Zinn, 1994). Despite the simplicity of the mindfulness concept, its practice can be challenging. For those who do learn to be more mindful, the rewards can be numerous, including the potential to improve sleep

and focus (MacDonald et al., 2018), reduce stress (Lundqvist et al., 2018; Vidic et al., 2018), and improve performance (Zhang et al., 2016).

Originally popularised in North America by Jon Kabat-Zinn, a professor of medicine and Zen Buddhist, mindfulness is defined as 'paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally' (Kabat-Zinn, 1994, p. 4). This definition is based on Kabat-Zinn's personal study of Buddhism but maintains that mindfulness-based interventions need not promote or necessitate the practice of Buddhism, although some may find this helpful (Kabat-Zinn, 2017). Early research on the benefits of mindfulness began mostly outside of sport, looking at the use of a mindfulness practice alongside traditional medical treatments (Kabat-Zinn, 1982). An approach to facilitate mindfulness, known as Mindfulness Based Stress Reduction (MBSR), was developed with a primary goal to help relieve the suffering and stress of patients not fully responding to traditional medical treatment. A goal of MBSR was to create a model for other hospitals to implement with patients. The reach of MBSR has now gone beyond hospitals, and variations of MBSR have been incorporated into the areas of education, business, the military, and sport (Kabat-Zinn, 2017). MBSR is an eight-week intervention that attempts to cultivate a greater ability to notice a patient's inner and outer world (Kabat-Zinn, 1990; Santorelli, 1999). Sport-focused approaches to mindfulness have largely been adapted from this model.

Mindfulness as an approach to improving sport performance is a relatively recent development in the field of sport psychology compared to more traditional psychological skills interventions. While Kabat-Zinn and colleagues described the first known use of mindfulness with athletes in 1985, the 1990s showed little uptake in the use of mindfulness in sport. Beyond the early 2000s, however, research and use of mindfulness-based interventions in sport have grown substantially. Evidence now exists that supports a moderate improvement in sport performance for those athletes employing mindfulness techniques, and this is especially true in sport tasks based on precision such as shooting (Bühlmayer et al., 2017).

Mindfulness to enhance performance and wellbeing has been taught to athletes through two main interventions: Mindfulness-Acceptance-Commitment therapy (MAC) (Gardner & Moore, 2012) and Mindful Sport Performance Enhancement (MSPE) (Kaufman et al., 2009). Currently more robust evidence exists for the ability of MAC to improve performance, with research on MSPE being in its infancy.

Mindfulness-Acceptance-Commitment Therapy (MAC)

The MAC intervention was developed by Gardner and Moore (2004) and is influenced by Kabat-Zinn's (1994) definition of mindfulness, combined with acceptance and commitment therapy approaches used in counselling psychology (Hayes et al., 1999). In MAC, mindful awareness is accompanied with acceptance of the current experience as it is, and commitment to value- or goal-driven behaviour (versus emotion-driven behaviour). The commitment component of the MAC approach requires a prior knowledge and understanding of the athlete's values and goals, and of the behaviours that help their performance. Thus, self-awareness and knowledge of their sport is required to make full use of this approach in performance improvement.

In their rationale for the use of mindfulness to improve sport performance, Gardner and Moore (2004) acknowledged that although improvement can be detected in use of a mental skill (e.g., imagery, positive self-talk), most mental skills used in interventions with athletes show inconsistent results regarding performance improvement. They argued that this might be because of inaccurate assumptions regarding what leads to excellent performance. Traditional mental skills training focuses on control of internal states by managing thoughts, images, and emotions (Gardner & Moore, 2004; Moore, 2009). Moore (2009) argues that these control-based techniques are built on the assumption that there is an 'ideal state' that leads to excellent performance, and

that an athlete must experience that ideal state in order to perform their best. Anecdotally, many athletes know this to be incorrect, at least some of the time, as many athletes can think of a time that they performed well while experiencing a host of negative emotions and sensations. Gardner and Moore (2012) argue that a mindful approach to sport performance is effective for maintaining or improving performance by increasing the proportion of thoughts or present-moment observations that are applicable to the task at hand.

There are seven modules in the MAC intervention that are completed in order, and a coach or leader must ensure athlete comprehension of each module before continuing (Gardner & Moore, 2007). Because of this focus on mastery of content, the length of the MAC intervention can vary, but it will last at least seven weeks.

Mindful Sport Performance Enhancement (MSPE)

In contrast to MAC, the MSPE approach focuses less on values and value-driven behaviour, and more on the progressive practice of non-reactive attentional control (Kaufman et al., 2018). MSPE uses the terms *concentration*, *letting go*, *relaxation*, *harmony, and rhythm*, and *forming key associations* (finding personal cues that bring you back into the moment) to describe the focus of the approach. The progression of practice begins with quiet settings and watching the breath or scanning the body. Over the course of the intervention, athletes are encouraged to practice these skills at home and log their experiences for later discussion. An acronym used to integrate mindfulness into life outside of sport and the training sessions is STOP: stop, take a few breaths, observe, and proceed (Kaufman et al., 2018).

Mindfulness in sport takes a different approach to performance improvement when compared to traditional mental skills training. It can be used in conjunction with traditional mental skills as described earlier in this chapter. There is evidence of improvement in athlete performance, mental health, and wellbeing through the application of positive self-talk, imagery, goal setting, relaxation, or activation. As with any mental, physical, or social skill, proper and consistent practice is key to improvement and ease of use.

NEUROFEEDBACK AND BIOFEEDBACK TRAINING FOR OPTIMISING SPORT PERFORMANCE

Psychophysiology is defined as 'the scientific study of the interrelationships of physiological and cognitive processes' (Schwartz & Olson, 2003, p. 5) and two types of psychophysiological interventions commonly utilised in sport are neurofeedback training (NFT) and biofeedback training (BFT). The training process involves the measurement of physiological or neurological activity that is then fed back to the athlete in real time in the form of audio or visual cues that enable the athlete to develop greater self-awareness and ability to voluntarily regulate physiological and neurological processes (Blumenstein & Hung, 2016; Schwartz & Andrasik, 2017).

Biofeedback Training

Biofeedback training equipment measures and feeds back physiological information associated with the stress response (e.g., heart rate, respiration rate and depth, heart rate variability, peripheral body temperature, and electrodermal activity) and has been identified as 'one of the most powerful techniques for facilitating learning of arousal-regulation' (Bar-Eli et al., 2002, p. 568). Fundamentally, when the sympathetic nervous system is activated, the body responds physiologically by increasing respiration rate, heart rate, electrodermal activity, and muscle tension, and by decreasing peripheral body temperature, in order to prepare the body to '*fight or*

flee' the stressful situation (e.g., Filaire et al., 2009). During BFT athletes observe their physiological data on a computer screen and train the ability to actively alter the various responses. For example, if under stress an athlete tenses their muscles, they would be encouraged to observe the tension level and attempt to lower it.

Neurofeedback Training

Neurofeedback training – also known as electroencephalography (EEG) biofeedback – involves the measurement of cortical activity (Schwartz & Andrasik, 2017). During NFT, electrodes are placed at specific locations on the surface of the scalp to measure minute electrical signals, which appear in five major frequencies: delta, theta, alpha, beta, and gamma (Cacioppo et al., 2016). (For a comprehensive review of the relationship between cortical frequency and sport, see Cheron et al., 2016.) During NFT, relevant components of the athlete's EEG are extracted and fed back in the form of audio and/or visual cues that indicate when they have met the predetermined threshold (Vernon, 2005). This feedback loop (generally considered operant conditioning) allows athletes to see their brainwaves visually, and based on reward contingent feedback, gives them the ability to progressively alter their brainwaves (Hammond, 2011; Schwartz & Andrasik, 2017). For example, sensorimotor rhythm (SMR) – a specific frequency within the low beta range that's correlated with an alert but calm mental state (Thompson & Thompson, 2015) – has been shown to enhance golf putting performance in golfers (Cheng et al., 2015).

In summary, BFT/NFT helps athletes learn how to effectively self-regulate physiological arousal and focus in the competitive environment. Both have been shown to reduce anxiety (Gevirtz, 2007), improve attention (Gruzelier et al., 2006), develop self-efficacy (Davis & Sime, 2005), and ultimately enhance performance (e.g., Blumenstein & Hung, 2016; Mirifar et al., 2017; Morgan & Mora, 2017; Xiang et al., 2018).

APPLICATIONS OF SPORT AND EXERCISE PSYCHOLOGY

Sport psychology is still a relatively new and rapidly expanding field compared to other areas of psychological practice and research such as clinical, health, forensic, and counselling psychology. As a result of how psychologist registration is legislated in Australia, the graduate training pathways and career options that are available to those wanting to work in sport psychology are somewhat limited. There are basically two career streams within the discipline of sport psychology: research and professional practice. Although each is associated with somewhat different training paths, there's considerable crossover between research and professional practice, as both undeniably inform one another. This section of the chapter will address both research and professional practice streams and highlight career and graduate training opportunities available in Australia.

THE PROFESSION OF SPORT AND EXERCISE PSYCHOLOGY IN AUSTRALIA

To provide some context, it's valuable to first situate the profession of sport and exercise psychology in Australia. The change to using sport AND exercise in this section is deliberate because in Australia the field is called *sport and exercise psychology*, which means researchers and psychologists need to demonstrate knowledge and competency of both sport and exercise contexts. From a professional practice standpoint, the APS College of Sport and Exercise Psychologists seeks to ensure that the highest possible standards of professional sport and exercise psychology practice and research are developed and upheld (Australian Psychological Society, 2021b). The College advises on the education and training requirements needed to provide high

quality sport and exercise psychology services in Australia and is responsible for developing and setting standards for both practice and supervision.

To become a full member of the College of Sport and Exercise Psychologists, you need to have undertaken at least six years of university training in psychology. That includes an undergraduate degree in psychology and then a postgraduate degree in sport and exercise psychology. In the postgraduate degree, you'll learn about the psychological factors that underpin sport and exercise performance, sports medicine and science, how to engage in culturally appropriate assessment of psychological aspects of sport and exercise performance using appropriate methodologies, and how to design and implement culturally appropriate sport and exercise psychological interventions (Australian Psychology Accreditation Council, 2019b). As with other areas of psychology, after graduating from the postgraduate degree, you'll need to undertake a further two years of practice or hands-on experience in sport and exercise psychology settings before you're eligible for full College membership (Australian Psychological Society 2021a). The College also offers student affiliate membership and provides professional development opportunities for all its members. All in all, the APS College of Sport and Exercise Psychologists is an important member group for those interested in pursuing a career and completing requisite training in the field of sport and exercise psychology in Australia.

In terms of being endorsed to practice as a sport and exercise psychologist, you first need to be registered as a generalist psychologist. In Australia, it's Ahpra – or more specifically the Psychology Board of Australia or PsyBA – who oversees registration for psychologists. The Psychology Board of Australia looks after the registration of all Australia-based psychologists, including both generalists and those with endorsed areas of practice such as sport and exercise psychology. What this means is that to call yourself a sport and exercise psychologist you need to apply to the PsyBA for what's called an *area of practice endorsement* (Psychology Board Australia, 2020b). To be endorsed you must undertake six years of university training – the same as what's required for full membership of the APS College of Sport and Exercise Psychologists, except that after the sixth year, you then have to engage in a PsyBA approved registrar program. This means after graduating from a postgraduate program in sport and exercise psychology, you need to undertake a minimum of 3,000 hours of Board approved supervised practice, engage in 80 hours of supervision with a Board-approved supervisor, and undertake 80 hours of active professional development (Psychology Board Australia, 2020).

To gain a sport and exercise psychology area of practice endorsement you will have gained and demonstrated competency in eight areas (Psychology Board of Australia, 2020a).

Once endorsed, you'll need to engage in continuing professional development in the above eight areas so you remain up-todate, and therefore competent to practice as a sport and exercise psychologist.

SPORT AND EXERCISE PSYCHOLOGY CAREERS AND TRAINING PATHWAYS IN AUSTRALIA

Unlike Canada and the United States, the training of all psychologists in Australia – including sport psychologists – is governed by a central body called the Australian Psychology Accreditation Council (APAC). The Australian Psychology Accreditation Council is an independent entity that has been tasked by the Federal Government with setting the educational and training standards that are required to become a psychologist. It accredits both undergraduate and postgraduate psychology degrees as having met APAC's standards, which are developed in consultation with PsyBA, the APS and its various colleges such as the College of Sport and Exercise Psychologists and other key stakeholders (Australian Psychology Accreditation Council, 2019a).

Career Pathways

Careers in sport psychology typically involve two streams: research and/or professional practice as a sport and exercise psychologist. While many professionals train and work exclusively in one stream, some pursue both. For instance, Professor Peter Terry from the University of Southern Queensland has been actively engaged in this dual role for over 35 years. Professor Terry has been a sport psychologist at nine Olympic Games, attended over 100 international events supporting athletes, teams, and coaches, and has authored over 260 publications. This reinforces the research-practice orientation that has long underpinned the field of sport and exercise psychology in Australia (Morris, 2007).

Research-Focused Careers

In terms of research-focused careers, the most prominent option for those who've completed a doctoral degree in sport psychology is an academic position in a university (e.g., lecturer) in Australia or abroad. A typical academic position in most universities, regardless of where they're located, involves teaching (e.g., lecturing, supervising undergraduate and postgraduate students), research (e.g., securing grants, preparing peer-reviewed publications), and service (e.g., serving on committees, performing administrative tasks) (Kenny & Fluck, 2019). Generally, the work expectation of an academic in most Australian universities is that 40 per cent of their time/effort will be spent on teaching, 40 per cent will be spent on conducting their own research, and 20 per cent will be dedicated to service activities (Miller, 2019).

There are limited sport psychology specific research-oriented careers outside of academia in Australia. However internationally such positions can be found within the sport domain to conduct research and program evaluations for organisations such as the Coaching Association of Canada (CAC) and the British Olympic Committee (BOA). Outside of sport, research positions have been offered within government departments (e.g., Department of Health) and healthcare organisations (e.g., Cancer Council Australia) to investigate, for example, the influence of parents on children's activity levels, and the relationship between diet and physical activity in secondary students.

Careers in Professional Practice

There are three types of careers related to professional practice in sport and exercise psychology that depend on practitioners' education and training. The first is a practitioner who hasn't undergone university postgraduate sport and exercise psychology training, but who works with athletes and coaches on mental health issues. They would have some knowledge and competency in the sport context, and would either have generalist registration as a psychologist or an area of practice endorsement such as a clinical psychologist. The second is as a sport and exercise psychologist where the practitioner works only in the sport context. They may work on mental health and wellbeing issues, but much of their work would be on enhancing performance. Such full-time positions are limited in Australia and are usually associated with Institutes of Sport (e.g., the AIS). The third is where the sport and exercise psychologist works in both sport and non-sport contexts with athletes and non-athletes. The presenting issues would be a mixture of mental health, wellbeing and performance enhancement, but are more likely to be mental health and wellbeing focused. It's important to note that in Australia, the only person who can call themselves a 'sport and exercise psychologist' is someone who Aphra has endorsed as being able to practice in the area of sport and exercise psychology, as explained in the previous chapter section. All the above three types of practitioners must be registered with Aphra, and must hold at minimum generalist registration. Specific course work/professional development and supervised

practice or peer supervision in sport and exercise is a requirement no matter the educational background of the professional in order to ensure they're practicing within their areas of training and competency.

The full-time sport and exercise psychologist role is what most students have in mind when working towards professional practice in the field of sport psychology. The goals of a sport and exercise psychologist are to teach, guide, and support individuals in their practice and development of psychosocial skills for optimal performance, day-to-day living, and wellbeing. Effective sport and exercise psychologists work in an interdisciplinary fashion and can provide services to a range of performers in diverse contexts in order to address specific sport/performance issues, as well as more general psychological mental health and wellbeing affecting daily functioning in life. This is possible because in Australia, regardless of their specialisation, all psychologists are trained to be generalist psychologists first and specialists second. This means all registered psychologists have base level knowledge and skills in psychological mental health and wellbeing.

Those pursuing careers as registered psychologists (general or in a particular area of endorsement) may choose to apply their work in the context of sport, and complete additional training in sport sciences to fully understand and navigate the competitive sport environment. While these practitioners may consult on sport performance concerns, they may focus more on the diagnosis and treatment of clinical symptoms and mental disorders such as addictions, eating disorders, and depression. Registered psychologists must always work within the limits of their competency, and it's not unusual for a sport and exercise psychologist to work in unison with a clinical psychologist to determine athletes and coaches' needs and to develop mental health care plans while respecting their performance goals and sport culture. Working collaboratively with other mental health practitioners, as well as other sport science professionals will arguably lead to better experiences and outcomes.

A career as a sport and exercise psychologist is dynamic and multifaceted. Given the developing nature of the field of sport psychology, many professionals take on a mixture of full- and part-time contracts with sport organisations, teams, and individual clients, as well as multi-roles that combine administrative duties with mental health and wellbeing consulting. Practitioners endeavouring to develop and sustain a private practice can benefit from additional know-how in business management, finance, and marketing. Unfortunately, because these topics are absent from APACs Accreditation Standards for Psychology Programs, they're not considered to be requisite core knowledge and competencies, and are therefore not covered in most postgraduate training programs (Australian Psychology Accreditation Council, 2019b).

Practitioners also work in various related, but non-sport-specific fields to provide performance consulting in domains such as healthcare, education, and the workplace. Some adopt multiple roles by combining academic and leadership/management positions with their own sport psychology practice. For example, some people have concurrently worked as a sport and exercise psychologist, adjunct lecturer, and sport centre director.

Other career options for those who've studied sport psychology include sport-related roles such as Athlete Career and Education Advisors or Athlete Engagement and Wellbeing Advisors with representative bodies like the AFL Players Association or sport institutes like the West Australian Institute of Sport. Moreover, training in this field is highly relevant for intervention, consultation, and program development in professions pertaining to health, education, and high-risk occupations (e.g., military personnel, firefighters, the police, paramedics). Examples of such careers include: (a) counselling within Australian university student services centres to support students' academic success, (b) providing mental health promotion services to enhance the morale,

welfare, and operational readiness of military personnel, and (c) providing resilience training in hospitals to help children and families cope with cancer.

EDUCATIONAL PATHS AND TRAINING

Although research and professional practice career paths in sport psychology intersect, the training requirements to successfully pursue these careers tend to be more distinctly delineated. One study showed that graduate students in this area often feel they can't gain the 'best of both worlds' by completing a single educational program, and thus make an explicit choice between pursuing an academic research position and professional practice (Fitzpatrick et al., 2016). As such, those who want to combine both aspects in their work may need to seek additional training opportunities outside of their program requirements.

Training for Research

Research careers related to sport psychology – whether in post-secondary institutions or outside of academia (e.g., in the public sector) – typically require graduate research training acquired in a doctoral (i.e., PhD) degree. Faculty academic members at Australian universities normally hold a doctoral degree in their field of study, however given the competitive nature of the field, it's not uncommon to pursue postdoctoral training (e.g., a postdoctoral fellowship) to obtain an academic position. Those who conduct research outside of higher education (e.g., in industry or the public sector) often acquire the research competencies necessary for their roles by completing a master's degree, although a doctoral degree is often required for more senior research positions (e.g., Research Fellow).

Australia has a history of vibrant scholarship in sport psychology, however changes over the past last 10–15 years with the introduction of psychology Medicare items has seen the reduction of high-quality graduate programs in the field. Therefore, the opportunities for students who want to acquire research training in sport psychology has become limited. The University of Queensland is the only remaining public university to offer a postgraduate psychologist training program in which one can specialise in sport psychology. This program is housed within both the Psychology and Human Movement Schools and offers students the possibility to study psychological aspects of sport with academic staff who conduct research in sport psychology. A postgraduate degree in psychology (e.g., organisational, clinical, health) with a research focus on sport is another pathway to an academic or research career in the field, however, coursework and training in sport psychology is limited to postgraduate sport and exercise psychology postgraduate programs.

While the discipline may be contracting, research training opportunities for students in Australia aren't necessarily limited. Students can specialise in sport psychology research at any Australian university provided there are supervisors who have research expertise in sport psychology to supervise them. The University of Southern Queensland, the University of Queensland, and the University of Adelaide have staff in Psychology or Human Movement Schools with expertise to supervise PhD students.

Given the diversification of the field of sport psychology and its interdisciplinary nature, research within doctoral programs may focus on a variety of topics, depending on the interests of thesis supervisors. Examples include psychological skills training, life skills development, concussion management, injury rehabilitation, mental health and wellbeing, motivation and emotion, leadership and group dynamics, physical activity promotion, and suicidality. These topics can be researched within different contexts in (e.g., youth, elite, disability sport) and outside of sport (e.g., business, performing arts, the military, medicine).

In Australia, students who pursue thesis-based research degrees such as a PhD won't be exposed

to coursework related to sport psychology. The only doctoral level coursework-thesis based graduate program is the Doctor of Psychology (Sport & Exercise, Clinical) degree from the Institute for Social Neuroscience Psychology in Melbourne, Victoria. Thesis-based programs involve completing a master's thesis or doctoral dissertation where students conduct research in order to make new contributions to the sport psychology literature. Master's degrees generally require two years of full-time study, while doctoral degrees typically span three years or more. However, students are encouraged to consult the specific requirements of the programs they're interested in and should take note of any additional research training that may be required to achieve their career goals.

Training for Professional Practice

As noted previously, graduate programs preparing students for professional practice are as limited as they are in other countries such as Canada. That said, besides the previously mentioned doctoral program, two Australian programs are geared toward applied careers in the field and provide students with the opportunity to combine research training with applied consulting work and supervision. These are the Master of Psychology (Sport & Exercise) from the Institute for Social Neuroscience Psychology, and the Master of Psychology (Sport and Exercise) from the University of Queensland. Students in both programs are required to complete coursework and a research thesis.

What's unique about the Australian training pathway is that it doesn't matter what type of master's degree a student studies – half of the courses that students study focus on generic clinical knowledge and half of the placement hours are completed in clinical contexts that focus on ensuring students develop generic psychological skills. This leaves the other half of the courses and placement hours devoted to specialist study. The Institute of Social Neuroscience Psychology offers a unique Doctor of Psychology (Sport & Exercise, Clinical) which produces graduates who not only complete a thesis – and thus are engaged in research – but on graduation are eligible for the PsyBA registrar program in both sport and exercise psychology and clinical psychology areas of endorsement. Students wanting to pursue a career as a sport and exercise psychologist need to examine the professional membership requirements of the APS College of Sport and Exercise Psychologists and PsyBA requirements for areas of practice endorsement to help guide their training decisions, as programs and training requirements can and do change.

The general criteria for generalist registration in Australia from June 2022 will be six years of psychology training that includes master's level postgraduate training. While formal opportunities to study sport psychology are limited, some academic staff conduct research in the field of sport psychology in Schools that offer clinical psychology training in Australia (e.g., University of Adelaide, University of Southern Queensland). Thus, while these programs don't offer specialised postgraduate training in sport psychology, students could potentially pursue a master's degree in clinical psychology while conducting research on topics in sport psychology (e.g., motivation, coping, suicidality, and sport participation) or engage in a sport-focused placement as part of their supervised practice hours.

Conclusion

In summary, there are several careers and training paths available to anyone wanting to specialise and work in the field of sport psychology in Australia. Both research and professional practice are meaningful endeavours to pursue, and a combination of these two options is often an ideal choice for

those seeking to play multiple roles. Australia is home to two sport psychology graduate programs directed by world-leading scholars and practitioners. Students may be successful in accessing one of these educational programs that meets their personal needs and interests. They equally have the option to complete additional training to meet the requirements of research and/or professional practice organisations that will open doors for future employment.

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REFERENCES

Australian Psychological Society. (2021a). *About us. Sport and exercise psychology.* https://groups.psychology.org.au/csep/about_us/

Australian Psychological Society. (2021b). *APS College of Sport and Exercise Psychologists*. https://groups.psychology.org.au/csep/

Australian Psychology Accreditation Council. (2019a). *APAC's main functions.* https://www.psychologycouncil.org.au/main_functions

Australian Psychology Accreditation Council. (2019b). *New standards for 2019.* https://www.psychologycouncil.org.au/standards_review

Bandura, A. (1997). *Self-efficacy: The exercise of control*. Times Books.

Bar-Eli, M., Dreshman, R., Blumenstein, B., & Weinstein, Y. (2002). The effect of mental training with biofeedback on the performance of young swimmers. *Applied Psychology: An International Review*, *51*(4), 567–581. https://doi.org/10.1111/1464-0597.00108

Blumenstein, B., & Hung, T. M. (2016). Biofeedback in sport. In R. J. Schinke, K. R. McGannon, & B. Smith (Eds.), *Routledge international handbook of sport psychology* (pp. 429–438). Routledge.

Bühlmayer, L., Birrer, D., Röthlin, P., Faude, O., & Donath, L. (2017). Effects of mindfulness practice on performance-relevant parameters and performance outcomes in sports: A meta-analytical review. *Sports Medicine*, *47*(11), 2309–2321. https://doi.org/10.1007/s40279-017-0752-9

Burton, D. (1989). The impact of goal specificity and task complexity on basketball skill development. *The Sport Psychologist*, *3*(1), 34–47 https://doi.org/10.1123/tsp.3.1.34

Cacioppo, J. T., Tassinary, L. G., & Berntson, G. G. (2016). *Handbook of psychophysiology* (4th ed.). Cambridge University Press.

Camacho, T. C., Robert, R. E., Lazarus, N. B., Kaplan, G. A., & Cohen, R. D. (1991). Physical activity and depression: Evidence from the Alameda county study. *American Journal of Epidemiology*, *134*(2), 220–231. https://doi.org/10.1093/oxfordjournals.aje.a116074

Carron, A. V., Colman, M., Wheeler, J., & Stevens, D. (2002). Cohesion and performance in sport: A meta-analysis. *Journal of Sport and Exercise Psychology*, *24*(2), 168–188. https://doi.org/10.1123/jsep.24.2.168

Eys, M., Evans, B., & Benson, A. (2020). *Group dynamics in sport* (5th ed.). Fitness Information Technology.

Cheng, M.-Y., Huang, C.-J., Chang, Y.-K., Koester, D., Schack, T., & Hung, T.-M. (2015). Sensorimotor rhythm neurofeedback enhances golf putting performance. *Journal of Sport and Exercise Psychology*, *37*(6), 626–636. https://doi.org/10.1123/jsep.2015-0166

Cheron, G., Petit, G., Cheron, J., Leroy, A., Cebolla, A., Cevallos, C., Petieau, M., Hoellinger, T., Zarka, D., Clarinval, A. M., & Dan, B. (2016). Brain oscillations in sport: Toward EEG biomarkers of performance. *Frontiers in Psychology*, *7*, Article 246. 1–25. https://doi.org/10.3389/fpsyg.2016.00246

Covassin, T., Elbin, R. J., Beidler, E., LaFevor, M., & Kontos, A. P. (2017). A review of psychological issues that may be associated with a sport-related concussion in youth and collegiate athletes. *Sport, Exercise, and Performance Psychology*, *6*(3), 220–229. https://doi.org/10.1037/spy0000105

Davis, P. A., & Sime, W. E. (2005). Toward a psychophysiology of performance: Sport psychology principles dealing with anxiety. *International Journal of Stress Management*, *12*(4), 363–378. https://doi.org/10.1037/1072-5245.12.4.363

Dithurbide, L., DesClouds, P., McNeill, K., Durand-Bush, N., DeRoo, C., & Christie, S. (2019). Sport psychology. In M. E. Norris (Ed.), *The Canadian handbook for careers in psychological science*. eCampusOntario. https://ecampusontario.pressbooks.pub/psychologycareers/chapter/sport-psychology/

Evans, L., Jones, L., & Mullen, R. (2004). An imagery intervention during the competitive season with an elite rugby union player. *The Sport Psychologist*, *18*(3), 252–271. https://doi.org/10.1123/tsp.18.3.252

Feltz, D. L. (1984). Self-efficacy as a cognitive mediator of athletic performance. In W. F. Straub & J. M. Williams (Eds.), *Cognitive sport psychology* (pp. 191–198). Sport Science Associates.

