Does the Psychological Functioning of Postgraduate Professional Psychology Students Predict the Development of Clinical Competence?

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DEDICATION

To Mum and Dad, who inspired my academic aspirations,

Tim, Ellie and Remy who supported their development, and

Ian & Rocco, who nursed them to fruition and made them reality.
ACKNOWLEDGEMENTS

My academic supervisors Professor Ian Wilson and Associate Professor Rocco Crino have been a total delight to work with. They protected my research, supported and encouraged me during setbacks, and provided wise and helpful advice when necessary. Ian understood the importance of liberal quantities of chocolate, and Rocco was always available to provide the occasional friendly slap when I got off track! They were the best supervisory team possible, and I enjoyed every minute of my time with them.
STATEMENT OF AUTHENTICITY

This work is original, except as acknowledged in the text, and the result of my own endeavour. It has not been submitted, either in full or in part, for a higher degree at this or any other institution.

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Member APS College of Clinical Psychologists
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<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ABMS</td>
<td>American Board of Medical Specialties</td>
</tr>
<tr>
<td>ACGME</td>
<td>US Accreditation Council for Graduate Medical Education</td>
</tr>
<tr>
<td>AHPRA</td>
<td>Australian Health Practitioner Registration Agency</td>
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<td>AMA</td>
<td>Australian Medical Association</td>
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<tr>
<td>ANOVA</td>
<td>Analysis of Variance</td>
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<tr>
<td>APAC</td>
<td>Australian Psychology Accreditation Council</td>
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<td>APS</td>
<td>Australian Psychological Society</td>
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<tr>
<td>BARS</td>
<td>Behaviourally Anchored Rating Scale</td>
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<tr>
<td>BDI-II</td>
<td>Beck Depression Inventory – II</td>
</tr>
<tr>
<td>CES-D</td>
<td>Centre for Epidemiologic Studies – Depression Scale</td>
</tr>
<tr>
<td>COAG</td>
<td>Council of Australian Government</td>
</tr>
<tr>
<td>CPT</td>
<td>Clinical Psychology Trainees</td>
</tr>
<tr>
<td>CPTSS</td>
<td>Counselling Psychology Trainee Stress Survey</td>
</tr>
<tr>
<td>CSA-RF</td>
<td>Clinical Skills Association Rating Form</td>
</tr>
<tr>
<td>CSAT</td>
<td>Clinical Skills Assessment Tool</td>
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<tr>
<td>CSQ</td>
<td>Coping Styles Questionnaire</td>
</tr>
<tr>
<td>DASS-D</td>
<td>Depression Anxiety Stress Scale – Depression Subscale</td>
</tr>
<tr>
<td>DSM</td>
<td>Diagnostic and Statistical Manual</td>
</tr>
<tr>
<td>DASS-42</td>
<td>Depression Anxiety Stress Scale – 42 Item</td>
</tr>
<tr>
<td>EAPI</td>
<td>Employee Assistance Programme Inventory</td>
</tr>
<tr>
<td>EU</td>
<td>European Unions</td>
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<tr>
<td>EFPPA</td>
<td>European Federation of Professional Psychologists Association</td>
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<tr>
<td>FFM</td>
<td>Five Factor Model</td>
</tr>
<tr>
<td>GHQ</td>
<td>General Health Questionnaire</td>
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<tr>
<td>GPA</td>
<td>Grade Point Average</td>
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</table>
NEO-PI-R  NEO-PI-R
NEO-PI-R C  NEO-PI-R Conscientiousness Subscale
PCA  Principal Components Analysis
PsyBA  Psychology Board of Australia
Psy.D  Doctor of Psychology
RMIT  Royal Melbourne Institute of Technology
SOLO  Structured Observation of Learning Outcomes
VIF  Variance Inflation Factors
ABSTRACT

The relationship between psychological functioning and performance is untested in a postgraduate professional psychology context. This thesis sought to test this relationship by examining the degree to which psychological functioning predicted development of clinical competencies amongst postgraduate professional psychology students. In order to do this, a psychometrically sound competency assessment tool was first developed and student performance on this tool was examined relative to psychological functioning, as measured by a battery of psychological self-report questionnaires. Student levels of conscientiousness and depression predicted the acquisition of skills during the first of a series of professional placements. Furthermore, responses within the clinical range on any one of the psychological questionnaires administered placed the student at risk of significantly poorer performance on the competency assessment tool.
CHAPTER 1 - OVERVIEW

Introduction

A significant body of research has sought to predict performance based on an understanding of the psychological functioning of the individual. However, while this proposed relationship has been examined from both empirical and theoretical perspectives, in many contexts it remains untested and therefore poorly understood.

Within academic circles, university students have often reported elevated levels of depression, anxiety and stress (Cushway, 1992; Dahlin & Runeson, 2007; Stallman, 2008; Stewart-Brown et al., 2000), and some studies have suggested that these levels are higher than for the general population and age-matched peers (Dahlin, Joneborg, & Runeson, 2005; L. Dyrbye, M. Thomas, & T. Shanafelt, 2006; Leahy et al., 2010). Although a significant body of literature attests generally to the negative impact of psychological distress on the performance of core activities (ABS, 2006) and some studies have found that psychological distress impacts negatively on academic performance (Andrews & Wilding, 2004; Nelson, Dell'Oliver, Koch, & Buckler, 2001), limited data exist regarding the precise impact of this distress (L. Dyrbye, et al., 2006).

With the above issues in mind, this study sought to test the existence and nature of the theorized relationship between the psychological functioning of students enrolled in postgraduate programmes of professional psychology, and their development of the clinical competencies required for successful completion of the first of a series of professional practicums.

Aims

In order to test the existence of the relationship between psychological functioning and competence development, levels of depression, anxiety and stress reported by students
enrolled in postgraduate programmes of professional psychology were documented. The question was asked,

1. To what extent do postgraduate professional psychology students, participating in their first university-based clinical practicum, report levels of depression, anxiety and stress?

Further, as a substantial body of research suggests that an individual's coping strategies and personality style may also play a role in the hypothesized relationship between psychological functioning and performance, this project sought to document the personality styles and coping strategies employed by the students. A further two questions were therefore asked,

2. What kinds of coping strategies do postgraduate professional psychology students employ to cope with the demands of their first university-based clinical practicum?

3. What kinds of personality styles do postgraduate professional psychology students, participating in their first university-based clinical practicum demonstrate?

An extensive literature review revealed a dearth of valid and reliable clinical skills assessment tools suitable for the assessment of competence development in a postgraduate professional psychology programme. Therefore, the following question was asked,

4. Is it possible to develop a valid and reliable clinical skills assessment tool for use within Master's degrees of professional psychology?
Finally, having documented self-reported levels of depression, anxiety and stress as well as coping strategies and personality style, the possibility of a relationship between the psychological functioning of the students and their acquisition of clinical competencies was tested. As such, the following question arose

5. Is there a relationship between the psychological functioning of postgraduate professional psychology students and their development of clinical competence as measured on a clinical skills assessment tool?

**Methodology**

In seeking to document the psychological functioning of postgraduate professional psychology students, Study One involved the administration of a series of standardized self-report questionnaires, and employed both descriptive and inferential statistics in the analysis and interpretation of data. Study Two employed a psychometric approach, underpinned by Classical Test Theory, to the development and validation of a clinical skills assessment methodology. Study Three was concerned with the prediction of behaviour and involved a correlational study designed to understand the relationship between two variables, the results obtained on the self-report questionnaires administered in Study One, and the results obtained by students on the assessment tool developed in Study Two. Again, inferential statistics were employed in the analysis and interpretation of data.

