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Graduate Psychology Skills Australia

It's not the destination –it's the journey

Shaping the future of psychology through developing and assessing graduate attributes using collaborative learning

Final Report 2014

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List of acronyms used

ACER	Australian Council for Educational Research
ALTC	Australian Learning and Teaching Council
APAC	Australian Psychological Accreditation Council
APS	Australian Psychological Society
CLA-PBL	Collaborative Learning Approach and Problem-Based Learning Approach
GA	Graduate Attributes
GPS	Graduate Psychology Skills
GPS Australia	Graduate Psychology Skills Australia
HODSPA	Heads of Departments and Schools of Psychology Association
OLT	Office for Learning and Teaching
PsyBA	Psychology Board of Australia
QUT	Queensland University of Technology
STALGs	Strategic Teaching and Learning Grants

Executive Summary

Recent changes to the accreditation of psychologists in Australia have brought into sharp focus the competencies of psychologists. Now more than ever, psychology graduates need to demonstrate various graduate attributes pertaining to specialist knowledge of the discipline; the application of this knowledge; critical thinking; and research and communication skills. As a result of this recent emphasis on psychology graduate attributes, calls have been made to: (1) assess these attributes in the undergraduate psychology courses offered to students, and (2) design curricula that embed learning activities fostering the development of these attributes. Despite this need, there exists no valid measure of psychology graduate attributes, nor have curricula been designed to assist students in achieving these attributes. This project fills these gaps by refining a self and peer assessment measure of psychology graduate attributes, and developing an innovative problem-based, collaborative learning approach to enhance psychology students' development of these attributes and improve learning outcomes. The project has significant ramifications for teaching and learning in psychology Australia-wide.

The outcomes of this project were twofold:

1. The refinement and validation of a self assessment and peer assessment measure of psychology graduate attributes that can be used for formative and summative assessment in undergraduate psychology courses around Australia.
2. The development of a semi-structured collaborative learning approach and problem-based learning approach (CLA-PBL) to tutorials that can assist in the development and assessment of psychology graduate attributes**.**

The project was conducted over two years and comprised an approach that involved four phases.

Phase 1, conducted in year 1, involved the refinement and piloting of the self and peer assessment versions of psychology graduate attributes/skills (termed the Graduate Psychology Skills Questionnaire, GPS-Q). This phase also involved the refinement and piloting of materials for the collaborative and problem-based learning tutorial program for undergraduate psychology students.

Phase 2, conducted in year 1, involved a large-scale psychometric validation study of the self assessment version of the GPS-Q, with data collected in specific undergraduate psychology subjects/units at all three project partner institutions (i.e., Deakin University, Queensland University of Technology [QUT], and Macquarie University).

Phase 3, conducted in year 2, involved the administration of the collaborative and problem-based learning tutorial program in a psychology unit at all three partner institutions. Furthermore, the graduate psychology skills of undergraduate students were assessed longitudinally using the GPS-Q throughout the duration of the tutorial program. At the conclusion of the program, focus groups were also conducted with tutors and students.

Phase 4, conducted across years 1 and 2, involved dissemination of the project through national summits, conferences, a publication, as well as the development of a project website (www.gpsaustralia.org.au). Phase 4 also involved the development of project recommendations for the discipline of psychology regarding the assessment and teaching of graduate psychology skills to undergraduate students.

The aims and deliverables of the project were largely met, and a number of project outcomes exceeded benchmarks and expectations. These outcomes are detailed in this report, and many outcomes are documented at www.gpsaustralia.org.au. The key outcomes of the project included:

1. The development of a self assessment and peer assessment measure of graduate psychology skills (called the Graduate Psychology Skills Questionnaire, GPS-Q), and the psychometric validation of the self assessment measure. Both versions of the

measure (i.e., self assessment and peer assessment) consist of 39 items that assess seven graduate psychology skills, namely: (1) critical thinking and problem-solving; (2) communication; (3) leadership and teamwork; (4) psychology knowledge and professional/ethical/cultural issues, (5) self-regulation and self-management, (6) adaptability, and (7) digital literacy. The GPS-Q can be used to assess students' general level of graduate skills, or can be used to assess the extent to which a series of tutorial activities have impacted on the development of various graduate skills.

2. The development, implementation and evaluation of a collaborative and problem-based learning tutorial program in psychology subjects/units at Deakin University, QUT, and Macquarie University.
3. The development of a model of skill acquisition termed the Triple-A Model of Skill Acquisition (Karantzas et al., 2013). The model consists of 3 phases—acquisition, achievement, and accomplishment—and provides a reference upon which to evaluate graduate psychology skills. This model can be used by students and staff in conjunction with the GPS-Q to assess psychology graduate skills.
4. The development of graduate psychology skills rubrics for all seven graduate psychology skills.
5. The development of a peer feedback model for the development of graduate skills that builds on the literature relating to effective communication and feedback.
6. The development of a two-day tutor training program that builds the capacity of tutors in delivering the tutorial program. The tutorial program also covers modules related to facilitating inquiry-based learning approaches, developing communication and feedback skills, and a comprehensive understanding of graduate psychology skills. As part of this training, tutors undertake a mock tutorial to develop experience and confidence with conducting the CLA-PBL tutorials.
7. The development of a website that provides a portal for students to engage in self assessment and feedback regarding graduate psychology skills and a portal for staff with resources and advice on how to implement activities and assess graduate skills (see www.gpsaustralia.org.au).
8. Dissemination of findings at national conferences and summits and through publication of findings as part of a special issue of the Australian Journal of Psychology.
9. The running of the first national conference on Graduate Psychology Skills. The conference comprised of keynote, invited and short presentations as well as round table discussions involving teaching and learning staff and industry bodies from around Australia.

It is recommended that:

1. Inquiry-based teaching and learning approaches be implemented within undergraduate psychology programs across Australia to promote the development of graduate psychology skills.
2. Self assessment and peer assessment methods are adopted in evaluating undergraduate students' development of graduate psychology skills in undergraduate psychology subjects and units.
3. A network of scholars is established nation-wide with a particular focus on sharing teaching and learning practices as well as assessment methods regarding graduate psychology skills.
4. Simulated learning as well as work integrated learning initiatives be implemented along with inquiry-based teaching and learning approaches. These initiatives can better prepare psychology students for entry into the workforce at either the 3-year or 4-year course exit points, and for entry into placements as part of postgraduate studies in the profession.

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Chapter 1: Introduction

PROJECT RATIONALE

Previous Australian Learning and Teaching Council (ALTC) reports by Cranney et al. (2008) and Lipp et al. (2006) highlight that psychology has been slow to apply education principles to the identification, assessment and curriculum implementation of graduate attributes in undergraduate programs. In mapping a national vision for the future of undergraduate psychology, Cranney et al. (2008) canvassed stakeholders including psychology students, psychology accreditation bodies, and universities regarding the competencies and attributes of psychology graduates. Thematic analysis of stakeholder responses identified six psychology graduate attributes: (1) knowledge and understanding of psychology, (2) research methods in psychology, (3) critical thinking skills in psychology, (4) values in psychology, (5) communication skills, and (6) learning and the application of psychology. Cranney et al. (2008) argued that the uptake and implementation of these psychology graduate attributes by Australian undergraduate programs required that two specific actions be undertaken. These included: (1) the development of strategies and resources to support the development and assessment of graduate attributes, and (2) the implementation of evidence-based teaching practices to yield effective ways of fostering students' professional development and consolidation of graduate attributes. In identifying these gaps, both Cranney et al. (2008) and Lipp et al. (2006) argue for the importance and urgency for undergraduate psychology programs to invest in the rigorous development of curriculum design and assessment of graduate attributes to enhance student work readiness and learning outcomes.

This urgency to adequately develop and assess the graduate competencies of psychology students has been significantly heightened by the recent and rapid overhaul of psychologist accreditation in Australia as part of the introduction of the Federal Government's Health Practitioner Regulation Law (2009). As part of the reform, the Psychology Board of Australia (PsyBA) will administer the registration and accreditation of psychologists, ensuring that only those who are suitably qualified and display the attributes necessary to be a competent psychologist will be registered. In doing so, the PsyBA acknowledged the psychology graduate attributes, formulated as part of previous ALTC funded projects (Cranney et al., 2008; Lipp et al., 2006). The Australian Psychological Accreditation Council (APAC) holds the responsibility for ensuring that psychology courses embed and assess graduate attributes as part of their curriculum.

Despite the emphasis on these psychology graduate attributes by professional bodies and more recently, academic institutions, there exists no psychometrically validated measure of psychology graduate attributes. Rather, approaches to the assessment of graduate attributes have involved either: (1) surface curriculum mapping approaches, "stand-alone skills assessments or GA checklists [such as whether students were exposed to or practised graduate attributes]" (Barrie et al., 2009); or (2) the use of electronic media such as e-Portfolios without considering how the implementation of these methods will result in the accurate assessment of attributes (Cranney et al., 2008). Moreover, these approaches fall short of assessing students' development of graduate attributes over the course of their academic journey. Indeed, such assessments, irrespective of whether they are formative or

summative in nature, are frequently unable to inform academics whether course or unit material enhance students' learning outcomes and development of graduate attributes at any level. Further, there is an increasing emphasis on developing institution-wide systems for monitoring individual student learning progress and achievement of graduate attributes in Australian higher education (Barrie et al., 2009). However, a review of the literature reveals only one measure of generic graduate attributes (the Graduate Skills Assessment developed by the Australian Council for Educational Research [ACER], Hambur et al., 2002), yet, this measure has not received wide implementation or uptake across any discipline. Furthermore, this measure does not tap into graduate attributes that are specific to the psychology discipline and explicitly address the APAC accredited graduate attributes. **Therefore, the development of a self assessment and peer assessment measure of psychology graduate attributes was regarded as an important first outcome of the project.**

While historically in higher education, external ratings of students' performance have been viewed as being more precise than self assessment, there is in fact considerable evidence confirming the validity of self assessment as an accurate measure. Reviews of the literature have established that self appraisal is less subject to halo effects than is external ratings (Robins et al., 2007). There also exists compelling evidence that self assessment demonstrates significant measurement convergence with observational measures and interview assessments (Robins et al., 2007). Further, the validity of self assessment is increased when students know their assessment will be cross-checked or other informants will provide peer assessment (Robins et al., 2007).

Importantly for the project, the development and implementation of self and peer assessment is significant for two reasons. These forms of assessment enhance both (1) student learning, and (2) students' capacity for self–regulation regarding graduate attributes. There is now considerable evidence that engaging students in self and peer assessment is a powerful method that enhances their learning (Biggs, 2003; Nicol & Macfarlane-Dick, 2006). In addition, self and peer assessment provides students with practice in monitoring and critically evaluating their own performance (Nicol & Macfarlane-Dick, 2006). This practice fosters students' capacity for self-regulation – the ability to assess the quality of their own work, evaluate its impact, and take responsibility for the development of one's own learning – an important skill underpinning the development of graduate attributes. Nicol (2010) argues that self and peer assessment of graduate attributes should be embedded within courses to ensure the development of learner self-regulation. Therefore, the inclusion of both self and peer assessments of graduate attributes can optimise the validity and reliability of the assessment process and enhance both the learning of students and their capacity to carefully reflect and judge their development across graduate attributes.

Preliminary findings on self and peer assessment of graduate attributes

Work from our own team had already made significant progress into developing valid self and peer measures in assessing graduate attributes. In a preliminary study funded by a Deakin University Strategic Learning and Teaching Grant (STALG) in 2008, we developed and piloted a self-report measure of self and peer assessment of graduate attributes drawing on the descriptions of graduate attributes articulated by numerous Australian higher tertiary institutions. The measure was administered to two samples of 200 third year psychology undergraduates. Statistical analysis to determine the factor structure of the measure (i.e.,

the themes captured) as well as the reliability of the measure revealed a valid and reliable 13 item scale that represented three broad domains of graduate capabilities: (1) the use of critical thinking to synthesise material and develop solutions, (2) teamwork and communication skills, and (3) an understanding of the issues and ethics associated with a graduate's industry and profession. These same factors were found across both self assessment and peer assessment versions of the measure. However, given that the measure was developed just prior to the dissemination of Cranney et al's. (2008) psychology graduates attributes, our preliminary measure required refinement and validation to ensure that the items captured all six psychology graduate attributes specified by Cranney et al. (2008). These refined self and peer assessment measures could then be used by institutions Australia-wide to assess psychology students' progress on these graduate attributes over their undergraduate course.

Embedding graduate attributes in psychology curriculum through problem based learning

This project not only aimed to assess students' attainment of graduate attributes, but to develop, trial and implement inquiry-based learning activities to ensure students' progress in developing graduate attributes. Barrie et al. (2009) persuasively argues that "graduate attributes are most effectively embedded in assessment when they explicitly underpin all teaching, learning and assessment activities" (Loacker, 2000). Moreover, these authors contend that if assessment is not integrated as part of learning activities and outcomes, then neither teachers nor students see attributes as important outcomes of study. Rather, graduate attributes are perceived as outcomes that are not central to discipline content, and as less important than content-based learning outcomes. What is required is the development of curriculum and assessment procedures that move away from traditional content-transmission models to inquiry-based learning curricula, pedagogies, and assessment practices (Barrie et al., 2009). Similarly, we argue that curriculum design that embeds the development and assessment of graduate attributes through inquiry-based approaches (i.e., problem-based learning [PBL]) is required. We contend that PBL approaches can facilitate curriculum design such that a relationship is established between discipline content, graduate attributes and learning outcomes in explicit ways, to assist students to become aware of the connections between course content and graduate competencies.

Despite the plethora of studies investigating the efficacy of PBL approaches in students' learning outcomes and competency development (Prince, 2004), little Australian research has applied and evaluated PBL approaches to the development of graduate attributes in undergraduate students of any discipline. Further still, undergraduate psychology teaching in Australia does not widely employ PBL-like approaches in the undergraduate education of students, focusing more on traditional content-transmission models. This is supported by Lipp et al. (2006) who found that despite awareness regarding the need to develop the graduate attributes of students, the majority of psychology undergraduate courses do not provide adequate opportunities for the development and assessment of graduate attributes in the classroom. Yet, tutorials provide the ideal context in which psychology graduate attributes can be cultivated and assessed. In this environment, students have the opportunity to work for discrete periods of time in small groups to complete discipline relevant and workplace relevant activities and tasks.

Studies of small group activities (whether they are highly structured, or less structured as is the case with PBL) note that students often "progress in parallel" (Dillenbourg et al., 1996) rather than interacting with group members on tasks. Other studies have found that students divide learning activities or assessment tasks into components so that each group member works on a separate part of the activity (Dillenbourg et al., 1996). Thus students often engage in, at best, co-operative rather than collaborative learning processes (Dillenbourg et al., 1996). Hence, traditional small-group tutorial activities offer insignificant opportunities to develop students' analytical, research and interpersonal skills as desired in the psychology graduates of today and tomorrow. **To fill this gap, the second project outcome was to develop a semi-structured, collaborative learning approach and problem-based approach (CLA-PBL) to tutorials to foster graduate attribute development, and opportunities for formative and summative assessment of these attributes in undergraduate psychology students.**

Collaborative learning approach to tutorials: Developing psychology graduate attributes through shared cognition and student engagement

While traditional tutorials can often include group work, the efficacy of group tasks is significantly enhanced if learning opportunities are designed to incorporate collaborative learning (Blundel, 2001). In a comprehensive review of the outcomes of collaborative learning approaches, Prince (2004) presents strong evidence for the effectiveness of collaborative learning in increasing academic achievement and skills linked to graduate attributes. Specifically, the collaborative learning approach involves the "mutual engagement of participants in a co-ordinated effort to solve the problem together" (Roschelle & Teasley, 1995). Moreover, collaborative learning opportunities need to be structured such that group members not only work together, but develop a shared understanding of the problem, and engage in social interaction skills to regulate each others' understanding and to yield cognitive changes toward deeper learning (Goodnow et al., 2002; Resnick et al., 1991). Roschelle and Teasley (1995) derived the concept of the "Joint Learning Space" in which students are asked to explicitly agree on joint goals, methods and solutions to a given problem. The result of the Joint Learning Space is to encourage students to discuss and find solutions to the problem, and to gather and analyse knowledge to establish a shared meaning of the problem at hand. Moreover, within this tutorial context, both formative and summative assessments of graduate attributes can be embedded thereby providing the opportunity for students and their peers to monitor and reflect on each other's progress in the development of graduate attributes.

As a means of maximising student engagement in collaborative learning during class time, we proposed a semi-structured CLA-PBL approach to tutorial work based on Roschelle and Teasley's (1995) concept of the Joint Learning Space and constructive alignment (Biggs, 2003). The CLA-PBL approach provides an innovative way of training psychology students in the necessary research, analytical and interpersonal graduate attribute skills and to improve student learning outcomes.

Preliminary CLA-PBL research

The CLA-PBL approach to teaching undergraduate psychology tutorials was successfully trialled by our team as part of the Deakin STALG project funded in 2008 (Karantzas et al., 2010). Assessment of students' graduate attributes after undertaking fortnightly tutorial

activities demonstrated that the tutorial program significantly improved students' development on the graduate attributes of critical analysis, teamwork, and professional practice. Cumulatively, 46% of the change in student graduate attributes was due to the tutorial program. Students also reported that the semi-structured CLA-PBL approach enhanced their learning over the course of the tutorial program. Finally, the tutorial program improved student engagement by increasing students' intrinsic motivation over time and enhancing their understanding of graduate attributes.

Thus, in developing this ALTC/OLT project, we had amassed encouraging preliminary evidence that this method of embedding and assessing graduate attributes flagged the importance of graduate attributes as learning outcomes for the discipline of psychology. Moreover, the CLA-PBL approach encompasses real world activities where students engage with one another and support each others' learning. In doing so, the CLA-PBL approach constructively aligns discipline content with learning outcomes and assessment activities that support the development of psychology graduate attributes. This ALTC/OLT project built on our preliminary research in order to provide evidence-based methods for the embedding and assessment of psychology graduate attributes which could then be implemented across psychology undergraduate courses nationally.

APPROACH AND DISSEMINATION OVERVIEW

The project was conducted over two years and involved four phases. Phase 1, conducted in year 1, involved the refinement and piloting of the self and peer assessment versions of the graduate attribute measure (termed the Graduate Psychology Skills Questionnaire, GPS-Q), and the refinement and piloting of materials for the CLA-PBL tutorial program at all three institutions (i.e., Deakin University, QUT, and Macquarie University) in which the program would be evaluated. Phase 2, conducted in year 1, comprised a large-scale psychometric validation study of the self assessment version of the GPS-Q, with data collected in specific undergraduate psychology subjects/units at all three participating institutions. Phase 3, conducted in year 2, involved the administration of the CLA-PBL tutorial program in a psychology unit at all three universities. Graduate attributes were assessed longitudinally using the GPS-Q throughout the duration of the tutorial program. Phase 4 involved dissemination of the project through national summits, conferences, a publication, and the development of a project website (www.gpsaustralia.org.au). During this phase, project recommendations were also developed. Phase 4 spanned years 1 and 2 of the project. The various phases of the project are described across chapters 2 to 4 of the report.

VALUE AND NEED FOR THE PROJECT

The outcomes of this project are of national significance to industry bodies and universities involved in the effective training and development of psychology students and the assessment of graduate attributes. The value and need for this project is underscored by the endorsement of the project by major professional bodies within the profession of psychology (APAC, Australian Psychological Society [APS], PsyBA), who are all united in their position that higher education institutions should provide the best learning opportunities to foster graduate skill development in psychology undergraduate students.

Until this project, there existed no reliable and validated measure to assess students' progress across the six psychology graduate attributes identified by Cranney et al. (2008).

Consequently, the need for the development of a measure to assess graduate skills is of important value to the discipline of psychology and complements existing mapping approaches of graduate skills undertaken in undergraduate psychology courses. The development of a measure of graduate skill assessment can provide meaningful formative and summative feedback to both teachers and learners regarding students' consolidation of graduate attributes.

The development of the Graduate Psychology Skills Questionnaire (GPS-Q) as part of the ALTC/OLT project (see Chapter 2) provides the sector with the first self and peer assessment measure of psychology graduate skills that can be used for both the formative and summative assessment of students' graduate competencies. This easy to use measure has the potential to be widely used by undergraduate psychology courses around Australia as a means of tracking students' development of graduate attributes. Furthermore, the development of this measure can have wider impact than solely in the discipline of psychology, providing the basis for other sectors to develop discipline specific versions to assess graduate attributes in other social science and health science domains.

The CLA-PBL tutorial program developed as part of this ALTC/OLT grant is the first in Australian undergraduate psychology to integrate the assessment of graduate attributes with curriculum development and learning outcomes. More broadly, this project is the first to integrate PBL with graduate attribute assessment. This tutorial program addresses the problems and needs outlined by previous ALTC projects that have investigated the discipline of psychology (Cranney et al., 2008; Lipp et al., 2006). Specifically, the CLA-PBL tutorial program addresses the need for undergraduate psychology courses to provide adequate opportunities for the development and assessment of graduate attributes in the classroom. These attributes not only assist students in the workforce, but provide important foundational knowledge and skills for students' successful navigation of postgraduate studies in psychology (Kiernan et al., 2008). Currently, these opportunities are lacking in undergraduate psychology courses around the country. Therefore this CLA-PBL tutorial approach represents a highly valuable and innovative method for training psychology students in the necessary research, analytical and interpersonal graduate skills while increasing student engagement and improving student learning outcomes. In doing so, this approach provides solutions to past problems in embedding graduate attributes into psychology curricula.

Moreover, the introduction of a CLA-PBL approach to tutorials provides an innovative method for teaching in undergraduate psychology that can be used as a template for the dissemination and implementation of a teaching approach in graduate skills across university courses around the nation. Therefore, the use of PBL in undergraduate psychology is novel, with little by way of Australian courses using PBL approaches in the teaching of undergraduate psychology students.