Feltz, D. L., & Lirgg, C. D. (1998). Perceived team and player efficacy in hockey. *Journal of Applied Psychology*, *83*(4), 557–564. https://doi.org/10.1037/0021-9010.83.4.557

Filaire, E., Alix, D., Ferrand, C., & Verger, M. (2009). Psychophysiological stress in tennis players during the first single match of a tournament. *Psychoneuroendocrinology*, *34*(1), 150–157. https://doi.org/10.1016/j.psyneuen.2008.08.022

Fitzpatrick, S. J., Monda, S. J., & Butters Wooding, C. (2016). Great expectations: Career

planning and training experiences of graduate students in sport and exercise psychology. *Journal of Applied Sport Psychology*, *28*(1), 14–27. https://doi.org/10.1080/10413200.2015.1052891

Forsblom, K., Konttinen, N., Weinbergm R., Matilanien, & Lintunen, L. (2019). Perceived goal setting practices across a competitive season. *International Journal of Sports Science & Coaching, 14*(6), 765–778. https://doi.org/10.1177/1747954119880994

Gardner, F. L., & Moore, Z. E. (2004). A mindfulness-acceptance-commitment-based approach to athletic performance enhancement: Theoretical considerations. *Behavior Therapy*, *35*(4), 707–723. https://doi.org/10.1016/S0005-7894(04)80016-9

Gardner, F. L., & Moore, Z. E. (2007). *The psychology of enhancing human performance: The mindfulness-acceptance-commitment (MAC) approach*. Springer Publishing.

Gardner, F. L., & Moore, Z. E. (2012). Mindfulness and acceptance models in sport psychology: A decade of basic and applied scientific advancements. *Canadian Psychology*, *53*(4), 309–318. https://doi.org/10.1037/a0030220

Gevirtz, R. N. (2007). Psychophysiological perspectives on stress-related and anxiety disorders. In P. M. Lehrer, R. L. Woolfolk & W. E. Sime (Eds.), *Principles and practice of stress management* (3rd ed., pp. 209–226). Guilford Press.

Gill, D., Williams, L., & Reifsteck, E. (2017). *Psychological dynamics of sport and exercise* (4th ed.). Human Kinetics.

Gould, D., & Tuffey, S. (1996). Zones of optimal functioning research: A review and critique. *Anxiety, stress, and coping*, *9*(1), 53–68. https://doi.org/10.1080/10615809608249392

Gruzelier, J., Egner, T., & Vernon, D. (2006). Validating the efficacy of neurofeedback for optimising performance. In N. Christa & K. Wofgang (Eds.), *Progress in brain research* (Vol. 159, pp. 421–431). Elsevier.

Hammond, D. C. (2011). What is neurofeedback: An update. *Journal of Neurotherapy*, *15*(4), 305–336. https://doi.org/10.1080/10874208.2011.623090

Hanin, Y. L. (2007). Emotions and athletic performance: Individual zones of optimal functioning model. In D. Smith & M. Bar-Eli (Eds.), *Essential readings in sport and exercise psychology* (pp. 55–73). Human Kinetics.

Hayes, S. C., Strosahl, K., & Wilson, K. G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change.* Guilford Press.

Hu, M.X., Turner, D., Generaal, E., Bos, D., Ikram, M.K., Cuijupers, P., & Pennix, B. W. J. H. (2020). Exercise interventions for the prevention of depression: a systematic review of meta-analyses. *BMC Public Health*, 20, Article 1255. https://doi.org/10.1186/s12889-020-09323-y

Hutchinson, J., Sherman, T., Martinovic, N., & Tenenbaum, G. (2008). The effect of

manipulated self-efficacy on perceived sustained effort. *Journal of Applied Sport Psychology*, *20*(4), 457–472. https://doi.org/10.1080/10413200802351151

Jones, G., & Hardy, L. (1990). Stress in sport: Experiences of some elite performers. In G. Jones & L. Hardy (Eds.), *Stress and performance in sport* (pp. 247–277). Wiley.

Jones, G., & Swain, A. (1995). Predisposition to experience debilitative and facilitative anxiety in elite and non-elite performers. *The Sport Psychologist*, *9*(2), 201–211. https://doi.org/10.1123/tsp.9.2.201

Kabat-Zinn, J. (1982). An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: Theoretical considerations and preliminary results. *General Hospital Psychiatry*, *4*(1), 33–47. https://doi.org/10.1016/0163-8343(82)90026-3

Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness.* Delacorte.

Kabat-Zinn, J. (1994). *Wherever you go, there you are: Mindfulness meditation in everyday life.* Hyperion.

Kabat-Zinn, J. (2017). Too early to tell: The potential impact and challenges—ethical and otherwise—inherent in the mainstreaming of dharma in an increasingly dystopian world. *Mindfulness*, *8*, 1125–1135. https://doi.org/10.1007/s12671-017-0758-2

Kabat-Zinn, J., Beall, B., & Rippe, J. (1985). *A systematic mental training program based on mindfulness meditation to optimize performance in collegiate and Olympic rowers.* World Congress in Sport Psychology, Copenhagen, Denmark.

Kaufman, K. A., Glass, C. R., & Arnkoff, D. B. (2009). Evaluation of mindful sport performance enhancement (MSPE): A new approach to promote flow in athletes. *Journal of Clinical Sport Psychology*, *3*(4), 334–356. https://doi.org/10.1123/jcsp.3.4.334

Kaufman, K. A., Glass, C. R., & Pineau, T. R. (2018). *Mindful sport performance enhancement: Mental training for athletes and coaches*. American Psychological Association. https://doi.org/10.1037/0000048-000

Kenny, J., & Fluck, A. (2019). Academic administration and service workloads in Australian universities. *Australian Universities' Review, 61*(2), 21–30. https://www.nteu.org.au/article/Academic-administration-and-service-workloads-in-Australian-universities-%28AUR-61-02%29-21564

Kyllo, L. B., & Landers, D. M. (1995). Goal setting in sport and exercise: A research synthesis to resolve the controversy. *Journal of Sport and Exercise Psychology*, *17*(2), 117–137. https://doi.org/10.1123/jsep.17.2.117

Landers, D. M., & Arent, S. M. (2010). Arousal-performance relationship. In J.M. Williams (Ed.), *Applied sport psychology: Personal growth to peak performance* (6th ed., pp. 221–246). McGraw-Hill.

LaPrade, R. F., Agel, J., Baker, J., Brenner, J. S., Cordasco, F. A., Côté, J., Engebretsen, L., Feeley, B. T., Gould, D., Hainline, B., Hewett, T. T., Jayanthi, N., Kocher, M. S., Myer, G. D., Nissen, C. W., Philippon, M. J., & Provencher, M. T. (2016). AOSSM early sport specialization consensus statement. *Orthopaedic Journal of Sports Medicine*, *4*(4). https://doi.org/10.1177%2F2325967116644241

Lundqvist, C., Ståhl, L., Kenttä, G., & Thulin, U. (2018). Evaluation of a mindfulness intervention for Paralympic leaders prior to the Paralympic Games. *International Journal of Sports Science & Coaching*, *13*(1), 62–71. https://doi.org/10.1177/1747954117746495

MacDonald, L. A., Oprescu, F., & Kean, B. M. (2018). An evaluation of the effects of mindfulness training from the perspectives of wheelchair basketball players. *Psychology of Sport & Exercise*, *37*(July), 188-195. https://doi.org/10.1016/j.psychsport.2017.11.013

Mammen, G., & Faulkner, G. (2013). Physical activity and the prevention of depression: A systematic review of prospective studies. *American Journal of Preventive Medicine*, *45*(5), 649–657. https://doi.org/10.1016/j.amepre.2013.08.001

Marks, D. R., Wolanin, A., & Shortway, K. M. (2021). *The Routledge handbook of clinical sport psychology.* Routledge.

Mirifar, A., Beckmann, J., & Ehrlenspiel, F. (2017). Neurofeedback as supplementary training for optimizing athletes' performance: A systematic review with implications for future research. *Neuroscience & Biobehavioral Reviews*, *75*(April), 419–432. https://doi.org/10.1016/j.neubiorev.2017.02.005

Miller, J. (2019). Where does the time go? An academic workload case study at an Australian university. *Journal of Higher Education Policy and Management,* 41(6), 633–645. https://doi.org/10.1080/1360080X.2019.1635328

Moore, Z. E. (2009). Theoretical and empirical developments of the mindfulness-acceptance-commitment (MAC) approach to performance enhancement. *Journal of Clinical Sport Psychology*, *3*(4), 291–302. https://doi.org/10.1123/jcsp.3.4.291

Morgan, S. J., & Mora, J. A. M. (2017). Effect of heart rate variability biofeedback on sport performance, a systematic review. *Applied Psychophysiology and Biofeedback*, *42*(3), 235–245. https://doi.org/10.1007/s10484-017-9364-2

Moritz, S. E., Feltz, D. L., Fahrback, K., & Mack, D. (2000). The relation of self-efficacy measures to sport performance: A meta-analytic review. *Research Quarterly for Exercise and Sport*, *71*(3), 280–294. https://doi.org/10.1080/02701367.2000.10608908

Morris, T. (2007). Sport psychology in Australia: A profession established. *Australian Psychologist,* 30(2), 128–134. https://doi.org/10.1080/00050069508258917

Myers, N. D., Feltz, D. L., & Short, S. E. (2004). Collective efficacy and team performance: A longitudinal study of collegiate football teams. *Group Dynamics: Theory, Research, and Practice*, *8*(2), 126–138. https://doi.org/10.1037/1089-2699.8.2.126

Myers, N. D., Payment, C. A., & Feltz, D. L. (2004). Reciprocal relationships between

collective efficacy and team performance in women's ice hockey. *Group Dynamics: Theory, Research, and Practice*, *8*(3), 182–195. https://doi.org/10.1037/1089-2699.8.3.182

Nideffer, R. M. (1976). Test of attentional and interpersonal style. *Journal of Personality and Social Psychology, 34*(3), 394–404. https://doi.org/10.1037/0022-3514.34.3.394

Nideffer, R. M., & Segal, M. (2001). Concentration and attention control training. In J. M. Williams (Ed.), *Applied sport psychology: Personal growth to peak performance* (4th ed., pp. 312–332). Mayfield.

Post, P., Muncie, S., & Simpson, D. (2012). The effects of imagery training on swimming performance: An applied investigation. *Journal of Applied Sport Psychology*, *24*(3), 323–337. https://doi.org/10.1080/10413200.2011.643442

Psychology Board of Australia. (2020a). *Guidelines on area of practice endorsements*. https://www.psychologyboard.gov.au/Standards-and-Guidelines/Codes-Guidelines-Policies/Guidelines-area-of-practice-endorsements.aspx

Psychology Board of Australia. (2020b). *Registrar program.* https://www.psychologyboard.gov.au/Endorsement/Registrar-program.aspx

Rosenbaum, S., Tiedemann, A., Sherrington, C., Curtis, J., & Ward, P. B. (2014). Physical activity interventions for people with mental illness: A systematic review and meta-analysis. *The Journal of Clinical Psychiatry*, *75*(9), 964. https://doi.org/10.4088/jcp.13r08765

Rumbold, J., Fletcher, D., & Daniels, K. (2012). A systematic review of stress management interventions with sport performers. *Sport, Exercise, and Performance Psychology*, *1*(3), 173–193. https://doi.org/10.1037/a0026628

Santorelli, S. (1999). *Heal thy self: Lessons on mindfulness in medicine.* Bell Tower.

Schinke, R. J., & McGannon, K. R. (2014). The changing landscape of sport psychology service in Canada. In J. G. Cremades & L. S. Tashman (Eds.), *Becoming a sport, exercise, and performance psychology professional: A global perspective* (pp. 210–216). Psychology Press.

Schinke, R. J., Stambulova, N. B., Si, G., & Moore, Z. (2017). International society of sport psychology position stand: Athletes' mental health, performance, and development. *International Journal of Sport and Exercise Psychology*, *16*(6), 622–639. https://doi.org/10.1080/1612197X.2017.1295557

Schwartz, M. S., & Andrasik, F. (2017). *Biofeedback: A practitioner's guide*. Guilford Publications.

Schwartz, M. S., & Olson, R. P. (2003). A historical perspective on the field of biofeedback and applied psychophysiology. In M. S. Schwartz & F. Andrasik (Eds.), *Biofeedback: A practitioner's guide* (3rd ed., pp. 3–19). Guilford Press.

Shirazipour, C. H., Evans, M. B., Caddick, N., Smith, B., Aiken, A. B., Martin Ginis, K. A., & Latimer-Cheung, A. E. (2017). Quality participation experiences in the physical

activity domain: Perspectives of veterans with a physical disability. *Psychology of Sport and Exercise*, *29*(March), 40–50. https://doi.org/10.1016/j.psychsport.2016.11.007

Spence, J. T., & Spence, K. W. (1966). The motivational components of manifest anxiety: Drive and drive stimuli. In C. D. Spielberger (Ed.), *Anxiety and behaviour* (pp. 291–326). Academic Press.

Thompson, M., & Thompson, L. (2015). *The neurofeedback book: An introduction to basic concepts in applied psychophysiology* (2nd ed.). Association for Applied Psychophysiology and Biofeedback.

Triplett, N. (1898). The dynamogenic factors in pacemaking and competition. *American Journal of Psychology*, *9*(4), 507–552. https://doi.org/10.2307/1412188

University of Queensland. (n.d.) *Master of psychology*. https://future-students.uq.edu.au/study/programs/master-psychology-5666

Vealey, R., & Chase, M. (2008). Self-confidence in sport: Conceptual and research advances. In T. Horn (Ed.), *Advances in sport psychology* (3rd ed., pp. 65–97). Human Kinetics.

Vernon, D. J. (2005). Can neurofeedback training enhance performance? An evaluation of the evidence with implications for future research. *Applied Psychophysiology and Biofeedback*, *30*, Article 347, 347–364. https://doi.org/10.1007/s10484-005-8421-4

Vidic, Z., St. Martin, M., & Oxhandler, R. (2018). Mindfulness meditation intervention with male collegiate soccer players: Effect on stress and various aspects of life. *The Sport Journal*. http://thesportjournal.org/article/mindfulness-meditation-intervention-with-male-collegiate-soccer-players-effect-on-stress-and-various-aspects-of-life/

Weinberg, R. S. (2000). Goal setting in sport and exercise: How research can inform practice. In B. A. Carlsson, U. Johnson & F. Wettertrand (Eds.), *Sport psychology conference in the new millennium* (pp. 76–84). Halmstead University.

Weinberg, R. S. (2004). Goal setting practices for coaches and athletes. In T. Morris & J. Summers (Eds.), *Sport psychology: Theory, applications, and issues* (2nd edition, pp. 278–293). Wiley.

Weinberg, R. S., & Gould, D. (2019). *Foundations of sport and exercise psychology* (7th ed.). Human Kinetics.

White, R. L., Babic, M. J., Parker, P. D., Lubans, D. R., Astell-Burt, T., & Lonsdale, C. (2017). Domain-specific physical activity and mental health: A meta-analysis. *American Journal of Preventive Medicine*, *52*(5), 653–666. https://doi.org/10.1016/j.amepre.2016.12.008

Widmeyer, W. N., Brawley, L. R., & Carron, A. V. (1985). *The measurement of cohesion in sport teams: The group environment questionnaire.* Sports Dynamics.

Wulf, G. (2013). Attentional focus and motor learning: A review of 15 years. *International Review of Sport and Exercise Psychology*, *6*(1), 77–104. https://doi.org/10.1080/1750984X.2012.723728

Xiang, M-Q., Hou, X-H., Liao, B-G., Liao, J-W., & Hu, M. (2018). The effect of neurofeedback training for sport performance in athletes: A meta-analysis. *Psychology of Sport and Exercise*, *36*, 114–122. https://doi.org/10.1016/j.psychsport.2018.02.004

Zhang, C., Si, G., Duan, Y., Lyu, Y., Keatley, D. A., & Chan, D. C. (2016). The effects of mindfulness training on beginners' skill acquisition in dart throwing: a randomized controlled trial. *Psychology of Sport and Exercise*, *22*, 279–285. https://doi.org/10.1016/j.psychsport.2015.09.005

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CHAPTER 13.

ENVIRONMENTAL PSYCHOLOGY

KERRY ANNE MCBAIN

INTRODUCTION

Have you ever wondered whether playing music while you study helps you to focus? Why some people bicycle, recycle, or minimise the use of heating in winter or air conditioning in summer – while others do not? Do people become more aggressive when it's hot outside? Would playing in a park, as opposed to a paved playground, help children with Attention Deficit Hyperactivity Disorder (ADHD) focus their attention better? These are examples of questions that environmental psychologists seek to answer.

OVERVIEW OF ENVIRONMENTAL PSYCHOLOGY

Environmental psychology is the study of how we, as individuals and as part of groups, interact with our physical settings — how we experience and change the environment, and how our behaviour and experiences are changed by the environment. In environmental psychology, *environment* includes both natural and built settings, such as parks, natural landscape, homes, workplaces, and public spaces. Environments can vary in scale from the immediate space surrounding us to the room, the building, the neighbourhood, the city, the wilderness, or the globe.

In most fields of psychology, behaviour seems to be considered as occurring in a vacuum. The physical environment is often treated in research as mere "noise," something to be controlled for in studies. Environmental psychology embraces the physical world in which we experience life. Environmental psychologists consider any human activity to be situated along three dimensions at the same time: the person (e.g., age, gender, personality, culture), the place (e.g., home, classroom, workplace, park, nature), and the psychological process of interest (e.g., socialising, working, learning, playing, exploring). Change over time can be an important dimension as well. Behaviours in a particular physical environment can be influenced by social-psychological contextual factors such as the presence of others or one's role in the group, and these are also part of environmental psychology (Gifford, 2014).

Environmental psychology is a relatively new field — about 60 years old now – that has grown rapidly in response to the degradation of the natural environment and the need to design buildings that better meet the needs of their users. Like most areas of psychology, environmental psychology has a theoretical side as well as an applied side. Some environmental psychologists focus their efforts on developing knowledge, whereas others work as consultants to answer practical questions; others aim to make their work serve immediate, practical goals as well as to contribute knowledge for others to build on (Stokes, 1997).

The goal of environmental psychologists who focus mainly on research is to understand individuals' transactions with their environments. They study fundamental psychological processes as they relate to the physical environment, including environmental perception, spatial

cognition, appraisals of environments, and personality, child development, and social interaction as they relate to the environment. They ask questions such as: How do humans mentally represent their spatial surroundings? What are some common attitudes toward energy consumption? Which physical variables affect learning in the classroom?

At a broader level, environmental psychologists examine how transactions with our work, home, and natural environments are related to our satisfaction and productivity, well-being, and mental health. For example, do crowded cities contribute to depression? Does better lighting on sidewalks encourage people to go out at night? Does indoor air quality associate with better performance at the office? How is climate change affecting mental health (Gifford & Gifford, 2016; Reser & Bradley, 2020)?

In the long run, many environmental psychologists aim to use the knowledge generated by their research to influence built and natural environments in positive and constructive ways. This can be done by contributing to government policies or programs that help to promote sustainable behaviour. It could also be done through influencing the architecture and construction industries by informing design guidelines or by offering recommendations to city planners about how to encourage place-making and create urban spaces that are psychosocially healthy.

Other environmental psychologists work as consultants with goals to solve a practical problem brought to them by someone with a need to solve that problem. Such issues are likely to be local, specific, and pressing. When a client is less interested in the theoretical aspects of the problem, then effective, quick, and evidence-based action is called for. For example, when city officials are interested in establishing a food recycling program, their main concern could be to increase the number of people who participate in their program. They expect the environmental psychologist they hire knows the theories and the body of research and can translate this knowledge into practical recommendations that will result in more food recycling in the city.

The work of an environmental psychologist is interdisciplinary in nature. Depending on the area of focus, the successful researcher-practitioner will know something about architecture, organisational behaviour, health, natural resources management, and other related disciplines. Knowing how to work with other specialists is important, as is understanding the needs of users (or potential users) of the setting that is being planned, constructed, or renovated. Often, projects involving environmental psychology will be important to community leaders, volunteers, and policy-makers who may use research findings to formulate or change government regulations and guidelines. In short, environmental psychologists:

- Seek to improve our stewardship of natural resources and help mitigate climate change, including how best to adapt to it;
- Understand how to increase the habitability and sustainability of the built environment;
- Study everyday settings in relation to human attitudes, emotions, and behaviours;
- Recognise that we actively cope with, and shape, environments; we do not passively respond to environmental forces; and,
- Work in conjunction with other disciplines

A BIT OF HISTORY

Psychologists have conducted research on the built environment since the 1920s. In the earliest studies (as cited in Gifford, 2014), researchers investigated the effects of noise and heat on work performance, classroom seating on student grades, and lighting on work performance in the infamous Hawthorne studies — studies you might have heard about in some of your courses.

There is a section about these studies in the chapter on Industrial, Work, and Organisational Psychology.

The modern intellectual roots of environmental psychology can be traced back to the middle of the 20th century. Egon Brunswik (1943) argued that psychologists should focus on an organism's environment as much as the organism itself. Like Brunswik, Kurt Lewin (1946) viewed the environment as an essential influence on behaviour. He also emphasised that research should be driven by real-world problems and applied to solve real-world social problems. Roger Barker (1968) developed the concept of behaviour settings: small ecological units, such as the corner store and the high school basketball game. Barker observed remarkable consistency in the pattern of activity for occupants in a given role in relation to the physical-spatial aspect of the behaviour setting.

The 1950s experienced an increase in research in "architectural psychology," which focused on human interactions with the built environment. The primary goal of these studies was to improve human well-being and satisfaction by designing or altering built environments. A key example is the redesign of parts of a large, fortress-like mental hospital, as they were called in the 1950s. A team consisting of a psychiatrist, a psychologist, and an architect carefully considered the particular needs and behaviours of the patients in the re-design of the hospital at Weyburn, Saskatchewan (Osmond, 1957). This project might have been the very first time in which environmental psychology was consciously applied to the design of a building, and we will revisit this project below.

The 1960s saw rapid growth in environmental psychology. In a time of increased societal awareness and concern about the health of the natural world, researchers began to study environmental issues such as how human activity negatively influences the biophysical environment and how human-caused problems (e.g., noise and pollution) affect human health and well-being (see Diener et al., 2018). These topics soon became an essential part of what environmental psychologists do.

In the late 1960s, environmental psychology became a named, distinct field (e.g., Proshansky et al., 1970). Today, the field encompasses the study of environmental and architectural concerns. Environmental psychologists around the world tend to focus on research areas of specific concern to their country or region. Most large national and international psychology organisations have a section or division that is devoted to environmental psychology. For example the Australian Psychological Society has a section on the psychology of climate change and the environment.

CURRENT ENVIRONMENTAL PSYCHOLOGY RESEARCH TOPICS

Research in environmental psychology is diverse and largely focused on the interplay between humans and their surroundings. As an applied discipline, research is theoretically-based, problem-oriented and solution-focused, covering a wide range of environments such as natural and built environments, social settings, homes, communities, and community spaces, learning spaces, and virtual environments. Here are some of the current topics of interest to environmental psychologists:

- Ecological consequences of human actions
- Sustainability and climate change
- Psychological aspects of resource management
- Psychological and behavioural aspects of people and nature
- Place attachment and place identity

- Environmental risks and hazards: perception, behaviour, and management
- Personal and group-based perceptions and evaluations of buildings, and natural landscapes
- Design and evaluation of workplaces, schools, homes, public buildings, and public spaces
- Cognitive mapping, spatial cognition, and wayfinding
- Leisure and tourism behaviour in relation to their physical settings
- Stress related to physical settings
- Social space: crowding, privacy, territoriality, personal space

The interests of environmental psychologists continue to reflect the environment we live in, building upon the past and adapting to new conditions (e.g., the creation of virtual reality expands the notion of "environment"). The 21st century is an era of digital communication and artificial intelligence as well as of ecological threats (e.g., Stokols, 2018). How do advances in new technologies change our experiences and relationships with our physical environment? Is the workplace or the school still a relevant conception of place when people can work, learn, shop, consult with a therapist or sight-see places around the world, from just about any physical setting with the aid of technology? How will we perceive, think, and behave in virtual reality, augmented reality, and "smart" buildings and cities? These will be the subjects of inquiry for environmental psychology in the near future.

RESEARCH METHODS

Environmental psychologists use both quantitative and qualitative approaches, choosing the one that best fits the research question, or using multiple methods if resources allow. Many of the methods are commonly used in psychology and, thus, are introduced in most undergraduate research methods textbooks. Other techniques are specific to research in environmental psychology. The environmental psychologist's job is to know which methods of gathering information will yield quality answers to the questions at hand, and to use these methods well.

Research methods and techniques commonly used in environmental psychology include:

- Self-reports, such as questionnaire surveys, attitude and other rating scales, and interviews;
- Experiments conducted in a laboratory;
- Field studies and quasi-experiments conducted in everyday physical settings;
- Analyses of archival data, such as census data, police crime reports, park visitors' logs;
- Naturalistic observation and recording of behaviours in an unobtrusive and systematic manner;
- Physiological measurements (e.g., cortisol level, skin conductance to measure stress level);
- Case studies of particular places; and
- Content analyses of documents and messages (e.g., media reports, twitter and Instagram posts, social media feeds).

Some techniques used specifically (or more often) in environmental psychology are:

- Behaviour mapping (i.e., keeping a visual record of people's behaviours in a space; for

example, where visitors are distributed in an art gallery at a particular time);

- Cognitive mapping (i.e., drawing an individual's mental representation of a place in a sketch map);
- Analyses of physical traces, including accretion (i.e., the deposit of material, such as litter) and erosion (i.e., the selective wear of material, such as floor tiles);
- Environmental simulations, ranging from static photos to videos, physical mock-ups, computer-generated images, to computer games and virtual reality applications. These simulations are particularly useful for studying the responses of future users to environments that are yet to be built; and
- Needs assessment (architectural programming, before the project is built) and post-occupancy evaluation (did the building design work as planned?).

Each of these methods and techniques has strengths and weaknesses. In most cases, using multiple methods and techniques that complement one another in order to gain a comprehensive picture of the person-environment transaction under study is the wisest approach. As in any research involving human participants, the researcher has the responsibility to address any ethical concerns and to weigh the potential social benefits against the social costs of the research. If you are keen to learn more about the research methods and techniques used in environmental psychology research, take a look at the research methods text edited by Robert Gifford (2016).

SOME SIGNIFICANT RESEARCH STUDIES IN ENVIRONMENTAL PSYCHOLOGY

Several pioneers of environmental psychology have focused on our use of social space. The early work of Robert Sommer (e.g., his book *Personal Space: The Behavioral Basis of Design*, 1969) emphasised our need to maintain our individual, interpersonal distances (personal space) when we interact with different sorts of others, in different sorts of situations. He also examined the negative consequences that follow when others invade that space. In his book *The Environment and Social Behavior: Privacy, Personal Space, Territoriality, and Crowding* (1975), Irwin Altman described how we use our personal space, the territories we claim and maintain, and environmental and other means to maintain control over our interactions with other people (i.e., privacy). These concepts and principles have been influential to user- centred design. Living in a post pandemic world will almost certainly dictate further evaluation of such concepts as the world adapts to new ways of negotiating space and understanding our relationships with it. The impact of social distancing, isolation and quarantine will likely stimulate long term reconsideration of personal and public norms, values and beliefs, the impact of which will flow through to urban design (see Hamidi et al., 2020; Stevens et al., 2021; Tootell et al., 2021).

Recall the mental health hospital redesign project described earlier in the section about the history of environmental psychology. Based on the idea developed from that project, Robert Sommer formulated the concept of *social design* (Sommer, 1983). This approach to architectural design involves (a) working with people who use, or will use, the building rather than for them, (b) involving these people who will use the building in planning and management of the spaces around them, and (c) educating them to use the environment wisely and creatively to achieve a harmonious balance between the social, physical, and natural environments.

The key benefit of this approach is serving the needs of the building occupants or potential users first. Architects often view their designs differently from laypersons (Gifford et al., 2000), and the paying client (e.g., a school board) often does not communicate with those who occupy or will use the building (e.g., teachers and students). Social design emphasises building users

as active agents in the design process. A wonderful example of where this type of logic has been applied in Australia is illustrated by the partnership formed between a Melbourne-based architectural practice and the University of Melbourne School of Design. This partnership led to the development of a framework of design and environmental factors that contribute to the wellbeing of patients, their families, and their care providers . Utilising a comprehensive comparative case study analysis of contemporary Australian paediatric hospitals, the team assessed the benefits of design features including distraction (achieved with the addition of nature and artwork), wayfinding and social spaces . The findings of the initial research which included focus groups with patients, caregivers and staff, and hundreds of hours of observations of waiting room areas, atriums, family lounges, play areas and other public spaces indicated that waiting areas designed to allow supervised play can reduce anxiety in children and their caregivers. They also found that animal enclosures help children, and their families reflect upon their hospital experience more positively. The translational design strategies, evaluative methods and guidelines produced as a result of this research will help to improve the design of hospitals and healthcare facilities, making them more supportive spaces for patients, their families and staff and (McLaughlan, 2018; McLaughlan et al, 2019; McLaughlan & Pert, 2017).