**Results**

Results revealed that *as a group* the students generally reported psychological functioning in the normal range. Some elevated responses were obtained in the subjective
anxiety and stress/tension domains but these were comparable to levels often reported by university students. However, approximately one third of the group reported responses within the clinical or problematic range on at least one of the psychological questionnaires employed. Half of this subgroup reported difficulties in functioning on more than one measure, and for sustained periods of time across the duration of their clinical placement. The overall picture for this subgroup suggested the experience of difficulty in functioning in multiple psychological domains for sustained periods throughout their first clinical practicum.

A clinical skills assessment tool, to be employed assessing competence development within this first clinical practicum was developed, and proved to be psychometrically sound. When results obtained on measures of psychological functioning were analysed relative to performance on this skills assessment tool, a relationship between psychological functioning and competence development was indeed found. In particular, levels of conscientiousness were found to be positive predictors of performance and levels of depression, negative predictors of performance on the skills assessment tool. Further, when the performance of the subgroup of students who had reported difficulties in functioning on one or more of the psychological questionnaires was compared to the performance of the remaining cohort members, a significant difference was found between the two groups. That is, the subgroup of students who were experiencing some form of psychological distress demonstrated a significant performance deficit, as assessed on the clinical skills assessment tool, relative to their peers.

Significance

The results obtained in this study are significant for a number of reasons. Very little data exists documenting the psychological functioning of postgraduate professional
psychology students, and none exists regarding this population within an Australian context. Further, the availability of psychometrically sound assessment tools fosters the development of student competence, and ultimately acts to protect the public. A clearer understanding of the impact of psychological functioning on the acquisition and maintenance of competence in the field of professional psychology also fosters the development of educational practices designed to better support students undergoing intensive educational experiences. Finally, these results support the application of a theorized relationship between emotional functioning and performance, to an understanding of those factors that foster the development of competence in postgraduate professional psychology students.
CHAPTER 2 - LITERATURE REVIEW

Competence

Within the profession of psychology the issue of competence has become increasingly relevant. Over the past two decades dialogue regarding the issue of competence has motivated articulation of definitions (Epstein & Hundert, 2002) and models of competence (Rodolfa et al., 2005), enhanced curriculum design (Baillie et al., 2011), the development of models and methods of competence assessment (Kaslow et al., 2009), discussions regarding problems of professional competence (Kaslow, Rubin, Forrest, et al., 2007), and a move towards demonstration of competence both on graduation and across the professional lifespan (Lichtenberg et al., 2007).

The Education and Training of Psychologists in Australia

In Australia, the bulk of the education and training of professional psychologists occurs within the university system. It is within this setting that students may undertake both undergraduate general psychology and postgraduate professional psychology education and training. Historically, within this system much of the focus of government bodies, academic institutions and accreditation agencies has been on the so-called "input" factors (Roe, 2002): issues of curriculum design, supervisory practice and hours of clinical placement (Pachana, Sofronoff, Scott, & Helmes, 2011). More recently, and echoing moves within the profession in North America and Europe, attention has shifted from a sole focus on input factors towards issues of "output", and in particular to issues of competence and the demonstration of required professional competencies (Voudouris, 2010).

Within the Australian system the training of psychologists can occur via three separate pathways, but each requires a minimum of six years education and training (APS, 2012a). Fundamental to each is the successful completion of a four year educational
sequence of theoretical instruction (three year Bachelor's degree plus either one year Honour's year or one year post graduate diploma). This four year sequence aims to ground students in the discipline of psychology, producing graduates with an understanding of human behaviour and the ability to design, conduct and analyse research, and who can employ sound communication, problem solving and critical thinking skills (APS, 2012b).

Reflecting the purely academic focus of this four year sequence, with an absence of practicum components, this phase of training assesses the acquisition of knowledge almost exclusively by traditional pencil and paper techniques.

Following successful completion of this four year academic sequence, aspiring professional psychologists must next engage in a professional skills development phase in order to meet the requirements of general registration. The majority seek general registration by following their four year academic sequence with a two year Board approved internship based largely on the concept of the apprenticeship model (referred to as the 4+2 sequence). This internship occurs independently of the university system and thus allows the provisionally registered psychologist to seek employment during this phase of professional development. Other aspiring psychologists follow a four year academic sequence with a two-year Master's degree offering specific focus in one of the various specialties recognised by the Australian Psychology Society (APS) and the Psychology Board of Australia (PsyBA): clinical psychology, counselling psychology, forensic psychology, clinical neuropsychology, organisational psychology, sport and exercise psychology, educational and developmental psychology, health psychology and community psychology. These two year professional Master's programmes provide linked components of coursework, research and practicum with students currently required to participate in 1000 hours of client-based practicum across a variety of programme-relevant settings under the supervision of accredited supervisors. These programmes are designed to produce clinicians capable of working independently and
within a scientist-practitioner framework. On completion of these Master's degrees and with an additional two years of approved supervised practice generally registered psychologists may then seek "endorsement", a form of specialist recognition in their nominated field of practice.

Finally, a minority of aspiring psychologists choose to satisfy the requirements of registration by following their four year academic sequence with a further fifth or post-graduate year of theoretical instruction (referred to as the 5+1 sequence). The content of this additional fifth year of instruction duplicates the course content of the specialist Master's degrees and includes topics such as ethics to practice, assessment and intervention knowledge. Client-based practicum opportunities are not provided and successful candidates are required on graduation to participate in an additional year of Board approved internship similar to that required of the older 4+2 model in order to gain registration as a general psychologist.

The degree to which competencies are assessed throughout these fifth and sixth years of professional development is highly variable (Pachana, et al., 2011). To the extent that aspiring psychologists do actually participate in university-based academic programmes throughout their fifth or sixth years, knowledge acquisition is assessed again via traditional paper and pencil tests and thesis submission. Although a significant focus of the fifth and sixth years of training, the development of appropriate clinical skills and attitudes is however even less routinely assessed with significant variability in assessment philosophies and methodologies across academic institutions and between clinical and field supervisors (Gonsalvez & Freestone, 2007). With the variability of approaches to the development and assessment of clinical competencies so pronounced, and the validity and reliability of field supervisors' assessment of trainee psychologists' practicum work empirically untested, commentators have suggested that we cannot state with certainty that these advanced
sequences of training actually enhance the clinical competencies they are designed to develop (O'Donovan, Bain, & Dyck, 2005).

That said, thirty six Australian universities offer at least Master's level qualifications in various psychological specialities aligning with the APS college structure listed above (APAC, 2012). However general pressures on university funding have forced universities to rationalize the range of programmes on offer, whilst the introduction of Medicare funding for the provision of psychological services to treat clinical disorders has seen certain programmes fall out of favour with enrollees, such that 40 professional psychology programmes have closed throughout Australia over the last 5 years (Hannan, 2012). Of those remaining the Master's degrees in Clinical Psychology are the most common, with 36 of the 38 Australian universities offering Master's &/or Doctoral programmes in Clinical Psychology. Within the remaining eight areas of specialty, Neuropsychology and Organisational Psychology programmes appear most frequently with four and five programmes each, followed by the remaining areas of speciality offering between one and three programmes each across Australia.

Entry to such programmes remains highly competitive. Selection criteria typically favour students who have achieved the highest undergraduate grades, have previous work experience in psychological settings, have publications and who present well interpersonally on selection interview.

In accreditation and other official documentation, these Master's degrees in professional psychology speak to the issue of competence and state that its acquisition in various areas of specialty is a core and desired outcome (APAC, 2010). Most programmes of study lean towards a Cognitive Behavioural orientation and most default to a didactic lecturing approach (Scott, Pachana, & Sofronoff, 2011). The initial practicum within these degrees, in particular the Master's Degree of Clinical Psychology, is served within a clinic
attached to a School of Psychology, and may be the first opportunity for students to apply the knowledge and skills accumulated to that point in their academic career. This initial practicum is intended to support the development and consolidation of specialist knowledge and skills relevant to clinical practice, an applied understanding of the professional, ethical and legal standards expected of the profession, as well as the development of foundation skills in the management standards intrinsic to the practice of psychology (APAC, 2007). It is also intended to enable closer and more consistent supervision of novice clinicians than is often possible in subsequent external clinical practicum. Subsequent external practicums are designed to enhance and consolidate developing competencies, and provide novice clinicians with exposure to a range of psychological issues and disorders experienced across the lifespan, as managed within a range of settings (APS, 2010).