Chapter 2: Phase 1 – Piloting and Refinement of the GPS-Q and CLA-PBL Tutorial Materials

PILOTING AND REFINEMENT OF THE GPS-Q

Our pilot work as part of our 2008 STALGs project (Karantzas et al., 2010) had resulted in the development of a 13 item measure of graduate attributes for psychology students that focused on three domains: (1) critical analysis and problem solving, (2) communication and teamwork, and (3) understanding of ethical and professional issues. As part of the current project, these items were revised by the project team through multiple meetings and email correspondence to improve item clarity and readability. A number of new questions were also developed to capture the additional graduate attributes identified by Cranney et al. (2008) and endorsed by the PsyBA and APAC. Further, we added a series of items to capture specific concepts related to graduate attributes that have a strong psychological foundation and appear in recent work on the topic of graduate attributes within and outside the discipline of psychology. Specifically, we drew on the work relating to psychological literacy (e.g., Cranney & Dunn, 2011) in which graduate attributes are viewed as central to the adaptive application of psychological science to meet personal and societal needs. To this end, we added items reflecting "adaptability". The skill of adaptability aligns with "adaptive cognition", a concept that Cranney and Morris (2011) regard as central to psychological literacy and shares commonalities with "psychological flexibility" (a key component of various theories and models of psychology, most notably Relational Frame Theory and Acceptance and Commitment Therapy, e.g., Hayes, 2004). We also added a series of items to assess "self-regulation/self-management". We regarded these items as necessary for two reasons. Firstly, the self-regulation of thoughts and actions has been found to be important for students' learning and academic outcomes within the classroom environment and work contexts (e.g., Corno & Rohrkemper, 1985; Pintrich & DeGroot, 1990; Zimmerman & Schunk, 2011). Secondly, students' efforts to self-manage their learning as part of classroom activities and as graduates within workplace contexts has been found to be associated with better academic performance and transition into the professional world (e.g., White, 2007; Zimmerman & Schunk, 2011). Finally, we developed a series of items to capture "digital literacy". While it may be argued that the assessment of such a graduate skill is not unique to psychology, the electronic age in which professions are embedded requires graduates to have a high degree of digital literacy. Psychology as a profession is not immune to developing these skills in students, with psychology graduates required to develop and engage in digital content within research and applied contexts, as well as utilise micro-blogging and social networking platforms to communicate important ideas with colleagues and professionals (e.g., Johnson & Kaslow, 2014).

Our decision to expand the pool of items resulted in the development of 92 initial items that we proposed covered a total of seven factors relating to graduate psychology skills. Each of these factors is outlined below in more detail.

1. **Critical Analysis/Problem-Solving:** This factor consists of two facets. Critical analysis: The ability to integrate information as well as recognise biases in the things one reads or what a person says. Problem-solving: The ability to develop solutions to

problems and novel situations. This can involve the application of knowledge with the aim that this application of knowledge will assist in solving the problem.

2. **Communication:** This factor consists of three facets. Interpersonal: The ability to communicate with others in a competent manner such that others understand what is communicated, and the individuals themselves are confident that others understand what they are saying. (This particular facet addresses the lack of emphasis on the interpersonal aspects of communication and draws on the literature on communication competence, e.g., Rubin & Martin, 1994; Spitzberg & Cupach, 1984). Oral: The ability to communicate clearly and engage an audience when making a presentation. Written: The ability to communicate clearly and consider the audience when writing.
3. **Psychology Knowledge:** This factor consists of three facets, all of which align with APAC endorsed student learning objectives for psychology. Knowledge: This factor relates to having an understanding of the basic and fundamental aspects of the six APAC accredited psychology specialisations. Research methods: Relates to having knowledge about different research methods used in psychology and the ability to be able to select and apply different methods to psychological research questions. Professional, ethical and cultural issues: Having an understanding of professional issues about fundamentals relating to code of conduct as a psychologist, registration requirements, ethical issues regarding confidentiality and power-dependencies between client and therapist, and appreciating how culture can influence people's perceptions and behaviours.
4. **Teamwork/Leadership**: This factor comprises two facets. Teamwork: The ability to work with a group of people in a manner that is co-ordinated and complimentary to ensure team goals/tasks are achieved, as well as the capacity to assist with the resolution of conflict and disputes within a team environment (e.g., Cohen & Levesque, 1991). Leadership: The ability to help a group of people to achieve a specific goal. This ability requires a person to balance being task-focused (i.e., ensuring processes are in place to make sure the goal is reached to the standard required and in the required time-frame), with being sensitive to the needs of group members (i.e., supporting and encouraging people who are finding the task difficult, motivating and stimulating others who may lack motivation) and building a sense of team spirit. (This conceptualisation of leadership draws on the various validated models of leadership that often generate the distinction between person-oriented and task-oriented leadership behaviour, e.g., Burke et al., 2006; Judge & Piccolo, 2004).
5. **Self-Management/Self-Regulation:** This factor comprises two facets: Self-management: The ability to organise and manage one's workload using strategies such as timetabling and goal-setting (Pintrich & DeGroot, 1990). Self-regulation: The ability to regulate one's learning strategies and motivation when learning material is challenging, difficult or not of inherent interest or relevance (Pintrich & DeGroot, 1990).
6. **Adaptability:** The ability to be open to learning new skills and to see this as an opportunity for growth and development. It also involves the ability to modify one's

role when working on a group task or project and the capacity to change goals and plans to accommodate challenges.

7. **Digital Literacy:** The ability to use online communication tools, create and publish material online and collect and share electronic content online.

The initial pool of 92 items were developed by the project lead, which were then reviewed by all members of the project team, followed by a second round of review by members of the reference group. Based on the feedback received, items requiring further refinement were re-worded to simplify and clarify the meaning of a given item, or to enhance the face validity of a given item. These 92 items were then administered to a large sample of undergraduate psychology students in order to validate the measure and identify the items with the strongest psychometric properties for inclusion in the finalised version of the measure. The psychometric validation of the measure is outline in Chapter 3 of this report.

DEVELOPMENT AND PILOTING OF THE CLA-PBL TUTORIAL MATERIALS

An outline of the CLA-PBL tutorial program and materials

Based on CLA and PBL approaches to teaching and learning, the tutorial program and associated materials were created with an aim to promote psychology undergraduate students' development of graduate psychology skills. The structure of the tutorial program was inspired by the Choose Your Own Adventure (CYOA) novel series (Chooseco, LLC), in which the reader assumes the role of the main character of the story, and is required to make a series of decisions throughout the story – decisions which affect the story outcome. In this same vein, students assume the role of a psychologist and are presented with an unfolding case study involving a novel and ill-defined problem. Across all three institutions, the case studies revolved around relationship issues between family members, romantic partners, peers, or work colleagues, as the subjects/units involved in the ALTC/OLT project placed a strong emphasis on the psychology of relationships. As part of each case study, students are required to make multiple decisions and choose the best course of action to assist the family at different points of the story. Each option is associated with a different story narrative – thus the decision-making of students influences subsequent aspects of the story.

Each tutorial involves a different case study, and the case studies are included in the tutorial workbook that supports students' progress through the tutorial activities across the program. The tutorial program across all three institutions consisted of six two-hour tutorials conducted fortnightly. An outline of the structure of the tutorial program is provided in Figure 1.

As shown in Figure 1, the first tutorial serves as an introduction that orients students to the tutorial program including its aims and structure. Within this tutorial, students also receive activities that introduce them to the provision and receipt of effective communication and feedback. Students also participate in rubric activities that help them understand the graduate psychology skills as well as how to judge their assessment of their own progress on graduate psychology skills and that of their peers. The rubric activity involves students generating their own descriptions of the various graduate skills across three levels of graduate skill acquisition, framed within the Triple A Skill Acquisition Model (Karantzas et al., 2013; acquisition, achievement, and accomplishment – for a detailed description of this

skill acquisition model, see Chapter 5). As part of this activity, students are provided with an explanation of the skill acquisition model and a set of rubric sheets that require students to derive their own descriptions of a graduate psychology skill representing either the stage of acquisition, achievement, or accomplishment. To assist students with completing this task, the various rubric sheets include example descriptions of particular graduate skills at the acquisition, achievement, or accomplishment stage to provide some standard upon which students can generate other descriptions.

Across tutorials 2, 3 and 5 (see Figure 1), students take part in case study tutorials. In each of these tutorials, students are instructed to form small groups (approximately 5-6 students), select a group leader and to open their tutorial workbooks and commence reading the background information for the given case study for the week. Students then use their workbook to progress through the case study which ultimately results in the development of a case formulation.

The workbook consists of activities such as reading case notes, reflective questioning regarding the problem, scoring psychological tests, developing concept maps to synthesise ideas, and a case formulation. The workbook tasks also point students to subject/unit materials including lecture notes, study guides and readings to ensure that the tutorial activities align with subject/unit content. Most importantly, to foster collaborative learning, the workbook comprises a series of questions that guide the groups in developing shared meanings, goals and strategies in working through the case studies.

Prior to engaging in the workbook activities associated with the case study tutorials, students are instructed to observe a nominated group member in terms of their graduate psychology skills during the case study tutorials. At the end of each case study tutorial, participants are required to note down their nominated peer's strengths and areas of improvement regarding graduate skills. These notes are required by students to inform the feedback they provide to peers regarding their graduate psychology skills in tutorials 4 and 6 of the program.

Tutorials 4 and 6 (see Figure 1) focus solely on peer feedback regarding graduate skills. As part of these tutorials, students are exposed to a model of communication and feedback that underpins the feedback given and received by peers regarding graduate psychology skills. Using a flow chart of best practice in communication and feedback, the class divides into feedback pairs in which each member of the pair engages in a self assessment and assessment of their peer on graduate psychology skills using the GPS-Q. Upon completing both the self and peer assessments, the students take turns providing and receiving feedback from one another regarding their strengths and areas for improvement regarding their graduate skills. During this feedback period, students are given the opportunity to express their own reflection regarding their self assessment and justification for their self-ratings on the GPS-Q. The purpose of tutorials 4 and 6 is to provide students with the opportunity to receive both formative (tutorial 4), as well as summative (tutorial 6) peer feedback regarding their development of graduate psychology skills.

Development of tutorial materials

The development of the tutorial workbook materials spanned a six month period and involved a series of project team planning days and meetings during which time the project

team brain-stormed and mapped out the content of each tutorial. Once the basic structure of the tutorials was developed, each of the three institutions developed the materials for their case study tutorials in a manner to suit their subject/unit content. The introductory and peer feedback tutorials were developed to be identical across the three institutions. The tutorial program structure is outlined in Figure 1.

Figure 1. Tutorial program structure

Tutorial	Topic
1	**Tutorial Introduction** Aims, assessment, tutorial structure and the tutorial workbook Introduction to communication and self- and peer-feedback skills
2	**Case Study I**
3	**Case Study II**
4	**Communication and Peer-Feedback Skills** Peer-feedback session
5	**Case Study III**
6	**Tutorial Wrap Up and Peer-Feedback Skills** Peer-feedback session

Once all tutorial workbook materials were finalised, the project team developed a tutorial manual to assist tutors in executing the tutorial program, as well as the adjunct materials to accompany the multiple decision-making points undertaken by students as part of the case study tutorials. Upon developing the tutor manual and adjunct materials, the project team members at each institution reviewed one another's materials and provided feedback. The materials were further refined on the basis of project team feedback.

The project team then developed a 2-day intensive tutor training program to provide tutors with basic principles in teaching and learning, skills in facilitating the CLA-PBL tutorial program, communication and feedback skills, and knowledge and expertise in the graduate psychology skills including an understanding of the GPS-Q. As part of the training, tutors engaged in interactive activities regarding teaching and learning in general, as well as specific activities from the tutorial program to develop an understanding of the structure of case study and feedback activities. Tutors' participation in activities from the tutorial program also allowed tutors to appreciate the activities from a student's perspective. During the training workshop, tutors were provided with a copy of the tutor manual, the tutorial workbook and case study adjunct materials.

As part of the tutor training, tutors gained experience in conducting the tutorials by running an abridged version of a case study tutorial with a small group of undergraduate students. The students were recruited through postings and announcements on each institutions unit/subject electronic noticeboard. The postings and announcements outlined the trialling of a new tutorial program and invited interested students to participate in the trial.

Upon completion of the tutor training program and trial of the case study tutorial, project team members conducted focus groups independently with the tutors and the students who participated in the trial tutorial. The aims of the tutor focus group were to: (1) develop insight into the value of the tutorial program and whether it met the aims outlined, (2) receive feedback for the further refinement of tutorial program materials, and (3) assess the extent that the tutorial program would foster the development of student graduate skills. The aims of the student focus group were similar to those of the tutor focus groups. Specifically, the aims were to: (1) develop an insight into how students appraised the tutorial format, (2) receive feedback for the further refining of tutorial program materials, and (3) assess the extent that the tutorial program would foster the development of student graduate skills.

The tutor training program and focus groups were conducted at all partner institutions. This resulted in the project team conducting 6 focus groups (3 tutor and 3 student focus groups). The transcripts from the focus groups were subjected to a thematic analysis where major themes and sub-themes were identified. A summary of the focus group feedback is provided in Table 1 with the frequency with which various themes and sub-themes were endorsed presented as percentages (%).

As can be seen from Table 1, tutors commented on various aspects of the tutor training program. Three major themes emerged for tutors, these related to: (1) the feelings they experienced during the training, (2) how they appraised the tutor training approach, and (3) tutors' perceptions regarding the outcome/impact of the training. Tutors specifically remarked that the tutor training program made them feel inspired and empowered regarding teaching and learning. In relation to the tutor training approach, over half the tutors noted that the self reflective and peer reflective components of the training program provided a way to internalise material, while over a third of tutors regarded the modeling of tutorial activities and the experiential learning as important in helping them understand the learning tasks and activities.

In relation to the trial of the mini tutorial, three broad themes emerged for tutors: (1) application of learning, (2) suggested changes, and (3) challenges. In relation to the application of learning, over two-thirds of tutors found it important to trial the tutorial program to apply the learning they had undertaken in the tutorial program into practice. The tutorial trial also provided an opportunity for tutors to learn from any mistakes they had made. In relation to suggested changes, tutors noted that it would be worthwhile to have more time to complete the tutorial, and that the training should include a second practice run to further consolidate their learning. In relation to challenges, all tutors noted that they felt a sense of anxiety and intimidation. Tutors qualified this by noting that the comprehensiveness of the tutor training and the sophistication of the tutorial program, heightened tutors' sense of duty to provide the best learning experience they could for their students. This directly tied into tutors' comments regarding their sense of responsibility and expectations regarding their own tutoring performance.

Table 1. Tutor and student focus group feedback: Tutor training and tutorial trial

Tutor feedback – tutor training program		
Theme	**Sub-theme**	**%**
Feelings	Inspiring/empowering	50
Workshop approaches	Modelling (Activities and practice tutorial)	36
	Experiential learning	36
	Reflection self and peer (time to internalise)	60
Outcomes/Impact	Teamwork (shared vision)	67
	Confidence	75
	Tutor self-awareness and management	83
	Identity shift from teacher to facilitator	36
	Value of learning design	30
Tutor feedback – tutorial trial		
Theme	**Sub-theme**	**%**
Application of learning	See how it works	60
	Learn from mistakes, immediate feedback	60
Suggested changes	More time to teach complete tutorial	67
	A second practice	75
Challenges	Managing anxiety and sense of intimidation (need to know everything)	100
	Responsibility: Training has increased sense of responsibility and expectations	50
Student feedback – tutorial trial		
Theme	**Sub-theme**	**%**
General appraisals	Students were engaged	30
	Professional conduct, practice for the workforce	67
	Relating learning to personal experience	50
Student learning	Understanding professional issues and conduct	83
	Empowerment and confidence	67
	Applying theory to practice	100
	Active participation in learning	50
	Yielded deep learning	100
Tutor role	Facilitator	83
Challenges	Timing - all done in time	83
	Timing - different progress between groups	17

The student focus groups yielded four broad themes related to the trial of the mini tutorial: (1) general appraisals about the tutorial structure, (2) student learning, (3) the role of the tutor, and (4) challenges. In relation to students' general appraisals, over two-thirds perceived the tutorial to target skills related to the psychology profession, while half the students found the learning was relatable on a personal level. About a third of students perceived themselves to be highly engaged. In relation to student learning, all students believed the tutorial facilitated the application of theory to practice, while over 80% felt the

tutorial helped them to understand the issues and conduct relating to professionals in the discipline. Over two-thirds reported the tutorial facilitated enhanced confidence and empowerment regarding learning, while over half reported actively engaging in the learning process. Over 80% of students noted that the tutor took on the role of a facilitator rather than that of a teacher. The challenge raised by most students mirrored the issue raised by tutors – a concern regarding the completion of all learning activities in the allotted time.

The suggestions raised by the tutors and students were carefully considered by the project team. In particular, various learning activities were simplified and shortened so that tutors and students would not feel as time-pressured in the tutorials. The tutorial program materials then receive the final drafting and refinement.

The tutorial program was implemented across the second year of the project, with roll out occurring to 1600 1st year QUT students in semester 1, 500 2nd/3rd year Macquarie University students in semester 2, and 360 3rd year Deakin University students in trimester 2. The implementation and evaluation of the tutorial program is detailed in Chapter 4.

Chapter 3: Phase 2: Psychometric Assessment of the Graduate Psychology Skills Questionnaire (GPS-Q)

METHODOLOGY

The Graduate Psychology Skills Questionnaire (GPS-Q) outlined in Chapter 2 was administered to 405 undergraduate psychology students around Australia to evaluate the psychometric properties of the measure. In order to further determine the construct and predictive validity of the measure, participants were also administered the 10-item Self Efficacy for Learning Scale (SELS, Klobas et al., 2007), the 10-item Work Self-Efficacy Scale (WSES, Avallone et al., 2007) and the 60-item Work Readiness Scale (WRS, Caballero et al., 2011). We provide a brief description of each of the measures used as part of the survey below.

- ***The Graduate Psychology Skills Questionnaire (GPS-Q) 92-item version.*** This version of the GPS consists of 92 questions that ask students the extent to which they are able to perform various graduate skills when required. Items are rated on an 11 point scale ranging from 0 (*never*) through to 10 (*always*). The 92 items assess the seven graduate psychology skills derived by the project team, which include the six APAC accredited graduate attributes for psychology. The skills measured by the GPS-Q are: (1) critical analysis/problem solving, (2) communication, (3) teamwork/leadership, (4) psychology knowledge, (5) self-management/self-regulation, (6) adaptability, and (7) digital literacy. (See Chapter 2 for more details about the seven graduate psychology skills). Scores for each subscale are derived by creating a mean score. A higher mean score on each factor (subscale) reflects a higher level of graduate psychology skill.
- ***Self-Efficacy for Learning Scale (SELS, Klobas et al., 2007).*** This is a 10-item measure that assesses students' perceptions regarding their cognitive and behavioural capacities to source as well as process information related to learning activities in higher education. Items are rated on an 11 point scale ranging from 0 (*I am definitely not able to do this*) through to 10 (*I can definitely do this*). Five items measure self-efficacy relating to the information processing of learning activities (α = .80), and five items reflect self-efficacy relating to the finding of resources to assist with learning activities (α = .80). The subscales can also be collapsed to yield a total self-efficacy for learning score, with higher scores indicating greater learning self-efficacy (α = .84). The measure is presented in Appendix A.
- ***Work Self-Efficacy Scale (WSES, Avallone et al., 2007).*** This is a 10-item measure that assesses perceptions regarding one's capacity to manage interpersonal relationships (colleagues and direct superiors), work with colleagues with different characteristics and experiences, behave efficaciously in the work context, learn new working methods, respect schedules and work deadlines, and to achieve assigned goals. Items are rated on a 5-point scale ranging from 1 (*not well at all*) to 5 (*very well*). The items assess two aspects of work self-efficacy, *relational willingness* (5 items, α = .85) and *commitment* (5 items, α = .82). Relational willingness reflects self-efficacy towards attending to relationships with colleagues. Commitment reflects

self-efficacy related to attaining fixed objectives and committing oneself to his/her work. Higher scores on each factor reflect greater work self-efficacy. As part of this project, these scores were combined to yield a total work self-efficacy score. The measure is presented in Appendix B.

- ***Work Readiness Scale (WRS, Caballero et al., 2011).*** This is a 60-item measure that assesses the extent to which graduates possess the attitudes and attributes that prepare them for success in the work environment. Items are rated on a 10-point scale ranging from 1 (*completely disagree*) to 10 (*completely agree*). The items measure four aspects of work characteristics: (1) personal work characteristics (i.e., intrinsic motivation, adaptability, multi-tasking, and confidence engaging with management; 15 items, $\alpha = .93$), (2) organisational acumen (i.e., an understanding of workplace practices and protocols; 19 items, $\alpha = .92$), (3) work competence (i.e., understanding of one's job and field, as well as the setting of standards to complete tasks; 15 items, $\alpha = .90$), and (4) social intelligence (i.e., the ability to adapt and interact in social work situations; 8 items, $\alpha = .88$). All factors can also be collapsed to create a general work readiness score ($\alpha = .96$). Higher scores on the subscales and overall scale reflect greater work readiness. The measure is presented in Appendix C.

Participating students completed all questionnaires anonymously and online. The questionnaires took approximately 45 minutes to complete. The conduct of this psychometric study was approved by the ethics committees of Deakin University, QUT, and Macquarie University. Participants were recruited by having psychology staff at universities around Australia place online notices/announcements on their subject/unit websites. The advertisement included the url link to the online survey. Given that the ALTC/OLT project was undertaken at Deakin University, QUT, and Macquarie University, the majority of the sample (94%) originated from these institutions. Across all institutions a total of 37% of participants were in first year, 24% were in second year, 22% were in third year, and 17% were fourth year students.