Post-occupancy evaluations are conducted after people move into the space to provide feedback to the architects and the paying client as to the effectiveness of the design. In the end, architects and paying clients could benefit as well by avoiding mistakes that would be costly to remedy over the building's life (Brown, 2018; Lacroix & Gifford, 2018; Reizenstein, 1982; Wener et al., 2016). However, some resistance to this approach occurs because of the extra effort of involving users and occupants, unrealistic expectations about the effectiveness of social design, and conflict among principal players.

Significant contributions have been made to our understanding of what it is like to be living and working in extreme environments, including at both the Arctic and the Antarctic regions (Nicolas et al., 2019 ; Suedfeld, 1991). People in such environments experience not only extremely hostile physical conditions, but also but also psychological feelings of isolation from close family and friends combined with confinement with a small group in close quarters. Difficulty with communication and interpersonal conflicts may occur, depending on the duration of stay. Preventive measures to minimise these problems might include selecting members through vigorous physiological and psychological testing, capsule design, and countering boredom. Individuals who can do the required tasks, are emotionally stable, and are "sociable introverts" may be most suitable for this type of work.

Capsule designs that incorporate colour and variety, and some means for personalisation and privacy, can help to reduce psychological stress. Individuals use different methods to fill unstructured time, reducing monotony in the capsule environment by injecting novelty into their lives; some focus on the capsule or its surrounding environment (e.g., sunrise), whereas others focus on re-creations of their far away home (e.g., a birthday party; Suedfeld & Steel, 2000). These research findings have spurred an interest in investigating the possibilities for human habitation in space and other planets, and environmental psychology has contributed to such endeavours (Gifford & Lacombe, 2006).

Research investigating human adaptation to isolated, confined, and extreme (ICE) environments has considered a myriad of factors which may impact human adaptation in these settings including individual psychological reactions and group dynamics, environmental conditions (temperature, weather, dark/light cycles), facilities available for use, communication with the outside world, individual and crew characteristics (Häuplik-Meusburger, & Bishop, 2021; Palinkas & Suedfeld, 2021; Suedfeld & Steel, 2000).

For a long time, the study of climate change was the territory of the natural sciences. However,

in the last decade or so, social scientists have been successful to an increasing extent in convincing natural scientists and the public that they can play an important role in helping solve the problem. Both human solutions and technological solutions are necessary. After all, it is primarily human activities that have devastated much of our natural environment and as a result, it is our duty and responsibility to mitigate that impact through our individual and collective actions. Several environmental psychologists (Swim et al., 2011) served on the American Psychological Association's Task Force on Climate Change, which compiled a report to guide future actions. Since that time environmental psychologists have become increasingly active in this space. In Australia, environmental psychologists have made valuable contributions to the writing of a diverse range of discussion papers and government submissions and led the development of the *Australian Psychological Society Climate Change Empowerment Handbook* (Burke et al., 2017). For more information on the advocacy undertaken by environmental psychologists visit the Australian Psychological Society webpage.

Robert Gifford (2011) has identified almost 40 psychological barriers that limit climate change mitigation and adaptation which he calls the "Dragons of Inaction." These dragon "species" fall into several "genera," such as (a) Change Unnecessary, (b) Conflicting Goals and Aspirations, (c) Interpersonal Relations, (d) Lacking Knowledge, (e) Tokenism, (f) Limited Cognition, (g) Government and Industry, and (h) Discredence (Lacroix et al., 2019). Understanding the type of barriers faced by different types of people is the basis for crafting interventions that will help people engage in climate change mitigation. Recent research has made some interesting connections between these psychological barriers and the differences we observe between intentions and actions regarding climate positive food choices (Gifford & Chen, 2017), energy conservation (Lacroix & Gifford 2018), intentions to prepare and act in the event of a disaster (Asgarizadeh & Gifford, 2022).

HOW ENVIRONMENTAL PSYCHOLOGY MAKES A DIFFERENCE

Environmental psychologists help to improve the world in a variety of ways. Sometimes this impact is dramatic. Other times, it is more subtle. In this section, we celebrate a few of the ways in which environmental psychology has changed the world for the better.

Promoting Sustainability

One of the most important challenges that environmental psychology is helping to overcome is to apply psychological knowledge to help preserve the natural environment. Many threats to environmental sustainability are caused by human behaviour, and so targeting human behaviour that has harmful effects is paramount for protecting nature and natural resources. Among other activities, environmental psychologists identify behaviours that can and should be changed to improve environmental quality, determine which factors affect these behaviours, and develop and evaluate interventions to change them.

Most people have some concern for the environment, and this concern stems in part from egoistic, altruistic, and biospheric environmental values (e.g., Schultz, 2001). Knowing what individuals value helps environmental psychologists develop intervention policies. For instance, if a person or group's primary concern is egoistic, for example, interventions can be implemented that emphasize the personal benefits of caring for the environment, such as lower electricity bills. In contrast, for those who hold hedonic values, favouring their immediate experiences (Steg et al., 2014), interventions that focus on their own improved comfort or enjoyment might be most effective.

In the Australian landscape, researchers have engaged in a diverse range of projects in the

area of pro-environmental behaviour including research aimed at understanding attitudes and behaviours influencing water security (Dean, et al., 2019; Mankad et al., 201 5; Spinks, et al., 2017), pro-environmental behaviours in the workplace (Bissing-Olson et al, 2015; Hicklenton et al., 2019), the role of self-efficacy and belief in motivating environmentally sustainable behaviour (Schutte & Bhullar, 2017), and the effects of collective-level variables on pro-environmental action (Barth et al., 2021).

To add to the challenge, many individuals rebound from their pro-environmental behaviours. For example, people who reduce energy consumption in one area sometimes compensate by increasing consumption in another (Otto et al., 2014). Environmental psychologists seek not only to alter behaviour, but to ensure that this altered behaviour leads to real and lasting results. Studying how, and how much, rebound occurs is an area of active research with important policy implications (Santarius & Soland, 2018).

These are just a few ways in which environmental psychology intersects with conservation research and environmental policy change. Consider reading the reviews by Steg and Vlek (2009) and Grilli and Curtis (2021) for in-depth reviews about how to encourage pro-environmental behaviour, or the chapters by Gifford (2002; 2014) that describe the many ways that environmental psychology has already made a difference in the world.

Environmental Identity and Nature

How individuals think about themselves can be an important predictor of pro-environmental behaviour. Those who identify as pro-environmental tend to engage in more pro-environmental behaviours (Whitmarsh & O'Neill, 2010). Environmental psychologists use this knowledge to help influence pro-environmental actions, such as using marketing strategies that encourage greener identity.

Emotional connection to the natural world is also an important predictor of well-being and ecological behaviour (Nisbet et al., 2009). By helping people develop bonds with nature, environmental psychologists promote sustainable behaviour and overall well-being (Barrera-Hernandez et al., 2020; Martin et al., 2020).

Restorative Environments

Another key point of interest in environmental psychology is the effects of natural settings on people. A growing number of environmental psychologists specialize in restorative environments, places that help people recover from day-to-day psychological overload. Nature walks, for example, can lead to stress reduction, improved attention, and decreased anger (Fuegen, & Breitenbecher, 2018; Hartig et al., 2003). Similarly, children whose homes are close to green spaces show fewer ill-effects from stressful life events (Wells & Evans, 2003). Interesting research conducted in Australia (Lee et al., 2015) found that the use of a 40 second micro-break featuring a green roof view is a simple and effective strategy for boosting attention at work. This research provides a valuable incentive for urban planners and developers, to consider the addition of green walls and green roofs into our workplaces and high-density cities. Additionally, recent Australian research conducted by Rose Macaulay and colleagues (2022) considered how, when environmental conditions for restoration and connectedness are lacking (such as when living in an urban environment), mindful engagement could be utilised as a strategy to help people notice and re-engage with nature. This research reveals the importance of preserving accessible green areas in our cities and homes.

The concept of biophilic design which embraces the use of natural elements as design inspiration for the built environment has received increasing attention over the past two decades

for its positive impacts on health and wellbeing. The aim of biophilic design is to create artificial environments as similar as possible to natural ones stimulating similar positive emotions to those elicited when interacting with natural settings. The positive effect of biophilic design on health and wellbeing has been linked to increased productivity in the workplace (Browning & Ryan, 2020; Lei et al., 2021; Söderlund, 2019).

Place Attachment

Place attachment is the bond between a person and a place. It is a complex reciprocal association involving cognition, affect, and behaviour (Lewicka, 2011; Manzo, & Devine-Wright, 2020; Scannell & Gifford, 2010). The bond can exist at very small scales (e.g., one's own room) through to neighbourhoods, parks, cities, regions, nations, and the globe.

With the rise of globalisation and mobility, place attachment has become of particular interest as person-place bonds have become increasingly tenuous. This, in turn, can influence the perceived safety and pleasantness of an environment, and can lead to people being less protective of these places. Because of this, and because place attachment is associated with environmental risk perception, place attachment is important for understanding pro-environmental behaviour (Fornara, et al., 2020).

Place attachment can be a means of influencing behaviour in positive ways, for example by encouraging the use of public spaces such as national parks. Place attachment is also relevant for disaster psychology and has been used to help understand and mitigate the grief experienced by those forced to relocate or, indeed, why people sometimes stay in a dangerous place when, rationally speaking, they should leave (Billig, 2006; Mihaylov et al., 2020; Scannell et al., 2016).

Wayfinding

Knowledge of how people find their way in the built and natural environment has a wide range of applications. For example, psychologists have used this research to help catch criminals (Canter & Larkin, 1993), and locate persons lost in urban areas and the wilderness (Heth & Cornell, 1998; Cornell & Hill, 2006). It has also been used to discover ways to evacuate dangerous areas more quickly, such as a burning hotel (Kobes et al., 2009) or a smoky railway tunnel (Cosma et al., 2016). Wayfinding research has also helped to develop head-mounted displays that can aid firefighter navigation in emergencies (Wilson & Wright, 2009).

ENHANCING BUILDING DESIGN

Environmental psychology first started by making its mark in the world of architecture. For decades, environmental psychologists have been working to improve buildings by focusing on the human dimensions of building design. Here are a few examples of how environmental psychologists have improved the lives of users in several types of built settings.

Offices

Offices have been a popular setting for environmental psychologists to study because many people work in them and because they are comparatively accessible sites for field research that are relatively easy to simulate in a laboratory setting (Sundstrom, 1987; Veitch, 2012). Poorly designed environments can trigger ill effects such as excess fatigue and psychological distress (Colenberg et al., 2021; Evans et al., 2012). Conversely, for example, greater well-being in the form of satisfaction with one's performance, and fewer physical symptoms at the end of the workday, have been associated with working under lighting conditions that one appraises as comfortable (Sander et al, 2019; Veitch et al., 2008; Zhu et al., 2019).

Long-Term Care Centres

Environment-behaviour researchers (who encompass people with professional training in a variety of related social sciences, architecture and design, whose interests overlap) have played a role in the planning and evaluations of long-term care facilities for elderly residents with Alzheimer's disease. To learn more about the research in this area including the history of the design of residential care facilities the Margaret Calkins (2018) article – *From research to application: Supportive and therapeutic environments for people living with dementia,* and the literature reviews conducted by Chaudhury and colleagues (2018), and Day and colleagues (2000) are recommended.

Health Care Facilities

Environmental psychologists have conducted research to evaluate the physical design of health care facilities, including hospitals and the doctor's office, to improve the health care experiences of patients and those who work in healthcare environments. The right design elements can help reduce stress reported by patients, provide patients with a greater sense of control of their environment and their recovery, help to facilitate social support, provide a welcome distraction (Andrade et al., 2017; Devlin, 2014), and help to reduce aggression in psychiatric facilities (Ulrich et al., 2018). Research has also suggested that design elements can help or hinder the level of communication and teamwork in healthcare facilities (Gharaveis et al., 2018).

Classrooms and Learning Spaces

Researchers have conducted research in learning spaces in educational settings. Sommer and Olsen (1980) designed a "soft classroom" by adding semicircular, cushion-covered bench seating, adjustable lighting, carpeting, and fabric wall decorations to a university classroom. The addition of these features significantly increased student participation. Interestingly, the soft classroom continued to facilitate increased student engagement even after 17 years despite wear-and-tear on the furnishings (Wong et al., 1992).

Researchers have also examined how acoustics affect students using informal learning spaces in universities. In one study, students perceived those spaces with lower background sound levels (e.g., from ventilation systems), higher people-generated sound levels, and more reverberation (which presumably provides greater conversational privacy) were more suitable for engaging in such activities as small-group discussions and socializing than other spaces (Scannell et al., 2016).

Teachers are also affected by the physical environment in schools. For example, changing a traditional library design toward a more social and technologically focused "learning commons" model can affect the perceptions and behaviours of teachers using these spaces in secondary schools (McCunn & Gifford, 2015).

Daycare Centres and Playgrounds

Preschoolers and school children spend much time in daycare centres and playgrounds. The design, layout, and the type of ground surface, in open areas of a daycare can influence the physical activity level of preschoolers. Hard surfaces and curvy pathways are conducive to such physical activities as running and playing with wheeled toys. By contrast, soft, sand-covered ground surfaces in playgrounds inhibit higher levels of physical activities (Cosco et al., 2010). As noted by Cosco et al., this has important implications for playground design. Ground coverings are often chosen for safety, but it could be that associated levels of physical activity should also be considered when selecting a ground covering.

The design of playground equipment can also facilitate different types of play. When outdoor playground equipment has enclosed spaces, nodes and connector spaces, and stage-type spaces,

preschool children tend to engage in fantasy play. When children are able to use loose parts to construct their own spaces (constructive play), they are more likely to engage in dramatic play (e.g., "play house") as well (Maxwell et al., 2008).

Cities

Modern planners and city officials are often keen to understand why people use urban spaces in particular ways so that public dollars can be used wisely. Environmental psychologists have emphasized that city and community planning should be approached from psychological and public health perspectives, citing extensive evidence that the physical environment, and its organization, influence attitudes, health, and well-being on large and small scales (McCunn & Gifford, 2014; Wells et al., 2010). For example, noise has well-understood effects on cardiovascular health and on children's reading acquisition, and this evidence should be taken into account when planning the locations of hospitals and schools in relation to roads with heavy traffic and railways.

Environmental psychology can also improve the habitability of buildings and enhance urban neighbourhoods and parks. One classic example is the application of cognitive mapping principles to the urban design of Ciudad Guyana, a planned Venezuelan city that was created to centrally amalgamate several existing small towns (Appleyard, 1976). More recently, McCunn and Gifford (2017) found associations between feeling a sense of place in urban settings and the various navigational strategies that city dwellers use to find their way around their town. When recalling settings for which they felt a strong sense of place, participants recalled cognitive paths through those settings more readily.

EDUCATION AND CAREER PATHWAYS FOR ENVIRONMENTAL PSYCHOLOGY

Undergraduate psychology degrees in Australia contain several core foundational topic areas with a diverse choice of electives. There are some Universities across Australia that have elective subjects in environmental psychology or content related to it though they are limited in number. James Cook University offers two subjects in environmental psychology, the University of New England has one subject, and the University of Tasmania has a human behaviour in extreme environments subject. In New Zealand you will find environmental psychology offered at the University of Canterbury, Victoria University of Wellington, and the University of Waikato. Courses aligned with or extending knowledge of Environmental Psychology can be found in postgraduate options such as those offered by the University of Melbourne environmental programs and the ANU Master of Environment. Those wishing to pursue research in the area typically pursue a PhD and certainly this would be considered a strong foundation upon which to build a sustainable career pathway.

CAREERS

Compared to other applied subfields of psychology, such as clinical psychology, the number of positions is small. However, the number of environmental psychology graduates is also small. Because environmental psychology is still a relatively new discipline, finding a job and establishing a career depends more on one's ability and initiative. The good news is that employers, and the public, are becoming more aware of the contributions from those with have training in environmental psychology. Given the size and scope of the field of environmental psychology and given the fact that the use of the term 'psychologist' in Australia is reserved for those who are registered practitioners, you will not see such a tile appear in advertised positions. For instance, many positions open to a person with training in the area have titles, such as environment health and safety consultant, sustainability advisor, facility planner, design programmer, or design

researcher, so it really is a matter of learning to recognise and extrapolate the skills that you have acquired during your broad undergraduate degree to an advertised skill set. Graduates of psychology degrees are well trained in research methods, data collection and analysis and the distilling of knowledge to a range of audiences. They are equally at home understanding the nuances of behaviour, behaviour modification, and the impact of the environment on health, wellbeing, and resilience.

Government and Other Agencies

You may find work in areas aligned with environmental health and safety, natural resource management or environmental sustainability and resilience. There may be opportunities to work with the CSIRO or local councils as part of their urban planning and development, urban renewal, disaster preparedness and management teams.

Architectural and Sustainability Consulting

In recent years, some architects and design professionals have advocated the use of evidence-based design. They strive to consider the best evidence from research and practice and include the client, and in some cases social scientists, in making critical decisions about each project (Hamilton & Watkins, 2009). Designers of health care facilities are particularly keen on this idea. Enterprising individuals might find a career path by joining such firms. Others have chosen to become consultants offering service to a variety of corporations and industry utilising the broad knowledge and skill set studies in environmental psychology can bring to the table. For instance, there may be opportunities to work on projects related to climate change, urban renewal, and environmental degradation, architectural design, or workplace health and safety. Even more enterprising individuals run their own consultancy companies. Robert Gifford, Lindsay McCunn, Lily Bernheimer and Sally Augustin are a few examples of those who have chosen such an opportunity.

As noted in the introduction, projects that call for the services of someone with training in environmental psychology are sometimes less theoretical and more practical and immediate. For example, if an architecture firm asks for help to complete a post-occupancy evaluation on buildings it has designed, but no data exists from before construction to statistically compare how people think about or use the spaces after they have been built, that would be a consulting project intended to determine how the building performs in the eyes of its occupants. If meaningful comparison data exist, it might also be possible to take a more scholarly approach from which to develop generalisable knowledge. Both career options contribute to the body of knowledge in environmental psychology but differ in the kinds of relationships formed among team members, communities, and organisations, as well as the ways in which a project's results are communicated.

Conclusion

Environmental psychology is a small field within the larger discipline of psychology, but its scope is broad and includes some of the most important problems that challenge humans in our time. If your career goal is to work with others to make a positive difference in the world, this may be the field for you. Indeed, there is no shortage of topics and problems that await your attention. As one of the major reviews of the field was titled, E*nvironmental psychology matters* (Gifford, 2014).

Additional resources

Suggested readings

- Clayton, S. D. (Ed.) (2012). *The Oxford handbook of environmental and conservation psychology.* New York: Oxford. https://doi.org/10.1093/oxfordhb/9780199733026.001.0001
- Gifford, R. (2014). *Environmental psychology: Principles and practice* (5th ed.). Colville WA: Optimal Books.
- Gifford, R. (2014). Environmental psychology matters. *Annual Review of Psychology*, 65, 541-580. https://psycnet.apa.org/doi/10.1146/annurev-psych-010213-115048
- Gifford, R. (Ed.) (2016). *Research methods in environmental psychology.* Wiley-Blackwell.
- Sommer, R. (1983). *Social design: Creating buildings with people in mind*. Englewood Cliffs, NJ: Prentice Hall.
- Steg, L., & de Groot, J. I. M. (Eds.) (2019). *Environmental psychology: An introduction* (2nd ed.). New York: Wiley.

Scholarly Journals

- The Journal of Environmental Psychology (the major journal in the field)
- Environment and Behavior

Overseas Graduate Programs

- Graduate Programs in Environmental and Conservation Psychology

Career Resources

- Environmental Psychology Degree Programs and Schools

Professional Organisations

- International Association of Applied Psychology (IAAP), Division of Environmental Psychology (Global)
- International Association for People-Environment Studies (IAPS)
- American Psychological Association (APA) Division 34: Environmental, Population and Conservation Psychology
- Australian Psychological Society Psychology and the Environment Interest Group
- Environmental Design Research Association (EDRA)
- The Environmental Psychologists Global Census: A list of around 1000 researchers who identify partly or wholly as environmental psychologists.

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REFERENCES

Altman, I. (1975). *The environment and social behaviour: Privacy, personal space, territoriality, and crowding*. Brooks Cole.

Andrade, C. C., Devlin, A. S., Pereira, C.R., & Lima, M. L. (2017). Do the hospital rooms make a difference for patients' stress? A multilevel analysis of the role of perceived control, positive distraction, and social support. *Journal of Environmental Psychology, 53,* 63-72. https://doi.org/10.1016/j.jenvp.2017.06.008

Appleyard, D. (1976). *Planning a pluralistic city.* Massachusetts Institute of Technology Press.

Asgarizadeh, Z., & Gifford, R. (2022). Community and psychological barriers to tsunami preparation. *Natural Hazards*, 1-16. https://doi.org/10.21203/rs.3.rs-762366/v1

Barker, R. G. (1968). *Ecological psychology: Concepts and methods for studying the environment of human behaviour.* Stanford University Press.

Barrera-Hernández, L. F., Sotelo-Castillo, M. A., Echeverría-Castro, S. B., & Tapia-Fonllem, C. O. (2020). Connectedness to nature: its impact on sustainable behaviors and happiness in children. *Frontiers in Psychology*, 276. https://doi.org/10.3389/fpsyg.2020.00276

Barth, M., Masson, T., Fritsche, I., Fielding, K., & Smith, J. R. (2021). Collective responses to global challenges: The social psychology of pro-environmental action. *Journal of Environmental Psychology, 74*, 101562. https://doi.org/10.1016/j.jenvp.2021.101562

Billig, M., (2006). Is my home me castle? Place attachment, risk perception, and religious faith. *Environment and Behavior, 38,* 248-265. https://doi.org/10.1177%2F0013916505277608

Blissing-Olson, Megan J., Fielding, Kelly S. and Iyer, Aarti (2015). Diary Methods and workplace pro-environmental behaviors. In J. L. Robertson, & J. Barling (Eds.), *The Psychology of Green Organizations* (pp. 95-116) Oxford University Press.

Brown, T. L. (2018) A critical assessment of the place of post-occupancy evaluation in the critique and creation of socially responsible architecture, *Intelligent Buildings International, 10*(3), 182-193, https://doi.org/10.1080/17508975.2018.143770

Browning, W. D., & Ryan, C. O. (2020). *Nature inside: a biophilic design guide*. Routledge.

Brunswik, E. (1943). Organismic achievement and environmental probability. *Psychological Review, 50*, 255-272. https://psycnet.apa.org/doi/10.1037/h0060889

Burke, S., Keast, S., Gridley, H. (2017). *Climate change empowerment handbook.* Australian Psychological Society.

Calkins, M. P. (2018). From research to application: Supportive and therapeutic environments for people living with dementia. *The Gerontologist*, *58*, S114-S128. https://doi.org/10.1093/geront/gnx146

Canter, D., & Larkin, P. (1993). The environmental range of serial rapists. *Journal of Environmental Psychology, 13*, 63–70. https://doi.org/10.1016/S0272-4944(05)80215-4

Chaudhury, H., Cooke, H. A., Cowie, H., & Razaghi, L. (2018). The influence of the physical environment on residents with dementia in long-term care settings: A review of the empirical literature. *The Gerontologist, 58*(5), e325-e337. https://doi.org/10.1093/geront/gnw259

Colenberg, S., Jylhä, T., & Arkesteijn, M. (2021). The relationship between interior office space and employee health and well-being–a literature review. *Building Research & Information, 49*(3), 352-366 https://doi.org/10.1080/09613218.2019.1710098

Cornell, E., H., & Hill, K. A. (2006). The problem of lost children. In C. Spencer & M. Blades

(Eds.), *Children and their environments: Learning, using and designing spaces* (pp. 26-41). Cambridge University Press.

Cosco, N. G., Moore, R. C., & Islam, M. Z. (2010). Behaviour mapping: A method for linking preschool physical activity and outdoor design. *Medicine & Science in Sports & Exercise, 42*, 513-519. https://doi.org/10.1249/mss.0b013e3181cea27a

Cosma, G., Ronchi, E., & Nilsson, D. (2016). Way-finding lighting systems for rail tunnel evacuation: A virtual reality experiment with Oculus Rift®. *Journal of Transportation Safety & Security, 8*(1), 101–117. https://doi.org/10.1080/19439962.2015.1046621

Day, K., Carreon, D., & Stump, C. (2000). The therapeutic design of environments for people with dementia: a review of the empirical research. *The Gerontologist, 40*(4), 397-416. https://doi.org/10.1093/geront/40.4.397

Dean, Angela J., Fielding, Kelly S., Newton, Fiona and Ross, Helen (2019). Community knowledge about water and engagement in waterway protection in I. R. Tibbetts, P. C. Rothlisberg, D. T. Neil, T. A. Homburg, D. T. Brewer and A. H. Arthington (Eds.), *South East Queensland. Moreton Bay Quandamooka and catchment: past, present and future.* (pp. 61-72). Moreton Bay Foundation.

Devlin, A. S. (2014). *Transforming the doctor's office: Principles from evidence-based design*. Routledge.

Diener, E., Oishi, S., & Tay, L. (2018). Introduction by the editors. In E. Diener, S. Oishi, & L. Tay (Eds.), Handbook of well-being. DEF Publishers. https://www.nobascholar.com/books/1

Evans, G. W., Becker, F. D., Zahn, A., Bilotta, E., & Keesee, A. M. (2012). Capturing the ecology of workplace stress with cumulative risk assessment. *Environment and Behaviour, 44*(1), 136-154. https://doi.org/10.1177%2F0013916510389981

Forward, F., Scopelliti, M., Carrus, G., Bonnes, M., & Bonaiuto, M. (2020). Place attachment and environment-related behavior. In *Place Attachment* (pp. 193-207). Routledge.

Fuegen, K., & Breitenbecher, K. H. (2018). Walking and being outdoors in nature increase positive affect and energy. *Ecopsychology, 10*(1), 14-25. https://doi.org/10.1089/eco.2017.0036

Gifford, E., & Gifford, R. (2016). The largely unacknowledged impact of climate change on mental health. *Bulletin of the Atomic Scientists*, 72, 292-297. https://doi.org/10.1080/00963402.2016.1216505

Gifford, R. (2002). Making a difference: Some ways that environmental psychology has made a difference. In R. Bechtel & A. Churchman (Eds.), *Handbook of environmental psychology* (2nd ed., pp. 323-334). Wiley.

Gifford, R. (2011). The dragons of inaction: Psychological barriers that limit climate change mitigation and adaptation. *American Psychologist*, *66*, 290-302. https://psycnet.apa.org/doi/10.1037/a0023566

Gifford, R. (2014). Environmental psychology matters. *Annual Review of Psychology*, *65*, 541-579. https://doi.org/10.1146/annurev-psych-010213-115048

Gifford, R. (Ed.). (2016). *Research methods for environmental psychology.* Wiley- Blackwell.

Gifford, R. D., & Chen, A. K. (2017). Why aren't we taking action? Psychological barriers to climate-positive food choices. *Climatic change*, *140*(2), 165-178. https://doi.org/10.1007/s10584-016-1830-y

Gifford, R., Hine, D. W., Muller-Clemm, W., & Shaw, K. T. (2000). Decoding modern architecture: Understanding the aesthetic differences of architects and laypersons. *Environment and Behavior*, *32*, 163-187. https://doi.org/10.1177%2F00139160021972487

Gifford, R., & Lacombe, C. (2006). *The habitability of spacecraft: Assessments of a virtual reality simulation of the ISS across cultural, personality, and individual differences.* Unpublished report for the Canadian Space Agency

Gharaveis, A., Hamilton, D. K., & Pati, D. (2018). The impact of environmental design on teamwork and communication in healthcare facilities: a systematic literature review. *HERD: Health Environments Research & Design Journal, 11*(1), 119-137. https://doi.org/10.1177/1937586717730333

Grilli, G., & Curtis, J. (2021). Encouraging pro-environmental behaviours: A review of methods and approaches. *Renewable and Sustainable Energy Reviews, 135*, 110039. https://doi.org/10.1016/j.rser.2020.110039

Hamidi, S., Sabouri, S., & Ewing, R. (2020). Does density aggravate the COVID-19 pandemic? Early findings and lessons for planners. *Journal of the American Planning Association, 86*(4), 495-509. https://doi.org/10.1080/01944363.2020.1777891

Hamilton, D., & Watkins, D. (2009). *Evidence-based design for multiple building types*. Wiley.