However, the degree to which these programmes in professional psychology effectively offer their enrollees the kinds of education and training opportunities that correspond to improved client outcomes remains unclear. For example, the issues of candidate selection criteria and procedures have not been assessed in any empirical fashion, whilst the issue of fitness to practice as a psychologist is only just rating mention in literature-based opinion pieces (Sofronoff, Helmes, & Pachana, 2011). Other interpersonal student variables that enable the student to benefit from training, and support development as a competent professional psychologist have been almost totally ignored in the literature. Best-practice teaching and supervision strategies in psychology, whilst meriting debate within overseas literature, remain largely unexamined in an Australian context (Pachana & Helmes, 2008) and the degree to which university programmes offer effective curricula is also unclear (Baillie, et al., 2011). Anecdotally, courses have often evolved over decades, being influenced by the requirements of external agencies, individual faculty research and practice interest, shifts in psychological and educational theory and general implicit understandings or
accepted wisdoms on the part of programme directors and staff that they "know" what works in an educational sense. Few programmes appear to have sought to undergo a formal process of alignment whereby learning objectives, teaching methods, resources and assessment practices have been examined within the context of seeking to ensure candidates achieve and can demonstrate professional competence (Baillie, et al., 2011).

**Section summary**

The education and training of professional psychologists in Australia may occur via multiple pathways. Common to each is an initial four year academic sequence. Following this, there are three options by which the aspiring psychologist may address the issue of the acquisition of clinical/professional competence: the internship or 4 + 2 model, successful completion of a two year Master's degree of professional psychology, or the 5 + 1 model. However, the effectiveness of this process of professional competence development is largely empirically unexamined. O'Donovan & Dyck (2001), when referring to the training of professional psychologists in Australia, have stated that “In practice, we mainly don’t know how teacher variables, content variables, process variables, and student variables interact to determine the outcome of our training courses. We don’t know who will benefit from training, or even what the exact benefits might happen to be. In fact, we don’t know nearly enough about what contributes to effective training to be dogmatic about what any training needs to comprise” (p. 96).

**The Development of the Competency Movement**

There appears to be no single theoretical, social or political force that has underpinned the development of the competency movement currently so entrenched in the business, education and health-care sectors today. Instead various commentators have suggested a
variety of influences. Some cite the early works of Taylor (1914) with his development of the "Principles of Scientific Management" and Gilbreth and Gilbreth (1921) who extended Taylor's work by developing "time and motion studies". Others note psychological theories such as Behaviourism and Systems Theory, and the educational theories of Tyler (1949) and Bloom (1956). Various authors have discussed the impact of World War II and the Cold War on the development of aviation psychology in the USA, whilst Hodge (2007) comments on the impact of the Russian launching of Sputnik to orbit the earth on the revision of the American education system. Other commentators have highlighted the social discord of the 1960s in America that saw a move towards individuality and personalisation, as well as calls for increased public sector transparency and accountability to the tax payer (Tuxworth, 1989). More recent influences on the development of the competency movement have been cited as global workforce shortages with calls for greater workforce mobility (Gauthier, 2002) and national and international attempts to align systems of education, healthcare and social welfare within and between national borders (EFPA, 2010).

Whilst commentators disagree on the relative impact of each of these potential influences most agree that the behavioural psychology movement in America in the early to mid-20th century was a major influence on the development of the competency movement. In 1913, and as a response to the psychodynamic or drive-theories of human behaviour prominent in the latter part of the 19th century, psychologist Professor John B Watson stated that the purpose of psychology was the prediction and control of behaviour, that all behaviours were the result of a learning process and were shaped and conditioned by environmental contingencies (Watson, 1913). According to the behaviourists, thoughts, feelings and mental processes had no bearing on the outcome of human behaviours; essentially the mind did not exist as far as scientific investigation was concerned. This form of Behaviourism, later extended by others including B F Skinner, became the dominant force
in American psychology, perhaps even American social thinking, throughout the first half of the 20th century. By the mid-century so ingrained were the philosophies of Behaviourism throughout American social thought that Mills (1999) stated "Behaviourism was the soil nourishing early American Social Science" (p1).

Developing alongside Behaviourism, and thought to be equally influential in the development of the competency movement, was General Systems Theory. Initially publishing in German from the 1930s, Ludwig von Bertalanffy observed that where clusters of individual components interacted within various sciences e.g. economics, biology, sociology, these components interacted with great similarity to the extent that a theory of these "systems" became possible. Systems were defined as complexes of elements standing in interaction, and were thought to behave according to strict mathematical principles (von Bertalanffy, 1969).

The impact of both styles of thinking can be seen in the Aviation Psychology Programme of the United States of America Army Air Forces that operated during and shortly after World War II. During this time the Aviation Psychology Programme conducted a series of studies that, in hindsight, represent a significant milestone in the development of the competency movement. Although the term competence was not specifically employed, the Aviation Psychology Programme engaged in a systematic attempt to develop enhanced procedures for the selection, classification and development of its personnel. In order to do this, members of the programme sought to identify and understand specific behavioural reasons for the failure of recruits to learn to fly and examined reasons for failures in bombing missions through the lens of human action and decision-making. They sought to specify the behavioural differences between effective and ineffective combat leadership and later developed what was termed the "Critical Incident Technique" in which specific jobs were analysed with respect to the identification of critical behavioural requirements, in particular
those that had been demonstrated to make the difference between mission success and failure (Flanagan, 1954). As a result of these studies personnel selection, training and assessment procedures were modified, and a number of aircraft instrumentation and design modifications were implemented.

At the close of WWII many of the psychologists who had worked within the Aviation Psychology Programme began to work for the American Institute for Research, the aim of which was to examine in a scientific fashion aspects of human behaviour as applied to adequate performance within various industrial and organisational settings. Large organisations were considered to be parent systems, the parts of the system involved in production of outcomes were considered the operating subsystems, which were in turn supported by personnel and training subsystems (Hodge, 2007). By the late 1940s and through to the late-1950s the Critical Incident Technique had been applied to attempts to understand necessary job performance factors for officers in the US Air Force, commercial airline pilots, naval scientists and air traffic controllers. Since then, the American Psychological Association have noted that the use of the Critical Incident Technique has become widespread, and have compiled a database of over 300 articles citing the use of the critical incident technique as the basis for identifying factors crucial to satisfactory job performance across a wide range of diverse fields of human activity including business, education, medicine and health care (APA, 2001a).

In 1959 Robert White, professor of clinical psychology of Harvard University, published on the concept of competence, and defined it as the individual's capacity to interact effectively with their environment (White, 1959). He stated that fitness to interact with the environment was attained through prolonged feats of learning. His work on the concept of competence was extended by Professor David McClelland (McClelland, 1973), initially working within the educational sector, who argued that intelligence tests were poor predictors
of job performance and suggested that recruitment practices should instead focus on the prediction and assessment of competence. Moving into the business sector, McClelland asserted competency testing should involve criterion sampling based on job analysis (if you want to know how well an individual drives a car, give a driving test), assessments of the ability to learn tasks over time, include also an assessment of competencies useful in life generally such as interpersonal (communication skills, patience, goal setting, maturity) and leadership skills, as well as assessment of general problem solving ability embedded within lifelike scenarios. Finally, rather than assessing all micro-skills subsumed within one overall task, McClelland recommended the identification and assessment of more overarching thought patterns or cognitive abilities that underpinned successful performance of these tasks, aiming for maximum generalizability to various action outcomes. McClelland's thoughts and practices held great face validity within the business and industrial arenas and were rapidly absorbed throughout the 1970s, launching various studies designed to identify those aspects of individual competence associated with exemplary job performance.