DATA ANALYSIS

After the data were cleaned and screened for missing values, the structure of each factor (i.e., each skill subscale) constituting the GPS-Q was evaluated using Confirmatory Factor Analysis (CFA). CFA is a method used to assess if a measure captures the themes or constructs (termed factors) hypothesised to exist as part of a self-report instrument. Therefore, CFA was used to determine whether the items of the GPS-Q indeed represented the seven graduate psychology skills derived by the project team. This was then followed by calculating the reliability of each scale to determine its internal consistency.

A key aim of the data analytic process was to further refine the GPS-Q by reducing the 92 item pool to a smaller number of items. The purpose of reducing the item pool was to make the measure more time-efficient for administration, and to place less of a burden on students when completing the measure.

By using CFA, we aimed to identify and maintain the items that made the strongest contribution to a given graduate psychology skill factor, while removing items that made weak contributions. Maximum Likelihood Estimation (Muthen & Kaplan, 1985) was used to

estimate the various one factor models of the GPS-Q. Hu and Bentler's (1995) combination approach was used to evaluate how well the data collected fitted the one factor models analysed, with the Comparative Fit Index (CFI ≥ .95), Tucker Lewis Index (TLI ≥ .95), Root Mean Square Error of Approximation (RMSEA ≤ .05), and Standardized Root Mean Residual (SRMR ≤ .06) judged to indicate a very good fit.

The CFA process resulted in the reduction of the GPS-Q to 39-items. We outline the psychometric properties of the revised GPS-Q below.

GPS-Q (39 items, see Appendix D, and available at www.gpsaustralia.org.au). The GPS-Q 39-item version measures all seven graduate psychology skills using a reduced item set. The psychometric properties of the GPS-Q are demonstrated below in Table 2. As can be seen in Table 2 below, the 39-item version of the GPS-Q produced a series of one factor models that demonstrated very good to excellent fit and good internal consistencies. Given that all items of the GPS-Q are designed to be administered to students (i.e., all 39 items, as presented in Appendix D), a further CFA was conducted which modelled all seven factors (subscales) simultaneously. As part of this seven factor CFA, all factors were modelled to correlate with one another. As can be seen from Table 2, the seven factor GPS-Q model resulted in good fit. These psychometric analyses suggest that the GPS-Q 39-item version provides a valid and reliable tool to assess the seven graduate psychology skills. In Appendix D, we identify the specific items of the GPS-Q that pertain to the various graduate psychology skill subscales.

Table 2. Psychometric properties of the GPS-Q 39-item version

Factor (Subscale)	*No. of items*	*X2*	df	*p*	CFI	TLI	RMSEA	SRMR	α
Self Regulation/ Self Management	4	2.88	2	>.05	.995	.986	.051	.023	.79
Communication	6	11.40	6	>.05	.983	.958	.077	.030	.81
Knowledge	12	75.81	41	<.05	.960	.946	.075	.045	.91
Leadership/Teamwork	6	7.29	6	>.05	.995	.989	.038	.028	.79
Adaptability	4	0.99	1	>.05	1.00	1.00	.00	.004	.77
Digital Literacy	4	1.88	1	>.05	.995	.972	.077	.015	.77
Critical Analysis/ Problem Solving	3	5.284	5	>.05	.999	.997	.019	.027	.74
Model including all factors (correlated)	**39**	**1414.70**	**658**	**<.05**	**.954**	**.941**	**.062**	**.051**	**N/A**

We conducted further analyses using the GPS-Q 39-item version to determine the predictive validity of the measure. In doing so, we were interested in the extent to which the GPS-Q predicted related, but distinct constructs to those of graduate psychology skills, namely efficacy regarding learning and work, and work readiness. Our reasoning behind examining these associations between the GPS-Q and these outcome variables was to investigate the extent to which different graduate psychology skills indeed relate to the way in which students perceive their abilities to learn, their sense of work readiness, and competency at

work. In general, we expected that graduate psychology skills would be positively associated with these outcome variables.

We conducted three multiple regressions in which we used the seven subscale scores of the GPS-Q as predictor variables and the total score for each of the outcome variables respectively in each of the three analyses. The regression model predicting self-efficacy of learning (SEL) was found to predict 40% of the variance in SEL ($R = .63$, $R^2 = .40$ $F [7,197] = 18.90$, $p < .05$). As shown in Table 3, critical analysis/problem solving, communication, psychology knowledge, and self-management/self-regulation were found to be positively associated with SEL. Specifically, critical analysis/problem solving was found to make the greatest contribution to the prediction of SEL. The regression model predicting work self efficacy (WSES) was found to predict 50% of the variance in WSES ($R = .71$, $R^2 = .50$ $F [7,197] = 28.51$, $p < .05$). As shown in Table 3, critical analysis/problem solving, communication, and adaptability were found to be positively associated with WSES. In particular, communication and adaptability were found to make the greatest contribution to the prediction of WSES. The regression model predicting work readiness (WRS) was found to predict 49% of the variance in WRS ($R = .70$, $R^2 = .49$ $F [7,197] = 27.34$, $p < .05$). As shown in Table 3, communication, psychology knowledge, and teamwork/leadership were found to be positively associated with WRS. Specifically, communication and psychology knowledge were found to make the greatest contribution to the prediction of WRS.

Table 3. Multiple regression analyses predicting learning and work self-efficacy and work readiness.

	SEL			WSE			WR		
Predictors	**B**	**SE**	**β**	**B**	**SE**	**β**	**B**	**SE**	**β**
Critical Analysis/ Problem Solving	.502	.111	.410***	.062	.030	.170*	.068	.043	.132
Communication	.352	.114	.267**	.131	.030	.331***	.211	.045	.380***
Psychology Knowledge	.188	.090	.152*	.004	.024	.011	.171	.035	.323***
Teamwork/Leadership	.092	.099	.075	.008	.026	.021	.078	.039	.153*
Self-Management/ Self-Regulation	.122	.061	.142*	.000	.016	-.002	.011	.024	.030
Adaptability	.037	.122	.028	.125	.032	.319***	.060	.047	.109
Digital Literacy	.048	.038	.073	.010	.010	.053	.011	.014	.040

*$p < .05$, **$p < .01$, ***$p < .001$

B = unstandardised regression coefficient, SE = standard error, β = standardised regression coefficient

SEL = Self-efficacy of learning, WSE = Work self-efficacy, WR = Work readiness

The results presented in Table 3 suggest that critical analysis/problem solving, psychology knowledge, and communication are especially important skills when it comes to learning and work self-efficacy and work readiness. Specifically, critical analysis/problem solving was an important predictor of self-efficacy in both learning and work contexts, while psychology knowledge was important in predicting learning self-efficacy and work readiness.

Communication was an important predictor of all outcome variables (i.e., learning and work self-efficacy, and work readiness).

The results are not entirely surprising. Critical analysis/problem solving encompasses a strong sense of agency (e.g., Schunk & Pajares, 2001), which is likely to be a key factor in how efficacious students perceive themselves to be in both learning and work environments. Communication, as conceptualised in the GPS-Q as encompassing interpersonal, written and oral communication appears to be central not only in students' learning and work efficacy, but in their work readiness. The didactic nature of learning and work environments is such that all forms of communication are important in students'/graduates' abilities to communicate their ideas and arguments to peers, teaching staff, and work colleagues; but also to develop strong working relationships with others to enhance their professional development and workplace performance (e.g., Lin et al., 2013; Scullen et al. 2003; Tsang, 2011). Psychology knowledge is conceptualised as encompassing content knowledge about psychology, ethical and professional knowledge about psychology, and knowledge regarding the impact of culture. The association of psychology knowledge with learning self-efficacy may reflect the notion that to be an efficacious learner requires some degree of content knowledge regarding a subject (e.g., Swackhamer et al., 2009). This content knowledge can provide a foundation upon which to engage and process more complex learning concepts and guide the sourcing of further learning material and content. Furthermore, the association between psychology knowledge and learning self-efficacy may reflect knowledge relating to professional and ethical issues and awareness of cultural issues (items that figure strongly in the GPS-Q psychology knowledge factor). That is, students that perceive themselves to be more knowledgeable about the profession as well as the ethical and cultural issues that surround psychology, may perceive themselves as better prepared to engage in the psychology workforce.

While these three factors (i.e., critical analysis/problem solving, communication, and psychology knowledge) were found to have associations with multiple outcomes; teamwork/leadership, self-management/self-regulation, and adaptability were found to make quite distinct contributions to the outcomes of learning and work self-efficacy and work readiness. For instance, teamwork/leadership was found to contribute to work readiness. Given that workplace environments often involve teamwork and the need for people to take on leadership roles (e.g., Elder & Blasco, 2005), it is understandable that students who feel more equipped with these skills also perceive themselves as more work ready. Moreover, it appears that teamwork/leadership along with communication—factors of the GPS-Q that have a strong interpersonal element—are particularly valuable in students' appraisals of their work readiness. On the other hand, self-management/self-regulation was found to predict learning self-efficacy. While it is surprising that this facet of graduate psychology skills didn't predict work self-efficacy, this finding may reflect that students' self-management/self-regulation may be especially important in their capacities to learn. In contrast, work contexts may be perceived by students as being less influenced by one's self-management and more by workplace management structures, personnel and regulations. In contrast, adaptability was found to be an important predictor of work self-efficacy. This finding may suggest that the capacity to be adaptive may be particularly important in how one perceives their efficacy and competence in working environments, which are often characterised as dynamic, with the need to engage in continuous

professional development. Digital literacy was not found to make a significant contribution to any of the outcome variables. This finding may suggest that digital literacy, while not related to learning and work self-efficacy or work readiness, may have a more niche or discrete association with other learning and work-related outcomes such as using digital literacy to improve discipline specific writing and social media communication (e.g., November & Day. 2012).

The overall findings relating to the GPS-Q suggest that the measure represents an empirically valid and reliable measure of graduate psychology skills. Moreover, six of the seven graduate psychology skills comprising the GPS-Q appear to differentially contribute to learning and work-related outcomes. This suggests that the diversity of skills captured by the GPS-Q are important in distinguishing how various graduate skills are associated with distinct but related educational and occupational outcomes.

Chapter 4: Phase 3: The Embedding and Assessment of Graduate Psychology Skills within the Curriculum

Having validated the GPS-Q as well as developed and refined the CLA-PBL tutorial program and materials in year 1, year 2 of the project involved the roll out of the tutorial program across all three institutions (Deakin University, QUT, and Macquarie University). The evaluation of the tutorial program was approved by the University Human Ethics Committees of all three institutions.

The tutorial program was administered to a collective sample of 1,960 students across all three institutions. Specifically, the tutorial program was administered as part of the following subjects/units at the three universities:

- First year psychology students enrolled in the foundational unit PYB007 Interpersonal Processes and Skills at QUT in semester 1.
- Second and third year psychology students enrolled in PSY350 The Psychology of Human Relationships at Macquarie University in semester 2.
- Third year students enrolled in HPS304 The Social Psychology of Relationships at Deakin University in trimester 2.

While all students completed the tutorial program, 1258 agreed to participate in the tutorial program quantitative evaluation. Of the 1258 students that participated, 939 students provided data that could be used in the evaluation (an attrition rate of approximately 25%). Another 9 students and 15 tutors across the three institutions participated in focus groups post the tutorial program to provide qualitative feedback regarding the impact of the tutorial program.

Details regarding the tutorial program are provided in Chapter 2. Below, we outline the tutorial evaluation procedure as well as the assessment measures administered as part of the quantitative and qualitative evaluation.

TUTORIAL EVALUATION PROCEDURES AND MEASURES

During the first tutorial, tutors informed students of the tutorial evaluation as part of their introductory address to the students. Students who were interested in participating in the study were given a copy of the plain language statement, consent form, and a questionnaire booklet that included the GPS-Q (39 items) and measures of learning style and academic motivation. Students participating in the evaluation completed the consent form and questionnaire booklet at the conclusion of the first tutorial and submitted these materials to their tutor. Upon receipt of the consent forms and questionnaires, the tutor randomly shuffled the student consent forms and sealed them in an envelope. The questionnaire booklets were then stored in a secure location separate from the consent forms. All questionnaire booklets contained a unique random identification number to ensure that student responses could be de-identified immediately after submission of the questionnaires to their tutor. Students were required to note down their identification number for their records for inclusion on subsequent questionnaires administered during tutorials 2 to 6.

Administration of measures (Tutorial 1)

As part of the tutorial evaluation, students completed baseline assessments of graduate psychology skills using the GPS-Q in the first tutorial (T1), as well as the individual difference variables of learning style and academic motivation. Students took approximately 30 minutes to complete all measures. The administered measures are described below.

- ***Learning style.*** Learning style was assessed using the 20-item Revised Study Process Questionnaire (R-SPQ-2F, Biggs et al., 2001). This measure assesses two broad learning styles, namely: (1) surface learning approach (SA, 10 items, α = .77) and (2) deep learning approach (DA, 10 items, α = .79). Items are rated on a 5-point scale ranging from 1 (*this item is never or only rarely true of me*) to 5 (*this item is always* or *almost always true of me*). The measure is presented in Appendix E.
- ***Intrinsic academic motivation.*** Intrinsic academic motivation was assessed using the intrinsic motivation items of the shortened version of the Academic Motivation Scale (AMS-C 28, Vallerand et al., 1993). AMS-C 28 consists of a total of seven factors of which three factors (12 items) reflect intrinsic motivation (i.e., intrinsic motivation – knowledge [4 items, α = .85], intrinsic motivation – accomplishment [4 items, α = .84], intrinsic motivation – stimulation [4 items, α = .86]). These items were summed to create a total intrinsic academic motivation score (α = .93). The measure is presented in Appendix F.
- ***Graduate psychology skills.*** The graduate psychology skills were assessed using the 39-item GPS-Q detailed in chapter 3. The measure is presented in Appendix D.

Administration of measures (Tutorials 2 to 6)

At the conclusion of tutorials 2 to 6 [T2-T6], students filled out a tutorial version of the GPS-Q as well as a measure of academic motivation to capture students' motivation during each of the tutorials. It is important to note that the tutorial program targeted enhancing specific graduate psychology skills, namely: critical analysis/problem-solving, psychology knowledge, communication, teamwork/leadership, and adaptability. As a result, only these graduate skills were evaluated across tutorials 2 to 6. The measures administered at the end of tutorials 2-6 took approximately 15 minutes to complete. The administered measures are described below.

- ***Intrinsic academic motivation.*** An assessment of students' intrinsic motivation during tutorial activities was measured using four subscales from the Intrinsic Motivation Inventory (IMI, Deci et al., 1994, see Appendix G), namely interest/enjoyment of the task (7 items, α = .90), perceived competence during the task (6 items, α = .80), effort/importance of the learning task (5 items, α = .80), and pressure/tension experienced during the task (5 items, α = .70). After reverse scoring the pressure/tension items, the subscales were summed to form an overall intrinsic motivation score (α = .92).
- ***Graduate psychology skills.*** A modified version of the 39-item GPS-Q was used to assess students' perceptions of the impact of the tutorial activities on the development of graduate psychology skills. The measure was modified by altering the instructions and the item stem to reflect the extent to which the student used a

particular graduate skill as part of the tutorial activities. Because the tutorial program specifically focused on developing the graduate skills of critical analysis/problem solving, communication, psychology knowledge (specific to ethics, professional practice, and cultural issues), teamwork/leadership, and adaptability, only items pertaining to these graduate skills were used across tutorials 2 to 6 (22 items in total). The tutorial version used as part of this evaluation is presented in Appendix H.

Focus groups post tutorial program

At the conclusion of the tutorial program in each unit, tutors and students were invited to participate in separate focus groups at each institution. The purpose of the focus groups was to obtain tutor and student qualitative accounts regarding students' engagement in deep learning and development of graduate psychology skills.

DATA ANALYSIS

Quantitative analysis (Tutorials 1 to 6)

To assess changes in students' progress towards developing their graduate psychology skills across the six tutorials (tutorial 1 to tutorial 6), a series of repeated measures (i.e., longitudinal) Analysis of Variance (ANOVAs) were conducted in which learning style and motivation were included as control variables. The results revealed significant change in graduate psychology skills across the tutorial program for all skills. Table 4 provides the significance tests and variance explained for each of the repeated measures analyses. As can be seen in Table 4, the greatest amount of change in graduate psychology skills (variance [%]) occurred in psychology knowledge, followed by teamwork/leadership, and then communication and critical analysis/problem solving. The least amount of change related to adaptability.

Table 4. Analysis of Variance (ANOVA) assessment of graduate skills across the tutorial program (tutorial 1 to tutorial 6)

Graduate psychology skill	Multivariate test	Variance (%)
Critical Analysis/Problem Solving	Pilliai's Trace = .25, $F(4,935) = 76.13$, $p < .05$	25
Communication	Pilliai's Trace = .27, $F(4,935) = 85.76$, $p < .05$	27
Psychology Knowledge	Pilliai's Trace = .47, $F(4,935) = 163.13$, $p < .05$	47
Teamwork/Leadership	Pilliai's Trace = .32, $F(4,935) = 110.33$, $p < .05$	32
Adaptability	Pilliai's Trace = .18, $F(4,935) = 52.13$, $p < .05$	18

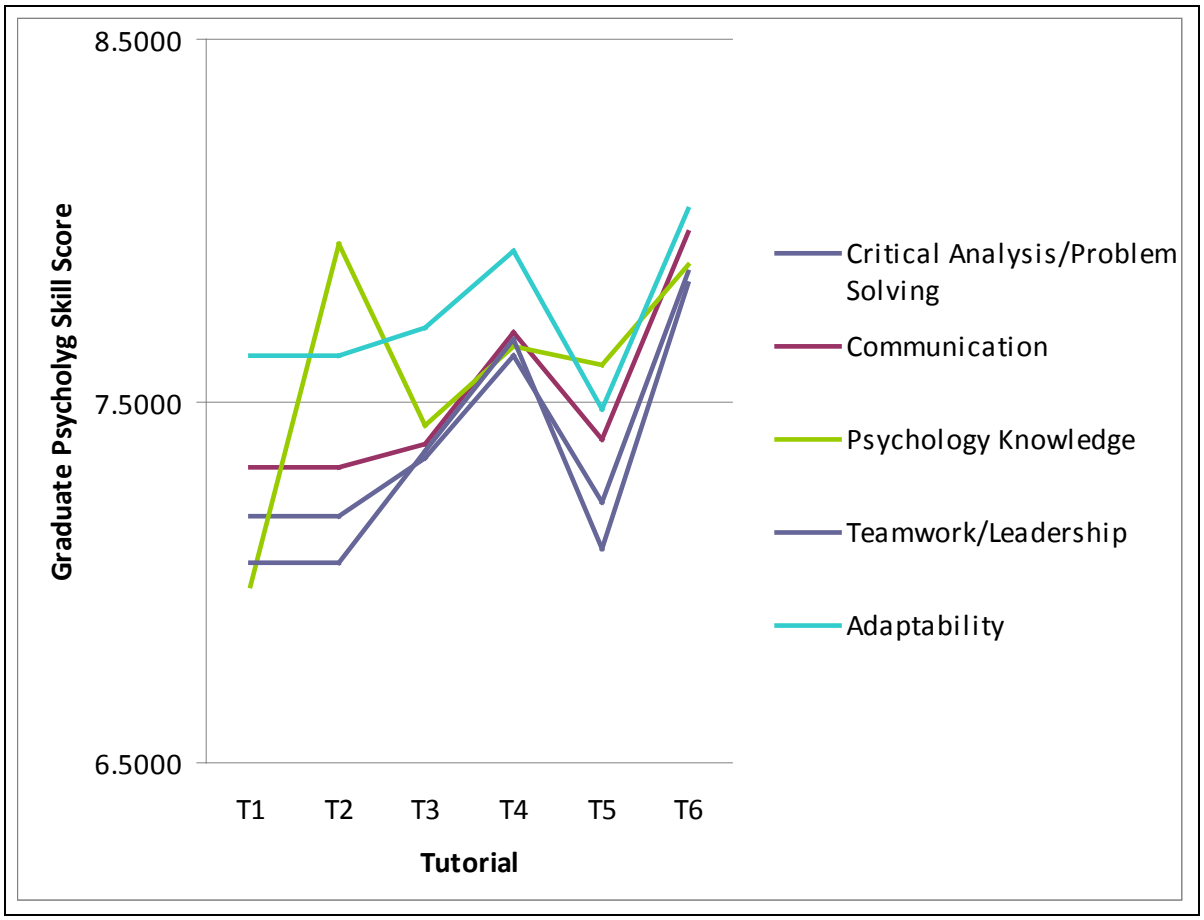
The trajectory of change over the tutorial program for all graduate skills is presented in Table 5 and Figure 2. As shown in both Table 5 and Figure 2, students' range of scores on graduate psychology skills varied between 6.99 and 8.03, with students showing up to .89 of a point shift in graduate psychology skills over the 12 weeks of the tutorial program. The trajectory of change was non-linear and similar in its nature across all the graduate

psychology skills assessed, with the exception of psychology knowledge. Unlike the other graduate psychology skills, psychology knowledge showed a sharp statistically significant increase from tutorial 1 to 2, followed by a drop in tutorial 3, only to rebound across tutorials 4 to 6. All other graduate psychology skills demonstrated a steady increase across tutorials 1 to 4, a statistically significant drop in tutorial 5, followed by a statistically significant increase in tutorial 6.