Hartig, T., Evans, G. W., Jamner, L. D., Davis, D. S., & Gärling, T. (2003). Tracking restoration in natural and urban field settings. *Journal of Environmental Psychology, 23*, 109–123. https://doi.org/10.1016/S0272-4944(02)00109-3

Häuplik-Meusburger, S., & Bishop, S. (2021). Habitability: From Place to Space. In *Space Habitats and Habitability* (pp. 9-23). Springer, Cham.

Heth, C. D., & Cornell, E. H. (1998). Characteristics of travel by persons lost in Albertan wilderness areas. *Journal of Environmental Psychology, 18*, 223–235. https://doi.org/10.1006/jevp.1998.0093

Hicklenton, C., Hine, D.W., Loi, N.M. (2019) Can work climate foster pro-environmental behavior inside and outside of the workplace? *PLoS ONE 14*(10): e0223774. https://doi.org/10.1371/journal.pone.0223774

Kalantari, S., & Shepley, M. (2021). Psychological and social impacts of high-rise buildings: A review of the post-occupancy evaluation literature. *Housing Studies, 36*(8), 1147-1176. https://doi.org/10.1080/02673037.2020.1752630

Kellert, S., & Calabrese, E. (2015). *The practice of biophilic design.* Terrapin Bright LLC.

Kobes, M., Helsloot, I., de Vries, B., Post, J. G., Oberijé, N., & Groenewegen, K. (2009). Way finding during fire evacuation; an analysis of unannounced fire drills in a hotel at night. *Building and Environment, 45*, 537–548. https://doi.org/10.1016/j.buildenv.2009.07.004

Kormos, C. (2016). Personal, interpersonal, and contextual influences on consumer preferences for plug-in electric vehicles: A mixed-methods and interdisciplinary approach. (Doctoral dissertation, University of Victoria). http://hdl.handle.net/1828/7247

Lacroix, K., & Gifford, R. (2018). Psychological barriers to energy conservation behavior: The role of worldviews and climate change risk perception. *Environment and Behavior, 50*(7), 749-780. https://doi.org/10.1177/0013916517715296

Lacroix, K., Gifford, R., & Chen, A. (2019). Developing and validating the Dragons of Inaction Psychological Barriers (DIPB) scale. *Journal of Environmental Psychology, 63*, 9–18. https://doi.org/10.1016/j.jenvp.2019.03.001

Lee, K., Johnson, K., Williams, K., Sargent, L., & Williams, N (2015, May 28). Forget siestas, 'green micro-breaks' could boost work productivity. *The Conversation*. https://theconversation.com/forget-siestas-green-micro-breaks-could-boost-work-productivity-42356

Lei, Q., Yuan, C., & Lau, S. S. Y. (2021). A quantitative study for indoor workplace biophilic

design to improve health and productivity performance. *Journal of Cleaner Production, 324*, 129168. https://doi.org/10.1016/j.jclepro.2021.129168

Lewicka, M. (2011). Place attachment: How far have we come in the last 40 years? *Journal of Environmental Psychology, 31*, 207–230. https://psycnet.apa.org/doi/10.1016/j.jenvp.2010.10.001

Lewin, K. (1946). Behavior and development as a function of the total situation. In L. Carmichael (Ed.), *Manual of child psychology* (pp. 791-844). John Wiley & Sons Inc. https://content.apa.org/doi/10.1037/10756-016

Macaulay, R., Lee, K., Johnson, K., & Williams, K. (2022). Mindful engagement, psychological restoration, and connection with nature in constrained nature experiences. *Landscape and Urban Planning, 217*, 104263. https://doi.org/10.1016/j.landurbplan.2021.104263

Mankad, A., Fielding, K., Tapsuwan, S., Sharma, A. K., Bebie, D., & Gardiner, T. (2015). Public perceptions, motivational drivers, and maintenance behaviour for urban rainwater tanks. In A.K. Sharma, D. Begbie, & T. Gardner (Eds.), *Rainwater tank systems for urban water supply*, (pp. 181-203) International Water Association Publishing.

Manzo, L. C., & Devine-Wright, P. (Eds.). (2020). *Place attachment : Advances in theory, methods and applications.* Taylor & Francis Group.

Martin, L., White, M. P., Hunt, A., Richardson, M., Pahl, S., & Burt, J. (2020). Nature contact, nature connectedness and associations with health, wellbeing and pro-environmental behaviours. *Journal of Environmental Psychology, 68*, 101389. https://doi.org/10.1016/j.jenvp.2020.101389

Maxwell, L.E., Mitchell, M.R., & Evans, G.W. (2008). Effects of play equipment and loose parts on preschool children's outdoor play behaviour: An observational study and design intervention. *Children, Youth and Environment, 18*, 36-63. https://cpb-us-e1.wpmucdn.com/blogs.gwu.edu/dist/9/552/files/2014/05/Maxwell_Effects-of-Play-Equipment-and-Loose-Parts.pdf

McLaughlan, R. (2018) Psychosocially supportive design: the case for greater attention to social space within the pediatric hospital. *HERD: Health Environments Research & Design Journal 11*(2): 151–162. https://doi.org/10.1177%2F1937586717731739

McLaughlan, R., et al. (2019). Attractions to fuel the imagination: reframing understandings of the role of distraction relative to well-being in the pediatric hospital. *HERD: Health Environments Research & Design Journal 12*(2): 130–146. https://doi.org/10.1177/1937586718810878

McLaughlan R., & Pert, A. (2017) Evidence and speculation: reimagining approaches to architecture and research within the paediatric hospital. *Medical Humanities 44*: 146–152. https://doi.org/10.1136/medhum-2017-011285

McCunn, L. J., & Gifford, R. (2012). Do green offices affect employee engagement and environmental attitudes? *Architectural Science Review, 55*, 128-134. https://doi.org/10.1080/00038628.2012.667939

McCunn, L. J., & Gifford, R. (2014). Interrelations between sense of place, organizational commitment, and green neighborhoods. *Cities, 41*, 20-29. https://doi.org/10.1016/j.cities.2014.04.008

McCunn, L. J., & Gifford, R. (2015). Teachers' reactions to learning commons in secondary schools. *Journal of Library Administration, 55*, 435-358. https://doi.org/10.1080/01930826.2015.1054760

McCunn, L. J., & Gifford, R. (2017). Spatial navigation and place imageability in sense of place. *Cities, 74*, 208-218. https://doi.org/10.1016/j.cities.2017.12.006

Mihaylov, N. L., Perkins, D. D., & Stedman, R. C. (2020). Community responses to

environmental threat: Place cognition, attachment, and social action. *Place Attachment*, 160-176. https://doi.org/10.4324/9780429274442-10

Newsham, G. R., Birt, B. J., Arsenault, C. D., Thompson, A. J. L., Veitch, J. A., Mancini, S., … Burns, G. J. (2013). Do 'green' buildings have better indoor environments? New evidence. *Building Research & Information, 41*, 415-434. https://doi.org/10.1080/09613218.2013.789951

Nicolas, M., Martinent, G., Suedfeld, P., & Gaudino, M. (2019). Assessing psychological adaptation during polar winter-overs: The isolated and confined environments questionnaire (ICE-Q). *Journal of Environmental Psychology, 65*, 101317. https://doi.org/10.1016/j.jenvp.2019.101317

Nisbet, E. K., Zelenski, J. M., & Murphy, S. A. (2009). The nature relatedness scale: Linking individuals' connection with nature to environmental concern and behavior. *Environment and Behavior, 41*, 715-740. https://doi.org/10.1177%2F0013916508318748

Osmond, H. (1957). Function as the basis of psychiatric ward design. *Psychiatric Services, 8*(4), 23-30. https://doi.org/10.1176/ps.8.4.23

Otto, S., Kaiser, F. G., & Arnold, O. (2014). The critical challenge of climate change for psychology: Preventing rebound and promoting more individual irrationality. *European Psychologist, 19*, 96–106. https://psycnet.apa.org/doi/10.1027/1016-9040/a000182

Palinkas, L. A., & Suedfeld, P. (2021). Psychosocial issues in isolated and confined extreme environments. *Neuroscience & Biobehavioral Reviews, 126*, 413-429. https://doi.org/10.1016/j.neubiorev.2021.03.032

Proshansky, H. M., Ittelson, W. H., & Rivlin, L. G. (Eds.). (1970). *Environmental psychology: Man and his physical setting*. Holt, Rinehart, & Winston.

Reizenstein, J. E. (1982). Hospital design and human behavior: A review of the recent literature. In A. Baum & J. E. Singer (Eds.), *Advances in environmental psychology* (4th ed ., pp. 137-169) Erlbaum.

Reser, J. P., & Bradley, G. L. (2020). The nature, significance, and influence of perceived personal experience of climate change. *Wiley Interdisciplinary Reviews: Climate Change, 11*(5), e668. https://doi.org/10.1002/wcc.668

Sander, E. J., Caza, A., & Jordan, P. J. (2019). The physical work environment and its relationship to stress. In O. B. Ayoko, & N. M. Ashkanasy (Eds.), *Organizational behaviour and the physical environment* (pp. 268-284). Routledge. https://doi.org/10.4324/9781315167237-15

Santarius, T., & Soland, M. (2018). How technological efficiency improvements change consumer preferences: Towards a psychological theory of rebound effects. *Ecological Economics, 146*, 414-424. https://doi.org/10.1016/j.ecolecon.2017.12.009

Scannell, L., Cox, R. S., Fletcher, S., & Heykoop, C. (2016). "That was the last time I saw my house": The importance of place attachment among children and youth in disaster contexts. *American Journal of Community Psychology, 58*(1-2), 158-173. https://doi.org/10.1002/ajcp.12069

Scannell, L., & Gifford, R. (2010). Defining place attachment: A tripartite organizing framework. *Journal of Environmental Psychology, 30*, 1–10. https://doi.org/10.1016/j.jenvp.2009.09.006

Scannell, L., Hodgson, M., Jorge, G. M., & Gifford, R. (2016). The role of acoustics in the perceived suitability of, and well-being in, informal learning spaces. *Environment & Behaviour, 48*, 769-795. https://doi.org/10.1177%2F0013916514567127

Schultz, W. P. (2001). The structure of environmental concern: concern for self, other

people, and the biosphere. *Journal of Environmental Psychology, 21*, 327–339. https://psycnet.apa.org/doi/10.1006/jevp.2001.0227

Schutte, N. S., & Bhullar, N. (2017). Approaching environmental sustainability: Perceptions of self-efficacy and changeability. *The Journal of Psychology, 151*(3), 321-333. https://doi.org/10.1080/00223980.2017.1289144

Söderlund, J. (2019). *The emergence of Biophilic design*. Springer.

Sommer, R. (1969). *Personal space: The behavioural basis of design*. Prentice-Hall.

Sommer, R. (1983). *Social design*. Prentice-Hall.

Sommer, R., & Olsen, H. (1980). The soft classroom. *Environment and Behaviour, 12*, 3–16. https://doi.org/10.1177%2F0013916580121001

Spinks, A., Fielding, K., Mankad, A., Leonard, R., Leviston, Z., & Gardner, J. (2014). Dipping in the well: How behaviours and attitudes influence urban water security. In I. Walker & H. S. Schandl (Eds.), *Social science and sustainability* (pp. 145-159). CSIRO Publishing.

Steg, L., Perlaviciute, G., van der Werff, E., & Lurvink, J. (2014). The significance of hedonic values for environmentally relevant attitudes, preferences, and actions. *Environment and Behaviour, 46,* 163-192. https://doi.org/10.1177%2F0013916512454730

Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of Environmental Psychology, 29*, 309–317. https://doi.org/10.1016/j.jenvp.2008.10.004

Stern, P. C., & Gardner, G. T. (1981). Psychological research and energy policy. *American Psychologist, 36*, 329-342. https://psycnet.apa.org/doi/10.1037/0003-066X.36.4.329

Stevens, N. J., Tavares, S. G., & Salmon, P. M. (2021). The adaptive capacity of public space under COVID-19: Exploring urban design interventions through a sociotechnical systems approach. *Human Factors and Ergonomics in Manufacturing & Service Industries, 31*(4), 333-348. https://doi.org/10.1002/hfm.20906

Stokes, D. E. (1997). *Pasteur's quadrant – Basic science and technological innovation*. Brookings Institution Press.

Stokols, D. (2018). *Social ecology in the Digital Age: Solving complex problems in a globalized world*. Academic Press.

Suedfeld, P. (1991). Polar psychology: An overview. *Environment and Behaviour, 23*, 653-665. https://doi.org/10.1177%2F0013916591236001

Suedfeld, P., & Steel, G. D. (2000). The environmental psychology of capsule habitats. *Annual Review of Psychology, 51*, 227-253. https://doi.org/10.1146/annurev.psych.51.1.227

Sundstrom, E. (1987). Work environments: Offices and factories. In D. Stokols & I. Altman (Eds.), *Handbook of Environmental Psychology* (Vol. 1, pp. 733-782). Wiley.

Swim, J. K., Stern, P. C., Doherty, T., Clayton, S., Reser, J. P., Weber, E. U., … Howard, G. S. (2011). Psychology's contributions to understanding and addressing global climate change mitigation and adaptation. *American Psychologist, 66*, 241-250. https://psycnet.apa.org/doi/10.1037/a0023220

Tootell, R. B., Zapetis, S. L., Babadi, B., Nasiriavanaki, Z., Hughes, D. E., Mueser, K., … & Holt, D. J. (2021). Psychological and physiological evidence for an initial 'Rough Sketch'calculation of personal space. *Scientific Reports, 11*(1), 1-15. https://doi.org/10.1038/s41598-021-99578-1

Ulrich, R. S., Bogren, L., Gardiner, S. K., & Lundin, S. (2018). Psychiatric ward design can reduce aggressive behavior. *Journal of Environmental Psychology, 57*, 53-66. https://doi.org/10.1016/j.jenvp.2018.05.002

Veitch, J. A. (2012). Work environments. In S. D. Clayton (Ed.), *The Oxford Handbook of Environmental and Conservation Psychology* (pp. 248-275). Oxford.

Veitch, J. A., Newsham, G. R., Boyce, P. R., & Jones, C. C. (2008). Lighting appraisal, well-being, and performance in open-plan offices: A linked mechanisms approach. *Lighting Research and Technology, 40*, 133-151. https://journals.sagepub.com/doi/pdf/10.1177/1477153507086279

Weber, E. U. (2013). Doing the right thing willingly using the insights of behavioral decision research for better environmental decisions. In E. Shafir (Ed.), *The Behavioral foundations of public policy* (pp. 380-397). Princeton University Press. https://doi.org/10.2307/j.ctv550cbm.28

Wells, N. M., & Evans, G. W. (2003). Nearby nature: A buffer of life stress among rural children. *Environment and Behavior, 35*, 311-330. https://psycnet.apa.org/doi/10.1177/0013916503035003001

Wells, N. M., Evans, G. W., & Yang, Y. (2010). Environments and health: Planning decisions as public-health decisions. *Journal of Architectural and Planning Research, 27*, 124-143. https://www.jstor.org/stable/43030900

Wener, R. E., McCunn, L. J., & Senick, J. (2016). Did that plan work? Post-occupancy evaluation. *Research Methods for Environmental Psychology*, 249-269. https://doi.org/10.1002/9781119162124.ch13

Whitmarsh, L., & O'Neill, S. (2010). Green identity, green living? The role of pro-environmental self-identity in determining consistency across diverse pro-environmental behaviours. *Journal of Environmental Psychology, 30*, 305–314. https://doi.org/10.1016/j.jenvp.2010.01.003

Wilson, J., & Wright, P. (2009). Head-mounted display efficacy study to aid first responder indoor navigation. *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science*, *223*(3), 675-688. https://doi.org/10.1243%2F09544062JMES1213

Wong, C. Y., Sommer, R., & Cook, R. (1992). The soft classroom 17 years later. *Journal of Environmental Psychology, 12*, 337-343. https://doi.org/10.1016/S0272-4944(05)80082-9

Zhu, Y., Yang, M., Yao, Y., Xiong, X., Li, X., Zhou, G., & Ma, N. (2019). Effects of illuminance and correlated color temperature on daytime cognitive performance, subjective mood, and alertness in healthy adults. *Environment and Behavior, 51*(2), 199-230. https://doi.org/10.1177/0013916517738077

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CHAPTER 14.

APPLICATIONS AND CAREERS IN PSYCHOLOGY WITHIN PUBLIC HEALTH AND COMMUNITY SETTINGS TO BUILD WELLBEING AND PROMOTE SOCIAL JUSTICE

AMY B. MULLENS; GOVIND KRISHNAMOORTHY; ÉIDÍN NI SHE; AND LORELLE J. BURTON

INTRODUCTION

Psychology in public health and community settings (hereafter referred to as PHCP) bases its action on the recognition that individuals' development, psychological functioning, and mental health are profoundly affected by their physical, social, cultural, political, and economic contexts (Hakim, 2010; Jason & O'Brien, 2018; McMahon et al., 2015; Wolff, 2014) in a dynamic and interactional manner. This chapter presents PHCP applications and careers in two sections. The first provides an overview of important areas of intervention and practice in PHCP in Australia, starting with a brief history of this field, an introduction to its guiding philosophies and typical research methods, and highlights of significant scholarly findings, including an illustrative case study regarding youth engagement in education. The second presents models of PHCP practice and describes career and training opportunities in PHCP, including a second case study regarding a program to enhance parenting among foster parents.

INTRODUCTION TO PSYCHOLOGY WITHIN PUBLIC HEALTH AND COMMUNITY SETTINGS

PHCP is concerned with individuals and their immediate interpersonal contexts and links their wellbeing to broader social structures and dynamics (Arcidiacono 2017; Moane, 2003). Founded in a scientific and empirical approach to understanding the world, PHCP uses the research process as well as scientific knowledge and intervention strategies to create social change and improve wellbeing at the individual, organisational, and community levels (Neigher et al., 2011), including from an 'academic advocacy' perspective (Smith & Stewart, 2017). PHCP draws attention to the importance of diversity, inclusion, and economic and social equity and highlights the power of preventing problems as well as treating them (Julian, 2006; Wolff et al., 2017). These ideas associated with the promotion of wellbeing and connectedness to foster resiliency are based in the World Health Organisation (WHO) principals of the Ottawa Charter for Health Promotion (WHO, 1986; WHO, 2005), as wellbeing is deemed essential for active engagement in life. Health promotion is defined as 'the process of enabling people to increase control over, and to improve, their health' (pp. 1–2) (WHO, 1986). This is particularly relevant for groups who have been marginalised and stigmatised (e.g, people from sexually and gender diverse communities – see Ceatha et al., 2019). From a social justice perspective within the Australian context, holistic wellbeing and the protection of individual rights have been further supported by the passing of the Human Rights Act 2019 (which came into effect January 1, 2020) by the Queensland Parliament

which indicated every person has the right to access health services without discrimination and cannot be refused necessary emergency medical treatments (see Brolan, 2020). PHCP is strongly aligned with the philosophies of the Australian Psychological Society College of Community Psychologists regarding the importance of understanding and supporting the needs of people in their communities, from a strength-based approach based on the tenets of flexibility, equity, and respect for cultural diversity. PHCP contributes to psychology by proposing a critical analysis of the social context that affects human wellbeing and highlights the importance of working in partnership with members of the affected communities – utilising 'co-creation' from a strength-based perspective with members of the priority groups, where there are recognised mental or physical health disparities. Further, psychologists working in public health and community settings analyse and intervene at the nexus of individual and social factors (from a biopsychosocial lens), focusing on complexity and systems, and holding prevention, advocacy, social justice, and systems change as core concerns and targets for interventions (Arcidiacono, 2017; Dzidic, Breen & Bishop, 2013; Evans, Duckett, Lawthorn, & Kivell, 2017; Prilletensky, 1997; Rappaport, 1981). An example from an Australian context utilises a participatory 'community action research' approach regarding Hepatitis C and manifests these approaches. This project assessed the impact of reducing stigma among the general population and enhancing empowerment among people living with Hepatitis C utilising an educational co-design model with members of the affected community (Cama et al., 2015). Findings demonstrated that mobilisation of support from within their own communities had meaningful impacts on reducing stigma. Further, the spirit of community action research emphasises the use of theoretically-driven empirical evidence and advocacy that can be used to promote meaningful and sustainable policy, strategy, and systems changes to enhance the wellbeing of communities (See McIntyre, 2007). The following studies depict examples of community-based action research in Australia for HIV point of care testing among 'harder to reach groups' in Australia (Mullens, Daken, et al., 2020; Mullens, Duyker et al., 2019).

Although the emphasis on social and community contexts is not uniquely aligned with the psychology discipline, PHCP is ultimately concerned about the effects of social contexts on human wellbeing, development and functionin, rather than on describing social and cultural systems for their own sake. PHCP is also distinguished by specific theoretical frameworks that emphasise aspects often neglected in more individualised approaches to human problems (Jason et al., 2016; Stein, 2007), such as ecological analysis (Bronfenbrenner, 1979; Hawe, 2017; Kelly, 1986; Neal, 2016), historical-material analysis (Montero et al. 2017), and social determinants of health (Montero, 2012). These frames of analysis also tend to characterise the field and nourish its practice (Evans et al., 2017; Montero et al., 2017; Rappaport, 1981; Wolff et al., 2017). Diverse as they are, these theoretical and value-based frames of analysis provide conceptual tools for understanding social actors, their activities and positionality, and the patterns and determinants of constraints and opportunities that surround them and shape their possibilities and impediments, including a focus on enablers and barriers.

Thus, the distinctive nature of PHCP is probably best characterised in terms of its unique constellation of principles, goals and values, frames of analysis, and methods for change, which are aligned with social justice principles – human rights, access, participation, and equity. While the particular constellations and composition of these frameworks varies across countries and cultures (Francescato & Zani, 2013; Lykes, Terreblanche, & Hamber, 2013; Wolfe, Scott & Jimenez, 2013), psychologists working within public health and community settings are unified globally by the goal of promoting wellbeing by working at the interface between people and their sociocultural contexts.

Further, working from a holistic approach is particularly important when working in

partnership with members of priority groups who experience intersectionality (affiliation with more than one priority group) in health issues (see Ortiz et al., 2020). An example of intersectionality would be the experience of migrants seeking work within the Australian context where language barriers as well as previous experience of trauma may contribute to their difficulty in gaining work (see Ressia et al., 2017). From these frameworks, structural stigma and structural inequity serve as additional challenges which require further support for individuals and much needed advocacy (Hatzenbuehler, 2016; White Hughto, Reisner & Pachankis, 2015). Within the Australian context, with the recent passing of legislation to legalise gay marriage, research has found critical links between structural stigma and social support within sexually diverse communities and the need for policy and practice improvements to enhance these important health disparities (Perales & Todd, 2018), further illustrating how community action research can create 'ripple effects' in terms of future policy and practice.

A BRIEF HISTORY OF PUBLIC HEALTH AND COMMUNITY PSYCHOLOGY

Community psychology (CP)[1] as its called by the Australian Psychological Society emerged as a discipline across the globe throughout the mid1900s – largely in response to political turmoil, scepticism regarding the dominant views of psychology, movements for social change, and a transformation of the mental health care system in many countries (Nelson, Lavoie et al., 2007). Although in some countries CP is still relatively emergent, other regions have seen immense growth and development in the field since the 1970s (Reich et al., 2007). The birth of the field of CP is often linked to the 1965 Swampscott Conference in the United States. Events that led to the emergence of CP in Australia include the community health movement, alternatives to institutionalisation, and a shifting focus from treatment to prevention (Gridley & Breen, 2007; Nelson, Lavoie et al., 2007). Currently in Australia, community psychology remains one of the nine areas of endorsed practice (AoEP) by the Psychology Board of Australia, along with clinical, clinical neuropsychology, counselling, forensic, health, educational and developmental, sport and exercise, and organisational psychology. There are synergies between the AoEPs in terms of areas of focus and competencies – for example, synergies between community psychology and health psychology include an emphasis on use of the biopsychosocial model, health promotion, and enhancing the wellbeing of groups of people. AOPEs operate as part of a regulatory mechanism, which acknowledges to the general public that those who are using these protected titles (e.g., 'Community Psychologist') have completed an approved postgraduate qualification and supervised training in an area of practice. Those who are endorsed in the area of community psychology have a particular emphasis on working with people from diverse communities (e.g., rural/remote, culturally diverse), and in partnership with key community influencers to work with vulnerable groups to enhance resilience and work towards sustainable social change.

Community Mental Health

Until the mid1900s, many individuals with mental illnesses were confined to psychiatric hospitals that were typically ineffective, dehumanising, and unsanitary (Nelson et al., 2014). The deinstitutionalisation movement in the 1960s resulted from limited funding for psychiatric hospitals as well as growing pressure for human rights and effective treatment within the community (Nelson, 2006). This movement led to many previously institutionalised individuals being released into the community even though few services were available to support individuals

1. Community psychology continues to be a recognised yet small area of endorsed practice with the Psychology Board of Australia, however we've replaced the term CP with PHCP in this chapter about the Australian context to allow for broader applicability of content to other psychology roles and training while still acknowledging its history.

through this transition (Nelson et al., 2014). Many of these individuals faced additional stressors upon release from psychiatric institutions – including unemployment, homelessness, poverty, discrimination, social isolation, and a lack of psychosocial support – thus illustrating how mental illness often occurred in combination with other social issues not necessarily addressed by typical psychiatric treatment (Nelson et al., 2014). Deinstitutionalisation forced a shift in focus from the institutional-medical model to a community treatment approach. This shift resulted in the emergence of alternatives to psychiatric hospitalisation (e.g., assertive community treatment, supportive housing, healing lodges, case management) and alternative types and views of support, such as consumer/survivor initiatives, and self-help groups (Nelson, Lord, & Ochoka, 2001). This drastic change in mental health reform created a movement towards community mental health. Community mental health aligns with core PHCP values in examining the social, economic, and cultural factors influencing and maintaining mental illness (Fortin-Pellerin et al. 2007). PHCP continues to work in community settings to improve wellbeing and mental health among populations, which can also include private, government and non-government organisation contexts.

Within the Australian context there was a significant movement towards deinstitutionalisation in the 1970s and 80s, with large psychiatric facilities increasingly being replaced by psychiatric care in community settings and in smaller psychiatric units in general hospitals. This era represented a critical shift from a predominantly medicalised model to care in the community, which also served to reduce stigma and discrimination among those living with persistent and complex mental health issues (e.g., schizophrenia). These community-based models have continued to evolve over time with a greater focus first on rehabilitation and later recovery-oriented care, utilising interdisciplinary allied health teams (in conjunction with psychiatry) and cultural workers – with an emphasis on building resiliency, the value of learning from lived experience, and integration of peer support (see Arblaster et al., 2018).

Over time, additional psychological capacity has been introduced via Medicare for psychologists initially through the Divisions of General Practice, which later became known as Medicare Locals and now Primary Health Networks (PHNs). PHNs comprise large geographic regions throughout Australia which receive federal health and mental health funding, with inbuilt agency and autonomy for that region to determine how funds are spent and allocated based on bespoke mental health needs of that region. Better Access for Mental Health Care plans through Medicare were introduced in Australia in the early 2000s, which helped to fill a critical gap for those who were not severe enough to access government-funded mental health services, and who were not able to cover the costs of private psychology sessions themselves (nor have private health insurance to cover this). This program allows for psychologists to provide individual and group-based psychological interventions via General Practitioner referral – generally for up to 10 sessions per calendar year (however this has been increased to 20 during the current COVID-19 pandemic). The majority of service providers require a gap payment (in addition to the subsidy provided under Better Access), however some psychologists will offer bulk-billing services. More recent opportunities for service provision and funding have developed in Australia with the National Disability Insurance Scheme (NDIS) to supplement other existing schemes (e.g., mental health) in order to better meet the needs of Australians who experience permanent and significant physical and/or mental disability through supports and services and early intervention to enhance functioning and quality of life.

In addition to PHCP working within interdisciplinary teams, integrated cross-sectoral (e.g., health, education, housing) approaches are needed to further enhance uptake and coordination of care for optimising engagement and outcomes – particularly among more complex issues and presentations (e.g., domestic and family violence, substance use). Overall, the trends in health

service priorities and delivery models in Australia over the past couple of decades have continued to evolve with increased focus on privatisation or tendering for previously government-only funded services (e.g., alcohol and drug, mental health), more focus on early intervention (e.g., headspace for adolescent mental health, including those 'at risk' of developing mental health issues), use of e-health and telehealth supports/services (to overcome challenges with reaching rural/remote communities and during the COVID-19 pandemic), greater health service optimisation (e.g., 'stepped care' – see March et al., 2019), and integration of services for engaging with 'harder to reach' groups (e.g., co-location of services under a 'spoke and hub' model, mobile health promotion initiatives) (see Elrod & Fortenberry, 2017). There remains a need for continuous innovation and adaptation for program delivery in PHCP to optimise efficiencies, effectiveness, and reach.