This shift of focus from the identification of the aspects of minimal competence to the identification of performance factors that differentiated competent performance from excellent performance was further developed by individuals such as Patricia McLagan (1980) and Richard Boyatzis (1982) and formed the basis for the first time for the development of human performance improvement interventions. Others, such as Prahalad and Hamel (1990) extended this work yet again from a focus on the competence of the individual to a focus on linking these individual competencies with the competence of the organisation, enhancing the use of the collective skills, abilities and expertise to maintain a competitive advantage in the marketplace. The thoughts and practices of these individuals are still current in the industrial, organisational and business arenas today.
However, returning to the 1960s and the United States of America, it is also possible to track the growth of the competency movement into other areas of human endeavour. For example, in the field of public education, teacher education and vocational training the influence of competency based theories and practices have been significant (Burke, 1989). Initial developments in these areas occurred within the context of wide-scale social unrest with widespread calls for curriculum reform, greater relevance in educational practices and greater accountability in the spending of tax payer funds. In 1968 the United States Office of Education National Centre for Educational Research called for tenders from universities and colleges for the development of training programmes for elementary school teachers. The call for tenders specified that submissions must address aspects of the tender process with reference to behavioural objectives and systems analysis. Norton and colleagues (Norton, Harrington, & Gill, 1978) note that for each of the 10 grants awarded, emphasis was placed on clarity in curricular design, modularisation of educational units, competences to be acquired, the importance of assessment and feedback, as well as field experience designed to consolidate aspects of academic training. Thereafter, federal funding for educational purposes was often linked to demonstration of outcomes, and the language of competencies appeared to give all stakeholders a shared language with which to implement educational reform. By 1970, Competency Based Teacher Education had become well established and events such as The American Association of Colleges of Teacher Education "state of the art" paper in which the characteristics of competency based teacher education were outlined, as well as the establishment of The National Consortium of Competency Based Education Centres that developed a set of criteria for describing and assessing competency based teacher education programmes, may be noted as evidence of the consolidation of this movement.
Throughout the 1980s other governments sought to address issues of insufficiently trained or skilled workforces by adopting competency based training frameworks within the vocational sector. In the United Kingdom, the National Vocational Qualifications Framework was established, whilst in Australia competency-based training has become national governmental policy with all vocational education and training now delivered according to the principles of competency-based training (Brownie, Bahnisch, & Thomas, 2011).

The concept of competence and its development, and with it competency based educational practices, have also moved to the field of medicine and the education of medical practitioners. The issue of the education and training of competent medical practitioners has a long tradition in both literature and practice with one of the most significant milestones in the field of medical education being the publication of the Flexner report in 1910 (Flexner, 1910). For the purposes of his report, Abraham Flexner of the Carnegie Foundation for the Advancement of Teaching visited and evaluated all 155 medical schools then in operation in the USA and Canada. At that time medical schools in America varied greatly with regard to entry criteria, curricula and assessment practices. Many were owner-operated for profit and not attached to teaching hospitals. Flexner criticised the curricula and teaching facilities at a number of the schools he visited. He went on to emphasize the importance of a science-based university education with an active research component linking directly to issues arising in patient care, and saw the development of formal analytical reasoning as integral to successful practice, research and teaching. As a result of his findings and recommendations many medical schools were subsequently closed or amalgamated with more reputable institutions.

More recently the competence issue in medical education has moved beyond the focus on the quality of medical education *per se* to a clearer focus on professional or clinical...
competencies. Through the 1970s and 1980s attention at the university level was being given to the beginning process of defining competencies for practice and on issues of curriculum development. By the 1990s the US-based Society of Teachers of Family Medicine developed a new curriculum that for the first time included objective statements regarding required competencies for each stage of training. In 1999 the US Accreditation Council for Graduate Medical Education (ACGME) endorsed six competencies for graduate medical education being i. Patient care, ii. Medical knowledge, iii. Practice-based learning and improvement, iv. Interpersonal and communication skills, v. Professionalism, and vi. Systems-based learning. Shortly after, a joint initiative between the ACGME and the American Board of Medical Specialties (ABMS) saw the development of the ACGME Toolbox of Assessment Methods which contained descriptions of assessment methods suitable for evaluating residents (ACGME & ABMS, 2000).

By the turn of the century a number of universities had developed and adopted competency based educational models including Browns University's School of Medicine with the MD2000 project, the Royal College of Physicians and Surgeons of Canada with its CanMEDS framework, and the Scottish Doctor framework developed and supported by five Scottish medical schools. These projects included faculty-wide development and endorsement of the curricula and statements regarding required graduate competencies translated into observable and measurable behaviours with associated assessment methodologies. The CanMEDS framework in particular has been adopted internationally with several countries including Denmark, the Netherlands, New Zealand and Australia adapting elements of the framework for use in the training of postgraduate medical students and other specialist education. Brownie et al (2011) point out that a number of organisations including the Royal Australasian College of Surgeons, the Australian Curriculum Framework for Junior Doctors and the Australian Medical Council have all either adapted the CanMEDS
Currently in Australia, the Australian Medical Association (AMA, 2010) comment that elements of competency-based training can be found in most medical education and training programmes, often inter-mixed with more traditional systems of training delivery and assessment. Whilst supporting aspects of the competency based approach they caution against a reductionist, checklist approach to training that can accompany the "minimal competence" approach sometimes employed, urging adequate provision within training programmes to ensure the development of the higher order cognitive skills required of doctors through integration of knowledge and the application of skills over a broad spectrum of scenarios.

Within the field of professional psychology, the most notable events within the competency movement have occurred in North America and can be traced to the post-WWII era when the Department of Veterans Affairs requested of the American Psychological Association (APA) a list of educational institutions possessing adequate faculty and facilities to train doctoral level psychology students in the provision of services to returned servicemen and women. This request prompted a knock-on series of events including the beginnings of accreditation of programmes in clinical, counselling and school psychology and the passing of the first licensure law for psychology in Connecticut in 1945. After this, the Conference on Graduate Education in Clinical Psychology was held in Boulder, Colorado in 1949 (Raimy, 1950). As a result of this conference the "Boulder Model", a training model for graduate programs in Clinical Psychology, was developed with the express purpose of providing an articulated position regarding the necessary knowledge, skills and attitudes to be acquired during graduate education in clinical psychology. The Boulder Model proposed equal weight to science and practice within clinical psychology training, asserted such
training should take place within university settings and that the aim of this training was the production of "scientist-practitioners" equally capable of functioning within academic or applied practice settings.

However, during the 1950's the concept of equal weighting to science and practice within professional psychology was debated with a significant proportion of the profession advocating for a form of doctoral-level training that provided for a greater emphasis on the acquisition of practice skills. By 1973 at the Vail Conference on Professional Training in Psychology (Korman, 1976) the "practitioner-scholar" model was proposed that saw the eventual development of a Doctor of Psychology (Psy.D) qualification. This professional doctorate was intended to produce professional psychologists who were first and foremost highly skilled practice professionals as well as sophisticated consumers of clinical scientific literature in such a manner as to inform clinical practice.

More recently, and still within the USA, the competency movement was progressed with work in 1986 by the National Council of Schools and Programs of Professional Psychology (NCSPP), with the design and implementation of a competency-based curriculum guide to assist schools of professional psychology in doctoral-level curriculum development (Bourg et al., 1987). Other models of competence development emerged via the work of the Council of Chairs of Training Councils (Bourg, Bent, McHolland, & Stricker, 1989) and the National Conference on Scientist-Practitioner Education and Training for the Professional Practice of Psychology (Belar & Perry, 1992). In 2001 The Commission on Education and Training Leading to Licensure in Psychology (APA, 2001b) argued for the development of competency-based guidelines designed to articulate required competency objectives at different levels of practicum training.