Table 5. Mean graduate psychology skill scores across the tutorial program

	Tutorial					
Graduate psychology skill	**T1**	**T2**	**T3**	**T4**	**T5**	**T6**
Critical Analysis/Problem Solving	7.18	7.18	7.34	7.62	7.22	7.86
Communication	7.32	7.32	7.38	7.69	7.39	7.97
Psychology Knowledge	6.99	7.94	7.43	7.65	7.60	7.88
Teamwork/Leadership	7.05	7.05	7.36	7.67	7.09	7.83
Self-Management/Self-Regulation	7.62	7.62	7.71	7.92	7.47	8.03

Figure 2. Trajectory of change in graduate psychology skill scores across the tutorial program



It appears that students' exposure to the first case study (i.e., tutorial 2) significantly enhanced psychology knowledge (see Figure 2). This may largely be due to the fact that the first case study exposes students for the first time to professional and ethical issues that face psychologists when working with clients experiencing relationship issues. It is unlikely that students would have been exposed to such issues in their previous psychology studies, thus, students may perceive the tutorial program as impacting on their knowledge relating to issues of professional practice within psychology. While students' psychology knowledge reduces slightly across tutorials 3 to 5 in particular, students ratings are still substantially higher than those reported during tutorial 1, suggesting that advances in psychology knowledge are somewhat sustained across the tutorial program. By tutorial 6, there is little difference in the psychology knowledge score when compared to students' score on this graduate skill in tutorial 2.

For critical analysis/problem solving, communication, teamwork/leadership, and adaptability, the most notable aspect of the trends shown in Figure 2 is the sharp decline in students' self assessment of these graduate psychology skills in tutorial 5, followed by the rebound of scores in tutorial 6. This pattern of results may reflect the impact of the peer assessment and feedback activities undertaken as part of tutorials 4 and 6 of the tutorial program. It may be that the peer assessment feedback discussions in tutorial 4 provided students with insight regarding aspects of their graduate skills that they could improve; aspects that they were either not aware of or had over-estimated in skill level. Thus, the provision of this formative feedback by a peer may provide students with the opportunity to reflect on their self assessment and to re-calibrate their self-judgments across various psychology graduate skills. This feedback process, followed by student reflection, may provide students with the opportunity to work towards improving on these graduate skills during subsequent tutorials, and may in fact result in students' increased self assessments by the conclusion of the tutorial program. These findings may underscore the importance of providing opportunities for formative peer feedback regarding graduate skills.

Qualitative analysis (Student and tutor focus groups post tutorial program)

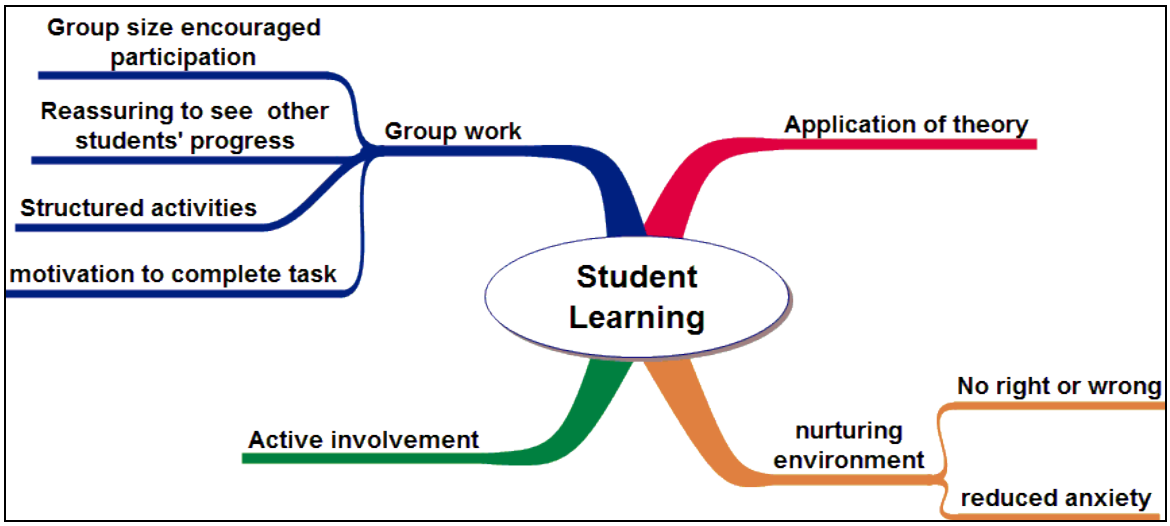
A total of six focus groups were conducted across the three institutions (three focus groups with students and three focus groups with tutors) in order to develop a more fine-grained understanding of how the tutorial program shaped students' learning and development of graduate psychology skills. The transcripts from the student and tutor focus groups were subjected to a thematic analysis. The major themes that emerged from this analysis were then organised into the graphic representations illustrated in Figures 3 and 4.

As shown in Figure 3, students' focus group responses regarding learning yielded a series of important themes, some of which could be further divided into sub-themes. As can be seen, a number of the learning outcomes strongly related to graduate psychology skills. For example, group work processes and the application of theory to real-world problems were two recurrent themes in the responses of student focus groups—themes that align with teamwork and critical-analysis/problem-solving. Student narratives around group work yielded as series of sub-themes. Specifically, students noted that the small group size of 5-6 students was an optimal size to encourage participation from all group members. Furthermore, the collaborative and problem-based learning approaches that underpinned

the tutorial program provided student groups with opportunities to appreciate their progress in learning. Similarly the tutorial format, with its inclusion of structured activities, enhanced students' perceptions of the value of the group work. Engaging with peers in group work was also viewed as important in motivating students to complete the learning tasks.

Students also noted that the structure of the learning tasks promoted active involvement in learning, whereby students had to engage in critical analysis and problem-solving to successfully complete tasks. Finally, students commented that their learning was influenced by the nurturing environment created by the tutorial program and the teaching staff. The emphasis on collaborative learning meant that all students' opinions and arguments were carefully listened to by other group members. As a consequence, students were not made to feel as if they had to give the "right" answer, and felt less anxious during tutorial activities and group presentations of case conceptualisations.

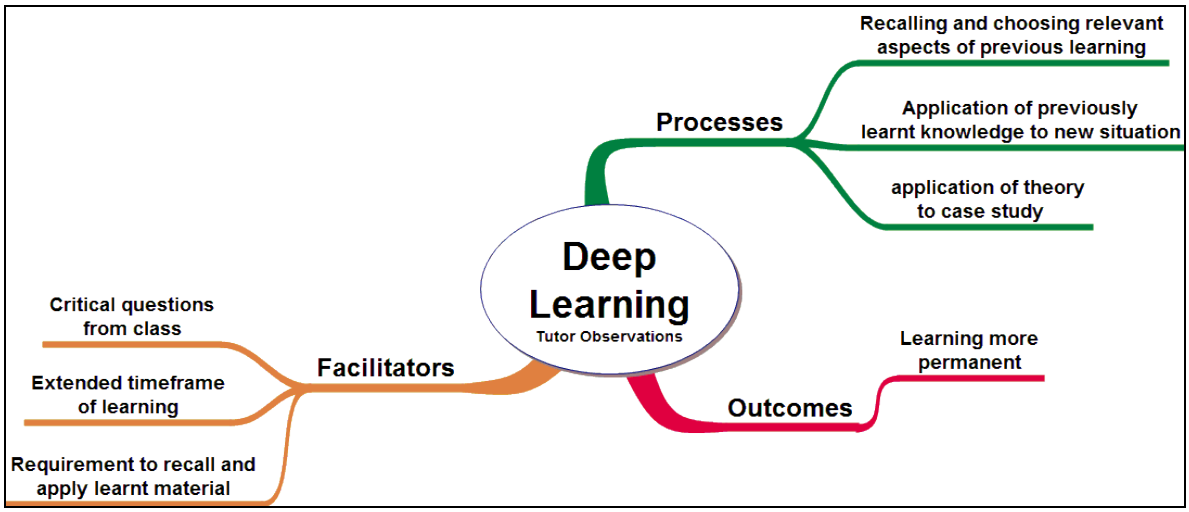
Figure 3. Student focus group evaluation: Themes related to student learning



As shown in Figure 4, the narratives of tutors provided some important and complimentary insights regarding their observations of student learning. First and foremost, tutors made a point of constantly referring to the student learning as being of a "deep" nature. Three broad themes emerged from the tutor focus groups, namely, "processes", "outcomes" and "facilitators". These themes could be further divided into sub-themes. Tutors specifically noted that the structure of the tutorial program and the learning activities students engaged in (i.e., the "processes") were important to students deep learning. In particular, tutors noted that the design of learning activities facilitated students to recall, select, and apply relevant substantive knowledge and theory to novel situations. In many ways, these themes relate to students capacity to learn and apply psychology knowledge—application entailing critical analysis and problem-solving. Tutors also emphasised that the way that the tutorial program facilitated deep learning meant that the learning was more permanent for the students. That is, students were able to apply the learning derived from one case study to a subsequent case study. Thus, the learning outcomes appeared to be related to the learning processes observed by tutors. Finally, tutors noted that a key factor for students' deep learning was that students themselves became "facilitators" of learning, an outcome that was partly the result of the structure of the tutorial program. That is, students' supported

their own learning and that of their peers by asking critical questions of themselves and classmates. Furthermore, the need to recall and apply material to learning tasks, and the significant time allocated to each activity were deemed by tutors as important drivers that facilitated student learning.

Figure 4. Tutor focus group evaluation: Themes related to student learning-tutor observations



INTERPETATION OF FINDINGS

Overall, the findings of the tutorial evaluation suggest that the tutorial program had a positive effect on students' psychology graduate skills. Students reported significant increases across the psychology skills of critical analysis/problem solving, communication, teamwork/leadership, psychology knowledge and adaptability. Moreover, the program seemed to achieve shifts in students' self-reported skills over a relatively short period of time – a total of 12 weeks.

The findings of the tutorial evaluation further suggest that having students engage in activities underpinned by CLA-PBL has the potential to foster the development of a variety of graduate psychology skills in students. This is important to highlight, as this ALTC/OLT project is one of only a few studies within the discipline of psychology to evaluate the efficacy of a tutorial program designed to foster students' psychology graduate skills (Haw, 2011; Karantzas, et al., 2013; Williams et al., 2003). Moreover, this project is the first to our knowledge within psychology, to underpin a tutorial program within the pedagogies of CLA and PBL (Johnson et al., 1998; Karantzas et al., 2013; Prince, 2004).

However, it is important to point out that while our implementation of an inquiry-based approach to learning captured important facets of PBL, the development of the tutorial program yielded a more directive PBL approach than is traditionally associated with the use of PBL methods in other disciplines. PBL, as has often been applied in the medical sciences, consists of students working on an ill-defined problem at their own pace and in a self-directed manner (Karantzas et al., 2013). As part of the tutorial program developed within this project, the parameters of the case studies and the time required to work on each case study were constrained. In this way, the tutorial program developed and evaluated represented what is at times called 'hybrid' PBL (Hossam, 2008). That is, the PBL approach

used within the tutorial program provided a more structured learning experience for students in which students were specifically asked to make decisions, and contingent on these decisions, were provided with a limited suite of resources. Furthermore, students were prompted throughout the workbook to incorporate information from lecture notes and readings as part of their tutorial activities. Therefore, the structured nature of this PBL approach may have enhanced students' self-reported graduate psychology skills. Research has found that PBL approaches that are more structured enhance students' learning and graduate attributes to a greater extent than approaches in which problems are less defined (Albanese & Mitchell, 1993; Prince, 2004). These more directive approaches are thought to provide students with sufficient guidance and resources to keep them focused on working through the problem, while still ensuring that students develop their own conceptualisation of the issues and engage in decision-making processes in completing the learning tasks (Prince, 2004).

To conclude, the tutorial program was developed and evaluated in response to the dearth of evidence-based pedagogies related to the development of students' graduate attributes within the discipline of psychology. The tutorial program development and evaluation funded as part of this ALTC/OLT project provides evidence for the idea that designing programs underpinned by teaching and learning approaches such as CLA-PBL can result in enhancements related to students' self-reported assessment of graduate psychology skills.

Chapter 5: Project Outcomes and Recommendations

This final chapter details the various project outcomes and recommendations derived from this ALTC/OLT project. In doing so, we document various evaluation, dissemination and resource development outcomes, that in turn, have informed the recommendations we provide for undergraduate teaching and learning in the discipline of psychology.

PROJECT OUTCOMES

Over the two year period of the project, a series of outcomes were achieved; many of these outcomes related to the development of resources that are available to the psychology teaching and learning community as part of the GPS Australia website (www.gpsaustralia.org.au). Other outcomes relate to the various dissemination activities undertaken as part of the project. These dissemination activities have provided opportunities to inform the psychology discipline about aspects of the project, as well as build scholarly networks regarding evidence-based teaching and learning in graduate psychology skills. Each of the project outcomes are outlined and discussed below.

The development and validation of a self assessment measure of graduate psychology skills

As detailed in Chapters 2 and 3 of this report, our extensive development, refinement and psychometric validation of the GPS-Q resulted in a 39-item self-report measure of seven graduate psychology skills, namely: critical analysis/problem-solving, communication, psychology knowledge, teamwork/leadership, self-management/self-regulation, adaptability, and digital literacy. This measure is presented in Appendix D, and is available on the GPS Australia website (www.gpsaustralia.org.au). The GPS-Q available on the GPS Australia website is accompanied by a user manual and scoring instructions to assist staff in administering this measure as part of their undergraduate teaching. The GPS-Q has also been integrated into the student portal component of the GPS Australia website (for details see the outcome on the development of the GPS Australia website) in which students can fill in an online version of the GPS-Q and receive real-time feedback regarding their skill level along the seven domains of the GPS-Q.

The development of a model of skill acquisition

To help students when engaging in self assessment on the GPS-Q, and when making judgments regarding peers' graduate skills, members of the project team developed the Triple-A Model of Skill Acquisition (Karantzas et al., 2013). The model is based on the general components that entail most three-phase skill acquisition models. The Triple A model is inspired by Langan-Fox et al. (2007) in which the major models of skill acquisition are reviewed and discussed. The Triple-A Model of Skill Acquisition consists of 3 phases of skill development—acquisition, achievement, and accomplishment—and provides a reference on which to evaluate graduate psychology skills. The three phases are described in the subsequent paragraphs.

Acquisition – the skill is being acquired (rating 0 to 4). The skill is in the early stages of being learned. The individual tries to identify the components or features that constitute the skill, or rules associated with the skill in order to perform the skill. As part of this process, the individual may try to observe the skill in someone else and try to replicate it. Alternatively, the individual may ask for assistance or coaching from a skilled other in order to better understand the skill. Therefore, the skill is not performed reliably and may lack the demonstration of all aspects of the skill. As a result the skill may not be performed accurately.

Achievement– the skill is achieved (rating 5 to 7). The components or features constituting the skill can be executed, though skill execution may require minor prompting or feedback from a skilled other. The skill is performed reliably but skill execution requires considerable effort and, as a result, is performed slowly and lacks fluency. As a result, there continues to be considerable fluctuation in the execution. The skill is not consistently applied to new or novel situations.

Accomplishment – the skill is performed in an accomplished manner (rating 8 to 10). The skill is performed reliably with little fluctuation in execution. The skill can be executed quickly and fluently. As a result, the skill is executed autonomously with no need for prompting or coaching by another. Prompting and coaching can occur, but this is to further enhance and refine the skill rather than to ensure the skill can be achieved. The skill is consistently applied to new and novel situations, and can be adapted to better suit the context.

The stages/phases of the Triple-A Skill Acquisition Model are not hypothesised to represent a linear model of skill acquisition. The terms chosen to represent each stage are such that they capture many of the commonalities that appear across the major models of skill acquisition in the literature, but also are not meant to have some moral or judgmental overtone to suggest that regression of a skill is not possible. Langan-Fox et al. (2007, p. 41) note that “A problematic element of any phase theory is the nature of the transition from one phase to the next. Current models can give the impression that skill acquisition is a continuous, linear, unidirectional process, with no ‘slipping back’”. In line with Langan-Fox et al., we propose that skill acquisition models that imply linear skill develop present an idealised representation. In reality, the boundary between each phase is likely to be fuzzy, and the transition from one phase to the next, gradual as opposed to categorical (VanLehn, 1996). Thus, the literature needs to be explicit in acknowledging inter-individual variability in the rate of skill acquisition, specifically that skill acquisition is not always unidirectional and may be quite dynamic in its trajectory, involving reversion or slipping back to an earlier part of the same phase or even a previous phase (‘‘phase slippage’’). As a case in point, Dreyfus and Dreyfus’ (1986) model of skill acquisition incorporates terms such as competent, proficient and expert as category descriptions of skill level. In contrast, we contend that these terms may pigeon-hole some individuals in terms of their own evaluation of a skill, or having the skill evaluated by another. For instance, to what extent would someone who is labelled or classed as an ‘expert’ admit to skill slippage that would see them move down toward proficient or competent? Moreover, not all individuals when first executing a skill appear ‘novice’, rather, they may immediately demonstrate proficiency. Yet, implicit in models such as the Dreyfus and Dreyfus model is that individuals move from novice to expert. The labels used as part of the Triple-A Skill Acquisition Model are just as much about removing the biases and judgments that often accompany these

terms and are about merely assessing the skill in a more objective manner. Having said this, the labels of the Triple-A Skill Acquisition Model connote a sense of differentiation in skill level.

Our skill acquisition model is described as part of a learning activity for students on understanding and evaluating graduate psychology skills undertaken in tutorial 1. As part of this activity, students are exposed to the three phases of the Triple-A Skill Acquisition Model and are then required to work in groups to describe the characteristics that would represent a particular graduate psychology skill at each of the three skill phases. Each group shares its descriptions and justification with the other groups in the class, and the class discussion is moderated by the tutor who is trained in the skill acquisition model and the GPS-Q. Students are then provided with answer sheets that provide rubric descriptions for each of the graduate skills across all phases of the skill acquisition model. This provides students with a final set of standards to inform their judgments regarding graduate psychology skills. Only after students have undertaken these activities can they engage in a self assessment of graduate psychology skills using the GPS-Q and provide peer assessment and feedback to other students as part of tutorials 4 and 6.

Students who wish to complete the GPS-Q online as part of the GPS Australia website are also exposed to the Triple-A Skill Acquisition model. Upon logging onto the site, students are presented with a description of the model and how it relates to their self assessment of graduate skills. Only after having been exposed to the skill acquisition model can students complete the GPS-Q.

The development of graduate psychology skills rubrics

As part of the activities relating to the students' self and peer judgments regarding graduate psychology skills, a series of rubrics were developed by the project team that provide skill descriptions for each of the graduate skills. The rubrics provide descriptions for each graduate skill across the three phases of the Triple-A Skill Acquisition Model (as described in the previous section). The project team produced two versions of the graduate psychology skills rubrics. In one version, a summative statement is provided for each of the seven graduate skills for each phase of the Triple-A Skill Acquisition Model (totalling 21 descriptions). In another version, a statement is provided for each of the 39 items that constitute the GPS-Q for each phase of the model (a total of 117 descriptions). This version of the rubrics provides a more fine-grained description of each graduate skill, and is the foundation upon which the summative rubrics were developed. These two versions of the rubrics not only provide a means by which students can calibrate their self assessment and peer assessment of graduate psychology skills, but can be used by staff in evaluating students' graduate skills in assessment tasks that focus on these skills. Furthermore, in assessing students' graduate psychology skills using these rubrics, staff are able to provide feedback regarding their assessment of students' skills. The rubrics we have developed add to the bank of assessment rubrics that have been developed for graduate skills across a variety of disciplines, many of which have been developed through other ALTC/OLT projects such as the work on graduate capabilities undertaken by Beverly Oliver (see http://boliver.ning.com/). The summative rubrics for the seven graduate psychology skills are presented in Appendix I.

The development, implementation and evaluation of a collaborative and problem-based learning tutorial program in psychology

As discussed in Chapters 1 and 3, a tutorial program was developed on the principles of collaborative learning and problem-based learning designed to enhance students' acquisition of graduate psychology skills. The evaluation of this tutorial program involved students from Deakin University, QUT, and Macquarie University. A total of 939 students provided complete evaluation data. The evaluation findings suggest that the tutorial program provides a learning environment that does enhance students' graduate skill development (as reported through self assessment and focus groups). Moreover, the development of materials for the tutorial program has since resulted in a number of resources that can be used by staff interested in employing a CLA-PBL approach to teaching and learning, as well as implementing peer assessment and feedback. We outline two key resources below.

1. ***Case study development guide.*** To assist staff in developing case studies involving a "Choose Your Own Adventure" type structure, a guide has been developed that outlines key principles for creating these case studies. The document is housed on the staff portal of the GPS Australia site (www.gpsaustralia.org.au).
2. ***Theoretical and process model of feedback.*** Drawing on the literature on communication, feedback and peer assessment (e.g., Boud, 2007; Littlejohn & Foss, 2010; Nicol & Macfarlane-Dick, 2006) the project team developed a model of peer feedback that underpinned the development of a peer feedback process that can be undertaken by students during class. The model is presented in Appendix J, and the peer feedback process is presented in Appendix K (these resources also appear on the staff portal of the GPS Australia site, www.gpsaustralia.org.au). The feedback process document provides a flow chart of how students can engage in effective feedback on graduate skills, and can be provided to students in class alongside feedback activities to help structure the feedback process and enhance the quality of feedback delivered between students.

Development of a 2-day tutor training program on inquiry-based learning, communication and feedback and graduate skills

The highly structured but interactive nature of the tutorial program required that tutors be well trained in facilitating the tutorial program as well as building their skills in the facilitation of inquiry-based learning approaches, communication and feedback, and a comprehensive understanding of graduate psychology skills. Members of the project team developed and delivered a comprehensive training program that covered many of the key aspects outlined in the preceding sections of chapter 5 across all partner institutions. An outline of the tutor training program is provided in Appendix L, and a brief guide on principles of tutor training was developed to assist staff in creating high quality training programs for tutors. This resource can be found in the staff portal of the GPS Australia website (www.gpsaustralia.org.au).