Prevention and Health Promotion

PHCP has contributed significantly to highlighting the importance of prevention and health promotion as a complement to treatment. Caplan (1961) highlighted three types of prevention: primary (universal) prevention targets entire populations to lower the rates of new cases of disorders, secondary (selective) prevention targets populations at risk of developing a disease or disorder, and tertiary (indicated) prevention targets populations who already have a disorder and focuses on lowering the intensity or duration of the disorder. Dramatic increases in prevention awareness and efforts have taken place since the 1960s (Dalton et al., 2007). Although prevention infuses and informs a number of disciplines, many authors highlight the contributions of early community psychologists in applying public health approaches to physical health to promote the importance of a prevention focus in mental health.

Philosophy and Methods in Public Health and Community Psychology

Research methods in PHCP are both similar to and distinct from other psychology areas such as social, clinical, and developmental psychology. Research is often conducted using mixed methods, quasi-experimental, correlational, qualitative and longitudinal approaches with interviews, self- or other surveys, reports, focus groups, and observations, among others. PHCP also uses case study, ethnographic, and phenomenological methods typical of disciplines such as sociology, economics, political science, and public health. Given that psychology students are typically introduced to the analysis of quantitative data early in their studies, many academics in the areas aligned with PHCP emphasise qualitative and mixed methods research approaches in order to prepare students for the varied research approaches that are used to accomplish the twin goals of action and research. To conduct action-oriented research, additional methods include program evaluation, assets and needs assessment, and community-based participatory action research (CBPAR). CBPAR, for example, is a collaborative approach for research that involves community members directly affected by the problem being studied in all phases of a research project, from the definition of the initial research questions to the analysis of data, development of recommendations and diffusion of results. CBPAR begins from the concerns expressed by a particular community and uses research to support changes desired by the community (Burns et al., 2011). These change-oriented research strategies realise the call by Martín-Baró for psychology research to reveal what 'needs to be done' (1994, p. 6) by researching the process of change. Although there are many ways to examine change, the key to community research is to investigate how a community-driven effort impacts what that community has decided needs to be changed.

The choice of appropriate methods to be used in PHCP depends on the research questions and the researcher's knowledge of many methods as well as personal values. As Campbell (2010)

pointed out, when methods drive the research process, the questions must fit within the boundaries of what the method can address. However, when the research questions drive the research process, methods can be selected, modified or combined based on their ability to provide answers. Community psychologists need to be well-informed about various methodological options in order to avoid letting the method drive the question. Campbell concludes by reminding us, 'By letting our research questions develop without the constraints of methods, and by allowing our values to have a voice in the research process, we can figure out what is right – for a given context' (Campbell, 2010, pp. 308–310). Further, a critical part of research in public health and community psychology settings is developing the ability to communicate in multiple ways to different audiences to stimulate change. Methods for sharing research findings include oral presentations to research participants and professionals at conferences, publications in academic journals, reporting in policy briefs, workshops, interactive websites, and other interactive methods of knowledge exchange. Researchers have also developed and tested a method for evaluating the impact of knowledge mobilisation efforts (e.g., Hayward et al., 2011; Worton et al., 2017). PHCP has contributed a number of significant findings to psychology and social science knowledge and practice – a comprehensive overview is available in Bond et al. (2017a, 2017b). Here we highlight PHCP's contributions to two significant research and practice movements: the community mental health movement, and the current focus on prevention and health promotion.

Case Study: Youth Engagement in Education

Increasing school retention levels is identified as a key catalyst to addressing the social inclusion agenda and improving the economy (Ball, 2012; McGregor et al., 2014; OECD, 2012). In Australia, positive life outcomes for individuals and societies are linked with sustained engagement in education (Te Riele, 2014). Early school leavers are likely to experience financial and personal hardship (Deloitte Access Economics, 2012), including for example, debt and poverty, homelessness and housing stress, family tensions and breakdown, shame and stigma, substance abuse, alienation, increased social isolation, crime, erosion of confidence and self-esteem and poor health (Bills & Armstrong, 2020; Kim & Kim, 2016; Deloitte Access Economics, 2012). Youth disengagement has been investigated to explain school dropout, with most Australian research focusing on young people aged 15 years and older (Fredricks et al., 2019; McDonald & Burton, 2014; McGregor et al., 2014; Te Riele, 2014).

Internationally, youth mentoring programs are of interest to policymakers and relevant community service providers to prevent school dropout. For boys, in particular, regular contact with peers and mates can have a significant impact on their psychological development, especially in terms of 'masculinity, self-identification and establishment of place within society' (Irwin, 2013, p. 142). Sport/physical activity programs can effectively engage young people in education and society more broadly (Chamberlain, 2013). Youth programs involving sports now form part of improvements in school retention, attitudes towards learning, and crime reduction of many advanced capitalist societies, including Australia (Morris et al., 2003), Canada (Reid et al., 1994), the United States (Witt & Crompton, 1996), the Netherlands (Spaaij, 2009) and the United Kingdom (Kelly, 2013). Such sports and recreation programs can have powerful and transformative effects, however, these effects are typically indirect. Indeed, linking sports and recreation programs with other learning opportunities is seen as key (Burton & McDonald, 2014). Further, creating 'enabling spaces' for learning to occur is of paramount importance – they must be based upon 'respectful relationships' where young people can 'derive a sense of meaning, connection and control over their lives' (Wyn et al., 2014, p. 7). Yorkston and Postle (2014) suggest that sharing stories enables participants to understand what they need to do to be part of the solution. These understandings can occur through any type of open conversation, but often occur through personal storytelling. An Australian case study follows, representing a combined intervention

of exercise and mentoring targeting young boys at risk of disengagement in one 'mainstream' high school as part of their *School Wide Positive Behaviour Support* (SWPBS).

The Positive Behavioural Interventions and Supports (PBIS) is a universal, school-wide prevention strategy that is currently implemented in a number of countries, including Australia (Poed & Whitfield, 2020; Cumming et al., 2014). The strategy focuses on reducing disruptive behaviour problems through the application of behavioural, social learning, and organisational behavioural principles (Bradshaw et al., 2010). It's estimated that 3,000 schools (31%) across all levels have been trained in the PBIS strategy (Poed & Whitfield, 2020). Our case study is focused on a high school located in the northern suburbs of the Gold Coast in Queensland. The school is a co-educational independent high school, and in 2020, comprised 2,600 students from Years 7 to 12. The school collaboratively developed a school-wide behaviour plan based on their vision and values. It was identified that learning and behaviour are inextricably related, and SWPBS was introduced to enable a focus on supporting different learning styles and abilities within the relevant curriculum, and focusing on appropriate behaviours that need to be taught, modelled, encouraged, and developed.

A core element of the case study school's SWPBS plan was an 8-week *The Men of Business* (MOB) program (see Burton et al., 2018). This is a combined sports leadership program utilising mentoring with teenage boys in the Gold Coast region. The MOB program was conceived by a group of 20 influential Gold Coast businessmen in 2009 who wanted to '*pay it forward*' to the next generation, recognising that there are more than 500 teenage boys who fall through the cracks of the system each year on the Gold Coast alone. The MOB program represented a local response to programs delivered during inflexible hours and was located in settings outside of schools. Initially, the MOB program was focused on fitness, but the need to combine mentoring with male role models in the community was later realised to support networking development, mentoring and inspiration for the participants. The goals of the refined program included mentors working with young males to help them achieve a positive attitude to life and to adopt behaviours that lead to a healthy lifestyle. Each program day included an hour of high energetic activity facilitated by a qualified trainer to enhance the boys' physical fitness and strength, followed by a one hour mentoring session where the mentor 'shares his story'. The boys were enrolled from Years 8 to 12, ranging in age from 12 to 16 years. Potential participants in the MOB program were identified by the school chaplain, in consultation with the MOB Director and the school principal.

A 30-item Learning Values survey was developed to measure four key variables relevant to the MOB program: Optimism (Life Orientation Test-Revised – Scheier et al., 1994), Resilience (Sinclair & Wallston, 2004), Self-efficacy (Schwarzer & Jerusalem, 1995), and Trust (International Personality Item Pool – Goldberg, 1999). Each student completed the short 30-item survey in class about how they approach life, which took no longer than 20 minutes, on average, to complete. The paper and pencil survey was randomly administered to 425 students enrolled at the case study high school, with 232 students in Years 8 to 11 completing the survey. The survey was also administered and completed by 14 MOB boys at the start of the 8-week MOB program, and by 10 of the original boys following completion of the program.

Promising findings emerged from quantitative analyses, with the MOB boys showing comparable moderate to high levels similar (i.e. moderate to high levels) of optimism and resilience as compared with their mainstream counterparts. Additionally, mainstream students showed comparable self-efficacy mean scores with the MOB boys. In contrast, however, the MOB boys showed significantly lower trust, on average, compared with their mainstream counterparts ($p < .05$).

This data supports the notion that it's important for adolescents to have a close connection with someone they trust to enable them to cope with life's challenges and to be optimistic about their futures (McGraw et al., 2008). If young people don't trust, they're more likely to focus on their personal failures or threats, which in turn leads to reduced capacity to focus on current tasks or challenges being faced (Frydenberg et al., 2016). Thus, the physical training at the start of each session provides an opportunity

for the boys to build relationships underpinned by trust and respect with each other and with their mentors. However, it takes time to establish trust in these mentoring relationships, and longitudinal research is needed to explore how trust can be strengthened over time.

The qualitative data indicated key social impacts for the MOB boys, including raised aspirations for education and/or employment, enhanced respect for themselves and others, and improved management of emotions (see Burton et al., 2018 for a full analysis). Overall, key impacts identified from the qualitative data from the case study high school included the intervention occurring within the school and students experiencing a sense of community, students re-engaging in learning, and nurturing of future leaders.

The current data therefore indicates that the school became an 'enabling space' where participants of the MOB program were respected and rewarded for their achievements (Wyn et al., 2014). Kahane (2008) suggests that sharing stories enables participants to understand their individual and group roles as part of the solution. These understandings can occur through any kind of open conversation, but they often occur through personal storytelling. Other examples of intergenerational mentoring in regional Queensland involving older men and disenfranchised youth based on sharing stories has had mutual benefits for those involved and for the wider community (see Burton et al., 2017). This case study captured how storytelling is a powerful way for individuals to share life experiences and connect with people and inspire them to achieve their life goals. For example, the mentors' stories gave the MOB boys insight into how they might overcome life's struggles, helping them to place trust in others and strengthen their character as they progress throughout life.

In summary, flexible learning programs are integral to supporting students who are disengaged or at risk of disengagement from education in Australia. The findings from this case study have implications for schools, including the need to recognise the individual needs of each student and tailoring sessions to enable each boy to actively engage in the program and meaningfully connect with their mentors and with each other. This program emphasises the MOB boys' experiences in building relationships, including making friends. It also enables them to grow in confidence and provides a safe space for them to consider their future pathways. Together, the collaborative mentoring model represents an engaged partnership with community to build social capital in disenfranchised youth in schools (Burton et al., 2015).

CAREERS IN COMMUNITY PSYCHOLOGY: ACTIVITIES, JOB TITLES, AND TRAINING

A Model of PHCP Practice: Core Work Activities and Common PHCP Change Strategies

Recent years have seen a lively discussion about the particular expertise and professional identity of psychologists working in public health and community settings. PHCP practice has been described in many ways, such as:

1. the goals that community psychologists seek to achieve
2. the values, principles and frames of analysis that typify the field
3. the settings where community psychologists can find work
4. the skills, competencies, and techniques that typify PHCP practice
5. the personal characteristics, beliefs, and attitudes that individuals bring to their practice (Arcidiacono, 2017; Julian, 2006; Kelly, 1971; Society for Community Research and Action [SCRA], 2012).

The peak body for psychologists in Australia, the Australian Psychological Society (APS), describes

areas of practice for community psychologists. These include including mapping social capital and resources within communities, evaluating the needs of at-risk populations – including those in rural and remote communities – and assessments of psychosocial environments with respect to sense of community, and quality of life (APS, 2021). The completion of such tasks may require a variety of skills, including the capacity to conduct community consultations, enhancing engagement and collaboration with diverse and hard-to-reach populations, and disseminating health promotion and education programs.

Inspired by a framework developed by Foucher and Leduc (2008), this chapter includes a model of community psychology practice centered around six core *work activities* that psychologists working in public health and community contexts might participate in across diverse settings, as well as diverse *change strategies* that they might use as they conduct these activities. An activity-based approach seems consistent with PHCP's emphasis on settings and roles (Hawe, 2017; Seidman, 1988) and complements other descriptions of practice in PHCP and other fields (Leach, 2008; Reeves et al., 2009). It's emphasised that these activities are not exclusive to PHCP, and that the contribution of other professions – as well as individuals and groups involved in change initiatives – should be recognised (Akhurst et al., 2016; Dzidic et al., 2013; Lavoie & Brunson, 2010). However, PHCP psychologists offer novel contributions to this work with their unique set of training and skills, frames of analysis, and focus on ecological and systems factors. We present this model of PHCP practice by first discussing the six proposed core PHCP work activities, and provide a brief overview of several typical PHCP change strategies (**Table 14.1**).

CORE PHCP WORK ACTIVITIES

Evaluate the Impact of Intervention Programs and Services

A primary work activity for many PHCP's is to evaluate intervention programs, services, and systems change efforts. The goal of these activities is to collect information about the intervention's intended and unintended effects, the processes by which those effects are achieved, and possible avenues for improving the intervention. Evaluation makes programs more accountable to stakeholders and funders and assists decision-makers as they consider whether to maintain, expand, or eliminate a program (Cook, 2014; Wolfe, et al., 2017). It can also be considered a strategy for effecting social change and promoting social justice (Cook, 2014), with the goal of creating a more equitable, fair, and just distribution of resources, opportunities, and privileges within society.

Evaluation objectives can be varied and are often broadly categorised in terms of outcome evaluations and process evaluations. The notion of outcome evaluation is probably most familiar. This involves documenting the impact of an intervention in relation to its stated objectives. Established, evidence-based programs may not always be successful in new contexts or populations, so outcome evaluations help to determine local impact. Process evaluation determines whether program components are actually being implemented as planned, and if not, what barriers – such as time or resource constraints – might be getting in the way. Process evaluation can also address a program's fit with its local context – for example, examining whether the program is actually diverting resources from other important activities, whether it duplicates existing efforts, and whether it can be sustainable over time (Wolfe, et al., 2017).

PHCPs can play an important role in evaluation by conducting assessments in consultation with relevant stakeholders, providing training that enables actors to appropriate techniques and the evaluation culture, and by developing the tools that facilitate evaluation work. An integrated and sustained PHCP approach to program evaluation over time might include conceptualising the program's theory of change, planning activities and program components that have the best

chance to produce desired changes, developing and executing a systematic plan to implement and support the program at multiple levels, ensuring the program fits local culture and context, evaluating whether the activities achieve their desired effects, and finding ways to ensure the sustainability of the program over time (Wolfe, et al., 2017). A PHCP approach to evaluation will also often include an analysis of benefits at a systems or community level, above and beyond the effects of individual change.

Case Study: Evaluating the Impact of the 'Circle of Security' Parenting Program for Foster Carers

Foster carers are responsible for providing daily care to children who are under the care of the government due to concerns about care provided to them being neglectful, abusive, or significantly inadequate. Exposure to maltreatment often leaves these children experiencing complex medical and mental health problems. A substantial number of children in foster care have been found to have behavioural and emotional difficulties, including attachment difficulties (a core feature of many in child welfare care), anxiety, depression, post-traumatic stress, conduct problems (including defiance, anger, and aggression), sexual reactive problems, inattention/hyperactivity, and suicidal behaviour (Briere et al., 2001; Osborn et al., 2008; Oswald et al., 2010, Sawyer et al., 2007; Tilbury et al., 2007). Considering the elevated caregiving burden represented by these conditions and the attendant parenting stress, it's not surprising some foster caregivers find it difficult to provide an adequate caregiving environment. As a result, foster carers have been identified as a group with an unmet need for training in specialised parenting skills (Murray et al., 2011).

In efforts to meet the complex needs of children in child welfare care, and provide support to foster carers, governments around the world have looked to establish specialist community services through public health services. In Queensland, Australia, the Evolve Therapeutic Service (ETS) is a specialist, community-based child and youth mental health service established to plan and coordinate therapeutic and behaviour supports for children and young people in child welfare and out-of-home care, with the goal of improving their emotional wellbeing and the development of skills to enhance participation in school and the community. Eligibility criteria for ETS include: the child is under 18 years of age, presents with severe and/or complex psychological and/or behavioural problems (i.e. a chronic trauma history, extreme behavioural problems across multiple settings, at risk of harming self/others, and multiple placement breakdowns), and is under child welfare and on interim or finalised child protection orders.

Recognising the unique needs of foster carers, the ETS aimed to implement programs targeted at supporting the needs of this population. A review of the research literature, however, revealed that programs to support foster carers and their children has returned mixed results. For example, a recent randomised controlled trial on the Multidimensional Treatment Foster Care for Preschoolers (MTFC-P) program found no evidence of the relative efficacy of the program over treatment as usual among foster carers in the Netherlands (Jonkman et al., 2017). While some studies have found the MTFC-P program to reduce levels of caregiver stress and improve permanency outcomes in the US (Fisher et al., 2009), Jonkman et al. (2017) concluded that children in usual foster care improved similarly to those in the program. Goemans et al. (2018) found that, although child internalising and externalising behaviours predicted parental stress, parental stress was not a predictor of child internalising and externalising behaviours.

The Circle of Security program (COS) is a parenting program developed specifically for children at risk of disrupted attachments and their caregivers (Powell et al., 2013). The program is designed to promote attachment security in early parent/child relationships through supporting and strengthening the caregiver's skills in observing and understanding the children's needs, observational and inferential skills, reflective functioning, emotion regulation, and empathy for the distress that the caregiver's

unregulated emotions cause in their children (Powell et al., 2013). The Circle of Security Parent DVD (COS-P) program is an eight-week education-focused manualised program with audiovisual and printed materials to promote discussion and understanding of how to promote secure attachment and prevent at-risk infants from developing insecure attachments (Cooper et. al., 2009; Yaholkoski et al., 2016). The COS-Parenting (COS-P) program offers a modified, shortened version of the original 20-week COS intervention intended to facilitate caregivers' understanding of concepts related to attachment (Cooper et al., 2009). It has been widely adapted to be delivered in eight sessions.

COS-P uses engaging and accessible graphic representations to illustrate separate components of the attachment system (Ainsworth, 1979), including the child's need for exploration and need for comfort and protection from the caregiver. Through pre-recorded videos and facilitated discussions, caregivers increase their capacity to observe and read children's behaviour to identify the attachment-related need being expressed, reflect upon their own reactions and feelings in response to difficult child behaviours, and provide a sensitive caregiving response (Marvin et al., 2002). The COS-P program was chosen in hopes it would prove effective even in the special case of foster carers, who are in the position of dealing with behavioural issues and relationship dynamics inherited from children's relationships with biological parents, and whose difficulties may have been compounded in the interim by relationship instability, residential instability, and other factors. To understand the impact of the program, the COS-P program was implemented and evaluated with 54 foster carers across two ETS sites over two years. Given the competing demands on foster carers, recruitment to such program evaluation studies are often difficult. The small number of participants was sufficient to power a preliminary study on the impact of the COS-P program. The findings revealed small and non–significant changes in the emotional symptoms on the Strength and Difficulties Questionnaire (SDQ) for children in the care of the foster carers following the program. This was seen as an important finding given the profile of children referred to the ETS service, who exhibit severe and complex mental health concerns. It was possible that null findings reflect a 'ceiling effect' of scores on the SDQ – with the measure not being sensitive enough to pick up on changes among clinical populations with severe and complex symptoms. Given these findings, the service investigated other suitable measures to be utilised across the service, such as the Child and Adolescent Needs and Strengths (CANS) questionnaire (Epstein et al.,2015). The ETS service utilised the CANS, in addition to the SDQ, in future statewide evaluations of interventions, as well as the program (Eadie et al., 2017).

Interestingly, no significant changes were found in measures of the foster carer-child relationship, as evaluated by the Parent-Child Relational Index (PCRI). This finding was somewhat puzzling, as COS-P aims to enhance the parent–child attachment relationship. Contrary to this finding, recent research (Kohlhoff et al., 2016) found positive changes in the reflective functioning of mothers of toddlers following participation in the program. It's unclear how this change translates to parental behaviour in the context of caregiving relationship and attachment security, as Huber et al. (2015) found no association between maternal reflective functioning and child attachment status following the COS-P program. An implication of this finding for the service was to incorporate structured interviews, observational and other self-report measures of the carer-child relationship to assess whether the relationships of children with attachment difficulties have improved following the program. Such assessment methods would also improve the rigor of the assessments conducted at the service, while also contributing to more detailed understanding the impact of the program. To further understand this null finding, it was hypothesised that the timing of the post-intervention evaluation procedures, which occurred immediately following the completion of COS-P, may not have afforded the opportunity to capture observable, measurable changes in carer-child outcomes. To address this, the service planned to allocate resources to follow-up children and families that attended the service post-discharge in an effort to evaluate service satisfaction, and longer-term needs and impacts of the intervention. Such follow-up efforts led to the establishment of a 'COS-P Graduate Group' – a weekly community of practice group for foster carers who completed the program to meet and support other carers in implementing the program practices.

Finally, the results of the program evaluation revealed significantly reduced levels of parent–child dysfunctional interactions and parental distress as measured by the Parent Stress Index (PSI-4-SF). It was also found that there were significant reductions in the reports from the foster carers of their perceptions of their foster child as being difficult to take care of, as well as reduction in the overall stress related to their role as a foster carer. Parenting foster children can be stressful, particularly when there are difficulties in the carer–child relationship and/or child emotional or behavioural difficulties. Unfortunately, when a caregiver is feeling stressed, helpless, or fearful in the relationship with their child, they're more likely to reject the child's requests for closeness and/or comfort, and the infant is more likely to develop an insecure attachment pattern (Lyons-Ruth, 2007; Main and Hesse, 1990). The fact that this brief psychoeducational intervention was shown to be associated with decreases in caregiver helplessness and more positive feelings about the child was therefore promising. Thus, such findings of such pilot program evaluation provide other PHCPs, administrators, and policymakers with a more nuanced understanding of the impact of such programs, while also informing avenues for improving the quality of services provided, outside of such standalone interventions.

Develop, Implement, and Manage Intervention Programs

PHCPs are often called upon to develop, implement, and manage intervention programs, especially those with prevention and health promotion goals (SCRA, 2012), and also programs for re-adaptation, crisis and trauma response, human resource capacity building, and the implementation of coordinated systems of care (Cook & Kilmer, 2012; Lavoie & Brunson, 2010; van de Hoef et al., 2011).

To find an appropriate intervention program, it's sometimes more efficient to identify an existing program and assess potential fit with the particular setting, goals, and resources. In other cases, it's more appropriate to develop a program suited to the particular needs and goals of the setting and compatible with existing resources, structures, and practice. For both existing and locally-developed programs, ensuring the continued success of a program over time involves supervisory, management, and human resources activities, as well as financial management, marketing and strategic planning (McMahon & Wolfe, 2017; SCRA, 2012). Implementing programs in a sustainable way in any local context involves issues of fidelity to core program elements and fit and adaptation to the local context (Castro et al., 2004). It's vital to ensure a supportive organisational and community context and organisational support for the program at multiple levels (Blanchet-Cohen & Brunson, 2010), and create conditions and processes that ensure that effective programs continue to operate successfully and even expand their reach (Cook, 2014).

PHCPs can organise a collaborative approach among multiple community actors to identify stakeholder goals and assemble a meaningful and coherent package of intervention activities. The dual role of community psychologists both as researchers and as stakeholders make it possible to consider multiple perspectives and values, identify models, distill the evidence base, and systematise the choice of objectives and activities. Their training in developmental psychology also prepares them to consider issues related to age (Lavoie & Brunson, 2010).

Build Capacity at Organisational and Community Levels

PHCP practitioners frequently participate in organisational and community capacity building activities aimed at developing links among citizens and organisations, strengthening networks and communication, and aligning efforts and resources to accomplish common goals (Wolff, 2010; Wolff et al., 2017). Some essential components of this capacity building process include the ability to identify and convene diverse stakeholders, facilitate mutual trust, promote collaborative

decision-making with authentic buy-in from all stakeholders, and to work together to act in ways that surpass what an individual actor would be able to do alone (Aspen Institute, 1996; Wolff, 2010). At the organisational level, capacity building enhances the capacity of an organisation to attain its goals by introducing or improving organisational tools, policies, and processes (SCRA, 2012). This work may involve helping an organisation to develop an organisational vision, mission, and strategic plan; aligning stakeholders, resources, and organisational processes around these priorities; building a communications strategy; promoting organisational learning; or putting mechanisms in place to monitor efforts and results (Hawe et al., 2000; Norton et al., 2002). At the community level, capacity building fosters collaborative relationships and concrete action among community members, groups, and organisations (SCRA, 2012). It may involve helping community actors to define a shared vision and engaging, energising and mobilising individuals and groups around an issue of shared importance (SCRA). Grassroots community organising involves working collaboratively with community members to gain the power to improve the conditions affecting their community (SCRA). Community coalition building creates networks of organisational and resident stakeholders who work together across organisational boundaries to address a common issue (Allen, 2005; Foster-Fishman et al., 2001; Francescato & Zani, 2017; Wolff et al., 2017).

Many other professions and disciplines recognise the importance of secure networks, social capital, and collaborative relationships. Community psychologists participate in and foster these efforts, bringing among other things an awareness of social justice and equity, and the importance of involving people who are directly affected by the conditions being addressed, as well as those with relatively less power and voice (Rappaport, 1981; Wolff et al., 2017). Community psychologists are particularly attuned to identifying and mobilising existing strengths that exist, but which may be under-recognised or under-utilised in the community (Kelly, 1971). They are also knowledgeable about relevant research and practice that may be taking place elsewhere and can suggest ideas that have been successful elsewhere (Dagenais, 2006; Lavoie & Brunson, 2010). A particular contribution of PHCP is the ability to use participation processes – such as participatory action research, participatory arts and theatre, community forums, Delphi techniques, and small and large group facilitation techniques – to promote co-construction of knowledge and a positive climate for change efforts.

Analyse a Problematic Situation, System, or Practice

The work of community psychologists sometimes involves making sense of an ambiguous and problematic situation in order to identify the problem better, create a shared and coherent understanding of the situation, and explore possible solutions. As Caplan and Nelson (1973) pointed out many years ago, what's done about a problem depends on how it's defined. If failure to obtain mental health care, for example, is defined in terms of individual characteristics and problems – such as lack of information or insufficient motivation – then person change intervention options are most logical, and change efforts would likely focus on public awareness campaigns to disseminate information or increase individuals' awareness of the importance of care. If explanations are situation-focused – for example, if lack of access was attributed to a lack of providers, high treatment costs, duplication of effort, and competition for resources and recognition – then system change in the form of mobile clinics working with community organisations to offer low-cost care, or coordinated efforts to create interorganisational links would be a more logical solution (e.g., Lundburg et al., 2011; Wolff, 2014).

The analysis of a problem, a situation, a milieu, or practices consists of taking a critical, analytical, and contextualised look at a social issue or a social object such as a community program, organisation, or institution. It may involve naming and documenting a little-known problem

and raising awareness about its existence. It might involve documenting and exploring different viewpoints held by various stakeholders involved in the situation (Juras et al., 1997). It could involve taking on the role of 'critical friend', where as a participant in the setting, the community psychologist tactfully confronts ways of thinking or acting that serve to maintain the status quo (Evans et al., 2008). It helps to reveal how a group conceives a particular situation and suggests levers for change that might be created by introducing new mental models of the situation (Christens et al., 2007).

Develop, Analyse, and Advocate for Public Policy

PHCPs can be involved in efforts to influence public policy (Maton, 2016; Phillips, 2000). This type of work seeks to create change at the societal level by targeting the policies that govern its institutions and how they operate, the distribution of resources, and the structure of existing programs and services.