In 2002 however, perhaps the most significant step forward in the competency movement within professional psychology occurred with the American Psychological
Association co-sponsored Competencies Conference: Future Directions in Education and Credentialing (Kaslow et al., 2004). At the conference consensus was reached regarding core competencies to be attained by professional psychologists, the educational methods by which they should be achieved and appropriate competency assessment methodologies. As a result of this conference the "Cube Model" (Rodolfa, et al., 2005) was formulated and offered a model of competency development that articulated what were termed to be foundational competencies, cross-cutting competencies that underpinned all work performed by psychologists, and functional competencies that varied according to client group and context.

In 2007 the Practicum Competencies Outline (Hatcher & Lassiter, 2007) extended the conceptualization of the cube model by defining the knowledge, skills and attitudes expected by the end of practicum training. Running parallel to, and being informed by these efforts, the American Psychological Association also convened The Assessment of Competency Benchmarks Work Group (Fouad et al., 2009), a task-force designed to articulate behavioural descriptors or benchmarks for core competencies across three developmental levels: readiness for practicum, readiness for internship and readiness for entry to practice. A "toolkit" of strategies designed to assess core competencies across each of these developmental levels was later devised with information provided regarding the relative strengths and weaknesses of various suggested assessment strategies (Kaslow, et al., 2009).

Across Europe a focus on issues of professional training and education in the field of psychology, with a commitment to the development of professional competencies, began in some countries in earnest in the late 1980s. In 1990 the twenty members of the European Federation of Professional Psychologists’ Associations proposed a set of optimum standards for the training of professional psychologists (EFPPA, 1990). It was agreed that training for psychological practice should occur within a university environment, that it be grounded within a scientific approach and include a research element. It was also agreed that training
should be comprised of two components, one a broad introduction to the discipline of psychology and the second with a focus on the knowledge and skills necessary for applied practice. Both components combined should total at least six years, and that independent practice as a psychologist should be restricted only to those who had completed both components. Finally, it was agreed that national psychology associations should ensure training is consistent with codes of practice and ethical standards within each country.

As an outreach of this work the EFPPA established two Task Forces, one to investigate the legal regulations surrounding the practice of psychology across member countries and another to investigate psychology curricula within member countries. Finding a common pathway to harmonize legal and training standards in psychology across a large number of European countries proved difficult but by 1996 the EFPPA proposed the development of a European Diploma for psychologists (Lunt, 2011).

This increased focus on competencies by psychology member organisations sat within a supportive European social and political context. The European Union (EU) for example, with roots to the late 1950s, drew together 27 European countries and half a billion people with a commitment to free trade, occupational mobility and the establishment of standards of education, welfare and employment practices. Relevant to the issue of the training and education of professionals generally, EU member organisations had previously made attempts to address issues of educational disparities between countries but with little success. Sitting along-side this, in 1999 The Bologna Declaration (Bologna, 1999), by which 29 European countries committed to a reform of educational structures, was signed. The purpose of this declaration was to create a more coherent system of higher education throughout Europe, and was based largely on a common degree structure, with a system that supports inter-university student exchange for at least some component of those degrees. The
agreed upon degree structure involved a three year Bachelor's degree, a two year Master's degree followed by doctoral degrees.

The EFPPA sought EU funding in the development of the European diploma for psychologists and from 1999 to 2001 the "EuroPsyT" project operated to develop a European Framework for Psychologists' Training (Lunt et al., 2001). At the conclusion of the project The EuroPsyT project offered a six year model of training through three phases (3+2+1), which sat well within the Bologna model then being implemented across Europe. This qualification established minimum requirements for training and education in psychology and included a five year academic university-based programme in psychology with required course components, in addition to a one year of competence-based supervised clinical experience, followed by post-graduation participation in an ongoing programme of professional development activities. From 2001-2005 the EuroPsyT project was progressed with work to design the European Diploma in Psychology (Lunt et al., 2005). The concept of competence was declared to be central to this process, and drew heavily from work by authors such as Bartram (1996), Roe (2002) and Gauthier (2002).

This early work on the development of the EuroPsy was informed by Roe's (2002) definition of competence as "a learned ability to adequately perform a task, duty or role". He elaborated on this definition by offering an architectural model of competence that specified both the input and output elements that contributed to the development of competence in professional psychologists. The foundation stones of this model included the personal characteristics of the psychologist, upon which he or she built the necessary knowledge, skills and attitudes for professional work via participation in appropriate educational and training activities. Knowledge, skills and attitudes then clustered together to form lower order "competences" that included part activities within overall tasks such as interviewing or testing, which when taken together would then form higher level competences corresponding
to broader tasks such as individual assessment. As a result, in order to be awarded the EuroPsy certificate, applicants must provide evidence of both university qualifications and a portfolio of competences rated by supervisors conducted during clinical practice.

In 2005 this model was enhanced with the publication of a document that articulated 20 primary competences grouped into functional categories and seven enabling competences, later expanded to nine enabling competences (Bartram & Roe, 2005). It was stated that the 20 primary competences should be demonstrable by any registered psychologist and are grouped into categories relating to key roles: goal specification, assessment, development, intervention, evaluation and communication. The remaining enabling competences related to professional activities that enable the psychologist to render his or her services effectively: professional strategy, continuing professional development, professional relations, research and development, marketing and sales, account management, practice management, quality assurance and self-reflection. Interestingly, a clear statement about ethical practice is not incorporated within the EuroPsy competencies profile, and is left to each member country to regulate in its own fashion.

The application of the EuroPsy model, and with it the furthering of the culture of competence within the European region, has faced many challenges and can be seen to be less developed than work within North America. The mammoth task of reaching agreement on complex issues across countries with markedly different social, historical, economic and educational differences cannot be understated. However, as supporters of the EuroPsy process state, the EuroPsy qualification has achieved widespread credibility and recognition, and is currently operating across six countries to further mobility of students and practitioners in psychology (Lunt, 2011).

Within the field of professional psychology in Australia matters have lagged behind our American counterparts in particular, and thus far have focussed until recently on
curriculum design and professional registration or input issues. Also developed in part in response to the effects of WWII, The Australian Branch of the British Psychological Society was formed in 1944 and maintained this relationship until independence in 1965. From the mid-60s to the mid-80s membership to this organisation was open to individuals who had gained degrees from universities, the more vocationally oriented Colleges of Advanced Education or those who had participated in in-service courses within various governmental departments (Cooke, 2000). In 1977 the Australian Psychological Society created the Course Development and Accreditation Committee and charged it with the responsibility of determining which courses met with official Society approval that would lead to graduate eligibility for Society membership. Cooke (2000) stated that the focus of this committee was, as was typical of the times, the quality of the courses themselves: entry requirements, structure, curriculum, examinations, staffing, student numbers and available resources. With regard to the issue of professional registration, the State of Victoria was the first to pass a Psychological Practices Act in 1965 that prohibited unregistered practitioners from using the term psychologist. The other states and territories of Australia slowly followed suit between 1966 and 1995.

In 1995, the APS developed a Competencies Task Force that conceptualised eight professional competencies that should apply to APS psychologists (APS, 1996). These were: (a) Discipline knowledge, (b) Research, (c) Framing, measuring, and solving problems, (d) Service implementation, (e) Professional, legal and ethical approach, (f) Communication, (g) Professional and community relations and (h) Influence and change. They followed this in 1997 with a document that articulated the knowledge and skills that could reasonably be expected of psychologists with three, four, and six years of psychology-specific education within these competencies (APS, 1997). Nine specialist areas of psychology were later defined and from 1998-1999 the APS Colleges attempted to articulate the skills that could be
expected of each of these areas of psychological specialty. The nine nominated areas of recognized specialty were: Clinical neuropsychology, Clinical psychology, Community psychology, Counselling psychology, Educational and developmental psychology, Forensic psychology, Health psychology, Organisational psychology and Sport and exercise psychology.