Development of the GPS Australia website (www.gpsaustralia.org.au)

The development of the GPS Australia website provides an important outlet for the dissemination of the project outcomes as well as providing a suite of resources to students and staff regarding the assessment and development of graduate skills. The website contains three sections: (1) a public site, (2) a student portal, and (3) two staff portals (one for educators and another for course leaders). Each of these website sections is discussed below.

The public site provides general information about the ALTC/OLT project, information about the project team, information regarding the student and staff portals, and a twitter feed that encompasses various tweets relating to graduate psychology skills. Many of the tweets on the site relate to resources and social commentary on the topic of graduate skills in both higher education and industry. A screen shot of the home page of the website is provided in Figure 5.

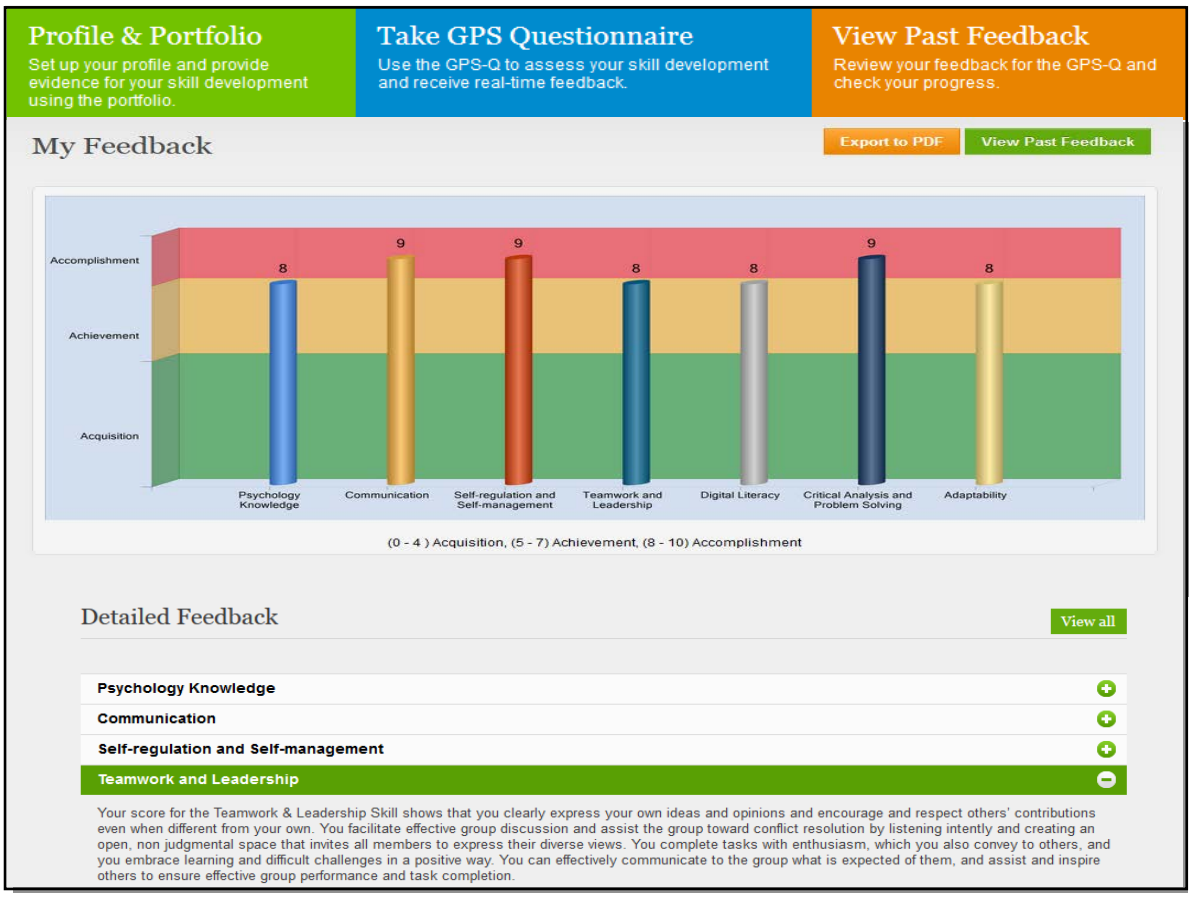
Figure 5. Screen shot of the GPS Australia home page.

The student portal provides students with information about graduate psychology skills and the relevance of these skills to the competency standards of practicing psychologists. Upon logging into the portal, each student has access to their own secure site in which they can find out information regarding the Triple-A Skill Acquisition Model, information about the GPS-Q, as well as complete the GPS-Q online, and receive real-time feedback on their graduate psychology skills. Students are able to undertake the GPS-Q up to 15 times, allowing students to track their development of graduate skills over time. The feedback that students receive every time they complete the GPS-Q appears in two complementary forms: (1) a bar chart illustrating their skill level for all seven graduate psychology skills, and (2) written feedback that helps students interpret the scores on the bar chart. The written feedback also provides the student with commentary on their strengths and areas for improvement.

Students are able to download their feedback as a PDF which they can then share with fellow students, educators and employers. This feedback can also be disseminated to students' own LinkedIn and Facebook pages through functions that link the students' feedback to these social networking sites. The student portal is equipped with the functionality for students to compare multiple assessments on the GPS-Q, with the site able to graphically present students' previous assessment with their current assessment. Further, students can compare all past assessments with their current assessment by downloading each saved assessment in PDF format. Furthermore, the student site is equipped with an e-portfolio, allowing students to upload evidence of their work to support their self assessment on graduate skills. Students can upload PDF documents, audio and video files, as well as add links to websites. To assist students to reflect on how a particular piece of evidence relates to their GPS-Q self assessment, students are prompted to answer two questions: (1) which graduate skill(s) does this work represent? and (2) To what extent does this work match your most recent self assessment – is it above or below your self rating on the graduate skill? The questions provide an important way for students to develop a cohesive narrative regarding how their self perceptions regarding graduate skills change over time, and are reflected in the quality of work they produce over their undergraduate studies. A screenshot of the student portal is presented in Figure 6.

The staff portal (for educators and course leaders) largely functions as the resource repository and resource sharing aspect of the website. The portal includes downloadable guides that contain advice and strategies pertaining to best practice regarding the embedding of graduate psychology skills in curriculum design and in the assessment of these skills. This site features numerous resources and exemplar materials from the tutorial programs conducted at the three institutions as well as guides for conducting tutor training and developing CLA-PBL tutorial programs. Specific resources relate to the GPS-Q, providing staff with a user manual and scoring guide on how to administer the measure and use it in teaching and learning practice and research. The site also includes PDF copies of the self and peer assessment versions of the GPS-Q. The site also has functionality for staff to invite students in their unit/subject to undertake the GPS-Q which can then be used by the staff to track students' progress on the graduate psychology skills in their respective unit/subject. Once students agree to participate in the staff's initiative to assess their graduate psychology skills, students are sent an email prompting them to participate in the GPS-Q online. Upon completing the GPS-Q, the data is saved in a secure section of the staff portal that can only be accessed by the staff member. The staff member can download the data

Figure 6. Screen shot of the GPS Australia student portal

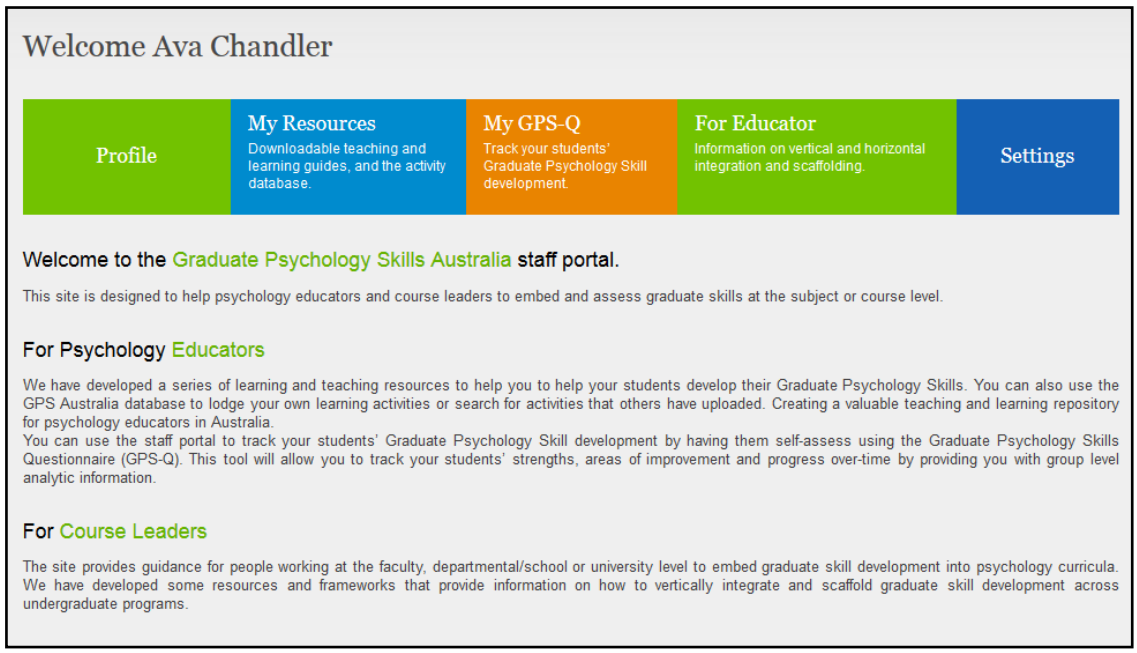


and use it to inform their teaching and learning practice and research regarding graduate psychology skills. The staff site also acts as a resource sharing function. In this way, staff can upload resources they have created to share with the wider psychology community and search the site for resources that have been created by other staff members. Staff are able to upload resources in many different formats (i.e., PDF, audio, video, weblinks) and can provide a short description for the purpose of the resource. The staff member who uploads a resource is also credited for the resource they have created. A screen shot of the staff portal is shown in Figure 7.

The staff portal has two different logins on the site – one login is for educators (i.e., subject coordinators/unit chairs and other teaching staff such as lecturers and tutors), while the other login is for course leaders (i.e., course co-ordinators and staff in leadership positions of teaching and learning). Both login portals direct staff to a site that includes all the functionality outlined above, however, the course leader site also contains resources related to the vertical and horizontal integration of graduate psychology skills across the undergraduate years. These resources discuss topics such as in which year levels should particular graduate skills be emphasised, and how to distribute the development and assessment of different graduate psychology skills across different subjects/units of a given course. The site also provides basic guides and templates for mapping out the development and assessment of graduate psychology skills across undergraduate psychology.

Finally, the site has been designed with various analytic functions to provide the project team with information regarding site usability and accessibility. These analytics include: The

Figure 7. Screen shot of the GPS Australia staff portal



number of hits received by various web-pages, the number of students undertaking the GPS-Q, and the number of times a given resource is downloaded.

Dissemination of findings at conferences, summits and through publications

Over the course of the project, the project team has disseminated the findings across various institutional and national conferences and summits. Given the longitudinal aspect of the tutorial evaluation, the project team anticipates further dissemination of the project outcomes at both national and international conferences over the next 12 months. These conferences include the Australian Psychological Society National Conference 2014 (paper accepted) and the International Conference of Psychology Education (2014). The conference and summit presentations conducted to date and confirmed for 2014 are outlined in Table 6. As can be seen, the presentations to date relate to the dissemination of various facets of the ALTC/OLT project. These include the GPS-Q, the tutorial program, the website, and the tutor training.

In addition to the presentations undertaken as part of the project dissemination, the project team was invited to contribute a paper to a special issue of the Australian Journal of Psychology (AJP) devoted to the scholarship of teaching edited by Jacquelyn Cranney. This paper was published as part of the special issue of AJP in March, 2013. The citation is provided below.

- Karantzas, G. C., Avery, M. R., Macfarlane, S., Mussap, A., Tooley, G., Hazelwood, Z., & Fitness, J. (2013). Enhancing critical analysis and problem-solving skills in undergraduate psychology: An evaluation of a collaborative learning and problem-based learning approach. *Australian Journal of Psychology*, *65*, 38-45.

The project team is currently working on a series of publications relating to the psychometric properties of the GPS-Q, the evaluation of the tutorial program, the Triple-A Model of Skill Acquisition, and the value of peer feedback in graduate skills development.

The submission of these manuscripts is anticipated to occur over the remainder of 2014 and early 2015.

Table 6. Project dissemination to date through institutional, conference and summit presentations

Event Date	Event title and location	Purpose of the event
October, 2012	Australian Psychological Society national conference, Perth	Workshop/presentation on the GPS-Q
November, 2012	Deakin University Teaching and Learning Conference	Expert panel on teaching and learning advances and graduate skills
April, 2013	Australian Psychological Society National Summit	Invited presentation on innovations in teaching and learning in graduate psychology skills
February, 2014	Graduate Psychology Skills Conference, Melbourne	Keynote presentation reporting on the development of the GPS-Q and the tutorial evaluation
February, 2014	Graduate Psychology Skills Conference, Melbourne	Invited presentation on tutor training programs
February, 2014	Graduate Psychology Skills Conference, Melbourne	Invited presentation on the GPS Australia website
September, 2014	Australian Psychological Society national conference, Hobart	Symposium presentation on advances in teaching and learning in psychology

Furthermore, we have engaged with a number of the key professional bodies within psychology regarding this ALTC/OLT project. Our engagement with these bodies has been through informal discussions and meetings as well as formal invitations to attend the national conference on Graduate Psychology Skills (for a description see outcome below). Our engagement included professional bodies such as the Australian Psychological Accreditation Council, the Psychology Board of Australia, and the Australian Psychological Society.

First national conference on Graduate Psychology Skills

The original dissemination strategy of the ALTC/OLT project involved the running of a national summit on graduate psychology skills. The summit was envisaged to take the form of a one day event of approximately 20 invited participants (i.e., course leaders and heads of department) from around Australia to discuss teaching and learning initiatives and practices in graduate psychology skills. However, the interest that emerged around Australia regarding our project suggested that there was an opportunity to upscale the event to a two-day national conference on graduate psychology skills. As such, the conference was advertised to all psychology departments around Australia, inviting teaching and learning staff to submit abstracts for oral presentations. The abstracts were subject to peer review. In total, the conference attracted a total of 45 delegates from 15 institutions around Australia, including one participant from Canada. These institutions spanned the higher education sector and industry, as well as some of the national professional bodies associated with the accreditation and registration of psychology courses and psychologists.

The conference also involved members of the Australian Psychological Society Psychology and Education Interest Group. The conference comprised a total of 15 presentations (3 keynote presentations, 1 invited presentation, and 12 short presentations), six group discussion sessions and four roundtable sessions. The keynote and invited speakers included Jacquelyn Cranney (University of New South Wales), Nicholas Voudouris (Australian Psychology and Accreditation Council), Gery Karantzas (Deakin University), and Brin Grenyer (Psychology Board of Australia). The interactive format of the conference provided an important opportunity for psychology academic staff to share ideas, resources, and strategies for supporting the graduate skill development of students. An outline of the conference program is included in Appendix M. The conference also provided an important networking opportunity for the psychology discipline in Australia on the topic of graduate skills. The round table discussions resulted in a series of ideas and strategies regarding how to advance teaching and learning practices related to graduate psychology skills. These 'lessons' were documented by the project team and appear as a resource on the staff portal of the GPS Australia website (www.gpsaustralia.org.au). Furthermore, all delegates were sent a copy of this document via email. Importantly, conference delegates left the conference feeling energised about how to further support students' development of graduate psychology skills. Delegates were also keen to maintain contact with one another to share practices and resources, and were supportive of the running of a subsequent event to further advance shared practice.

PROJECT RECOMMENDATIONS

Over the course of this ALTC/OLT project we engaged in various activities that have informed our understanding regarding the assessment of graduate psychology skills and the development of curriculum to foster these skills in undergraduate students. Furthermore, through our focus groups, dissemination strategy and informal discussions with like-minded scholars and professional bodies, we have garnered further insight into future directions regarding teaching and learning of graduate skills within undergraduate psychology. We make a total of four recommendations, each of which is outlined below.

1. **Inquiry-based teaching and learning approaches be implemented within undergraduate psychology programs across Australia to promote the development of graduate psychology skills.** The findings from this ALTC/OLT project point to the merit of engaging psychology students in inquiry-based learning approaches to foster the development of graduate skills. Moreover, our review of the literature on inquiry-based approaches that entail elements of CLA and/or PBL yield various positive outcomes for students, many of which are particularly important for deep learning and the development of skills (e.g., Hattie, 2009; Prince, 2004). The GPS conference provided further evidence of the importance of inquiry-based approaches, with various presentations reporting on the positive learning outcomes experienced by students when inquiry-based methods were implemented. Previous ALTC/OLT reports by Cranney and colleagues (2008) and Lipp and colleagues (2006) have highlighted that psychology has been slow to integrate inquiry-based pedagogies in the teaching of undergraduate students. We encourage psychology educators to carefully consider the merit of inquiry-based learning and to make efforts to include such approaches when educating psychology students.

2. **Self assessment and peer assessment methods be adopted in evaluating undergraduate students' development of graduate psychology skills in undergraduate psychology subjects and units.** Student-centred approaches to learning advocate the importance of providing students with opportunities to engage in reflection; a process which can entail self assessment (e.g., Fallows & Chandramohan, 2001; Nicol & Macfarlane-Dick, 2006). Furthermore, peer assessment and feedback is becoming increasingly acknowledged for its capacity to assist students the effective revision of assessment tasks and the development of skills (e.g., Kollar & Fischer, 2010). Within this ALTC/OLT project, self assessment and peer assessment were implemented on multiple occasions, providing an opportunity for students to receive formative and summative feedback regarding the development of their graduate psychology skills. Moreover, the opportunity for self assessment and peer feedback facilitated students' reflection on their strengths and areas of improvement. Furthermore, with the support of peers, students could engage in steps to work towards maintaining or enhancing particular graduate skills. Providing an environment of peer feedback also provides an important context for students to further develop their communication and interpersonal skills when delivering and receiving feedback. From a project evaluation perspective, the assessment of students' graduate psychology skills provided a way to determine (at least in part) the efficacy of the tutorial program on these skills. We encourage psychology teachers to consider implementing self and peer assessment/feedback for the reasons just outlined. Steps to assess students' graduate skills in this manner can provide educators with their own evidence regarding the efficacy of their teaching practices when it comes to graduate skills. The implementation of assessment of graduate skills can also foster students' self reflection and capacities to make discernable judgments when rating oneself or others against a particular standard.
3. **A network of scholars be established national-wide with a focus on sharing teaching and learning practices and assessment methods regarding graduate psychology skills.** Our dissemination of this ALTC/OLT project through conference and summit presentations, the organisation of the GPS conference, and our discussion with professional bodies has highlighted the need for a community of connected scholars in the area of graduate psychology skills. At the 2013 APS Summit organised by Jacquelyn Cranney, and attended by members of the project team, it became clear that many psychology departments around Australia were keen to develop better ways of assessing and supporting students' graduate skills development. However, many educators were unsure regarding how best to undertake teaching and learning initiatives in this area. As part of the discussions we have had at various conferences, including the GPS conference, it has become clear that there are various teaching and learning initiatives being developed to support students in fostering their graduate psychology skills. However, it appears that the educators who are currently engaging in teaching innovations, and those that would like to but do not know how, operate in disparate educational and professional networks. It is thus essential that networking opportunities are increasingly organised in which issues are discussed and practice initiatives shared on the topic of graduate psychology skills. An undertaking by delegates at the GPS Conference was to continue the network established at the conference and to make efforts to

include professional bodies and industry as part of this network. We anticipate that the GPS Australia website as well as the APS Psychology of Education Interest Group will act as mechanisms through which educators can share resources and ideas as well as foster working relationships. Further, it is recommended that a network be formally established that deals with issues related to graduate psychology skills as a means of fostering and ensuring the sustainability of teaching and learning practices in this area.

4. **Simulated learning initiatives to better prepare psychology students for their entry into the workforce at either the 3-year or 4-year exit points, or entry into placements as part of postgraduate studies in the profession.** The tutor and student focus groups from both our piloting of tutorial materials and the tutorial evaluation, suggest that a key benefit of the tutorial program was that the case studies provided simulated work situations that facilitate students to bridge discipline knowledge with skills required in the profession. Further, the work-simulated case studies foster deep learning by immersing the student in real-life situations that allow students to critically think about discipline knowledge and its application to a given situation. These findings are consistent with research across other disciplines highlighting the importance of providing students with learning contexts that closely align with the employment environments they'll be immersed within as graduates (e.g., Kenaszchuk et al., 2011; Purdie et al., 2013). However, for over two decades, the education and accreditation of psychologists in Australia has been such that undergraduate students are not qualified to undertake professional practice in the field. Rather, the counselling and therapeutic skills necessary for practice are developed during post-graduate studies, or under supervision after having completed a 4-year accredited course. Thus, the opportunities for undergraduate students to engage in work-integrated learning are limited. To this end, we contend that learning activities that simulate work contexts (e.g., case studies, simulated counselling sessions) provide important opportunities for undergraduate students to develop their graduate psychology skills in contexts directly relevant to the profession for which many are striving to enter. Further, designing these simulated learning contexts using inquiry-based pedagogies are likely to provide rich learning environments that can accelerate students' development of graduate skills and foster deep learning. The implementation of such methods will become evermore important with the Federal Government engaging in a series of reforms designed to reduce spending related to the training of specialist health professionals (Health Workforce Australia, 2014) . These changing trends in regulation mean that psychologists may need to be skilled and prepared to undertake professional practice earlier than is currently the case. Therefore, undergraduate exposure to work-related contexts is critical in the preparation of graduates. We encourage psychology educators to consider designing curriculum that exposes students to learning opportunities that authentically represent the professional context they aspire to work in.