PHCPs can play several public policy roles. They may provide research-based information on social problems and their possible solutions, or work to raise awareness of an issue so that it becomes part of the political agenda. They can conduct policy analysis, examining the various policy options that are available and determining their actual or potential impact concerning a set of policy goals. They might participate in policy advocacy to influence decision-making processes and advocate for specific policies (Bouchard, 2001; Bouchard, 2010; McMahon & Wolfe, 2017; van de Hoef et al., 2011). PHCPs can collaborate within a community to encourage citizen participation in policymaking, or strengthen the capacity of institutional leaders to reach out to and listen to their constituents (Brunson & Boileau, 2008; Chavis, 1993). PHCPs might work directly in the political system as a political attaché or policy staff (Phillips, 2000; van de Hoef et al., 2011), or even hold a position as an elected official or as a ministry-level decision-maker (Bouchard, 2001; Bouchard, 2011; Starnes, 2004).

Becoming involved in politics and the political process is not always easy or comfortable for psychologists, in part because of the contested nature of the political process (Bernier & Clavier, 2011; Fafard, 2015; Phillips, 2000). The distinction between providing information as a researcher versus acting as a lobbyist or political activist can be challenging to manage (Bouchard, 2001; Francescato & Zani, 2017). Even when persuasive arguments are based on a solid research base, it can be difficult to accept that scientific knowledge is only one element among many in a political decision-making process (Bernier & Clavier; Bouchard, 2001; Fafard, 2015).

Although few PHCP training programs provide training on the process of public governance (Phillips, 2000), community psychologists bring to this field a broad knowledge of topics of interest to social policy planners (e.g., the influence of social networks, exclusion, citizen science – see Borda, Gray & Downie, 2019), and a broad ecological analysis of phenomena, including exo- and macrosystem factors. They're skilled at building and sustaining working relationships and effective communication with a variety of stakeholders, and can apply these skills with policymakers, elected officials, governmental staff, and community leaders (SCRA, 2012).

Accompany and Participate in Social and Political Action

PHCP typically works with disempowered groups in contexts that are constructed economically, politically, and historically and proposes structural and contextualised understanding of these social situations. When these groups encounter social and economic interests that differ from their own, the work inevitably enters into the realm of politics and social action (Burton et al., 2012). Social action – defined as efforts to address inequities of power and privilege between an

oppressed group and society at large – is an option for challenging these existing power relations in society (Le Bossé & Dufort, 2001; Lykes et al., 2003; Moane, 2003; Rothman & Tropman, 1987).

PHCPs may engage in explicitly political commitment as experts with particular knowledge of the evidence base and the risks and harms involved in a particular situation. They might work with community groups to organise a protest movement, participate in a collective advocacy process, or conduct a grassroots community organising with a rights-based focus. They can help to maintain positive group dynamics, a valuable contribution for small groups engaged in difficult campaigns (Burton, et al., 2012).

Taking a stand on social issues requires engaging in value debates and taking on political issues. As with policy analysis and advocacy, there can be tensions between acting as a practitioner/professional versus as a political activist (Lavoie & Brunson, 2010; Francescato & Zani, 2017). Some resolution of this dilemma can be found when community psychologists are also able to identify with a social movement as part of their civic and personal identity, and to recognise their own and others' rights to act as fully enfranchised members of civil society (Burton, et al., 2012; Dzidic et al., 2013).

COMMON PHCP CHANGE STRATEGIES

PHCPs use diverse strategies to promote change across different activities and settings. **Table 14.1** briefly highlights a number of change strategies typical to CP practice that have been discussed in detail elsewhere (Bond et al., 2017b; Francescato & Zani, 2017; Lavoie & Brunson, 2010). Other strategies can certainly be added depending on the area of specialisation.

TABLE 14.1 COMMON CP CHANGE STRATEGIES

Strategy Type	Description
Conscientisation	Creates a group process in which social relations and collective action lead to greater awareness of the social and political structures that limit and distribute power in society, and the possibility for change (Franscescato & Zani, 2017; Montero 2012; Montero et al., 2017).
Alternative settings	Seeks to move completely out of the current system and create a new resource, challenging the established order instead of trying to change an existing service. Some examples include mutual aid groups, cooperatives, social economy enterprises, counterspaces (Case & Hunter, 2012; Cherniss & Deegan, 2000; Francescato & Zani 2017).
Knowledge mobilisation	Aims to reduce the gap between science and practice by involving practitioners and clients in creating knowledge and applying it in a particular context (Dagenais, 2006; Worton et al., 2017).
Applied research	Allows stakeholders to identify solutions to problems by gathering information, developing and testing hypotheses, crafting change processes adapted to a particular context, and evaluating their impact in that specific context (Juras et al., 1997; van de Hoef et al., 2011).
Participation	Seeks to understand and improve fair and diverse participation in work and life settings. Participatory action research promotes social change and quality of life for oppressed and exploited communities (Creswell at al., 2007; SCRA, 2012).
Community education	Aims to educate members of the community and promote healthy behaviour change related to using social marketing and public awareness campaigns (SCRA, 2012; Gagné et al., 2014).
Consultation	Builds a collaborative process aimed at identifying and solving problems and identifying useful data and resources, takes place within the context of a specific mandate given by a group, organisation, or community. In CP, consultation is envisaged as a tool for development and empowerment that often takes place in complex systems involving many stakeholders (Laprise & Payette, 2001; Meyers, 2002).
Training, coach	Develops individuals' and groups' abilities to work more effectively towards their mentoring goals and is especially effective when individual capacity building is supported by tools and processes that provide continuing support. Training in such skills as reflective practice or evaluation can be a crucial component in capacity building efforts (Lavoie & Brunson, 2010; SCRA, 2012).

TRAINING, JOB SETTINGS, AND TITLES

As McMahon and colleagues (2015) have aptly highlighted, few job ads state they're specifically seeking a community psychologist to fill the position. These jobs may be advertised for generally registered psychologists or provisional psychologists or may be listed under a related title (e.g., Clinical Worker, Clinician, Mental Health Case Manager). However, the training and experience PHCPs acquire through a combination of academic programs and related work experience typically equip them well to be employed in a wide variety of settings. Given the relatively low numbers of psychologists working in the AoEP as community psychologists in Australia (less than 100), the majority of psychologists working in public health and community settings would be generally registered or clinically endorsed. However, these psychologists typically have a particular interest in serving the needs of vulnerable communities and may have sought additional training, work experience, or clinical supervision to support their work roles in the PHCP sector. Psychologists with other AoEP may also be working in public health and community psychology environments, such as a health psychologist working in an NGO with people experiencing substance misuse, an educational and developmental psychologist working in a flexischool, or a counselling psychologist working in a domestic and family violence centre. Thus, any registered psychologist can work in public health or community settings. This is particularly relevant as dedicated postgraduate training programs in Australia are very limited, including the Master of Applied Psychology (Community Psychology) at Victoria University.

Undergraduate or honours psychology graduates with an interest in CP and PHCP can be found working in many types of settings, including academic settings, philanthropic organisations and private foundations, public and private health and human service agencies (e.g., child safety), regional, state and federal governments, comprehensive community initiatives, self-help groups, prevention organisations, community mental health centres, non-profits, schools, community-based organisations, advocacy groups, religious institutions, and neighborhood groups. They work in organisations offering applied research, consultation and evaluation services, and community development, architectural, planning, and environmental firms. They may also be found in corporations or as researchers in community organisations, universities, think tanks, or government agencies (McMahon & Wolfe, 2017; Neigher et al., 2011; Wolff, 2014).

Fully registered and master's trained PHCPs are well prepared to promote mental health and community wellbeing in a variety of roles, may seek further training in related areas (e.g., business), and tend to work closely with other professionals in related 'helping' fields (e.g., counselling, social work, human services). Some relevant job titles across sectors (e.g., health, education, housing, community welfare, justice and corrections) might include:

- community mental health worker
- clinical worker
- case manager/care coordinator
- grassroots organiser
- community development specialist or urban planner
- program or project director
- grant writer
- trainer
- director of a non-profit or community-based organisation

- research/evaluation consultant
- coordinator for a community coalition
- policy analyst, governmental administrative staff, or political attaché
- executive staff of a non-profit or for-profit organisation (Hakim, 2010; McMahon & Wolfe, 2017; Viola et al., 2017).

For further exploration of descriptions of diverse career paths of individual psychologists working in public health and community settings throughout the world, see Bouchard, 2010; Chavis, 1993; van de Hoef et al., 2011; Wolff, 2014.

Conclusion

Psychologists working in PHCP settings share many of the values, concepts, and change strategies of other community-focused specialties, such as applied sociology, social work, community economic development, public health, applied anthropology, and prevention science. However, PHCP adds a unique constellation of perspectives surrounding community change and interventions compared to other disciplines. PHCP practice is, among other things, fundamentally based in an empirical approach, using research not only to describe social problems but also as a lever for change and advocacy. PHCP uses psychological and psychosocial knowledge to promote sustainable social change. PHCP are well placed to adopt a critical and analytical approach to environments and systems through the use of concepts such as social regularities, person-environment fit, and ecological analysis. They hold a tolerance for ambiguity and the ability to legitimise multiple points of view. They seek out individual and group strengths and strive to identify levers for change that are already present in the situation. PHCP's move beyond analysis, towards action, by establishing a climate of mobilisation and synergy, and by promoting concrete possibilities for change (Laprise & Payette, 2001). These features of PHCP contribute to the wide variety of applications and careers that community psychologists can pursue.

This chapter was adapted by:

- Amy B. Mullens, School of Psychology and Counselling, Institute for Resilient Regions, Centre for Health Research, University of Southern Queensland
- Govind Krishnamoorthy, School of Psychology and Counselling, University of Southern Queensland
- Éidín Ni She, School of Population Health, University of New South Wales
- Lorelle J. Burton, School of Psychology and Counselling, University of Southern Queensland

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REFERENCES

Akhurst, J., Kagan, C., Lawthorn, R., & Richards, M. (2016). Community psychology practice competencies: Perspectives from the UK. *Global Journal of Community Psychology Practice*, *7*(4), 1–16. https://www.gjcpp.org/en/article.php?issue=24&article=144

Arblaster, K., Mackenzie, L., Matthews, L., Willis, K., Gill, K., Hanlon, P., & Laidler, R. (2018). Learning from consumers: An eDelphi study of Australian mental health consumers' priorities for recovery-oriented curricula. *Australian Occupational Therapy Journal*, *65*(6), 586–597. https://doi.org/10.1111/1440-1630.12518

Australian Psychological Society. (n.d.). *APS Member Groups: APS College of Community Psychologists*. https://groups.psychology.org.au/ccom

Australian Psychological Society. (n.d.b.). *APS Member Groups: New South Wales Committee information*. https://groups.psychology.org.au/cedp/nsw

Allen, N. E. (2005). A multi-level analysis of community coordinating councils. *American Journal of Community Psychology*, *35*(1–2), 49–63. https://doi.org/10.1007/s10464-005-1889-5

Arcidiacono, C. (2017). The community psychologist as a reflective plumber. *Global Journal of Community Psychology Practice*, *8*(1), 1–16. https://www.gjcpp.org/en/article.php?issue=25&article=158

Aspen Institute (1996). *Measuring community capacity building: A workbook in progress for rural communities.* https://www.aspeninstitute.org/publications/measuring-community-capacity-building/

Aubry, T., Goering, P., Veldhuizen, S., Adair, C. E., Bourque, J., Distasio, J., Latimer, E., Stergiopoulos, V., Somers, J., Streiner, D. L., & Tsemberis. (2016). A multiple-city RCT of housing first with assertive community treatment for homeless Canadians with serious mental illness. *Psychiatric Services*, *67*(3), 275–281. https://doi.org/10.1176/appi.ps.201400587

Aubry, T., Sylvestre, J., & Ecker, J. (2010). Community psychology training in Canada in the new millennium. *Canadian Psychology/Psychologie Canadienne*, *51*(2), 89–95. https://doi.org/10.1037/a0018134

Babarik, P. (1979). The buried Canadian roots of community psychology. *Journal of Community Psychology*, *7*(4), 362–367. https://doi.org/10.1002/1520-6629(197910)7:4%3C362::AID-JCOP2290070416%3E3.0.CO;2-X

Bernier, N. F., & Clavier, C. (2011). Public health policy research: Making the case for a political science approach. *Health Promotion International*, *26*(1), 109–116. https://doi.org/10.1093/heapro/daq079

Blanchet-Cohen, N., & Brunson, L. (2014). Creating settings for youth

empowerment and leadership: An ecological perspective. *Child & Youth Services*, *35*(3), 216–236. https://doi.org/10.1080/0145935X.2014.938735

Bond, M. A., Serrano-García, I. E., Keys, C.B., & Shinn, M. E. (2017a.). *APA handbook of community psychology: Theoretical foundations, core concepts, and emerging challenges* (Vol 1.). American Psychological Association. https://doi.org/10.1037/14953-000

Bond, M. A., Serrano-García, I. E., Keys, C. B., & Shinn, M. E. (2017b). *APA handbook of community psychology: Methods for community research and action for diverse groups and issues* (Vol 2.). American Psychological Association. https://doi.org/10.1037/14954-000

Borda, A., Gray, K., & Downie, L. (2019). Citizen science models in health research: An Australian commentary. *Online Journal of Public Health Informatics*, *11*(3), Article e23. https://doi.org/10.5210/ojphi.v11i3.10358

Bouchard, C. (2001). Inspirer, soutenir et rénover les politiques sociales. In F. Dufort & J. Guay (Eds.), *Agir au cœur des communautés. La psychologie communautaire et le changeme nt social* (pp. 343–368). Les Presses de l'Université Laval.

Bouchard, C. (2010). Construire un monde plus viable: Plaidoyer pour une psychologie de l'engagement civique. Congrès de l'Ordre des psychologues du Québec, Québec, Québec: October 30, 2010.

Bouchard, C. (2011). 1. De Skinner à Bronfenbrenner ou de l'utopie à l'engagement: Parcours d'un psychologue communautaire. In T. Saias (Ed.), *Introduction à la psychologie communautaire* (pp. 1–11). Dunod.

Brolan, C. E. (2020). Queensland's new Human Rights Act and the right to access health services. *The Medical Journal of Australia, 213*(4), 158–160. https://doi.org/10.5694/mja2.50558

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press.

Brunson, L. & Boileau, G. (2008). *La voix des parents : Préparation d'un portrait de la communau té par, pour et avec les parents — Guide du processus.* Guide d'animation présenté à Québec Enfants, Montréal, Québec (86 pp.).

Brunson, L., Gilmer, A., Loomis, C. (2019). Applications and careers in community psychology: Practicing in settings, systems, and communities to build well-being and promote social justice. In M. E. Norris (Ed.), *The Canadian handbook for careers in psychological science*. eCampusOntario. https://ecampusontario.pressbooks.pub/psychologycareers/chapter/applications-and-careers-in-community-psychology/

Burns, J. C., Cooke, D. Y., & Schweidler, C. (2011). A short guide to community based participatory action research. Advancement Project. Retrieved from https://hc-v6-static.s3.amazonaws.com/media/resources/tmp/cbpar.pdf

Burton, L. J., McDonald, K., & Postle, G. D. (2017). The Toowoomba flexi school model: One size does not fit all. In S. Petrilli (Ed.), *Challenges to living together: Transculturalism,*

migration, exploitation for a semioethics of human relations (pp. 371–394). Mimesis International.

Burton, L., O'Shea, É., & Olliver, S. (2014). Men of business 'paying it forward' program-A report for the MOB.

Burton, L. J., Shé, É. N., & Olliver, S. (2018). Men of business 'pay it forward' program: A model for building social capital in disenfranchised youth in high schools. In *Social capital and enterprise in the modern state* (pp. 259–275). Palgrave Macmillan. https://link.springer.com/chapter/10.1007/978-3-319-68115-3_13

Burton, M., Kagan, C., & Duckett, P. (2012). Making the psychological political–challenges for community psychology. *Global Journal of Community Psychology Practice*, *3*(4), 1–11. https://www.gjcpp.org/en/resource.php?issue=9&resource=91

Cama, E. J., Wilson, H., Mackenzie, A., & Brener, L. (2015). Hepatitis C stigma and empowerment through positive speaking in Sydney, Australia. *Journal of Community & Applied Social Psychology*, *25*(5), pp. 418–431. https://doi.org/10.1002/casp.2222

Campbell, R. (2010). Commentary: What's the 'right' method in community research. In G. Nelson & I. Prilleltensky (Eds.), *Community psychology: In pursuit of liberation and wellbeing* (2nd ed., pp. 308–310). Macmillan.

Caplan, G. (1961). *Prevention of mental disorders in children: Initial explorations*. Basic Books.

Caplan, N., & Nelson, S. D. (1973). On being useful: The nature and consequences of psychological research on social problems. *American Psychologist*, *28*(3), 199–211. https://doi.org/10.1037/h0034433

Case, A. D., & Hunter, C. D. (2012). Counterspaces: A unit of analysis for understanding the role of settings in marginalized individuals' adaptive responses to oppression. *American Journal of Community Psychology*, *50*(1–2), 257–270. https://doi.org/10.1007/s10464-012-9497-7

Castro, F. G., Barrera, M., & Martinez, C. R. (2004). The cultural adaptation of prevention interventions: Resolving tensions between fidelity and fit. *Prevention Science*, *5*(1), 41–45. https://doi.org/10.1023/b:prev.0000013980.12412.cd

Ceatha, N., Mayock, P., Campbell, J., Noone, C., & Browne, K. (2019). The power of recognition: A qualitative study of social connectedness and wellbeing through LGBT sporting, creative and social groups in Ireland. *International Journal of Environmental Research and Public Health, 16*(19), Article 3636. https://doi.org/10.3390/ijerph16193636

Center for Community Health and Development (2019). *The community toolbox* [resource]. Retrieved from https://ctb.ku.edu/en

Chavis, D. M. (1993). A future for community psychology practice. *American Journal of Community Psychology*, *21*(2), 171–183. https://doi.org/10.1007/BF00941620

Cherniss, C., & Deegan, G. (2000). The creation of alternative settings. In J. Rappaport & E. Seidman (Eds.), *Handbook of community -sychology* (pp. 359 –378). Plenum Press.

Christens, B. D., Hanlin, C. E., & Speer, P. W. (2007). Getting the social organism thinking: Strategy for systems change. *American Journal of Community Psychology*, *39*(3-4), 229–238. https://doi.org/10.1007/s10464-007-9119-y

Cook, J. R. (2014). Using evaluation to effect social change: Looking through a community psychology lens. *American Journal of Evaluation*, *36*(1), 107–117. https://doi.org/10.1177%2F1098214014558504

Cook, J. R., & Kilmer, R. P. (2012). Systems of care: New partnerships for community psychology. *American Journal of Community Psychology*, *49*(3–4), 393–403. https://doi.org/10.1007/s10464-012-9516-8

Creswell, J. W., Hanson, W. E., Clark Plano, V. L., & Morales, A. (2007). Qualitative research designs: Selection and implementation. *The Counseling Psychologist*, *35*(2), 236–264. https://doi.org/10.1177%2F0011000006287390

Dagenais, C. (2006). Vers une utilisation accrue des résultats de la recherche par les intervenants sociaux. Quels modèles de transfert de connaissance privilégier? *Les Sciences de l'Éducation pour l'Ère nouvelle*, *3*, 23–35. https://www.cairn.info/revue-les-sciences-de-l-education-pour-l-ere-nouvelle-2006-3-page-23.htm

Dalton, J. H., Elias, M. J., & Wandersman, A. (2007). *Community psychology: Linking individuals and communities* (2nd ed.). Thomson Wadsworth.

Dzidic, P., Breen, L. J. & Bishop, B. J. (2013). Are our competencies revealing our weaknesse s? A critique of community psychology practice competencies. *Global Journal of Community Psychology Practice*, *4*(4), 1–10. https://www.gjcpp.org/en/article.php?issue=16&article=78

Elrod, J. K., & Fortenberry, J. L., Jr (2017). The hub-and-spoke organization design revisited: A lifeline for rural hospitals. *BMC Health Services Research*, *17*(Suppl 4), 795. https://doi.org/10.1186/s12913-017-2755-5

Evans, S. D., Brown, N., deSchutter, J., & McGee, S. (2008, mai). *The role of the « critical friend » in the community-university partnership.* Communication présentée au 4ième Colloque de psychologie communautaire Québec-Ontario, Montréal, Québec.

Evans, S. D., Duckett, P., Lawthorn, R., & Kivell, N. (2017). Positioning the critical in community psychology. In M. A. Bond, I. E. Serrano-García, C. B. Keys, & M. Shinn (Eds.), *APA handbook of community psychology: Theoretical foundations, core concepts, and emerging challenges* (pp. 107–127). American Psychological Association. https://doi.org/10.1037/14953-005

Farmyard, P. (2015). Beyond the usual suspects: Using political science to enhance public health policy making. *Journal of Epidemiology and Community Health*, *69*(11), 1129–1132. http://dx.doi.org/10.1136/jech-2014-204608

Fortin-Pellerin, L., Pouliot-Lapointe, J., Thibodeau, C., & Gagne, M-H. (2007). The Canadian journal of community mental health from 1982 to 2006: A content analysis. *Canadian Journal of Community Mental Health*, *26*(1), 23–45. https://doi.org/10.7870/cjcmh-2007-0005

Foster-Fishman, P. G., Berkowitz, S. L., Lounsbury, D. W., Jacobson, S., & Allen, N. A. (2001). Building collaborative capacity in community coalitions: A review and integrative framework. *American Journal of Community Psychology*, *29*(2), 241–261. https://doi.org/10.1023/A:1010378613583

Foucher, R., & Leduc, F. (2008). Domaines de pratique et compétences professionnelles des psychologues du travail et des organisations (2e éd.). Éditions Nouvelles.

Francescato, D., & Zani, B. (2013). Community psychology practice competencies in undergraduate and graduate programs in Italy. *Global Journal of Community Psychology Practice*, *4*(4), 1–12. https://www.gjcpp.org/en/article.php?issue=16&article=79

Francescato, D., & Zani, B. (2017). Strengthening community psychology in Europe through increasing professional competencies for the new Territorial Community Psychologists. *Global Journal of Community Psychology Practice*, *8*(1), 1–14. https://www.gjcpp.org/en/article.php?issue=25&article=160

Gagné, M. H., Lachance, V., Thomas, F., Brunson, L., & Clément, M. È. (2014). Prévenir la maltraitance envers les enfants au moyen du marketing social. *Canadian Journal of Community Mental Health*, *33*(2), 85–107. https://doi.org/10.7870/cjcmh-2014-017

Gottlieb, B. H., & Russell, C. C. (1989). Better beginnings, better futures: Primary prevention in Ontario. *Canadian Journal of Mental Health*, *8*(2), 151–152. https://doi.org/10.7870/cjcmh-1994-0019

Government of Canada. (2018). *Supervised consumption sites: Status of applications.* Retrieved from https://www.canada.ca/en/health-canada/services/substance-use/supervised-consumption-sites/status-application.html

Gridley, H., & Breen, L. J. (2007). So far and yet so near?: Community psychology in Australia. In S. M. Reich, M. Riemer, I Prilleltensky, & M. Montero (Eds.), *International community psychology*. Springer. https://doi.org/10.1007/978-0-387-49500-2_6

Hasford, J., Loomis, C., Nelson, G., & Pancer, S. M. (2013). Youth narratives on community involvement and sense of community and their relation to participation in an early childhood development program. *Youth & Society*. Advance online publication. https://doi.org/10.1177%2F0044118X13506447

Hawe, P. (1994). Capturing the meaning of "community" in community intervention evaluation: Some contributions from community psychology. *Health Promotion International*, *9*, 199–210. https://doi.org/10.1093/heapro/9.3.199

Hawe, P. (2017). The contribution of social ecological thinking to community psychology: Origins, practice, and research. In M. A. Bond, I. E. Serrano-García, C. B. Keys, & M.

Shinn (Eds.), *APA handbook of community psychology: Theoretical foundations, core concepts, and emerging challenges* (pp. 87–105). American Psychological Association. https://doi.org/10.1037/14953-004

Hawe, P., King, L., Noort, M., Jordens, C., Gifford, S., & Lloyd, B. (2000). *Indicators to help with capacity building in health promotion.* Australian Centre for Health Promotion, Health Promotion International, NSW Health Department. https://www.betterevaluation.org/en/resources/capacity_dev/evaluating_results

Hayward, K., Loomis, C., Nelson, G., Pancer, M., & Peters, R. D. (2011). *A toolkit for building better beginnings and better futures*. Better Beginnings, Better Futures Research Coordination Unit. https://doi.org/10.1016/j.psi.2014.02.001

Jason, L. A., & O'Brien, J. (2018). What is unique to our field?*The Community Psychologist*, *51*(3).

Jason, L. A., Stevens, E., Ram, D. Miller, S. A., Beasley, C. R., & Gleason, K., (2016). Theories in the field of community psychology. *Global Journal of Community Psychology Practice*, *7*(2), 1–27. https://www.gjcpp.org/en/article.php?issue=22&article=125

Julian, D. (2006). Defining community psychology practice: Meeting the needs and realizing the dreams of the community. *The Community Psychologist*, *39*(4), 66–69.

Juras, J. L., Mackin, J. R., Curtis, S. E., & Foster-Fishman, P. G. (1997). Key concepts of community psychology: Implications for consulting in educational and human service settings. *Journal of Educational and Psychological Consultation*, *8*(2), 111–133. https://doi.org/10.1207/s1532768xjepc0802_2

Kelly, J. G. (1971). Qualities for the community psychologist. *American Psychologist*, *26*(10), 897–903. https://doi.org/10.1037/h0032231

Kelly, J. G. (1986). Context and process: An ecological view of the interdependence of practi ce and research. *American Journal of Community Psychology*, *14*(6), 581–589. https://doi.org/10.1007/BF00931335

Kerr, T., MacPherson, D., & Wood, E. (2008). Establishing North America's first safer injection facility: Lessons from the Vancouver experience. In A. Stevens (Ed.), *Crossing frontiers: International developments in the treatment of drug dependence.* Pavilion Publishing.

Kloos, B., & Shah, S. (2009). A social ecological approach to investigating relationships between housing and adaptive functioning for persons with serious mental illness. *American Journal of Community Psychology*, *44*(3–4), 316–326. https://doi.org/10.1007/s10464-009-9277-1

Laprise, R., & Payette, M. (2001). Le choix d'un modèle de consultation selon une perspecti ve communautaire. In F. Dufort & J. Guay (Eds.), *Agir au cœur des communautés. La psychologie communautaire et le changement social* (pp. 18–214). Les Presses de l'Université Laval.

Lavoie, F., & Brunson, L. (2010). La pratique de la psychologie communautaire. *Canadian Psychology/Psychologie Canadienne*, *51*(2), 96–105. https://doi.org/10.1037/a0018085

Lavoie, F., Borkman, T., & Gidron, B. (Eds.). (1994). *Self-help and mutual aid groups: International and multicultural perspectives.* Haworth Press.

Le Bossé, Y., & Dufort F. (2001). Le pouvoir d'agir (empowerment) des personnes & des communautés : Une autre façon d'intervenir. In F. Dufort & J. Guay (Eds.), *Agir au coeur des communautés : La psychologie communautaire et le changement social* (pp. 75–116). Presses de l'Université Laval.

Leach, D. C. (2008). Competencies: From deconstruction to reconstruction and back again, lessons learned. *American Journal of Public Health*, *98*(9), 1562–1564. https://doi.org/10.2105/AJPH.2007.125302

Lundburg, K., Ignacio, C. R., & Ramos, C. M. (2011). The mobile♥care health project: Providing dental care in rural Hawai'i communities. *Global Journal of Co mmunity Psychology Practice*, *1*(3), 32–36. https://www.gjcpp.org/en/article.php?issue=4&article=18

Lykes, M. B., TerreBlanche, M., & Hamber, B. (2003). Narrating survival and change in Guatemala and South Africa: The politics of representation and a liberatory community psychology. *American Journal of Community Psychology*, *31*(1/2), 79–90. https://doi.org/10.1023/A:1023074620506

March, S., Donovan, C. L., Baldwin, S., Ford, M., & Spence, S. H. (2019). Using stepped-care approaches within internet-based interventions for youth anxiety: Three case studies. *Internet Interventions*, *18*, Article 100281. https://doi.org/10.1016/j.invent.2019.100281

Martín-Baró, I. (1994). *Writings for a liberation psychology*. Harvard University Press.

Maton, K. I. (2016). *Influencing social policy: Applied psychology serving the public interest.* Oxford University Press.