In 2003 The Australian Psychology Accreditation Council (APAC) was appointed by the Australian Government to assess and accredit university level undergraduate and postgraduate psychological education and training in Australasia. APAC sits as an external accreditation agency independent of the government, Psychology Board of Australia and the Australian Psychological Society (APS) and registration as a psychologist is now restricted to only those individuals who have successfully completed sequences of study within Schools of Psychology conducting programmes approved for accreditation by APAC. Since its inception to 2009, eight revisions of accreditation standards have occurred, each primarily concerned with the curriculum design and content, and supervision requirements deemed necessary for the development of competent professional psychologists. In 2009 however, and after a major review of standards for the education and training of psychologists both locally and internationally (APAC, 2009), APAC offered another revision of standards for the accreditation of training institutions in psychology. Significantly, for the first time in nine iterations of the accreditation standards, the council stated that there were a set of core competencies that postgraduate trainees in psychology must be offered the opportunity to develop and demonstrate prior to graduation: knowledge of the discipline, ethical/legal/professional matters, psychological assessment/measurement, intervention strategies, research/evaluation and communication/ interpersonal relationships.

The competency movement in Australian psychology was also progressed in 2008 when the Council of Australian Government (COAG) resolved to establish a National
Registration and Accreditation Scheme, to be known as The Australian Health Practitioner Regulation Agency (AHPRA) to oversee the regulation of ten health professions: Chiropractic, Dentistry, Medicine, Nursing, Occupational Therapy, Optometry, Pharmacy, Physiotherapy, Podiatry and Psychology, with the inclusion of four more professions in 2012 being Aboriginal and Torres Strait Islander Health Practice, Chinese Medicine, Medical Radiation Practice, and Occupational Therapy. AHPRA commenced in 2010 supported in its functioning by the National Boards of each of the ten professions. The Psychology Board of Australia (PBA) was formed and charged with registering psychologists and provisional psychologists, developing standards, codes and guidelines for the psychology profession, handling notifications, complaints, investigations and disciplinary hearings, assessing overseas trained practitioners who wish to practice in Australia and approving accreditation standards and accredited courses of study (PsyBA, 2010).

The Psychology Board of Australia has also addressed the issue of practice specialisation by allowing registered psychologists to seek "endorsement" when they are able to demonstrate advanced training over and above that which is required for general registration. The nine areas of specialist endorsement mirror the nine specialist College areas supported by the APS.

Coming now to the present day, the Australian Psychological Society has recognised that traditional notions of competence, often narrowly defined in relation to the performance of criterion-referenced tasks, are not well suited to the complex skills required of psychologists in the normal course of their working lives. They have acknowledged that the current "list-based" approach to competencies as outlined by both APAC and the PsyBA are lacking in operationalization, are without performance levels, are not easily translatable into courses, do not provide guidance on professional development activities, lack contextualisation into specific work environments and do not separate out different types of
competencies, in particular knowledge, skills and behaviours (Reynolds, 2012). Accordingly, the APS is seeking to explore ways to better define competencies for the training and development of psychologists in an attempt to address the above concerns.

Section summary

In reviewing the development of the competency movement within the fields of business, education, health and particularly psychology, several themes have emerged. Clearly the paradigm shift in the competence issue has been fuelled at various times throughout its course by broader social and political demands. These have included governmental needs to train and organise large numbers of individuals during times of war, as well as the need to up-skill national workforces in times of economic decline. There has also been in evidence a governmental need to ensure federal expenditure in areas such as education and training are well managed and align with appropriate and desired outcomes in support of the community served. There have been obvious needs to protect the public by ensuring professional accountability, as well as the need to facilitate enhanced alignment of educational and professional standards in order to support greater workforce mobility. The competency approach has been adopted almost universally as the most appropriate manner in which to address these issues.

It seems also that the competency approach, and with it competency-based education and training, has been recognised as providing significant benefits across each of the areas reviewed. Commentators have acknowledged that the competency movement has been adopted, at least in part, by all Australian health professions (Brownie, et al., 2011). Others have suggested that the approach has the potential to guide curriculum development as well as the development and use of targeted assessment methodologies (Kaslow, 2004). It has been acknowledged that the competency approach also has the potential to lead to greater
alignment between educational programmes and the needs of the marketplace and/or client groups for whom the graduates of the programmes are intending to serve, and with it, enable the development of public statements about what those consumers of graduate services might be able to expect (Brownie, et al., 2011). Within the workplace, competency statements have been said to encourage greater consistency in practice standards (Lunt, 2008) and mobility across state and national borders (Gauthier, 2002). They have also been said to support clarity and transparency in workplace review processes (Kaslow, et al., 2009) and enhance individualized supervision and development across the professional lifespan (Falender & Shafranske, 2007). Underpinning all of this appears to be the utilitarian value of a shared language, defined by units of behaviour, useable by all stakeholders: students, educators, funding bodies and the public alike.

With particular regard to the education and training of professional psychologists, there appears to be growing consensus regarding definitions of competence, competencies and competence-based curricula, a matter which will be reviewed more fully in the next section. Further, there has been widespread recognition of the need to formulate models of competency development and to embed these within educational and training sequences, and stages in development across the professional lifespan. On this issue, most support appears to be gathering around the Cube Model of competence development (Rodolfa, et al., 2005), an orthogonal model that articulates core foundational and functional competencies to be developed across various stages from novice to expert. This model is intuitively appealing and easily understandable which should aid in its uptake amongst individual psychologists, members of the public, and educational and governmental organisations. Further its structure allows the mapping by other countries onto the cube of their own nominated competencies developed within their national educational contexts.
The literature reviewed was also underscored with an implicit if not always stated acceptance of the importance of competence assessment. Indeed, it could be stated that a culture of competence can only be achieved and enhanced where supported by adequate assessment models and methodologies. The literature reviewed indicated growing support for the embedding of competency assessment within systems of psychological training and education and emphasized the importance of the development of valid, reliable and feasible assessment tools.

Each of the areas reviewed has also noted concerns and barriers regarding the use of competency-based approaches, and these tend to become more pronounced as the complexity of the tasks being acquired increases. Where, for example, there seems to be nationally accepted definitions and consensus views regarding the application of competency-based approaches in the vocational education and training sectors, there is ongoing debate and dissent in fields such as medicine and psychology. In these fields debate continues around the definition of relevant terms and the potential for the approach, if used in a reductionist and check-list fashion, to miss the importance of the development of the higher order cognitive functions such as problem-solving and clinical reasoning.

However, other commentators have pointed out that such concerns are perhaps misplaced, and that they may be reconciled with the development of valid and reliable methodologies designed to assess the higher order cognitive skills necessary for competent clinical practice in work environments where novelty, ambiguity and uncertainty are prevalent. Brownie et al (2011) state "because good tools can be used badly, this does not mean they are bad tools and should be avoided" (p 30).
Definitions of Competence

The terms "competence", "competencies", "capability" and "competency-based education" appear frequently throughout the literature, and there appears to be no one set of agreed upon definitions, in particular within the health professions. That said, the term "competence" most frequently appears to refer to a professional's overall ability to perform their chosen job. Up to the 1980s the term was most often employed in a relatively narrow sense referring to specific skills or personal attributes to be acquired in training. Since then definitions have emerged that reflect a more sophisticated and rounded understanding of the concept. Competence is now most often expressed as a cluster of abilities employed dynamically and demonstrated consistently to a set standard across multiple contexts and maintained over time. Statements about competence therefore require descriptive qualifiers to define relevant abilities, contexts, and state or levels of training. One definitional example, and perhaps the most widely quoted throughout the academic literature, is that proposed by Epstein and Hundert (2002) “The habitual and judicious use of communications, knowledge, technical skills, clinical reasoning, emotions, values and reflection in daily practice for the benefit of the individual and community being served” (p 226).