References

Albanese, M. & Mitchell, S. (1993). Problem-Based Learning: A Review of Literature on Its Outcomes and Implementation Issues. *Academic Medicine, 68*, 52–81.

Avallone, F., Pepe, S. & Porcelli, R. (2007). Autoefficacia percepita nella ricerca del lavoro: scale di misura. In Isfol, *Bisogni, valori e autoefficacia nella scelta del lavoro.* Roma: ISFOL, 133-142.

Barrie, S., Smith, C., Hughes, C., & Thomson, K. (2009). *Key issues to consider in the renewal of learning and teaching experiences to foster graduate attributes: The National Graduate Attributes Project*. Syd: ALTC.

Biggs, J., Kember, D., & Leung, D. Y. (2001). The revised two-factor study process questionnaire: R-SPQ-2F. *British Journal of Educational Psychology*, *71*, 133-149.

Biggs. (2003). *Teaching for quality learning at university* (2nd ed). London: Open University Press.

Blundel. (2001) Collaborative learning through the art of writing. London: Routledge.

Boud, D. J. (2007). *Rethinking assessment for higher rducation: Learning for the longer term*. London: Routledge.

Burke, C. S., Stagl, K. C., Klein, C., Goodwin, G. F., Salas, E., & Halpin, S. M. (2006). What type of leadership behaviors are functional in teams? A meta-analysis. *The Leadership Quarterly*, *17*(3), 288-307.

Caballero, C. L., Walker, A., & Fuller-Tyszkiewicz, M. (2011). The work readiness scale (WRS): developing a measure to assess work readiness in college graduates, *Journal of Teaching and Learning for Graduate Employability*, *2*, 41-54, Curtin University, Perth, W.A.

Cohen, P. R., & Levesque, H. J. (1991). *Teamwork*. Menlo Park: SRI International.

Corno, L., & Rohrkemper, M. (1985). The intrinsic motivation to learn in classrooms. *Research on motivation in education*, *2*, 53-90.

Cranney, J., & Dunn, D.S. (2011). Psychological literacy and the psychologically literate citizen: New frontiers for a global discipline. In J. Cranney and D. S. Dunn (Eds.), *The psychologically literate citizen: Foundations and global perspectives* (pp.3-12). New York: Oxford University Press.

Cranney, J., & Morris, S. (2011). Adaptive cognition and psychological literacy. In J. Cranney and D. S. Dunn (Eds.), *The psychologically literate citizen: Foundations and global perspectives*, (pp. 251-268). New York: Oxford University Press.

Cranney, J., Provost, S., Katsikitis, M., Martin, F., White, F., Cohen, L. (2008). *Designing a diverse, future-oriented vision for undergraduate psychology in Australia.* Syd: ALTC.

Deci, E. L., Eghrari, H., Patrick, B. C., & Leone, D. R. (1994). Facilitating internalization: The self-determination theory perspective. *Journal of personality*, *62*, 119-142.

Dillenbourg, et al. (1996). The evolution of research on collaborative learning. In E. Spada & P. Reiman (Eds.), *Learning in Humans and Machine: Towards an interdisciplinary learning science*. (Pp. 189-211). Oxford: Elsevier.

Dreyfus, H., L., & Dreyfus, S. E. (1986). *Mind over machine: The power of human intuition and expertise in the era of the computer.* New York: Free Press.

Elder, W. r., & Blasco, P. (2005). Leadership, teamwork and organizational dynamics. In M. Alexander, P. Lenahan, A. Pavlov (Eds.) , *Cinemeducation: A comprehensive guide to using film in medical education* (pp. 189-192). Milton Keynes United Kingdom: Radcliffe Publishing.

Fallows, S., & Chandramohan, B. (2001). Multiple approaches to assessment: reflections on use of tutor, peer and self-assessment. *Teaching in Higher Education*, *6*, 229-246.

Goodnow, J., Lawrence, J. A., Ryan, J., Karantzas, G., & King, K. (2002). Extending studies of collaborative cognition by way of care giving situations. *International journal of behavioral development*, *26*, 16-25.

Hambur, S., Rowe, K., & Luc, L. T. (2002). *Graduate skills assessment: Stage one validity study. Report by Australian Council for Education Research (ACER) for evaluations and investigation programme*. Canberra, ACT: Commonwealth Department of Education, Science and Training.

Hattie, J. (2009). Visible learning: A synthesis of over 800 meta-analyses relating to achievement. Oxon, UK: Routledge.

Haw, J. (2011). Improving psychological critical thinking in Australian university students. *Australian Journal of Psychology, 63*, 150-153.

Hayes, S. C. (2004). Acceptance and commitment therapy, relational frame theory, and the third wave of behavioral and cognitive therapies. *Behavior therapy*, *35*(4), 639-665.

Health Workforce Australia. (2014). Psychologists in Focus: Australia's Health Workforce Series. Canberra: HWA.

Hossam, H. (2008). The fuzzy world of problem based learning. *Medical Teacher, 30*, 739-741.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Coventional criteria versus new alternatives, *Structural Equation Modeling, 6*, 1-55.

Jane E. K., Stefano R., & Maria L. N. (2007). A scale for the measurement of self-efficacy for learning (SEL) at university. *Working Paper No. 2: Dondena Working Papers.* Milan: Dondena Centre for Research on Social Dynamics.

Johnson, W. B., & Kaslow, N. J. (2014). *The Oxford handbook of education and training in professional psychology*. New York: Oxford University Press.

Johnson, D. W., Johnson, R. T., & Smith, K. A. (1998). Cooperative learning returns to college: What evidence is there that it works? *Change, 30*, 26–35.

Judge, T. A., & Piccolo, R. F. (2004). Transformational and transactional leadership: a meta-analytic test of their relative validity. *Journal of applied psychology*, *89*(5), 755.

Karantzas, G.C., Tooley, G., Mussap, A., & Macfarlane, S. (2010). Developing face-to-face and online tutorial-based collaborative learning: Evaluating an approach to enhance student engagement and the development of graduate attributes. *STALG report.* Deakin University.

Karantzas, G. C., Avery, M. R., Macfarlane, S., Mussap, A., Tooley, G., Hazelwood, Z., & Fitness, J. (2013). Enhancing critical analysis and problem-solving skills in undergraduate psychology: An evaluation of a collaborative learning and problem-based learning approach. *Australian Journal of Psychology*, *65*, 38-45.

Kenaszchuk, C., MacMillan, K., van Soeren, M., & Reeves, S. (2011). Interprofessional simulated learning: short-term associations between simulation and interprofessional collaboration. *BMC medicine*, *9*(1), 29.

Kiernan, M. J., Murrell, E., & Relf, S. (2008). Professional education of psychologists using online problem-based learning methods: Experience at Charles Sturt University. *Australian Psychologist*, *43*, 286-292.

Kollar, I., & Fischer, F. (2010). Peer assessment as collaborative learning: A cognitive perspective. *Learning and Instruction*, *20*, 344-348.

Langan-Fox, J., Grant, S., & Anglim, J. (2007). Modelling skill acquisition in acquired brain injury. *Australian Psychologist*, *42*, 39-48.

Lin, E., Chen, S., Chao, S., & Chen, Y. (2013). Using standardized patient with immediate feedback and group discussion to teach interpersonal and communication skills to advanced practice nursing students. *Nurse Education Today*, *33*(6), 677-683.

Lipp, O., Terry, D., Chalmers, D., Bath, D., Hannan, G., Martin, F., Farrell, G., Wilson, P. H., & Provost, S. (2006). *Learning outcomes and curriculum development in psychology*. The Carrick Institute for Learning and Teaching in Higher Education Ltd., Melbourne, Vic.

Littlejohn, S. W., & Foss, K. A. (2010). *Theories of human communication*. Waveland Press.

Loacker. (2000). *Self Assessment at Alverno College*. Wisconsin: Alverno College Institute Productions.

Muthén, B., & Kaplan, D. (1985). A comparison of some methodologies for the factor analysis of non-normal Likert variables. *British Journal of Mathematical and Statistical Psychology*, *38*, 171-189.

Nicol D. J., Macfarlane-Dick D., (2006). Formative assessment and selfregulated learning: a model and seven principles of good feedback practice. Studies in Higher Education Vol 31, No. 2, pp. 199-218.

Nicol, D. J. (2010). The foundation for graduate attributes: developing self-regulation through self and peer assessment, *Quality Assurance Agency for Higher Education: Graduates for the 21st Century: Integrating the Enhancement themes.*

November, N., & Day, K. (2012). Using Undergraduates' Digital Literacy Skills to Improve their Discipline-Specific Writing: A Dialogue. *International Journal For The Scholarship Of Teaching & Learning*, *6*(2), 1-21.

Pintrich, P. R., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of educational psychology*, *82*(1), 33.

Prince. (2004). Does Active Learning Work? A Review of the Research. *Jrnal of Engine. Ed., 93,* 223-231.

Purdie, F., Ward, L. J., McAdie, T. M., King, N., & Drysdale, M. (2013) *Are work-integrated learning (WIL) students better equipped psychologically for work post-graduation than their non-work-integrated learning peers? Some initial findings from a UK university. Asia Pacific Journal of Co-operative Education, 14*, 117-125.

Resnick, L. B., Levine, L. M., & Teasley, S. D. (Eds.) (1991). *Perspectives on socially shared cognition.* DC: APA.

Robins, R. W., Fraley, R. C., & Kruger, R. F. (2007). *Handbook of research methods in personality psychology*. NY: Guilford.

Roschelle, J., & Teasley, S. D. (1995). The construction of shared knowledge in collaborative problem solving. In O'Malley, C. E., (Ed.), *Computer Supported Collaborative Learning* (pp. 69-97). Heidelberg: Springer-Verlag.

Rubin, R. B., & Martin, M. M. (1994). Development of a measure of interpersonal communication competence. *Communication Research Reports, 11,* 33-44.

Schunk, D. H. & Pajares, E. (2001). The development of academic self-efficacy. *In A. Wiggield & J. Eccles (Eds), Development of achievement motivation. San Diego: Academic Press.*

Scullen, S. E., Mount, M. K., & Judge, T. A. (2003). Evidence of the construct validity of developmental ratings of managerial performance. Journal of Applied Psychology, 88,50–66.

Spitzberg, B. H., & Cupach, W. R. (1984). Interpersonal communication competence.

Swackhamer, L. E., Koellner, K., Basile, C., & Kimbrough, D. (2009). Increasing the self-efficacy of inservice teachers through content knowledge. *Teacher Education Quarterly*, 63-78.

Tsang, A. (2011). Development of Communication Skills Using an Embedded Approach for the Evolving Professional. *International Journal of Learning*, *18*(3), 203-221.

Vallerand, R. J., Pelletier, L. G., Blais, M. R., Brière, N. M., Senecal, C., & Vallieres, E. F. (1993). On the assessment of intrinsic, extrinsic, and amotivation in education: Evidence on the concurrent and construct validity of the Academic Motivation Scale. *Educational and psychological measurement*, *53*, 159-172.

VanLehn, K. (1996). Cognitive skill acquisition. *Annual review of psychology*, *47*, 513-539.

White, C. B. (2007). Smoothing out transitions: How pedagogy influences medical students' achievement of self-regulated learning goals. *Advances in Health Sciences Education, 12*, 279-297.

Williams, R. L., Oliver, R., Allin, J. L., Winn, B., & Booher, C. S. (2003). Psychological critical thinking as a course predictor and outcome variable. *Teaching of Psychology, 30*, 220-223.

Zimmerman, B. J., & Schunk, D. H. (2011). Self-regulated learning and performance. *Handbook of selfregulation of learning and performance. New York: Routledge*, 1-14.

External Evaluation

Shaping the future of psychology through developing and assessing graduate attributes using collaborative learning

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This document is an independent evaluation of the Office for Learning and Teaching funded project *'Shaping the future of psychology through developing and assessing graduate attributes using collaborative learning'* led by Dr Gery Karantzas from Deakin University. I have reviewed the project under 5 main headings: 1) the project aims and outcomes, 2) strengths and challenges of the project, 3) research design and approach, 4) project management, and 5) dissemination and resources produced.

1. Overall project aims and outcomes

This project primarily aimed to develop a metric to assess students' attainment of graduate attributes in undergraduate psychology. The research team trialled and implemented this instrument within a carefully designed set of learning activities based on collaborative and problem-based learning approaches (CLA-PBL). These learning activities enabled students to develop and reflect on their graduate skill progress through tutorial activities centred around formative and summative self and peer assessment tasks.

These project aims were clearly achieved. The report coherently details the systematic four phase process that was instigated over two years and trialled across three universities teaching undergraduate psychology. The collaborative process led to the development, trial and refinement of a valid peer and self-assessment metric (called the Graduate Psychology Skills Questionnaire, GPS-Q), which can be used in Australian universities for both formative and summative assessment in undergraduate psychology. Therefore the primary project aim was achieved. The four phased process also led to the development, trial and refinement of the CLA-PBL[1] teaching approach for use in tutorials to assist in the development of psychology graduate skills. Considerable detail is given in the report about how the tutorial process works and further guidance and resources are contained in the appendices and on the website designed and developed by the research team. Therefore, the second aim of the project was achieved.

In addition, the project team have achieved far more in terms of outcomes than originally envisaged. Additional outcomes have largely been in terms of useful resources, models, training programs and the broader dissemination of how to evidence graduate skill progression in assessment. These additional outcomes include the development of:

[1] CLA-PBL refers to a semi-structured collaborative learning approach and problem based learning approach

1. A skill acquisition model (the Triple-A Model of Skill Acquisition) which can be used by students and staff in conjunction with the GPS-Q to assess psychology graduate skills.
2. Graduate psychology skills rubrics for all seven graduate psychology skills (building on an earlier ALTC project led by Jacqueline Cranney).
3. A peer feedback model based on best practice from the literature which can be used in classes.
4. A 2-day tutor training program that builds the capacity of tutors in to work with CLA-PBL approaches to teaching in tutorials.
5. A comprehensive graduate skills website (www.gpsaustralia.org.au). This resource provides a student portal enabling engagement in self-assessment and feedback and a staff portal with resources and advice on implementing activities and assessing graduate skills
6. Additional opportunities to disseminate findings at national conferences, summits and publication in a special issue of the *Australian Journal of Psychology*.
7. The first national conference on Graduate Psychology Skills to be held in Australia, involving teaching and learning staff, industry representatives and accreditation bodies.

Clearly the research team has exceeded its outcomes by producing a wealth of additional resources.

2. Strengths and challenges of the project

Strengths of this project

There are a number of strengths of this project that relate to the ability of the project team to incorporate prior research and industry concerns into its research design. The first relates to ensuring the metric was as comprehensive as possible. The team used the Deakin University funded 2008 pilot study to produce the graduate skills metric. They then incorporated nationally significant ALTC research findings into the revised metric – thus ensuring the resources delivered as part of this OLT funded project are nationally useful and build on prior nationally funded research.

A second strength is the way in which the discussion (chapter 3) tied the development of the Graduate Psychology Skills Questionnaire (GPS-Q instrument) its testing and outcomes neatly back to the project aims and rationale – indicating a strong research design and careful planning to ensure the rationale was explicit in the outcomes. In addition, the tutorial program was evaluated by tutors and students undertaking the program, indicating a desire by the research team for feedback from all participants.

A third strength is the comprehensiveness and broadly encompassing nature of the design of the Graduate Psychology Skills website www.gpsaustralia.org.au. There are two aspects to this particular strength:

a) The research team recognises that monitoring graduate skill progression from a teaching point of view requires different information from that of an administrative point of view. The website allows teachers to track skill progression at a unit/subject level, but also course leaders to monitor vertical and horizontal integration of skills at the course level. To have such functionality built into the design indicates excellent understanding of the import of graduate skills for numerous purposes.

b) The website is not only for teachers to use but also for students to self-gauge their graduate skill levels. Students can undertake the GPS-Q up to 15 times, allowing them to track their development of graduate skills over time and different year levels. This is refreshing to see, as many of the resources produced in projects are only for staff use. In addition, the team has designed the website so that feedback is user-friendly as it is available in multiple forms – bar charts, written comments and downloadable pdf files, which students can export or share. Such design features make this truly usable for students to monitor their developing graduate skills.

A fourth strength is that this project is one of a handful of studies within psychology to evaluate the effectiveness of a tutorial program designed to foster psychology graduate skills. In addition, this project pioneers using CLA-PBL as the pedagogical basis for such a tutorial program. Part of this process has been disseminated in a recent publication (Karantzas et al., 2013) with further publications in the pipeline.

Challenges for the project
One challenge will be whether the development of these resources can be utilised by disciplines other than psychology. Although this project only set out to develop resources within the field of psychology, which it has clearly achieved, it will be interesting to see whether these resources can be adapted in disciplines other than psychology. Naturally these disciplines would need to closely resemble the seven key psychology skills. The research team has built a resource-rich website containing excellent, high-quality resources for both students and staff. The Graduate Psychology Skills Conference, provided the research team an opportunity to promote sustainability of the project's focus and outcomes by engaging in ongoing discussion and promoting formal interest in this important area of learning and teaching. It will be a challenge to sustain both the discussion and sparking continued interest from the sector to add resources and continue to breathe life into the website.

A further challenge was that the PBL activities and case scenarios devised in the project were quite structured and provided a discrete set of options for students' decision-making. This is not the usual PBL approach taken in other fields, where ill-defined problems are set and students then work together to refine and solve them without structured guidance as to which pathways or options to take. This challenge is addressed in the final report, and the researchers argue that whilst this was a departure from traditional ways in which PBL may be undertaken, the structured approach used in this project offers potential for use in short time periods (such as 11 week teaching periods). Their argument is well supported by the literature which suggests that additional structure and guidance assists students to focus on graduate skill development. This is not necessarily the case with more traditional approaches to PBL.

3. Project design and approach

The project drew upon prior nationally funded research in the area of graduate attributes (Cranney et al, 2008 and Lipp, 2006) but also on pedagogical theories of change (Barrie,

2009; Nicol & Macfarlane-Dick, 2006; Nichol, 2010) to integrate PBL with the assessment of graduate attributes within curriculum development and learning outcomes.

The project design was both rigorous yet flexible. The research team modified original plans, demonstrating a capacity to be nimble within the design to incorporate participant feedback and adapt resources as they were being rolled out. This indicates a research design with a strong adherence to rigorous testing, refining of instruments, tutorial activities and training programs. At the same time the design allowed the research team to take account of and respond to particular situations, rather than exclude or ignore challenges through a rigid adherence to original design. For example, both student and tutor feedback indicated content set to be covered in tutorial activities was too time-consuming and needed to be refined in order for the peer and self-assessment to be effective. The research team responded accordingly and adapted materials to ensure accreditation requirements for competencies were met, but activities were able to be covered in the set tutorial times.

Evaluation of each step was built into each outcome. For example, the tutor training manual was devised, tutor training undertaken at each of the three universities using the CLA-PBL model. Focus group feedback was sought from all participants. Feedback was analysed by theme and then acted upon. The importance of garnering feedback, revisiting aims and outcomes was apparent throughout this project, suggesting a cohesive research team willing to explore each aspect of the design and to collaboratively deal with issues and retest amendments and innovations across institutions.

4. Project management

Management of this project was of the highest calibre. The research team were inclusive across institutions and the report indicates the level of collaborative discussion engaged in to resolve issues as they arose. The team appeared to contribute equally to the discussion, trialling and reviewing both the graduate skills metric and also the CLA-PBL training program. This suggests clear, meaningful and transparent communication processes operated – which used technologies as all three universities are in different Australian states. The project manager obviously ensured timelines were adhered to and the project was delivered on time and within budget. The project manager, Ms Michelle Avery, deserves particular mention as she clearly ensured open and transparent communication between research team members as well as across institutions, to achieve outcomes and deliverables. In addition, all three institutions appear to have benefitted from the research collaboration and the resources produced are not only of very high quality, but able to be used in multiple settings and across multiple institutions. Achieving these aims indicates excellence in initial planning and research design, hard work by the research team, but also clear and decisive project management.

5. Dissemination strategies and resources produced

The project met and exceeded all dissemination goals. This outcome demonstrates not only a high calibre, hard-working research team, but also the project was truly worth funding, as it was capable of delivering more high quality resources than initially envisaged (as discussed in outcomes above and evidenced in the Appendices). This is not to suggest that

the quantity of resources produced is the paramount consideration – but rather the quality of the resources and the way in which they have been designed means they are useful to many teaching contexts and environments.

The dissemination strategies were exceptionally effective. In particular the Graduate Psychology Skills website (www.gpsaustralia.org.au) which contains a series of excellent resources - such as best practice models in peer feedback, step-by-step guides for teachers to use the CLA-PBL tutorial program, tutorial guidance manuals, a tutor training program specifically for CLA-PBL approaches, student resources in the GPS-Q instrument, all of which enhance learning. Importantly the dissemination strategy makes these resources widely and freely available to staff and students, which is critical for broad uptake and usage. These resources are broadly disseminated in a form that can be readily adopted or adapted by many institutions. In addition, having key stakeholders such as leading OLT experts, industry representatives, APAC and APS key personnel at the inaugural Graduate Skills conference held in Melbourne in February 2014, indicates that all key stakeholders and involved in the initiative and interested in progressing future discussion on assessing graduate skill development. Further, the project made four recommendations that provide ideas for future research or potential for additional resources and outcomes to be generated by those teaching psychology in Australian institutions.