McIntyre, A. (2007). *Participatory action research*. Sage Publications.

McMahon, S. D., & Wolfe, S. M. (2017). Career opportunities for community psychologists. In M. A. Bond, I. Serrano-García, C. B. Keys & M. Shinn. (Eds.), *APA handbook of community psychology*: *Methods for community research and action for diverse groups and issues* (Vol. 2, pp. 645–659). American Psychological Association.

McMahon, S. D., Jimenez, T. R., Bond, M. A., Wolfe, S. M., & Ratcliffe, A. W. (2015). Community psychology education and practice careers in the 21st century. In V. C. Scott & S. M. Wolfe (Eds.), *Community psychology: Foundations for practice* (pp. 379–409). SAGE Publications, Ltd.

Meyers, A. B. (2002). Developing nonthreatening expertise: Thoughts on consultation training from the perspective of a new faculty member. *Journal of Educational and Psychological Consultation*, *13*, 55– 67. https://doi.org/10.1080/10474412.2002.9669453

Moane, G. (2003). Bridging the personal and the political: Practices for a liberation psychology. *American Journal of Community Psychology*, *31*(1–2), 91–101. https://doi.org/10.1023/A:1023026704576

Montero, M. (2012). From complexity and social justice to consciousness: Ideas that have constructed community psychology. *Global Journal of Community Psychology Practice*, *3*(1), 1–13. https://www.gjcpp.org/en/resource.php?issue=10&resource=42

Montero, M., Sonn, C., & Burton, M. (2017). Community psychology and liberation psychology : A creative synergy for an ethical and transformative praxis. In M. A. Bond, I. E. Serrano-García, C. B. Keys & M. Shinn (Eds.), *APA handbook of community psychology: Theoretical foundations, core concepts, and emerging challenges* (Vol 1., pp. 149–167). American Psychological Association.

Mullens, A. B., Daken, K., Lemoire, J., Brownlow, C., Driver, G., & Gow, J. (2020). HIV point of care testing (PoCT) at late-night sex on premises venues (SOPV) for gay and bisexual men and other men who have sex with men (GBMSM): A mixed methods analysis. *AIDS and Behavior*, *24*(2), 450–466. https://doi.org/10.1007/s10461-019-02500-0

Mullens, A. B., Duyker, J., Brownlow, C., Lemoire, J., Daken, K., & Gow, J. (2019). Point-of-care testing (POCT) for HIV/STI targeting MSM in regional Australia at community 'beat' locations. *BMC health services research*, *19*(1), 1–10. https://doi.org/10.1186/s12913-019-3899-2

NDIS. (2021). *What is the NDIS?* http://ndis.gov.au/understanding/what-ndis

Neal, J. W. (2016). Phenomenon of interest, framework, or theory? Building better explanations in Community Psychology. *Global Journal of Community Psychology Practice*, *7*(2), 1–6. https://www.gjcpp.org/en/article.php?issue=22&article=132

Neigher, W. D., Ratcliffe, A. W., Wolff, T., Elias, M., & Hakim, S. M. (2011). A value proposit ion
for community psychology. *Global Journal of Community Psychology Practice*, *2*(3), 1–21. https://www.gjcpp.org/pdfs/v2i3-0005-SpecSession-final.pdf

Nelson, G. (2006). Mental health policy in Canada. In A. Westhues (Ed.), *Canadian social policy: Issues and perspectives* (4th ed., pp. 245–266). Wilfrid Laurier University Press.

Nelson, G., & Aubry, T. (2010). Introduction to community psychology in Canada: Past, present, and future. *Canadian Psychology 51*(2), 77–78. https://doi.org/10.1037/a0019740

Nelson, G., Kloos, B., & Ornelas, J. (2014). Transformative change in community mental health. In G. Nelson, B. Kloos & J. Ornelas (Eds.), *Community psychology and community mental health: Towards transformative change.* Oxford University Press.

Nelson, G., Lavoie, F., & Mitchell, T. (2007). The history and theories of community psychology in Canada. In S. M. Reich, M. Riemer, I. Prilleltensky & M. Montero (Eds.), *International Community Psychology* (pp. 13–36). Springer.

Nelson, G., Lord, J., & Ochoka, J. (2001). *Shifting the paradigm in community mental health: Towards empowerment and community.* University of Toronto Press. https://doi.org/10.3138/9781442679900

Nelson, G., Ochocka, J., Janzen, R., Trainor, J., Goering, P., & Lomotey, J. (2007). A longitudinal study of mental health consumer/survivor initiatives: Part V—Outcomes at three-year follow-up. *Journal of Community Psychology*, *35*, 655–665. https://doi.org/10.1002/jcop.20171

Nelson, G., Stefancic, A., Rae, J., Townley, G., Tsembers, S., Macnaughton, E., … Georging, P. (2014). Early implementation evaluation of a multi-site housing first intervention for homeless people with mental illness: A mixed methods approach. *Evaluation and Program Planning*, *43*, 16–26. https://doi.org/10.1016/j.evalprogplan.2013.10.004

Norton, B., McLeroy, K., Burdine, J., Felix, R., & Dorsey, A. (2002). Community capacity: Concept, theory, and methods. In D. R. DiClemente, R. Crosby & M. Kegler (Eds.), *Emerging theories in health promotion practice and research* (pp. 194–227). Jossey-Bass.

Ortiz, E., Scanlon, B., Mullens, A., & Durham, J. (2020). Effectiveness of interventions for Hepatitis B and C: A systematic review of vaccination, screening, health promotion and linkage to care within higher income countries. *Journal of Community Health*, *45,* 201–218. https://doi.org/10.1007/s10900-019-00699-6

Pancer, S. M., Nelson, G., Hasford, J., & Loomis, C. (2012). The better beginnings, better futures project: Long-term parent, family, and community outcomes of a universal, comprehensive, community-based prevention approach for primary school children and their families. *Journal of Community & Applied Social Psychology, 23*(3), 187–205. https://doi.org/10.1002/casp.2110

Perales, F., & Todd, A. (2018). 'Structural stigma and the health and wellbeing of Australian LGB populations: Exploiting geographic variation in the results of the 2017 same-sex marriage plebiscite'. *Social Science & Medicine*, *208*, 190–199. https://doi.org/10.1016/j.socscimed.2018.05.015

Peters, R. D., Nelson, G., Petrunka, K., Pancer, S. M., Loomis, C., Hasford, J., Janzen, R., Armstrong, L., VanAndel, A. (2010). *Investing in our future: Highlights of better beginnings research findings at grade 12.* Better Beginnings Research Coordination Unit, Queen's University. http://bbbf.ca/Portals/15/pdfs/Grade%2012%20report%20FINAL%20version.pdf

Peters, R. D., Petrunka, K., Kahn, S., Howell-Moneta, A., Nelson, G., Pancer, S. M., & Loomis, C. (2016). Cost-savings analysis of the better beginnings, better futures community-based project for young children and their families: A 10-year follow-up. *Prevention Science*, *17*(2), 237–247. https://doi.org/10.1007/s11121-015-0595-2

Phillips, D. A. (2000). Social policy and community psychology. In J. Rappaport & E. Seidman (Eds.), *Handbook of community psychology* (pp. 397–419). Plenum.

Pols, H. (2000). Between the laboratory, the school, and the community: The psychology

of human development, Toronto, 1916–1956. *Canadian Journal of Community Mental Health*, *19*(2), 13–30. https://doi.org/10.7870/cjcmh-2000-0013

Prilleltensky, I. (1997). Values, assumptions, and practices: Assessing the moral implications of psychological discourse and action. *American Psychologist*, *52*(5), 517–535. https://doi.org/10.1037/0003-066X.52.5.517

Psychology Board of Australia. (2019. *Endorsement*. https://www.psychologyboard.gov.au/Endorsement.aspx

Ramos, C. M. (2007). A conceptual framework for community psychology practice. *The Community Psychologist*, *40*(4), 53–54.

Rappaport, J. (1981). In praise of paradox: A social policy of empowerment over prevention. *American Journal of Community Psychology*, *9*(1), 1–25. https://doi.org/10.1007/978-1-4419-8646-7_8

Reeves, S., Fox, A., & Hodges, B. D. (2009). The competency movement in the health professions: Ensuring consistent standards or reproducing conventional domains of practice? *Advances in Health Sciences Education: Theory and Practice*, *14*(4), 451–453. https://doi.org/10.1007/s10459-009-9166-2

Reich, S. M., Riemer, M., Prilleltensky, I., & Montero, M. (2007). *International Community Psychology.* Springer.

Ressia, S., Strachan, G., & Bailey, J. (2017). Operationalizing intersectionality: An approach to uncovering the complexity of the migrant job search in Australia. *Gender, Work & Organization, 24*(4), 376–397. https://doi.org/10.1111/gwao.12172

Rothman, J., & Tropman E. (1987). Models of community organizations and macro practice perspectives: Their mixing and phasing. In F. Cox, J. Erlich, J. Rothman & J. Tropman, (Eds), *Strategies of community organization: Macro practice* (4th ed., pp. 3-26). F. E. Peacock Publishers, Inc.

Seidman, E. (1988). Back to the future, community psychology: Unfolding a theory of social intervention. *American Journal of Community Psychology*, *16*(1), 3–24. https://doi.org/10.1007/BF00906069

Society for Community Research and Action. (2012). Competencies for community psychology practice: Draft August 15, 2012. *The Community Psychologist*, *45*(4), 7–14. https://www.communitypsychology.com/competencies-for-community-psychology-practice/

Somers, J. M., Rezansoff, S. N., Moniruzzaman, A., Palepu, A., & Patterson, M. (2013). Housing first reduces re-offending among formerly homeless adults with mental disorders: Results of a randomized controlled trial. *PLOS ONE*, *8*(9), 1–8. https://doi.org/10.1371/journal.pone.0072946

Smith, K. E., & Stewart, E. A. (2017). Academic advocacy in public health: Disciplinary

'duty' or political 'propaganda'?, *Social Science & Medicine*, 189, 35–43. https://doi.org/10.1016/j.socscimed.2017.07.014.

Speer, P. W., & Hughey, J. (1995). Community organizing: An ecological route to empowerment and power. *American Journal of Community Psychology*, *23*(5), 729–748. https://doi.org/10.1007/bf02506989

Starnes, D. M. (2004). Community psychologists—Get in the arena! *American Journal of Community Psychology*, *33*(1–2), 3–6. https://doi.org/10.1023/B:AJCP.0000014607.46862.d7

Stein, C. H. (2007). Commentary – Competencies and toolboxes or lessons learned along the journey? The nature of graduate education in community psychology. *The Community Psychologist*, *40*(2), 101–102.

Tsemberis, S. (1999). From streets to homes: An innovative approach to supported housing for homeless adults with psychiatric disabilities. *Journal of Community Psychology*, *27*(2), 225–241. https://doi.org/10.1002/(SICI)1520-6629(199903)27:2%3C225::AID-JCOP9%3E3.0.CO;2-Y

Tsemberis, S., Gulcur, L., & Nakae, M. (2004). Housing first, consumer choice, and harm reduction for homeless individuals with a dual diagnosis. *American Journal of Public Health*, *94*(4), 651–656. https://doi.org/10.2105/AJPH.94.4.651

van de Hoef, S., Sundar, P., Austin, S., & Dostaler, T. (2011). And then what? Four communit y psychologists reflect on their careers ten years after graduation. *Global Journal of Comm unity Psychology Practice*, *2*(2), 1–8. https://www.gjcpp.org/en/article.php?issue=7&article=23

Viola, J. J., Glantsman, O., Williams, A., & Stevension, C. (2017). Answers to all your questio ns about careers in community psychology. In J. J. Viola & O. Glantsman (Eds.), *Diverse careers in community psychology*. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780190457938.001.0001

Walsh-Bowers, R. (1998). Community psychology in the Canadian psychological family. *Canadian Psychology/Psychologie Canadienne*, *39*(4), 280–287.

White Hughto, J. M., Reisner, S. L., & Pachankis, J. E. (2015). Transgender stigma and health: A critical review of stigma determinants, mechanisms, and interventions. *Social Science & Medicine*, *147*, 222–231. https://doi.org/10.1016/j.socscimed.2015.11.010

World Health Organization. (2005). *Mental Health Atlas 2005*. World Health Organization. https://www.who.int/mental_health/evidence/atlas/global_results.pdf

World Health Organization. (1986). *Ottawa charter for health promotion*. https://www.who.int/teams/health-promotion/enhanced-wellbeing/first-global-conference

Wolfe, S. M., Scott, V. C., & Jimenez, T. R. (2013). Community psychology practice

competencies: A global perspective. *Global Journal of Community Psychology Practice*, *4*(4), 1–9. https://www.gjcpp.org/en/article.php?issue=16&article=77

Wolff, T. (2010). *The power of collaborative solutions: Six principles and effective tools for building healthy communities*. John Wiley & Sons.

Wolff, T. (2014). Community psychology practice: Expanding the impact of psychology's work. *The American Psychologist*, *69*(8), 803–813. https://doi.org/10.1037/a0037426

Wolff, T., Minkler, M., Wolfe, S. W., Berkowitz, B., Bowen, L., Butterfoss, F. D., & Lee, K. S. (2017). Collaborating for equity and justice: Moving beyond collective impact. *Nonprofit Quarterly*, *9*, 42–53. https://nonprofitquarterly.org/collaborating-equity-justice-moving-beyond-collective-impact/

Wood, E., Tyndall, M. W., Lai, C., Montanero, J. S., & Kerr, T. (2006). Impact of a medically supervised safer injecting facility on drug dealing and other drug-related crime. *Substance Abuse Treatment, Prevention, and Policy 1*, Article 13. https://doi.org/10.1186/1747-597X-1-13

Worton, K., Loomis, C., Pancer, M., Nelson, G., & Peters. R. (2017). Evidence to impact: A community knowledge mobilization evaluation framework. *Gateways International Journal*, *10*, 121–142. https://doi.org/10.5130/ijcre.v10i1.5202

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CHAPTER 15.

PSYCHOLOGY IN THE MILITARY

WGCDR GERARD J. FOGARTY; COL (RET.) PETER J. MURPHY; COL NEANNE BENNETT; AND MAJ ANNE GOYNE

INTRODUCTION

This chapter provides an overview of the practice of psychology in the Australian Defence Force (ADF) from a career perspective. The range of avenues and opportunities available to psychologists may come as a surprise to those unfamiliar with the ADF and the wider Department of Defence. This chapter begins with a historical overview that shows military psychology as one of the original drivers of the profession of psychology both here in Australia and overseas. This section takes readers from the introduction of psychological testing in the Permanent Air Force (later the Royal Australian Air Force) in 1940 through to the present day, where psychological support has three pillars reflecting the core components of service provision: organisational health and effectiveness, performance enhancement, and psychological health and readiness (see **Figure 15.1**).

The second section illustrates how developments in military psychology were reflected in the civilian world where psychology was emerging as a profession, to the point where the title 'psychologist' is now reserved by law for those who are registered with the Australian Health Practitioner Regulation Agency (Ahpra). The ways in which psychology careers in the military mesh with the AHPRA registration standards is a continuing theme in the chapter.

Psychologists in the ADF have always worked for a particular Service (Navy, Army, or Air Force) – either in uniform or as members of the Australian Public Service. While the Services have similar approaches, the platforms underpinning these Services are very different, and the way psychologists work in these fields is also unique to each Service. The third section of this chapter focuses on career opportunities for psychologists in these different branches.

Then, in the final two sections, we describe a small sample of the many projects undertaken by defence psychologists in recent years.

HISTORICAL OVERVIEW OF MILITARY PSYCHOLOGY IN AUSTRALIA

The Early Years

It may seem odd to include a history segment in a chapter that deals with career opportunities in the modern day Defence Force, but if you're considering a career working in the Defence Force, it's helpful to know that while it's not in the spotlight today, military psychology had an enormous influence on the development of clinical psychology (recovering from trauma), neuropsychology (head injuries), organisational psychology, psychometric testing, selection, management), counselling psychology (rehabilitation and career counselling), human factors (improving human-equipment connectedness), educational psychology (group training methodologies), and social

psychology (leadership, team work). Perhaps no other institution has been as inextricably linked with the development of the profession of psychology as the military (Driskell & Olmstead, 1989).

The origins of military psychology go back to World War I when huge numbers of recruits needed to be allocated to areas that matched their skills, knowledge, and abilities. The Second World War did even more to push psychology to the forefront. As early as 1940, high failure rates in flying training led the Royal Australian Air Force (RAAF) to implement psychological assessment protocols for pilot selection. Similarly, in 1942, the Army established psychology testing sections across Australia in response to unacceptably high failure rates among recruits. These small units – operating as the Army Psychology Service – provided advice on job allocation and reallocation, investigations into indiscipline, clinical examinations, and advice to officer selection boards (Owens,1977). An evaluation of the Army's new 'scientific' selection process revealed an impressive reduction in training failures (Menezes, 2009).

By 1943, psychologists were providing rehabilitation services and vocational guidance for repatriated veterans. Other emergent tasks included training for operating complex systems, accident investigation, and foreign language training. The demands created in the context of war clearly identified the importance of the profession to the military. During the post-WW2 period, psychologists continued to contribute to military capability in a wide range of areas – so much so that the raising of the Australian Army Psychology Corps (AA Psych Corps)[1] in 1952 entrenched psychology as an essential component of the Army's support services. An account of these developments from an insider's perspective can be found in Campbell (1977).

In this postwar period, the roles and tasks of both uniformed and civilian military psychologists included support to recruitment, personnel appraisal and reporting, and advice on military performance enhancement, covering areas such as morale, leadership, and mental health. Many of the processes currently taken for granted in personnel management such as occupational testing, assessment centres, survey research, and the concept of standardised selection methods were developed by psychologists in military settings. Over time, defence psychology provided professional services to other government departments – notably the Antarctic Division (selection and debriefing of expeditioners), the Australian Federal Police (specialist selection), and branches of the intelligence community. Military research also became a particular focus for Service psychology organisations, providing an evidence-base for military personnel management. Examples of military research are presented later in this chapter.

As another sign of their acceptance into the Defence organisation, during the Vietnam War, AA Psych Corps personnel began to operationally deploy with larger scale Army contingents. Army psychologists served in Vietnam, providing support to 'hearts and minds' operations, mental health care, and personnel management. The surge of peace support operations from the early 1990s provided increased opportunities for operational support by psychologists and psychological examiners. Roles included pre-, during- and post-operational psychological screening, field research into the human dimensions of operations, contributing to the wellbeing and performance of deployed personnel, and preparing veterans for transition home (Murphy et al., 2003). The deployment of troops into East Timor in 1999 set the pattern for present-day involvement with operational deployments. Psychological screening and individual interviews for troops returning to Australia became routine, as did the provision of psychological support to troops and commanders in location during deployments (Tuppin et al., 2017).

1. A 'corps' is an administrative grouping of personnel within an armed force with a common function. This arrangement is still unique among the armies of the English-speaking world.

The Three Pillars

A substantial integration of the individual Service psychology agencies in the mid1990s led to the formation of the Defence Force Psychology Organisation (DFPO). The stated mission of defence psychology was to enhance ADF capability, operational effectiveness, and force preservation through timely, pragmatic, and culturally appropriate psychological support across all levels of the organisation. The model for the delivery of psychological support in the ADF had three pillars reflecting the three core components of service provision: organisational health and effectiveness, performance enhancement, and psychological health and readiness (Murphy et al., 2010).

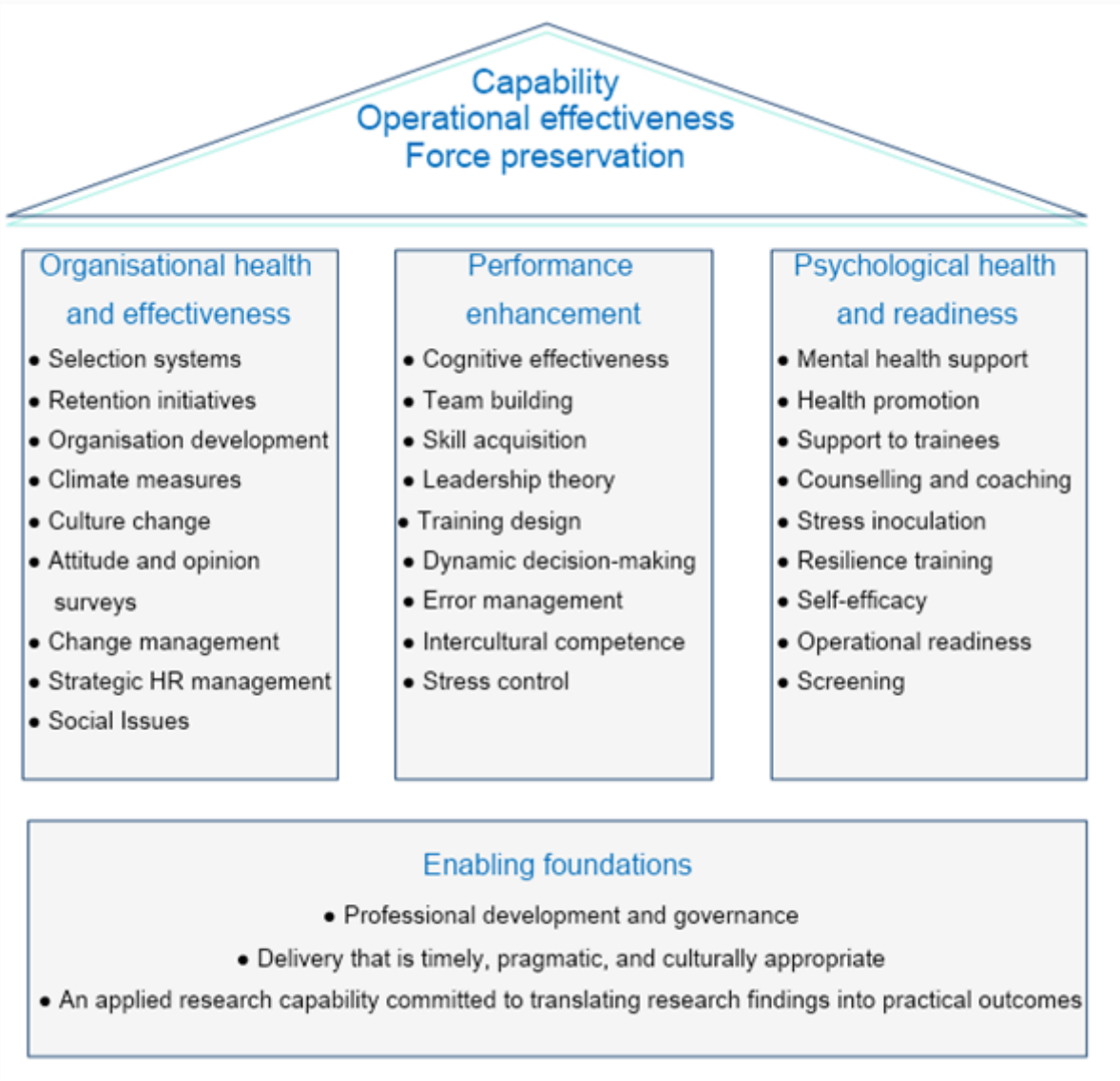

***Figure 15.1:** Model of Delivery of Psychological Support to the ADF Under the DFPO. Reproduced with permission.*

Each pillar contributes to the three mission outcomes listed at the top of the model. For example, force preservation spans the three pillars because it's not just about improved retention (organisational health and effectiveness) – it also includes prevention of accidents (via enhanced performance) and faster adjustment and improved resilience when deployed (health and readiness). **Figure 15.1** also lists typical tasks and issues associated with each of the pillars and shows the three major enabling foundations for effective delivery. Several human science sub-disciplines provide the professional bases of each pillar. For example, performance enhancement tasks utilise expertise from the domains of human factors, cognitive psychology, psychophysiology, social psychology, and sports psychology. The current delivery of psychological

support to the ADF is captured within these three pillars and supported by enabling factors such as research and governance (Murphy et al., 2010).

Increased Emphasis on Mental Health Support

The DFPO was disbanded in 2012, and some elements of the psychology workforce were transitioned into the newly established Joint Health Command (JHC), while other parts of the workforce remained within the Army, Navy, or Air Force. A major reason for Army psychology positions being moved to JHC was the changing strategic environment and continuing operational tempo, which contributed to an increasing emphasis on policy and mental health service provision. The ADF – led primarily by Army psychology – has established itself as a leader in the area of mental health reform. The increased emphasis on psychological health and readiness over the last decade has also reinforced the need for leadership to share the responsibility associated with preparing and supporting ADF members across their career. There are dedicated areas in the Army (Career Management) that still look after selection, retention, and workforce planning. The Directorate of People Intelligence and Research has taken on the functions of attitude surveys. A lot of this work now sits under an expanded functional command. In this respect, the other two pillars have continued to have an important role. Qualifications in organisational psychology, for example, are still highly valued in the Air Force, and all three services are interested in performance enhancement. The Army has no preference about what someone chooses to specialise in – organisational, clinical, health, etc. – but as a uniformed military psychologist there is a requirement to be proficient and ready to work across the three pillars. Examples are included later in this chapter.

THE GROWTH OF PSYCHOLOGY OUTSIDE THE MILITARY

To supplement this historical overview, it's instructive to gain some perspective on how developments inside the military have matched developments in the profession of psychology outside the ADF.

The Australian Psychological Society

Psychology was still a young discipline at the outbreak of WWII. Sydney University was the only institution with a Chair in Psychology at the start of WWII (Turtle, 1985). However, during the years when psychology was gaining a foothold in the ADF, it was also establishing itself in the wider Australian community. Many distinguished psychologists served in our military during WW2. In the postwar period, 12 of the first 13 officers of the Australian Army Psychology Service became professors of either psychology or education in postwar Australia. The 13th became the Director General of Education in New South Wales (Kearney & Hall, 1996). The formation of an Australian branch of the British Psychological Society in 1944 – which became the Australian Psychological Society (APS) in 1966 – represented the profession in the civilian world. In the APS book celebrating its first 50 years as a Society, much credit is given to the Australian Army Psychology Service for bringing together Australia's most established and experienced psychologists (Heywood, 2018).

Professional Registration

The missing link in this chain was registration. In 1966, Victoria became the first state in Australia to introduce legislation protecting the title of 'Psychologist'. Other states followed Victoria's lead, with ACT the final state/territory to introduce registration in 1995. In 2010, Australia adopted national registration for health professionals, and psychology became part of the National

Registration and Accreditation Scheme (NRAS). The Psychology Board of Australia is now one of 15 health-related boards supported by the Australian Health Practitioner Regulation Agency (Ahpra). As a consequence of these developments, to use the title 'Psychologist' in Australia one must be registered with Ahpra. This restriction applies to the military and civilian psychologists working for the ADF. A brief note on training requirements is therefore in order.

To become eligible for general registration, the minimum qualification is a six-year sequence of education and training, the first four years of which are completed in an accredited university program. At the time of writing, the standard for general registration is being altered so that from June 2022, the first five years of the sequence will have to be undertaken through a university. In addition to the general registration standard, Ahpra allows psychologists to gain an area of practice endorsement (AoPE). To be eligible to apply for endorsement, a psychologist must have an approved qualification accredited at sixth-year or higher in one of the nine approved areas of practice, hold general registration as a psychologist, and have completed a period of Board-approved supervised practice through the registrar program. This information is important to psychologists considering a career in the military because the services differ in terms of entry requirements. These differences will be covered in the following section where the career opportunities in each of the branches of the ADF will be treated separately.

CAREERS IN PSYCHOLOGICAL SCIENCE IN THE ADF

To cope with its vastly expanded role, military psychology in the ADF has developed into a complex organisation with a mix of personnel, roles, agencies, and associated career paths. In the following sections, we describe the career opportunities that are available in each of the agencies.

MILITARY PSYCHOLOGY THROUGH THE ARMY

Full-time Uniformed Psychologists

The Australian Army is the largest of the three services and therefore has the most psychologists. Army psychologists are commissioned as Army officers and, accordingly, are required to follow a code of conduct and are bound by military law and customs. Positions in the Australian Regular Army Psychology Corps (AA Psych Corps), range in rank from Lieutenant to Colonel. The Head of Psychology Corps is the rank of Colonel, and the position's responsibilities include the provision of strategic-level advice and policy guidance on mental health and psychological matters to senior commanders. Australian Regular Army (full-time) psychologists can be commissioned after completing a recognised five-year program, with a further sixth year undertaken as an internship within the organisation. For those who followed this pathway to general registration, completion of the National Psychology Exam before applying for general registration is also required.