The term "competencies" is most often used to describe the various and specific elements that make up competence. There is widespread agreement that these elements involve integrated clusters of knowledge, skills and attitudes, a range of which when performed to an agreed upon level or standard in a variety of contexts suggest the professional as demonstrating competence. However, what agreement there is, within specific professions, centres mostly around the definition and role of knowledge and skills and to a lesser extent on that component of competence thought to involve personal attributes such as attitudes, judgements, emotions, values and reasoning. Other authors, when discussing competencies emphasize that they are teachable, observable and measureable, and
can be assembled to facilitate the progressive development and maintenance of competence over time (Stratford, 1994). Others emphasize the importance of the assessment of competencies, and point to the need for the development of valid and reliable assessment instruments, applied across the professional lifespan (Kaslow, Rubin, Bebeau, et al., 2007).

**Figure 1.** Rodolfa et al (2005) Competency Cube Model.

Competency Cube**

Within the field of professional psychology, a useful extension to the discussion of the concept of competencies occurred when Rodolfa et al (2005) proposed the Cube Model of Competency Development (Figure 1). Within the model, "foundational" competencies were
defined as those cross cutting competencies that formed the basis of all psychological work irrespective of specialty area or client group served e.g., reflective practice/self-assessment, scientific knowledge and methods, relationships, ethical-legal/standards-policy, individual/cultural diversity, interdisciplinary systems. Foundational competencies were defined as forming the basis upon which "functional" competencies developed. Functional competencies were defined as dynamic clusters of knowledge, skills and attitudes necessary to perform the work of a psychologist: assessment/diagnosis/case conceptualisation, intervention, consultation, research-evaluation, supervision-teaching and management/administration. These functional competencies varied according to area of psychological specialty, the client group served and the context of operation. Foundational and functional competencies were also said to develop across time according to varying levels of educational achievement.

The concept of "competent to" also appears implicit within the competency literature, where there appears to be benefit to the use of modifiers that specify which domains of ability, which context and which stage of professional education are being discussed. For example, statements regarding a trainee professional psychologist being competent to move from an internal university based initial practicum where supervision is rigorous, to practice in a public hospital psychiatric ward where supervision is less frequent, offer very clear communications regarding the level of expectation and performance one might expect of that individual.

The concept of "capability" is also discussed in the literature and is defined as the enhancement of competence, the extent to which people can improve performance over time as a result of the accumulation of additional knowledge and experience (Fraser & Greenhalgh, 2001). It is said to occur through coping with unfamiliar contexts and competency challenges (Kaslow, Rubin, Forrest, et al., 2007).
Finally, where graduate competence is a desired educational outcome then "competency-based educational" programmes have been designed with the acquisition of competencies as the central curricula organising principle. Here it appears that the acquisition of a large body of knowledge has been de-emphasised in favour of attention to the provision of learning opportunities that support an incremental acquisition of synthesized clusters of knowledge, skills and attitudes relevant to multiple areas of practice. Specific competencies taught within the curriculum are defined as those required to meet the standards of the profession and emphasis is placed on the assessment and demonstration of these competencies as outcomes of the training programmes (Frank et al., 2010).

Section summary

Observing the state of the competency movement, and the debate that continues on the issue, several authors have argued that reaching consensus on matters of definition is a necessary next step in the evolution of the movement, and suggest that without this, disagreement and uncertainty will continue. However, the most commonly employed definition of competence was proposed by Epstein & Hundert (2002) “The habitual and judicious use of communications, knowledge, technical skills, clinical reasoning, emotions, values and reflection in daily practice for the benefit of the individual and community being served” (p 226). Other useful terms and definitions flow from this one, including the term "competencies" meaning specific clusters of knowledge, skills and attitudes that operate dynamically and, when performed consistently and together, go to make up an individual's overall competence. It is these two definitions that hold most relevance for this particular research project.
The Assessment of Competence

The development of the competency movement has occurred only in as far as there have existed valid and reliable competency assessment methodologies. Unfortunately, the development of psychometrically sound assessment methodologies has been hampered by a number of factors. The difficulty reaching consensus regarding the definition of competence and its various associated terms, as well as low levels of agreement within professions regarding the key elements constituting each competency domain have implications for the professions' abilities to develop a suitable competency assessment armamentarium. This is most apparent in the areas relating to the conceptualisation and definition of the competency domain involving the personal attributes of the individual, and the dynamic integration and application of knowledge, skills and personal attributes.

However, the pursuit and development of competence assessment methodologies continues in all domains that have adopted the competency approach. Authors from various fields have recognized that valid and reliable assessment methodologies support the development of curricula, allow the provision of feedback to learners, foster the learning process itself, enable statements about the achievement of learning outcomes both for the individual and on a programmatic level, ensure individual practitioners maintain competence in changing workplace environments and assist in the protection of the public (Epstein & Hundert, 2002; Kaslow, et al., 2004; Wass, van der Vleuten, Shatzer, & Jones, 2001).

A number of authors have contributed to discussion in the field by offering commentary pieces designed to guide the development of competence assessment methodologies (Kaslow, Rubin, Bebeau, et al., 2007; Miller, 1990). For example, various authors have argued that competence assessment tools must be valid, reliable, and feasible and have fidelity to practice (Leigh et al., 2007). That is, competence assessment tools will advance and support the competency movement only if they can be demonstrated to
effectively, repeatedly and consistently assess those competencies they are designed to assess, and an understanding of the psychometric properties of a tool can only be gained with repeated scientific evaluation of that tool over time. Further, issues of feasibility must be taken into account when developing competence assessment tools and balanced against the validity and reliability of the tool. That is, whilst validity and reliability are significant goals in the development of any assessment methodology, the time and cost spent in the administration and scoring of the tool must be manageable within the available resources of the administering institution. Finally, there is widespread recognition that assessment tools must address a particular form of validity, that of the issue of "fidelity". That is, the greater the degree to which the assessment process enables direct measures of "on the job" behaviours, the greater the degree of fidelity to practice exhibited by that particular assessment tool (Lichtenberg, et al., 2007).

Other authors in the competency assessment field have commented that as competence is acquired in a developmental sequence, competence assessment measures must also be considered from a developmental perspective (Kaslow, Rubin, Bebeau, et al., 2007). Just as individuals have different learning goals at different stages of their professional development, different assessment methodologies will be needed to adequately assess the attainment of those goals (Roberts, Borden, Christiansen, & Lopez, 2005). It seems probable that no single tool will adequately assess the development of competence over time, and the thoughtful use of various methodologies over time is recommended. This perspective requires that academic institutions and professional and accrediting bodies identify which competencies, each with its own subset of knowledge, skills and attitudes, should be mastered at each period throughout a training programme or across a professional career (Hatcher & Lassiter, 2007). The literature also recommends that within each developmental stage benchmarks be established that set aspirational targets for skill development (APA, 2007).
Just as training in the medical and allied health fields is seen as sequential, cumulative and graded in complexity, so should assessment methodologies reflect this (Kaslow, Rubin, Bebeau, et al., 2007).

Flowing on from this perspective other authors, recognising that competence is often conceptualised as involving multiple foundational and functional domains, recommend that competency assessment is best viewed as a multi-trait, multi-method, multi-informant process (Kaslow, Rubin, Bebeau, et al., 2007). The use of multiple valid and reliable assessment methodologies within each of the required domains may help ensure better prediction of future performance, whilst the gathering of data about individual performance from multiple informants, with the cohesive integration of that data, should ensure that individuals are provided with appropriate feedback about the development of clinical competence (Kaslow, Rubin, Bebeau, et al., 2007). When individuals are identified who are experiencing difficulties demonstrating competence, formal strategies and procedures should be in place to enable attempts at remediation. Further, academic or career-exit strategies must be in place to deal with those individuals for whom competence problems cannot be remediated (Kaslow, Rubin, Forrest, et al., 2007).