The whole research team is to be congratulated on undertaking this extremely important task and executing it thoroughly. The resources produced are of benefit to everyone teaching and studying psychology in Australian institutions.

Appendix A: Self-Efficacy for Learning Scale (SELS, Klobas et al., 2007)

Think about your current activities as a student. Read each of the following statements carefully, then circle the number that best represents your response based on the scale below.

0	1	2	3	4	5	6	7	8	9	10
I am definitely not able to do this										**I can definitely do this**

1	Soon after the end of a lesson, I am able to remember ALL of the key concepts	0	1	2	3	4	5	6	7	8	9	10
2	When I find something new about a topic that I am studying, I am ALWAYS able to connect it with other things that I know about the topic	0	1	2	3	4	5	6	7	8	9	10
3	I ALWAYS know how to get up to date on a topic if my knowledge of it is dated	0	1	2	3	4	5	6	7	8	9	10
4	I am ALWAYS able to find material in the library about a subject that interests me	0	1	2	3	4	5	6	7	8	9	10
5	It is ALWAYS easy for me to understand new information, even on a topic that does not interest me very much	0	1	2	3	4	5	6	7	8	9	10
6	Soon after the end of a lesson, I am ALWAYS able to distinguish the most important concepts from concepts of less importance	0	1	2	3	4	5	6	7	8	9	10
7	I am ALWAYS able to decide whether to go to the library or use the web, based on the type of information that I am seeking	0	1	2	3	4	5	6	7	8	9	10
8	I am ALWAYS able to identify useful information on the web for an essay	0	1	2	3	4	5	6	7	8	9	10

9	I am ALWAYS able to use the library and library services to select appropriate books and articles for an essay	0	1	2	3	4	5	6	7	8	9	10
10	I am ALWAYS able to help other students solve problems based on concepts described in a lesson	0	1	2	3	4	5	6	7	8	9	10

Appendix B: Work Self-Efficacy Scale (WSES, Avallone et al., 2007)

Thinking of future work, how well do you expect to...:

1	2	3	4	5
Not well at all				**Very well**

1	achieve goals that will be assigned	1	2	3	4	5
2	respect schedules and working deadlines	1	2	3	4	5
3	learn new working methods	1	2	3	4	5
4	concentrate all energy on work	1	2	3	4	5
5	finish assigned work	1	2	3	4	5
6	collaborate with other colleagues	1	2	3	4	5
7	work with people of diverse experiences and ages	1	2	3	4	5
8	have good relationships with direct superiors	1	2	3	4	5
9	to behave in an efficacious way with clients	1	2	3	4	5
10	to work in a team	1	2	3	4	5

Appendix C: Work Readiness Scale (WRS, Caballero et al., 2011)

Use the scale below to rate the extent to which you agree with the following statements. The *higher* the rating, the *more* you agree with the statement and the *lower* the rating, the *less* you agree with the statement.

1	2	3	4	5	6	7	8	9	10
Completely Disagree									**Completely Agree**

1	I get stressed when there are too many things going on	1	2	3	4	5	6	7	8	9	10
2	Approaching senior people at work is a weakness for me	1	2	3	4	5	6	7	8	9	10
3	I sometimes experience difficulty starting tasks	1	2	3	4	5	6	7	8	9	10
4	I feel that I am unable to deal with things when I have competing demands	1	2	3	4	5	6	7	8	9	10
5	I am sometimes embarrassed to ask questions when I am not sure about something	1	2	3	4	5	6	7	8	9	10
6	I become overwhelmed by challenging circumstances	1	2	3	4	5	6	7	8	9	10
7	Juggling too many things at once is one of my weaknesses	1	2	3	4	5	6	7	8	9	10
8	I don’t like the idea of change	1	2	3	4	5	6	7	8	9	10
9	I don’t like learning new things	1	2	3	4	5	6	7	8	9	10
10	You can learn a lot from your colleagues	1	2	3	4	5	6	7	8	9	10
11	There is a lot to learn from employees who have worked at an organisation for years	1	2	3	4	5	6	7	8	9	10
12	You can learn a lot from long serving employees, even if they do not have a university degree	1	2	3	4	5	6	7	8	9	10
13	As an employee it’s important to have a sound understanding of organisational processes and protocols	1	2	3	4	5	6	7	8	9	10

14	It is important to learn as much as you can about the organisation	1	2	3	4	5	6	7	8	9	10
15	It's important to respect your colleagues	1	2	3	4	5	6	7	8	9	10
16	It is important for employees to keep up with current business affairs	1	2	3	4	5	6	7	8	9	10
17	At work it is important to always take responsibility for your decisions and actions	1	2	3	4	5	6	7	8	9	10
18	It is important to respect authority figures	1	2	3	4	5	6	7	8	9	10
19	What is happening in the world can have a great impact on business decisions	1	2	3	4	5	6	7	8	9	10
20	I look forward to the opportunity to learn and grow at work	1	2	3	4	5	6	7	8	9	10
21	I am eager to throw myself into my work	1	2	3	4	5	6	7	8	9	10
22	I am always working on improving myself	1	2	3	4	5	6	7	8	9	10
23	An organisation's values and beliefs forms part of its culture	1	2	3	4	5	6	7	8	9	10
24	I see all feedback as an opportunity for learning	1	2	3	4	5	6	7	8	9	10
25	I thrive on completing tasks and achieving results	1	2	3	4	5	6	7	8	9	10
26	I can't wait to start work and throw myself into a project	1	2	3	4	5	6	7	8	9	10
27	Graduates need to be willing to start at the bottom and work their way up	1	2	3	4	5	6	7	8	9	10
28	As a graduate listening and learning is more important than showing your knowledge	1	2	3	4	5	6	7	8	9	10
29	I am confident about my learnt knowledge and could readily answer clinical questions about my field	1	2	3	4	5	6	7	8	9	10
30	I have a solid theoretical understanding of my field of work	1	2	3	4	5	6	7	8	9	10
31	People approach me for original ideas	1	2	3	4	5	6	7	8	9	10

32	Now that I have completed my studies I consider myself clinically competent to apply myself to the field.	1	2	3	4	5	6	7	8	9	10
33	I know my strengths and weaknesses	1	2	3	4	5	6	7	8	9	10
34	I remain calm under pressure	1	2	3	4	5	6	7	8	9	10
35	Being successful at work is very important to me	1	2	3	4	5	6	7	8	9	10
36	I feel confident that I will be able to apply my learnt knowledge to the workplace	1	2	3	4	5	6	7	8	9	10
37	I know how to cope with multiple demands	1	2	3	4	5	6	7	8	9	10
38	I set high standards for myself and others	1	2	3	4	5	6	7	8	9	10
39	Analysing and solving complex problems is a strength for me	1	2	3	4	5	6	7	8	9	10
40	I am passionate about my field of work	1	2	3	4	5	6	7	8	9	10
41	Being among the best in my field is very important to me	1	2	3	4	5	6	7	8	9	10
42	One of my strengths is that I have an eye for detail	1	2	3	4	5	6	7	8	9	10
43	I consider myself to have a mature view of life	1	2	3	4	5	6	7	8	9	10
44	Adapting to different social situations is one of my strengths	1	2	3	4	5	6	7	8	9	10
45	Developing relationships with people is one of my strengths	1	2	3	4	5	6	7	8	9	10
46	Others would say I have an open and friendly approach	1	2	3	4	5	6	7	8	9	10
47	I can express myself easily	1	2	3	4	5	6	7	8	9	10
48	I am good at making impromptu speeches	1	2	3	4	5	6	7	8	9	10
49	I adapt easily to new situations	1	2	3	4	5	6	7	8	9	10
50	I find I am good at reading other people's body language	1	2	3	4	5	6	7	8	9	10
51	Working in groups is one of my strengths	1	2	3	4	5	6	7	8	9	10

52	I communicate effectively with different patients	1	2	3	4	5	6	7	8	9	10
53	I recognise when I need to ask for help	1	2	3	4	5	6	7	8	9	10
54	I do not take patients' aggressive behaviour personally	1	2	3	4	5	6	7	8	9	10
55	I feel confident to address interpersonal conflict in the workplace	1	2	3	4	5	6	7	8	9	10
56	I feel confident to ask for support in dealing with interpersonal conflict at work	1	2	3	4	5	6	7	8	9	10
57	I am always prepared for the unexpected to occur	1	2	3	4	5	6	7	8	9	10
58	When a crisis situation that needs my attention arises I can easily change my focus	1	2	3	4	5	6	7	8	9	10
59	I maintain an appropriate balance between work and outside interests	1	2	3	4	5	6	7	8	9	10
60	I am able to switch off when I am not at work	1	2	3	4	5	6	7	8	9	10

Appendix D: Graduate Psychology Skills Questionnaire – 39 item version (GPS-Q, 39-item version, Karantzas et al., 2013)

The following questionnaire relates to the knowledge and skills that students can develop in relation to their chosen discipline and future profession as part of university studies. The term university studies includes: activities and lessons conducted as part of lectures, tutorials, excursions, assignments and placements. Using the rating scale below, please indicate how often each item applies to you as a student by circling the appropriate number alongside the question. There are no right or wrong answers, we are just interested in your opinions, so please answer honestly.

1	2	3	4	5	6	7	8	9	10

Never **Always**

When needed, I…

1	Understand the professional practice required as part of the psychology profession?	1	2	3	4	5	6	7	8	9	10
2	Think others feel understood by me?	1	2	3	4	5	6	7	8	9	10
3	Work hard in my studies even if I do not like the material?	1	2	3	4	5	6	7	8	9	10
4	Work well with others when engaged in group-based activities?	1	2	3	4	5	6	7	8	9	10
5	Collect and share resources online using content sharing tools (e.g., Pinterest, Reddit, Delicious, Scoop.it, YouTube)?	1	2	3	4	5	6	7	8	9	10
6	Recognise prejudice, discrimination and inequity in people's attitudes and behaviour?	1	2	3	4	5	6	7	8	9	10
7	Let others know that I understand what they say?	1	2	3	4	5	6	7	8	9	10
8	Reduce conflict that arises between team members when working in a group?	1	2	3	4	5	6	7	8	9	10
9	Identify bias and/or distortions in the information I read?	1	2	3	4	5	6	7	8	9	10
10	Appreciate other people's cultures?	1	2	3	4	5	6	7	8	9	10

11	Communicate clearly when making an oral presentation?	1	2	3	4	5	6	7	8	9	10
12	Gather and integrate information to develop a better understanding of a topic?	1	2	3	4	5	6	7	8	9	10
13	Possess basic knowledge in biological psychology?	1	2	3	4	5	6	7	8	9	10
14	Engage an audience when making an oral presentation?	1	2	3	4	5	6	7	8	9	10
15	Ask myself questions to make sure I understand the learning material?	1	2	3	4	5	6	7	8	9	10
16	Develop solutions to novel problems I encounter as part of learning activities?	1	2	3	4	5	6	7	8	9	10
17	Have basic knowledge in cognitive psychology?	1	2	3	4	5	6	7	8	9	10
18	Communicate clearly when writing?	1	2	3	4	5	6	7	8	9	10
19	Develop a timetable for managing my study workload?	1	2	3	4	5	6	7	8	9	10
20	Meet with others online using communication tools (e.g., Skype, elluminate Live (eLive), videoconferencing)?	1	2	3	4	5	6	7	8	9	10
21	Possess basic knowledge in social psychology?	1	2	3	4	5	6	7	8	9	10
22	Consider the audience when writing?	1	2	3	4	5	6	7	8	9	10
23	Have the ability to change my plans and goals in a subject to accommodate challenges that arise?	1	2	3	4	5	6	7	8	9	10
24	Possess basic knowledge in lifespan developmental psychology?	1	2	3	4	5	6	7	8	9	10
25	Encourage others to express their ideas and opinions?	1	2	3	4	5	6	7	8	9	10
26	Communicate online using microblogging tools (e.g., Twitter, Yammer, etc.)?	1	2	3	4	5	6	7	8	9	10
27	Possess basic knowledge in personality and individual differences?	1	2	3	4	5	6	7	8	9	10
28	Set goals for completing my weekly studies?	1	2	3	4	5	6	7	8	9	10

29	View learning tasks and activities as opportunities for change and growth?	1	2	3	4	5	6	7	8	9	10
30	Possess basic knowledge in motivation and emotion?	1	2	3	4	5	6	7	8	9	10
31	Make others feel enthusiastic about learning tasks and assignments?	1	2	3	4	5	6	7	8	9	10
32	Create and publish my own online content using digital media (e.g., blogs, video, podcasts)?	1	2	3	4	5	6	7	8	9	10
33	Evaluate and select appropriate research methods to address a psychological research question?	1	2	3	4	5	6	7	8	9	10
34	Communicate to group/team members what is expected of them?	1	2	3	4	5	6	7	8	9	10
35	Adapt my role when working on group projects based on the needs of the project/team?	1	2	3	4	5	6	7	8	9	10
36	Understand the different research methods used in psychology research?	1	2	3	4	5	6	7	8	9	10
37	Keep the group/team focused on the task at hand?	1	2	3	4	5	6	7	8	9	10
38	Possess an interest in learning new skills?	1	2	3	4	5	6	7	8	9	10
39	Apply different research methods to psychological research questions?	1	2	3	4	5	6	7	8	9	10

Graduate Psychology Skills Questionnaire – Psychology

39-item Tutorial Version (ITEMS GROUPED BY FACTOR)

Psychology Knowledge		
Cultural Issues and Professional Issues and Ethics	1	Understand the professional practice required as part of the psychology profession?
	6	Recognise prejudice, discrimination and inequity in people's attitudes and behaviour?
	10	Appreciate other people's cultures?
Knowledge in Psychology	13	Possess basic knowledge in biological psychology?
	17	Have basic knowledge in cognitive psychology?
	21	Possess basic knowledge in social psychology?
	24	Possess basic knowledge in lifespan developmental psychology?
	27	Possess basic knowledge in personality and individual differences?
	30	Possess basic knowledge in motivation and emotion?
Research Methods	33	Evaluate and select appropriate research methods to address a psychological research question?
	36	Understand the different research methods used in psychology research?
	39	Apply different research methods to psychological research questions?
Communication		
Interpersonal	2	Think others feel understood by me?
	7	Let others know that I understand what they say?
Oral	11	Communicate clearly when making an oral presentation?
	14	Engage an audience when making an oral presentation?
Written	18	Communicate clearly when writing?
	22	Consider the audience when writing?
Self-Regulation and Self-Management		
Self-Regulation	3	Work hard in my studies even if I do not like the material?
	15	Ask myself questions to make sure I understand the learning material?
Self-Management	19	Develop a timetable for managing my study workload?
	28	Set goals for completing my weekly studies?
Team Work and Leadership		
Team Work	4	Work well with others when engaged in group-based activities?
	8	Reduce conflict that arises between team members when working in a group?
Leadership -	25	Encourage others to express their ideas and opinions?
	31	Make others feel enthusiastic about learning tasks and assignments?
	34	Communicate to group/team members what is expected of them?
	37	Keep the group/team focused on the task at hand?

Critical Analysis and Adaptability		
Critical Analysis and Problem Solving	9	Identify bias and/or distortions in the information I read?
	12	Gather and integrate information to develop a better understanding of a topic?
	16	Develop solutions to novel problems I encounter as part of learning activities?
Adaptability		
	23	Have the ability to change my plans and goals in a subject to accommodate challenges that arise?
	29	View learning tasks and activities as opportunities for change and growth?
	35	Adapt my role when working on group projects based on the needs of the project/team?
	38	Possess an interest in learning new skills?
Digital Literacy		
	5	Collect and share resources online using content sharing tools (e.g., Pinterest, Reddit, Delicious, Scoop.it, YouTube)?
	20	Meet with others online using communication tools (e.g., Skype, elluminate Live (eLive), videoconferencing)?
	26	Communicate online using microblogging tools (e.g., Twitter, Yammer, etc.)?
	32	Create and publish my own online content using digital media (e.g., blogs, video, podcasts)?

Appendix E: Revised Study Process Questionnaire (R-SPQ-2F, Biggs et al., 2001)

This questionnaire has a number of questions about your attitudes towards your studies and your usual way of studying. There is no right way of studying. It depends on what suits your own style and the course you are studying. It is accordingly important that you answer each question as honestly as you can. If you think your answer to a question would depend on the subject being studied, give the answer that would apply to the subject(s) most important to you. Please circle the appropriate number alongside the question.

1	2	3	4	5
Never or only rarely true of me		**True of me about half the time**		**Always or almost always true of me**

1	I find that at times studying gives me a feeling of deep personal satisfaction	1	2	3	4	5
2	I find that I have to do enough work on a topic so that I can form my own conclusions before I am satisfied	1	2	3	4	5
3	My aim is to pass the course while doing as little work as possible	1	2	3	4	5
4	I only study seriously what's given out in class or in the course outlines	1	2	3	4	5
5	I feel that virtually any topic can be highly interesting once I get into it	1	2	3	4	5
6	I find most new topics interesting and often spend extra time trying to obtain more information about them	1	2	3	4	5
7	I do not find my course very interesting so I keep my work to the minimum	1	2	3	4	5
8	I learn some things by rote, going over and over them until I know them by heart even if I do not understand them	1	2	3	4	5
9	I find that studying academic topics can at times be as exciting as a good novel or movie	1	2	3	4	5
10	I test myself on important topics until I understand them completely	1	2	3	4	5

11	I find I can get by in most assessments by memorising key sections rather than trying to understand them	1	2	3	4	5
12	I generally restrict my study to what is specifically set as I think it is unnecessary to do anything extra	1	2	3	4	5
13	I work hard at my studies because I find the material interesting	1	2	3	4	5
14	I spend a lot of my free time finding out more about interesting topics which have been discussed in different classes	1	2	3	4	5
15	I find it is not helpful to study topics in depth. It confuses and wastes time, when all you need is a passing acquaintance with topics	1	2	3	4	5
16	I believe that lecturers shouldn't expect students to spend significant amounts of time studying material everyone knows won't be examined	1	2	3	4	5
17	I come to most classes with questions in mind that I want answering	1	2	3	4	5
18	I make a point of looking at most of the suggested readings that go with the lectures	1	2	3	4	5
19	I see no point in learning material which is not likely to be in the examination	1	2	3	4	5
20	I find the best way to pass examinations is to try to remember answers to likely questions	1	2	3	4	5

Appendix F: Academic Motivation Scale (AMS-C28, Vallerand et al., 1993)

Using the scale below, indicate by circling the apppropriate number to what extent each of the following items presently corresponds to one of the reasons why you go to university.

1	2	3	4	5	6	7
Does not correspond at all	**Corresponds a little**		**Corresponds moderately**	**Corresponds a lot**		**Corresponds exactly**

Why do you go to university..?

1	Because with only a secondary school education I would not find a high-paying job later on	1	2	3	4	5	6	7
2	Because I experience pleasure and satisfaction while learning new things	1	2	3	4	5	6	7
3	Because I think that a university education will help me better prepare for the career I have chosen	1	2	3	4	5	6	7
4	For the intense feelings I experience when I am communicating my own ideas to others	1	2	3	4	5	6	7
5	Honestly, I don't know; I really feel that I am wasting my time in school	1	2	3	4	5	6	7
6	For the pleasure I experience while surpassing myself in my studies	1	2	3	4	5	6	7
7	To prove to myself that I am capable of completing my university degree	1	2	3	4	5	6	7
8	In order to obtain a more prestigious job later on	1	2	3	4	5	6	7
9	For the pleasure I experience when I discover new things never seen before	1	2	3	4	5	6	7
10	Because eventually it will enable me to enter the job market in a field that I like	1	2	3	4	5	6	7
11	For the pleasure that I experience when I read interesting authors	1	2	3	4	5	6	7
12	I once had good reasons for going to college; however, now I wonder whether I should continue	1	2	3	4	5	6	7

13	For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments	1	2	3	4	5	6	7
14	Because of the fact that when I succeed in university I feel important	1	2	3	4	5	6	7
15	Because I want to have "the good life" later on	1	2	3	4	5	6	7
16	For the pleasure that I experience in broadening my knowledge about subjects which appeal to me	1	2	3	4	5	6	7
17	Because this will help me make a better choice regarding my career orientation	1	2	3	4	5	6	7
18	For the pleasure that I experience when I feel completely absorbed by what certain authors have written	1	2	3	4	5	6	7
19	I can't see why I go to college and frankly, I couldn't care less	1	2	3	4	5	6	7
20	For the satisfaction I feel when I am in the process of accomplishing difficult academic activities	1	2	3	4	5	6	7
21	To show myself that I am an intelligent person	1	2	3	4	5	6	7
22	In order to have a better salary later on	1	2	3	4	5	6	7
23	Because my studies allow me to continue to learn about many things that interest me	1	2	3	4	5	6	7
24	Because I believe that a few additional years of education will improve my competence as a worker	1	2	3	4	5	6	7
25	For the "high" feeling that I experience while reading about various interesting subjects	1	2	3	4	5	6	7
26	I don't know; I can't understand what I am doing in school	1	2	3	4	5	6	7
27	Because university allows me to experience a personal satisfaction in my quest for excellence in my studies	1	2	3	4	5	6	7
28	Because I want to show myself that I can succeed in my studies	1	2	3	4	5	6	7

Appendix G: Intrinsic Motivation Inventory (IMI, Deci et al., 1994)

For each of the following statements, please indicate how true it was for you in relation to today's tutorial activity by circling the appropriate number alongside the question using the rating scale below.