Once registered, the Psychology Board of Australia requires psychologists to maintain, improve, and broaden their knowledge, expertise, and competence through professional development. Continuing professional development (CPD) is therefore a career-long commitment also strongly supported within Defence. To familiarise them with Army life, new AA Psych Officers undertake a Special Service Officer course (SSO) at the Royal Military College (RMC). Once successfully completed, they are paneled for a Regimental Officer Basic Course Psychology (ROBC). To progress to a higher rank in the Corps, Army psychologists must also complete the Regimental Officer Advanced Course (ROAC). Both courses are profession-based and focus on the high-level skills needed to provide tailored psychology support and services across the organisation. Management and leadership skills are also included because, as officers, administrative and leadership responsibilities are part of the psychologist's role. In addition to the ROBC and ROAC,

there are ongoing opportunities to attend workshops and training programs to ensure all Army psychologists deliver the services outlined in the model shown in **Figure 15.1**. There's also support for conference attendance where presentation of new techniques and research findings is encouraged. It would be difficult to find another organisation that offers so much profession-specific training for its members.

Throughout their career, Army psychology personnel also undertake general military training courses (starting with the SSO course), including junior and senior leadership and command courses. Moreover, they're required to pass annual tests of physical fitness (including dental and medical) and weapons handling. As is the case with their professional qualifications, refresher training is embedded into the military training curriculum. Full-time Army psychologists also update their knowledge, skills, and fitness by participating in annual all-Corps training programs.

Army psychology officers are ultimately employed to enhance the effectiveness of soldiers, teams, and leaders through the application of evidence-based psychological principles. Their knowledge of human behaviour is highly valued across a range of Defence contexts and is utilised in mental health, recruitment and selection, training, human factors, reviewing organisational structures, as well as in psychological testing and measurement. There's also increasing demand for skills in fostering psychological resilience and enhancing human performance (individuals and teams), and a requirement to be able to draw on evidence-informed scientific knowledge and apply this at a practical level. Employment as a psychologist in AA Psych Corps is varied and psychologists come from a broad range of backgrounds and specialisations. Army psychologists are required to develop an adaptable and eclectic skills base to allow them to operate across the three pillars. This breadth of experience is necessary for success at higher ranks in the Corps.

Army psychologists can be posted to a range of commands and specialist capabilities, including health, Special Forces, intelligence, research, and aviation. Newly appointed officers are typically employed under the supervision of senior psychologists and are gradually exposed to professional practice within the military. Initial tasks include selection interviewing, post-operational screening, psychological assessment, and counselling of soldiers. With further experience duties expand to include assisting Commanders with supporting and managing personnel through critical incident mental health support, clinical assessment and intervention, occupational analysis, personnel management advice, research such as psychological climate surveys, and the provision of support to deployments. At senior levels, and following completion of the ROAC, responsibilities broaden to include supervision, leadership, training and management of junior psychologists, conduct of group or individual officer selection boards, and contributing to ADF strategic initiatives.

Reserve Army Psychologists

A full-time career in the regular Army is not the only career option for psychologists. The Army Reserve (ARES) has part-time psychology officer positions that are available to those who already have general registration. Reservists complete the Specialist Service Officer (SSO) Course at the Royal Military College (RMC), Duntroon. The SSO course provides ARES psychologists with fundamental knowledge of the ADF's roles and functions, its command and control, and administration, and develops leadership, basic military skills, and expected officer behaviour to ensure credibility as a professional in the military organisation.

Reservists must also meet the medical, dental, and fitness standards required of full-time Army members. These standards are enforced through annual fitness, medical, and dental checks. From a career perspective, the Army Reserve force is an attractive option for many psychologists. They can hold down a civilian job and devote some time each week to their reserve work, for which they are paid according to a tax-free remuneration scheme. The nature of the work

can vary enormously. Examples include counselling for ADF members, running special projects, conducting interviews and assessments, or engaging in research. Reserve members are also expected to maintain military skills and may have the opportunity to engage in field exercises with their units. Reservists – provided they've completed the necessary training – can be deployed on active service (military operations) or assist in disaster relief operations in Australia or overseas. Moreover, there may be opportunities to work for the Army on a full-time basis for extended periods. The Defence Reserve Service (Protection) Act 2001 states that employers must not prevent or hinder Reservists from undertaking Defence service. This means that employers are required by law to release employee Reservists to undertake all types of Defence Service, and to continue to employ them on their return. The Act covers training as well as other activities.

Military Psychology through the Navy

The Royal Australian Navy (RAN) began using psychologists at the end of WWII to assist personnel returning to civilian life. The employment of psychologists in the RAN stopped for a short period when this transition task was completed. Fortunately, the broader potential of psychological support services to Navy was recognised and led to psychology services being re-established in 1949. Currently, Navy Psychology is responsible for the delivery of operational and organisational psychology services and interventions in Navy units including Navy shore establishments, lodger units, ships, submarines, and aviation. The Navy Psychology workforce comprises APS psychologists and psychology assistants, and Reserve Navy psychologists (some on full-time arrangements).

The three primary roles delivered by Navy Psychology are:

1. **Organisational Psychology Services –** These include the delivery of in-Service and specialist selection services (e.g., submariner and clearance divers), role suitability assessments, training and administrative referrals, and counselling related to work matters. In addition, Navy Psychology provides support to Navy Selection Boards, delivers mental health, resilience and performance training to Navy personnel, and conducts Command interventions and advice (e.g., unit climate surveys).
2. **Operational Psychology Services –** These include the delivery of annual operational mental health screening programs, pre-deployment training, and post-operational mental health screening. Navy Psychology is responsible for the delivery of Critical Incident Mental Health Support (CIMHS) response in the maritime environment.
3. **Mental Health Services –** Mental health and psychology services at sea are delivered only by uniformed psychologists. In response to a Critical Incident in the maritime environment, a Navy Psychology team can be embarked to the ship or nearest port (as a 'fly in' team) to conduct a CIMHS response.

The primary role for uniformed psychologists in Navy is to provide mental health services in support of maritime operations. Uniformed psychologist also augment the delivery of psychology services in regional Navy Psychology sections. General registration and five years of employment as a psychologist are requirements for Navy Reserve psychology positions. Upon entry, Reserve Navy psychologists complete the Reserve Entry Officers' Course (REOC), which teaches new appointees the skills required of a naval officer. Like the Army SSO course at RMC, the REOC fosters a duality of roles – one serves as both a Navy officer and as a military psychologist. Applicants to the Navy Reserve must also meet the same standards of fitness and weapons readiness that apply to all branches of the ADF.

Military Psychology Through the Air Force

The Royal Australian Air Force (RAAF) was the first of the three services to employ psychologists during WWII. Like the Navy, psychology support services ended shortly after the war. The Air Force Psychology service was re-established in 1947 with a staff of permanent civilian personnel and some uniformed reservists (Rose, 1958). Today, there are uniformed and civilian Air Force Psychology positions spread across different Air Force bases (Canberra, Sale, Wagga, Williamtown, and Amberley). This core group is supported by additional reserve positions – some of which are classified as clinical and some as organisational. The clinical positions – as the classification implies – provide assessment, counselling, and intervention services on an individual basis. The more numerous organisational positions cover such roles as:

- the delivery of psychology education and training packages
- developing new training material on topics such as resilience, performance enhancement strategies, or organisational culture
- participating in selection processes and panels
- developing and implementing new initiatives to improve the overall wellbeing and effectiveness of the Air Force workforce
- applied research.

Compared with the other services, a key difference with the Air Force Psychology positions – both full-time and reserve – is a preference for psychologists with an organisational psychology background in addition to general registration. The Air Force emphasis on organisational psychology reflects the importance of human factors in a high-risk environment. Those applying for the organisational psychology positions must have completed – or be enrolled in – a Master of Organisational Psychology degree. If they're in their final year, the application will be accepted but the actual appointment will be delayed until the degree is completed. Air Force Psychology has an internal program for new graduates who have yet to complete the Ahpra registration requirements for an area of practice endorsement (AoPE) in organisational psychology. Applicants for clinical psychology positions share the same requirements as organisational psychologists – a masters degree and AoPE – except in clinical psychology.

Military Psychology Through Civilian Channels

Other ways to become involved in defence psychology are through the public service and consultancy channels. Regarding the former, there are many dedicated psychologist positions in the Department of Defence. The requirement for most of these positions is general registration, although AoPE may be required in some cases. The roles vary widely but fall into one of three pools: security, organisational, and clinical. Another important public sector agency is the Defence Science and Technology Group (DSTG). DSTG is a research organisation with a strong emphasis on technology and innovation. Psychologists working for DSTG are civilians, although uniformed psychologists are often involved in their research projects. DSTG has the advantage of being a dedicated research facility with equipment and laboratories that are not found on a military base or an office environment. It provides research-based scientific advice to the ADF and to the national security community. DSTG offers jobs in six major subject fields – one of which is behavioural and social science. DSTG also runs scholarship and placement programs to provide industry experience to students looking for a career in science and technology.

The Department of Defence is not the only department associated with the military that offers

positions for psychologists. The Department of Veterans Affairs is another major employer. Entry-level positions for counsellors and mental health workers require provisional registration and the usual security clearances and police checks. This Department also offers opportunities for part-time work, with hourly rates published in the relevant advertisements. The final avenue for engagement with the military that should be mentioned is the role of consultant. There are opportunities for consultancy roles in psychology – primarily in the research domain – but they're unlikely to be advertised, and won't, in general, suit early-career psychologists.

APPLIED RESEARCH BY ADF PSYCHOLOGISTS

The practice of psychology within Defence has always been underpinned by an emphasis on applied research. Defence psychologists are encouraged to undertake research – either as part of their work or to fulfil requirements for higher degrees. This work forms part of a wider international effort supported by organisations such as the International Military Testing Association (IMTA), the NATO Research and Technology Organisation (RTO), and The Technical Cooperation Program (TTCP) that encourage the sharing of military psychological research amongst allied partners.

Prior to conducting research in the ADF, research proposals must be cleared by either the low or high risk Defence research ethics panels. In this section, we highlight examples of research conducted by Defence psychologists. The first example comes from the Organisational Health and Effectiveness pillar in **Figure 15.1**. The second example comes from the Performance Enhancement pillar, and the third from the Psychological Health and Readiness pillar. The fourth example is a classic study in ergonomics, involving knowledge and skills drawn from organisational psychology and human factors. In each case, we describe the challenge that gave rise to the research, the psychological science knowledge that was applied to the challenge, and the impact of the research.

A Command Support Tool for Assessing Unit Climate

The Challenge

The prevailing view in Defence was that good commanders should always know what their troops are thinking and feeling without needing to be told. The research evidence suggests otherwise – intuition or 'gut feel' is rarely reliable. The challenge was to develop a survey that would give commanders objective feedback about the human dimensions within their unit and to convince them to use this tool, preferably early in their posting.

Applying Psychological Science

The Profile of Unit Leadership Satisfaction and Effectiveness (PULSE) grew out of a collaboration between Canadian Forces and the Australian Defence Force (ADF) to develop a survey tool to assess unit climate in a garrison environment. The original PULSE included purpose-designed and published industrial scales known to measure unit climate at the individual, group, and unit levels. When combined with a comprehensive demographics section, the PULSE climate survey provided a wealth of information on individual and unit performance for commanders.

The Impact

As evidenced by feedback from commanders (Goyne et al., 2008), the original PULSE fulfilled a need for unit commanders and was well-received. The revised PULSE reduced the size of the instrument

without losing any predictive validity and established its theoretical base (JD-R), thus enabling Army psychologists to draw upon a rich literature describing how the variables measured by PULSE interacted to influence outcomes such as wellbeing, unit performance, turnover intentions, job satisfaction, and unit morale. Organisational climate surveys like PULSE have a history of blooming quickly and then falling into disuse. That hasn't happened with PULSE. It remains a voluntary tool that is usually administered at a commander's request. To this point, almost 20 years after the instrument was introduced, the demand is still strong.

Performance and Safety Issues in Defence Aviation

The Challenge

Safety culture became a worldwide issue in the second half of last century following major disasters in the nuclear, chemical, and aviation industries. The response from the human factors section of the psychological community was strong and prompt. The first human error conference took place at Columbia Falls, Maine, USA in 1980. The first International Aviation Psychology Conference took place at Ohio State University in 1981. In 1992, the Australian Aviation Psychology Association (AAvPA) was formed. Journals that focused on safety research appeared, and military aviation psychologists began to understand the individual and organisational factors that contributed to these disasters. The first safety climate instruments appeared in the 1980s and 1990s.

Safety climate refers to the individual's perceptions of the organisational policies, procedures, and rewards relevant to safety in the organisation. Safety climate is a useful way of monitoring the safety status of an organisation. These developments had their parallel within Defence Aviation. Sixteen soldiers lost their lives in 1996 when two Black Hawk helicopters collided during a night-flying exercise in Townsville. The Black Hawk accident and the subsequent Board of Inquiry was the stimulus for Defence Aviation to develop its own safety climate measures.

Applying Psychological Science

Army psychologists took on this work and began by conducting focus group interviews at aviation bases and deciding what constructs should be measured. The results of this fieldwork enabled psychologists to construct a purpose-designed safety climate survey called the Maintenance Environment Survey (MES). The MES measured organisational and individual factors considered likely to impact maintenance performance. It included scales to assess perceptions of the work environment as well as measures of stress, fatigue, commitment, job satisfaction, positive and negative affect, and error. The first instrument, completed in 1998, was developed for the maintainer workforce only. In subsequent years, the survey also included aircrew.

Impact

After numerous revisions and updates, the current version of the original safety climate measure, called *Snapshot*, is administered annually to over 15,000 ADF aviation personnel, 2,000 Royal Australian Navy personnel, and approximately 2,000 Royal New Zealand Air Force (RNZAF) personnel. Data from the survey is fed back to unit commanders and to high-ranking officers to help gauge the safety status of individual units and larger organisational groups. Psychologists running Snapshot are a mixture of reservists and public servants. They regularly conduct psychometric reviews of the survey, including testing whether the data fits the underlying theoretical model. The results of these checks are reported in journal articles (e.g., Fogarty, et al., 2018), internal technical reports, and conference proceedings (e.g., Cooper, et al., 2016). Statistics from the survey are used by the Air Force to monitor trends and to shape aviation safety policy and procedures.

Consequences of Bullying within the ADF

The Challenge

Workplace bullying and incivility have been issues of concern throughout the Western world. Organisations want to reduce the prevalence of bullying and to build support services for those who have been bullied. The ADF has its own share of these problems. After conducting an extensive review of reported cases of alleged unacceptable behaviour in the ADF – including a review of past investigations into abuse – Rumble et al. (2011) concluded that there was a culture in the ADF of discouraging the reporting of abuse, a tolerance for unacceptable behavior, and a lack of punishment for perpetrators.

Applying Psychological Science

The Australian Defence Organisation (ADO) – which includes both the Australian Defence Force and the Department of Defence – is improving its collection of information on the prevalence of workplace bullying. It began to routinely measure the prevalence of bullying within the organisation through PULSE and Snapshot surveys – which added items covering the topic – and through dedicated surveys such as the Unacceptable Behaviour (UB) Survey. These instruments, particularly the PULSE survey, created opportunities for civilian psychologists working in the Directorate of Occupational Psychology and Health Analysis (DOPHA) to use multivariate analysis to quantify the effects of bullying across different sources (members of the public, coworkers, supervisors, subordinates, and combinations of these sources) and to look for interactions involving factors such as rank, age, and gender (Steele et al., 2000). In further work, using multilevel modelling techniques, Steele and colleagues demonstrated the impact of bullying, not just on individuals, but on the organisational units to which they belong.

The impact

The work of the DOPHA psychologists added to what was already a considerable push within the ADF to reduce bullying. The Commonwealth Ombudsman continues to receive reports of abuse in the ADF, but in the June 2020 report on bullying among recruits (Commonwealth Ombudsman, 2020) it was noted that cases no longer reflect the systemic abuse that was apparent in Defence in earlier periods. The training, reporting systems, and monitoring techniques put in place appear to be working. These strategies embrace the work of experts from a wide range of fields, but the basic science quantifying the debilitating effects of behaviours such as bullying comes from psychological science.

Human Factors in Materiel Solution (Major S. Watson)

The Challenge

The uniform worn by serving personnel is a key identifying feature of military service. Often recognised for its commonality of colour, pattern, or shape, a uniform's most basic purpose is to easily differentiate those who serve, and to provide protection in undertaking daily duties. The term 'military uniform' covers a broad range of items, including clothing, load carriage, and protective equipment . Known as 'materiel solutions', fit, form, function, financial cost, and majority population sizing are important when developing new uniforms. Many of the materiel solutions developed to date are geared towards the anthropometric considerations of a majority male population. However, in early 2016, the ADF opened all combat role opportunities to women. To facilitate this program, materiel solutions were needed that met female anthropometric needs. This need was highlighted in the 2021 NATO

Science and Technology Organization report *Women in the Armed Forces, NATO Science and Technology Organization (STO) Research on Women in the Armed Forces (2000–Present)*, which recognised the physiological differences of women and the importance of appropriately designing equipment.

Applying Psychological Science

In 2020, the Australian Defence's Capability Acquisition and Sustainment Group (CASG) enlisted their innovation hub Diggerworks to identify clothing, load carriage, and protective equipment materiel solutions suited to women. A critical difference to previous design and development projects was the inclusion of a military psychologist. Grounded by the scientist-practitioner model, the expertise of the psychologist helped shape an evaluation framework (i.e., surveys, focus groups, thematic analysis) focused on the needs of the user and establishing a human-centred approach to the design and development process. The understanding of change management theory and behavioural and cognitive perspectives across career, helped shape educational resources supporting the uptake of new materiel solutions. In 2020, the Chief of Army endorsed several innovative female-specific clothing and equipment options.

The Impact

The input of military psychology in this project helped the design and development of tailored clothing and equipment solutions for military personnel. Applying a strong investigative and analysis framework, the presence of a military psychologist also helped demonstrate the importance of well-designed and fitted clothing and equipment for performance across the career lifecycle. The scientist-practitioner model unlocked a number of user considerations and needs achieving measurable performance outcomes. This human-centred approach resulted in a more holistic and future-focused materiel research and development framework benefiting all personnel.

DEFENCE PSYCHOLOGY IN ACTION

To round out this chapter on military psychology, we describe a selection of major non-research projects that illustrate some of the exceptional work undertaken by military psychologists.

Responding to Tragedy

Military psychologists have a long history of providing support following tragedy. In our example, military psychologists provided support in the aftermath of the Sea King helicopter crash on the island of Nias, Indonesia in April 2005. Nine ADF personnel died in the accident, which occurred during a humanitarian assistance mission. A uniformed psychology officer specialising in aviation human factors was attached to the Accident Investigation Team. Navy Reserve psychologists deployed to provide critical incident mental health support to the crew of *HMAS Kanimbla*, the ship responsible for transporting and maintaining the helicopter. A team of Defence psychologists provided support to personnel at the accident squadron's home station. Psychological advice was provided to those working in various roles at the accident site. Where necessary, psychologists provided or facilitated ongoing mental health support. Another psychology officer was a member of the Accident Board of Inquiry, and a number of psychologists from all three services either provided evidence to the Inquiry or helped to implement its recommendations to improve safety systems in the ADF.

Aid to the Civil Community and Humanitarian Responses

Although not its primary role, the ADF can assist the civil community through its capabilities and resources during and after natural disasters or other catastrophic events. These capabilities

and resources include providing logistics, communications, transport by sea, land, and air, and health support. An example of this is when uniformed psychologists were rapidly deployed to support the response to the Black Saturday bushfires in Victoria in February 2009. The ADF was again involved in civilian support work following the 2010–11 Queensland floods. Other disasters included flood relief in NSW, Queensland, and Victoria (2011–12) and flood and fire relief in NSW, Queensland, WA, and Victoria (2012–13). The most recent national events resulting in the Australian Government requesting ADF support have been Operation Bushfire Assist 2019–20, and Operation Covid-19 Assist in 2020–2021.

Military psychologists are well-qualified to assist in such situations due to their operational experience in theatres of conflict, where they provide support to personnel routinely exposed to widespread destruction and human suffering. Psychology Support Teams are often dispatched in 'first contact' roles to engage with affected individuals or communities. Other psychologists – civilian and Reservist – conduct psychological screening and follow-on support for the hundreds of military personnel who provided assistance to survivors. In these situations, Defence psychologists support the ADF personnel assisting the community and, if the government requests it, provide psychological first aid and support to others who may have been affected.

Deployment-Related Psychological Support

The operational tempo of the ADF grew considerably from the mid1990s. During this period, psychological support to our deployed personnel evolved constantly. Pre-deployment support is concerned with preparing the deploying force – particularly by fostering psychological readiness through training and education. Support during deployment has two main strands: maintaining the wellbeing of ADF people and enhancing their performance. Post-deployment support covers a range of activities, including:

- identifying personnel in need of professional assistance and taking appropriate action
- validating the deployment experience of personnel by fostering a sense of meaning and satisfaction from their role
- preparing personnel for the challenges of homecoming
- demonstrating ADF concern for its members
- enhancing understanding of the human dimension of operations to assist future training, support activities, and policy.

Conclusion

Since its beginnings during WW2, psychology in the military in Australia has made a major contribution to the profession and to the Australian community generally. Early on, that contribution was direct, with ADF psychologists moving from Defence positions into highly influential roles in universities, the community, and the Australian Psychological Society. In more recent years, that pipeline continues with the majority of former Directors moving into highly influential roles within government and non-government sectors. At a more general level, military psychology is helping the profession to deal with issues it hasn't confronted before. Since the late 1980s, psychologists – both civilian and uniformed – have had the opportunity to work with thousands of troops deployed on peacekeeping, disaster relief, and military operations around the world, some of them on multiple occasions. Their expertise in dealing with deployment-related issues has made them well-equipped to

assist local communities in coping with floods, bushfires, and other disasters. The lessons learned through this work are informing training programs for many psychologists and have led to the formation of groups such as the Military and Emergency Services Psychology Interest Group – one of the Australian Psychological Society special interest groups.

Military psychology has come a long way from the post-World War II days when its main focus was recruiting and psychological assessment. The greater emphasis on the mental health and wellbeing of current and ex-serving personnel has led to defence psychology being a leader in mental health initiatives. It has been instrumental in contributing to a greater understanding of the mental health impacts of operational deployment, human responses to trauma, and coping techniques – particularly psychological resilience. Since the 1990s, many organisations have sought advice from the ADF about how to foster mental health and wellbeing in their own workplaces. It's worth stressing that opportunities for psychologists in the military are not confined to mental health. Uniformed psychologists can improve their management and leadership skills, develop human factors knowledge by working in specialised occupational areas such as aviation, engage in applied research, and find roles that involve a blend of clinical, organisational, and human factors skills. There are few organisations that offer such a wide range of opportunities. Most importantly, continuing development and refresher training is also widely available to those in uniform.

In this chapter, we've been careful to point out that job opportunities in the ADF don't necessarily involve putting on a uniform. The range of duties is more restricted for civilian psychologists – for example, they can't be deployed – but there are still plenty of opportunities available. Civilian psychologists also have the opportunity of joining one of the services as a reservist – in which case they get to experience activities that would otherwise be unavailable (e.g., deployment). Reservists, however, are unlikely to experience the three-yearly posting cycle that allows permanent uniformed psychologists to develop skills across such a wide range of activities. We have also been careful to point out that there are differences across the services in terms of duties and expectations for psychologists.

Regardless of the service or the uniformed/civilian mix, Defence psychologists aim to enhance ADF capability and improve the psychological wellbeing of ADF personnel. To do this, they need to employ a range of clinical, counselling, organisational, educational, human factors, and social skills. Their longer-term goal is to protect Australia and its national interests. This is a worthy goal and one that gives a sense of meaning to the work they do. We hope this chapter has aroused your interest in the career possibilities available in defence psychology in Australia.

CONTRIBUTORS

The following authors (listed in alphabetical order) contributed to this book chapter:

- WGCDR Donna Merckx, Deputy Director, Air Force Psychology, Royal Australian Air Force
- Dr Nicole Steele, formerly with the Directorate of Occupational Psychology and Health Analysis, Joint Health Command, Department of Defence
- MAJ Sarah Watson, Operational Performance, 1st Psychology Unit HQ, Australian Army
- Ms Jennifer Wheeler, Director of Navy Psychology, Canberra, Australia

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REFERENCES

Bakker, A. B., & Demerouti, E. (2007). The job demands–resources model: State of the art. *Journal of Managerial Psychology*, *22*(3), 309–328. https://doi.org/10.1108/02683940710733115

Campbell, E. F. (1977, October 22). How it all happened. *Australian Army Psychology Corps Newsletter: Twenty-Five Years*, 10–13 [Unfiled archived Corps newsletter]. Australian Army Psychology Corps Archives.

Manthorpe, M. (2020). *Inquiry into behaviour training for Defence recruits* (Report No. 04/2020). Commonwealth Ombudsman. https://www.ombudsman.gov.au/__data/assets/pdf_file/0013/111253/Defence-Force-Ombudsman-Report-Inquiry-into-behaviour-training-for-Defence-recruits.pdf

Cooper, R., Fogarty, G. J., & McMahon, S. (2016, November 8–10). *Assuring safety: The role of organisational surveys* [Conference session]. 12th International Symposium of the Australian Aviation Psychology Association (AAvPA), Adelaide, Australia.

Driskell, J. E., & Olmstead, B. (1989). Psychology and the military: Research applications and trends. *American Psychologist, 44*(1), 43–54. https://doi.org/10.1037/0003-066X.44.1.43

Fogarty, G. J., Cooper, R., & McMahon, S. (2018). A demands-resources view of safety climate in military aviation. *Aviation Psychology and Applied Human Factors*, *8*(2), 76–85. https://doi.org/10.1027/2192-0923/a000141

Goyne, A., Lake, R., Riley, M., & Johnston, B. (2009). Taking the Pulse of your unit: A command support tool for assessing unit climate. In P. Murphy (Ed.), *Focus on human performance in land operations*, (pp. 70–77). Department of Defence.

Heywood, J. (2018). *The power of minds: Celebrating 50 years of the Australian Psychological Society*. Bounce Books.

Kearney, G., & Hall, W. (1996). Military Mentor. *The Bulletin of the Australian Psychological Society*, June, 17–18.

Murphy, P. J., Collyer, R. S., Cotton, A. J., & Levey, M. (2003). Psychological support to Australian Defence Force operations: A decade of transformation. In G. E. Kearney, M. C. Creamer, R. Marshall, & A. Goyne (Eds.), *Military stress and performance: The Australian Defence Force experience* (pp. 57–82). Melbourne University Press.

Murphy, P., Hodson, S., & Gallas, G. (2010, April). Defence psychology: A diverse and pragmatic role in support of the nation. *InPsych*. http://www.psychology.org.au/publications/inpsych/2010/april/murphy/

O'Keefe, D., Urban, S., & Darr, W. (2019). Psychology in the military. In M. E. Norris (Ed.), *The Canadian handbook for careers in psychological science*. eCampusOntario. https://ecampusontario.pressbooks.pub/psychologycareers/chapter/psychology-in-the-military/

Owens, A. G. (1977). Psychology in the Armed Services. In M. Nixon & R. Taft (Eds.), *Psychology in Australia: Achievements and prospects* (pp. 202–213). Pergammon Press.

Rumble, G. A., McKean, M., & Pearce, D. C. (2011). *Report of the review of allegations of sexual and other abuse in Defence: Facing the problems of the past*. Dept. of Defence and DLA Piper (Firm).

Steele, N. M., Rodgers, B., & Fogarty, G. J. (2020). The relationships of experiencing workplace bullying with mental health, affective commitment, and job satisfaction: Application of the job demands control model. *International Journal of Environmental Research and Public Health*, 17(6), Article 2151. https://doi.org/10.3390/ijerph17062151

Tuppin, K. A., Sinclair, L., & Sadler, N. L. (2017). The three pillars of Australian Army psychology: To serve with a strong foundation. In S.V. Bowles & P. T. Bartone (Eds.), *Handbook of military psychology: Clinical and organizational practice* (pp. 489–500). Springer International Publishing AG. https://doi.org/10.1007/978-3-319-66192-6_30

Turtle, A. M. (1985). Psychology in the Australian context. *International Journal of Psychology, 20*(1), 111–128. https://doi.org/10.1002/j.1464-066X.1985.tb00017.x

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1.0	January 28, 2022	Original book published
2.0	October 18, 2023	New chapter 'Neuroscience and Careers' published.