1	2	3	4	5	6	7
Not at all true			**Somewhat true**			**Very true**

1	I enjoyed doing this activity very much	1	2	3	4	5	6	7
2	I think I was pretty good at this activity	1	2	3	4	5	6	7
3	I put a lot of effort into this activity	1	2	3	4	5	6	7
4	I did not feel nervous at all while doing this	1	2	3	4	5	6	7
5	I believe this activity could be of some value to me	1	2	3	4	5	6	7
6	This activity was fun to do	1	2	3	4	5	6	7
7	I didn't put much energy into this	1	2	3	4	5	6	7
8	I think I did pretty well at this activity, compared to other students	1	2	3	4	5	6	7
9	I felt very tense while doing this activity	1	2	3	4	5	6	7
10	I think that doing this activity is useful for becoming a health professional	1	2	3	4	5	6	7
11	I thought this was a boring activity	1	2	3	4	5	6	7
12	After working at this activity for a while, I felt pretty competent	1	2	3	4	5	6	7
13	I didn't try very hard to do well at this activity	1	2	3	4	5	6	7
14	I was anxious while working on this task	1	2	3	4	5	6	7
15	I think this is important to do because it can provide me with relevant skills for my future profession	1	2	3	4	5	6	7
16	This activity did not hold my attention at all	1	2	3	4	5	6	7

17	I am satisfied with my performance at this task	1	2	3	4	5	6	7
18	I tried very hard on this activity	1	2	3	4	5	6	7
19	I was very relaxed in doing these	1	2	3	4	5	6	7
20	I would be willing to do this again because it has some value to me	1	2	3	4	5	6	7
21	I would describe this activity as very interesting	1	2	3	4	5	6	7
22	I was pretty skilled at this activity	1	2	3	4	5	6	7
23	It was important to me to do well at this task	1	2	3	4	5	6	7
24	I felt pressured while doing these	1	2	3	4	5	6	7
25	I think doing this activity could help me to develop as a professional	1	2	3	4	5	6	7
26	I believe doing this activity was beneficial for me	1	2	3	4	5	6	7
27	I thought this activity was quite enjoyable	1	2	3	4	5	6	7
28	This was an activity that I couldn't do very well	1	2	3	4	5	6	7
29	I think this was an important activity	1	2	3	4	5	6	7
30	While I was doing this activity, I was thinking about how much I enjoyed it	1	2	3	4	5	6	7

Appendix H: Graduate Psychology Skills Questionnaire (GPS-Q modified for tutorial use, Karantzas et al., 2013)

The following questionnaire relates to the knowledge and skills that students can develop in relation to their chosen discipline and future profession during tutorial activities. Using the rating scale below, please indicate how often each item applies to you as a student by circling the appropriate number alongside the question. There are no right or wrong answers, we are just interested in your opinions, so please answer honestly.

1	2	3	4	5	6	7	8	9	10
Never									**Always**

As a result of this week's tutorial, when needed, I…

1	Understood the professional practice required as part of the psychology profession?	1	2	3	4	5	6	7	8	9	10
2	Thought others felt understood by me?	1	2	3	4	5	6	7	8	9	10
3	Worked well with others when engaged in group-based activities?	1	2	3	4	5	6	7	8	9	10
4	Recognised prejudice, discrimination and inequity in people's attitudes and behaviour?	1	2	3	4	5	6	7	8	9	10
5	Let others know that I understood what they said?	1	2	3	4	5	6	7	8	9	10
6	Prevented or reduced conflict that arose between team members when working in a group?	1	2	3	4	5	6	7	8	9	10
7	Identified bias and/or distortions in the information I read?	1	2	3	4	5	6	7	8	9	10
8	Appreciated other people's cultures?	1	2	3	4	5	6	7	8	9	10
9	Communicated clearly when making an oral presentation?	1	2	3	4	5	6	7	8	9	10
10	Gathered and integrated information to develop a better understanding of a topic?	1	2	3	4	5	6	7	8	9	10
11	Engaged the audience when making an oral presentation?	1	2	3	4	5	6	7	8	9	10
12	Developed solutions to novel problems I encountered as part of learning activities?	1	2	3	4	5	6	7	8	9	10
13	Communicated clearly when writing?	1	2	3	4	5	6	7	8	9	10
14	Considered the audience when writing?	1	2	3	4	5	6	7	8	9	10
15	Had the ability to change my plans and goals to accommodate challenges that arose?	1	2	3	4	5	6	7	8	9	10
16	Encouraged others to express their ideas and opinions?	1	2	3	4	5	6	7	8	9	10

17	Viewed learning tasks and activities as opportunities for change and growth?	1	2	3	4	5	6	7	8	9	10
18	Made others feel enthusiastic about learning tasks and assignments?	1	2	3	4	5	6	7	8	9	10
19	Communicated to group/team members what was expected of them?	1	2	3	4	5	6	7	8	9	10
20	Adapted my role when working on group projects based on the needs of the project/team?	1	2	3	4	5	6	7	8	9	10
21	Kept the group/team focused on the task at hand?	1	2	3	4	5	6	7	8	9	10
22	Possessed an interest in learning new skills?	1	2	3	4	5	6	7	8	9	10

Appendix I: Summative Rubrics

Factor	Acquisition	Achievement	Accomplishment
Psychology Knowledge	Your score for Psychology Knowledge indicates that you likely have modest knowledge of the professional practice requirements of the psychology profession. You may find it difficult to understand and/or recognise how prejudice, discrimination, inequity, and culture can impact on people's attitudes and behaviours. You possess basic theoretical knowledge in one or two areas of psychology, but are still developing your understanding of the different psychology disciplines, including research methods.	Your score for Psychology Knowledge indicates that you show a general understanding of many aspects of professional psychology practice, including understanding other cultures, and/or recognising prejudice, discrimination and inequity in people's attitudes and behaviours. However at times you may have difficulty incorporating this information into appropriate practice. You have a good basic knowledge of most of the different areas of psychology, including research methods, although may still be working to round out your skills and confidence in each of these different psychology disciplines.	Your score for Psychology Knowledge indicates that you clearly understand the aspects of professional psychology practice; you have a good understanding of cultural issues, and recognise and respond to prejudice, discrimination and inequity in people's attitudes and behaviours. You likely demonstrate a thoughtful consideration of this information, incorporating it into appropriate practice. You have a strong basic knowledge of each of the different areas of psychology, including research methods. You are confident in your knowledge and skills; you enjoy the learning process and are open to continually building your knowledge and challenging yourself.

Factor	Acquisition	Achievement	Accomplishment
Communication	Your score for Communication Skills indicates that you may have difficulties communicating ideas confidently, clearly and logically, in written and/or oral format. This may include being unable to adapt your language, delivery or content to suit your audience. You may also have difficulties in engaging your audience or in perceiving and/or tracking whether your audience understands what you are trying to say. Vice versa you may have difficulties communicating your understanding of what others have said to you.	Your score for Communication Skills indicates that you generally present written and/or oral information in a confident, clearly expressed and logically argued manner. However, there may be some gaps in detail, relevance or the evidence and examples you use to support what you are saying. At times you may find it difficult to present fluently, respond to cues from the listener or adapt your message to the target audience. You demonstrate an ability to engage appropriately with your audience at least some of the time. You also appear to have some skill in communicating your understanding of what others have said to you.	Your score for Communication Skills indicates that you present information confidently, clearly and logically, in both written and oral format. The language, level of detail and inclusion of relevant examples and supportive evidence are integrated to create a coherent and compelling presentation. You speak clearly and fluently and make eye contact with your audience. You notice and respond appropriately to verbal and nonverbal cues, and may also reframe or summarise what the communicator has said as a way of demonstrating your understanding of them.

Factor	Acquisition	Achievement	Accomplishment
Self Regulation and Self Management	Your score for the Self-Regulation & Self-Management Skills indicates that you may find it difficult to work hard or consistently in your studies, especially when you are not interested in the material. You may skim learning materials, not ask yourself questions about the material or think deeply about whether you understand it or not. You may find it difficult to plan out your studies appropriately and may take an ad-hoc approach to managing your study workload. Goal setting may be a difficult or disliked skill, and you generally do not set yourself any goals around completing your weekly studies.	Your score for the Self-Regulation & Self Management Skills indicates that you generally work hard and apply yourself to your studies, although you are not always consistent, particularly when are not interested in the material. You attempt to reflect on your learning, asking yourself questions to ensure a good understanding of the learning material. You generally develop a timetable for your study workload, as well as set goals for your weekly studies, although you may not always find that these are realistic and work well for you. At times, you may find it a challenge to plan out your studies so that you can achieve your study goals in a timely fashion. That is, sometimes you may develop plans that can make study either too overwhelming or leave inadequate time to achieve study goals.	Your score for the Self-Regulation & Self-Management Skills indicates that you usually work diligently and apply yourself consistently to your studies even when you are not interested in the material. You regularly challenge yourself, asking yourself questions about what you have learned to ensure that you understand the material well. You effectively regulate your time and resources in managing your study workload, with the aid of a well-developed and thoughtful study timetable. You set realistic and achievable goals for your weekly studies, demonstrating excellent goal-setting skills.

Factor	Acquisition	Achievement	Accomplishment
Teamwork & Leadership	Your score for the Teamwork & Leadership Skill shows that you may have difficulty working well within a group, e.g., you may not participate as much as other team members; are not so skilled at conveying encouragement of others' contributions. You may have difficulties managing conflict within a group, or keeping the group and/or yourself enthusiastic and focused on tasks. You may be unable to clearly communicate task goals or expected standards of performance.	Your score for the Teamwork & Leadership Skill indicates that you generally work well within a group. You express, and listen to others' ideas and opinions, but may have some difficulty when others' ideas conflict with your own. You are generally able to resolve conflict, communicate clearly about task goals and standards of performance, but may not always do so successfully. For instance, there may be times when you may not be aware of, or respond effectively to, issues about how the team is performing on a task. You are generally enthusiastic and engaged in tasks and activities. You try to keep the group focused on tasks, though this may be difficult for you to do some of the time.	Your score for the Teamwork & Leadership Skill shows that you clearly express your own ideas and opinions and encourage and respect others' contributions even when different from your own. You facilitate effective group discussion and assist the group toward conflict resolution by listening intently and creating an open, non judgmental space that invites all members to express their diverse views. You complete tasks with enthusiasm, which you also convey to others, and you embrace learning and difficult challenges in a positive way. You can effectively communicate to the group what is expected of them, and assist and inspire others to ensure effective group performance and task completion.

Factor	Acquisition	Achievement	Accomplishment
Critical Analysis and Problem Solving	Your score on the Critical Analysis & Problem Solving Skill indicates that you may find it particularly difficult to analyse information or identify bias, distortions or incongruence in information you read unless it is specifically pointed out. You generally make some attempts to gather and integrate information to better understand material, but this is not always successful. You may also have difficulty developing solutions to novel problems, often seeking assistance first, and can be easily discouraged if not successful.	Your score on the Critical Analysis & Problem Solving Skill indicates that you are generally able to gather and integrate information into your understanding of a topic, and are aware of the main resources available to you in doing this. You are generally able to analyse information and identify bias, distortions or incongruence in material you read, although you may find this difficult to do and require some guidance at times. You are able to develop creative solutions to novel problems; however these may be limited in how well thought out they are or at times may be ineffective. You may find it difficult to critically evaluate all possible solutions to a problem, and may be easily discouraged if your solutions are not successful.	Your score on the Critical Analysis & Problem Solving Skill indicates that you analyse information deeply and critically, identifying bias, incongruences and/or distortions in the material you read. You have a thorough working knowledge of the resources available to you and gather and relate new information to your existing knowledge with ease. You enthusiastically explore and evaluate a range of solutions to novel problems. You are likely to persist even in the face of challenging problems or failure in the first instance, and your final solutions are often innovative, unique, and yield a clear solution to the problem.

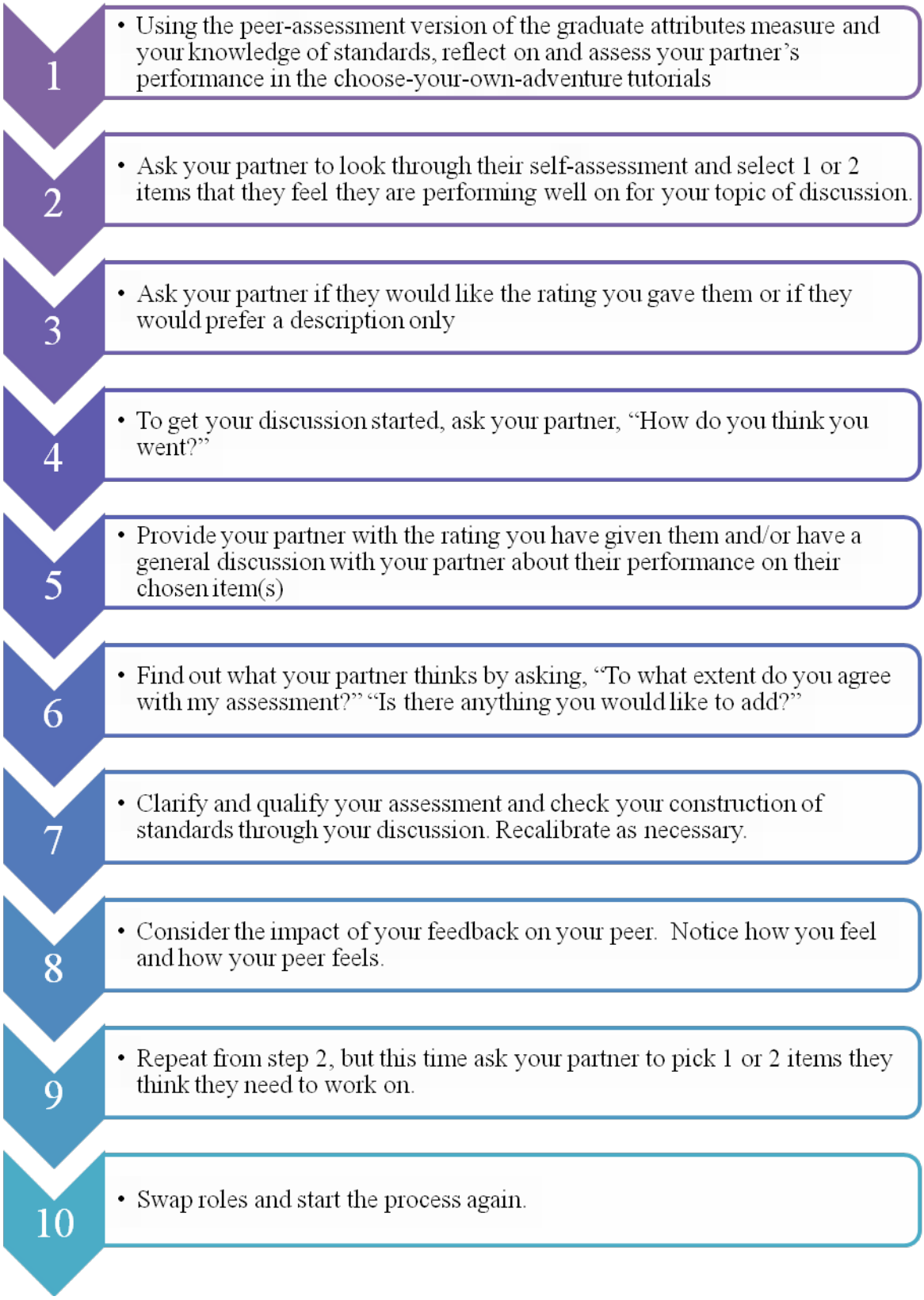
Factor	Acquisition	Achievement	Accomplishment
Adaptability	Your score for Adaptability Skills shows that you likely prefer familiar tasks, and have difficulty evaluating or adapting your plans and goals to new tasks or challenges. You generally prefer to use existing skills rather than learn new skills, and may find it difficult to adapt your role to support the needs of a project or team when working on group tasks.	Your score for Adaptability Skills indicates that you can generally evaluate and adapt your existing plans and goals to address new tasks and challenges, although at times you may lack confidence in doing this, or may rigidly adhere to plans and goals that are no longer workable. You generally show interest in learning new skills, but may lack confidence and need encouragement. You generally adapt your role to support the needs of a project or team when working on group tasks but may lack confidence in the performance of some roles.	Your score for Adaptability Skills shows that you evaluate and willingly adapt your plans and goals to address new tasks and challenges. You seek opportunities to develop new skills and knowledge, and challenge yourself in order to grow and develop. You are often excited by new challenges and embrace them without reservation. You flexibly adapt your role to support the needs of a project or group, and do so with confidence.

Factor	Acquisition	Achievement	Accomplishment
Digital Literacy	Your score for Digital Literacy Skills indicates that you generally lack experience and/or confidence in utilising a range of online resources, tools and applications. You may be unfamiliar with, or have limited exposure to content sharing tools, online microblogging (e.g., Twitter) and communication (e.g., Skype) tools. It is unlikely that you have much experience using digital media to create and publish your own online content.	Your score for Digital Literacy Skills indicates that you generally use a wide range of online resources, tools and applications, such as content sharing tools, microblogging and communication tools, and other digital media; although you may prefer to stick with a limited range of tools that you know well. At times you lack confidence in utilising online tools and resources but take an interest in furthering your skills and knowledge in this area.	Your score for Digital Literacy Skills indicates that you are confident and have experience using a wide range of online resources, tools and applications. You demonstrate good knowledge of, and regular practical experience with content sharing tools, online microblogging and communication, and creating and publishing your own online content. You are technologically-astute and like to stay up-to-date with new digital technologies that arise.

Appendix J: Peer Feedback Model

GPS Model of self and peer evaluation and feedback

Appendix K: Peer Feedback Process



Appendix L: Outline of Tutor Training Program

Day 1 Session 1: How learning occurs, constructive alignment
Introduction
Introduction us + tutors
Written reflection
Constructive Alignment Role as facilitator and engaging students
Facilitating small groups
Day 1 Session 2: Active and collaborative learning
Facilitation of active and collaborative small group learning
Activity: asking questions
Activity: facilitating learning
Day 1 Session 3: Graduate Skills
Introduction to Graduate Skills
Calibrating the graduate skills : Skills Acquisition Model
Calibrating the Graduate Skills: Factors of the GPS-Q
Calibrating the graduate skills
Complete the GPS-Q
Day 2 Session 1: Feedback and communication (self and peer assessment practice)
Reflect on and integrate yesterday
Introduce Communication and feedback tutorials
Evaluation and feedback
Day 2 Session 2: Tutorial Program Run-Through
Tutorial 1 and 2 run through
Discussion and wrap up

Appendix M: Program Outline of the First National Conference on Graduate Psychology Skills

Graduate Psychology Skills Australia Conference 2014

Conference Program

DAY ONE

Time	Topic	Presenter
8:30am	Registration & Tea/Coffee	
9:15am – 9:30am	Welcome	Gery Karantzas & Greg Tooley Deakin University
9:30am – 10:30am	**Keynote** Graduate Attributes: Foundation or fad?	Nicholas Voudouris Australian Psychology Accreditation Council
Morning Tea		
11:00am – 12:15pm	**Short Presentations** Development of psychology competencies Future research and teaching directions for developing psychological critical thinking skills Redesigning curriculum to enhance graduate skills in first year psychology **Group Discussion (15 mins)**	 Kathryn von Treuer Deakin University Jemma Harris, Ben Morrison, and Natalie Morrison Australian College of Applied Psychology Hannah Drury, Sharon Horwood, Richelle Charman, and Wendy Sutherland-Smith Deakin University
Lunch		
1:15pm – 2:30pm	**Round Table Discussion**	All delegates
2:30pm – 3:10pm	**Short Presentations** Transition In Transition out (TiTo): Using peer mentoring to assist graduating students transition beyond university Teaching graduate students to embrace critical thinking **Group Discussion (15 mins)**	Sophia Xenos[1], Andrea Chester[1], Lorelle Burton[2], and Bianca Denney[1] RMIT[1], University of Southern Queensland[2] Steve Charlton Douglas College and Kwantlen Polytechnic University, Canada
Afternoon Tea		
3:30pm – 4:30pm	**Keynote** The conceptualisation, assessment and embedding of graduate skills in undergraduate psychology	Gery Karantzas Deakin University
4:30pm – 5:00pm	**Round Table Discussion** "Bringing it together: Day 1"	All delegates

DAY TWO

Time	Topic	Presenter
8:30am-8:45am	Registration & Tea/Coffee	
8:45am – 10:35am	Keynote Survival of the most psychologically literate: The case for undergraduate psychology graduate skills Short Presentations Knowledge, Skills and Attitudes (KSAs) of rural and remote psychologists Graduate attributes or graduate attrition; the decline of the employability of the professional psychologist Group Discussion (15 mins)	Jacquelyn Cranney University of New South Wales Carly Rose Sutherland, Anna Chur-Hansen, and Helen Winefield University of Adelaide Ann Thornton Maximus Solutions Australia
Morning Tea		
11:00am – 12:00pm	Short Presentations Improving students' writing in psychological science: an interactive digital workbook approach Using real-life assignments to help psychology students learn work-relevant skills Group Discussion (15 mins)	Stephen Provost[1], Frances Martin[2], Stuart Marlin[2], Jacky Yoxall[1] [1]Southern Cross University, [2]University of Newcastle John Malouff[1], and Vicole Bothma[2] University of New England[1], University of Western Australia[2]
Lunch		
1:00pm-2:00pm	Round Table Discussion	All delegates
2:00pm – 3:00pm	Short Presentations Graduate Psychology Skills Australia: A website and resource for students and staff Tutor professional development: Preparing sessional teachers to facilitate students' graduate skills development Group Discussion (15 mins)	Michelle Rose Avery Deakin University Susie Macfarlane Deakin University
Afternoon Tea		
3:30pm – 4:00pm	Invited Presentation Overview of the national psychology examination and curriculum Group Discussion (10 mins)	Brin Grenyer, Chair, Psychology Board of Australia
4:00pm – 4:45pm	Round Table Discussion "Bringing it together: Day 2"	All delegates
4:45pm – 5:00pm	Wrap-up and Close	All delegates