Much of the literature regarding competency assessment within the medical and allied health fields recommends that assessment should address issues of interpersonal functioning, professionalism, ethical practice and capability (Arnold, 2002; Creuss & Creuss, 2006). Such assessments should be theoretically grounded and again employ multiple methods and seek information from multiple informants. The literature does acknowledge that assessment methodologies capable of reliably and validly assessing these domains currently lag behind many of the available assessment methodologies for use within other skill domains (Leigh, et al., 2007).
Some authors also recommend that assessment methodologies declare in advance the driving purpose behind the assessment (Roberts, 2005). For example, assessments may be formative in purpose, occurring within the body of the training programme and intended to provide information to the student that encourages skills development, or summative and occurring at the end of the programme in order to make clear statements about the attainment of competence. Finally, the literature recommends that best practice in competence assessment will be achieved with the training of assessors in an attempt to increase the validity and reliability of the assessment process (Kaslow, Rubin, Bebeau, et al., 2007).

Taking into account the above recommendations, Leigh et al (2007) state that assessment models across the various health care professions typically group into four categories according to what it is they are intending to measure (a) Measures of knowledge, (b) Measures of professional decision making, (c) Measures of professional attributes and (d) Measures of practice-based skills and tasks. Measures of knowledge typically include multiple-choice, essay and short answer questions. These measures often form the basis of any educational process, and can vary in validity and reliability depending on factors including the quality of test construction, the training of raters with periodic recalibration of scoring practices to avoid drift, and the availability of scoring guides and protocols. Various guides exist for educators seeking to ensure acceptable validity and reliability in the use of these measures of knowledge (Downing & Haladyna, 2006). Well-designed measures of knowledge can therefore have good validity and reliability, be feasible in application, but may demonstrate low fidelity to practice. As measures of knowledge they generally are not designed, nor do they perform, as good measures of "on the job" skills.

With regard to measures of decision making, various methodologies are commonly employed including, most often, structured case-based oral examinations. Here information is provided sequentially to the person being assessed via written vignettes or recorded
material. As more information is provided the person being assessed is questioned regarding their knowledge, decision making process and plan of action. Leigh et al (2007) report that typically six or more cases are employed in order to provide for an adequate number of scorable responses reflecting clinical decision making. As with pencil and paper measures of knowledge, the validity and reliability of such measures is dependent upon the quality of construction, standardization of cases, training and monitoring of examiners and their actions, as well as the development of a standardized scoring system. As such they are more costly and labour-intensive than pencil and paper assessment techniques but do seem to represent at least a moderate degree of fidelity to practice.

Measures of personal attributes can include the use of 360° evaluations (Maloney & Hinrichs, 1959) global rating scales and the use of personal portfolios. These evaluations obtain feedback from multiple raters, including self-ratings of the individual in question, about the personal attributes and professional performance of the person being assessed. Evaluators are asked to provide feedback about performance across competency domains and scores are summed across all evaluators prior to the provision of feedback. Obviously this assessment methodology is time, cost and labour intensive. Some authors point out that the methodology is open to misuse with the potential for hurt feelings and anxiety on the part of the person being assessed (Carson, 2006). However Kaslow et al (2009) indicate there is significant support for the psychometric properties of the 360° evaluation in the leadership and business fields including high levels of internal consistency and inter-rater reliability. It should be noted that whilst this form of assessment is used in the field of medical education at both the undergraduate and postgraduate level, it is rarely employed in the field of professional psychology, possibly as a result of a decisional balance weighing against the resource costs and work involved.
Finally there has been significant progress in the development of methodologies designed to assess practice based skills and tasks. For example, the use of Objective Structured Clinical Examinations (Carraccio & Englander, 2000), often employing standardized patients, is common. "Stations" are constructed that allow clinical encounters assessing various competencies. Those being assessed move from station to station conducting, under observation, the usual clinical routine required of such an encounter. Scores from multiple assessors are combined to determine the final outcome. When constructed with the usual provisos indicated above there is sound psychometric support for the OSCE, typically to be found in the medical education literature (Carraccio & Englander, 2000; Colliver, Swartz, & Robbs, 2001; Swick, Hall, & Beresin, 2006), with the added advantage of high fidelity (Newble, 2004). Obviously the administrative and financial load attached to the use of the OSCE process is high, at times prompting administering institutions to choose to employ the process at particularly "high-stakes" or critical periods in the educational or employment sequence.

Other methods designed to assess practice based skills and tasks include direct observation of clinical work with the rating of an individual's performance on a list of behavioural indicators. Competency evaluation rating forms, such as the Mini CEX (Norcini, Blank, Duffy, & Fortna, 2003) require the rating of selected competencies on scales relating to corresponding levels of competence observed. Again, when well-constructed and with adequate training of assessors, these forms can demonstrate acceptable psychometric properties. High face, construct, content and discriminant validity have been reported (Lievens & Sanchez, 2007) as well as moderate to good reliability across settings and raters (Kak, Burkhalter, & Cooper, 2001). These forms are easy to use and are inexpensive, thereby demonstrating feasibility as well as high fidelity to practice.
Multiple authors have suggested that no single assessment methodology will adequately assess all aspects of competence (Kaslow, Rubin, Bebeau, et al., 2007; Roberts, et al., 2005). Instead, it has been suggested that multiple assessment methods, employed by multiple assessors may be applied across numerous times throughout an educational or employment sequence. Decisions regarding the choice of assessment methodologies will depend on the competencies to be assessed, the purpose of the assessment to be conducted, the availability of valid and reliable instruments with which to conduct the assessment and the resources available to support the assessment process.

Taking into account these issues and the recommendations outlined above, it must be noted that the availability of psychometrically sound assessment methodologies for use within Australian university programmes in professional psychology is lacking. Negri et al (2007) note that at the time of publication there existed no generally accepted assessment tool with which to assess the developmental acquisition of foundational competencies expected of postgraduate professional psychology students, nor their final level of competency attainment. In an attempt to address the issue, Negri and colleagues developed the RMIT (Royal Melbourne Institute of Technology) University Clinical Competency Assessment Tool. The tool requires interns enrolled within a Masters' Degree of Clinical or Educational/Developmental psychology to submit a 15 minute excerpt of their work with clients that they believe best represents competence on nine foundational skills. These foundational skills included (a) Professional and ethical practice, (b) Interpersonal and interaction skills, (c) Organisational skills, (d) Communication skills, (e) Knowledge base, (f) Assessment and clinical formulation, (g) Intervention and evaluation, (h) Report writing and (i) Use of supervision. In an evaluation of the instrument Negri and colleagues had forty three interns present a single 15 minute excerpt that they thought best represented competence in the above domains at the beginning of semester and then again 13 weeks later at the end of semester.
Obviously not all competence domains could be represented in a single 15 minute excerpt. These excerpts were rated by supervisors on a three point scale from 1 = Some improvement required, 2 = Expected level of competence at this stage of the supervisee's training and 3 = Competence at a level expected of a fully qualified psychologist. For the purposes of the development of the assessment tool each excerpt was also blind rated by an external clinical psychologist in private practice in order to determine a measure of inter-rater reliability. No significant differences were found between competence levels at pre- and post-testing, and nor were significant differences found between the total ratings of competence by the blind rater compared to that of the supervisors.

Pachana et al (2011) reported on the development of a competency-based assessment methodology employed within the School of Psychology, University of Queensland. This methodology employed a Multi-Station Assessment Task format in which a series of vignettes involving scenarios commonly found in clinical practice are presented to interns. Interns are given a brief period of time to digest information and are then required to answer a series of questions. Responses are rated in a fashion similar to the grading of responses on the Wechsler scales reflecting varying degrees of completeness. Failure on one or two items sees students offered the opportunity for remediation, failure on most of the items requires repeat of the placement unit. However no data regarding the validity or reliability of the assessment instrument was reported.

Tweed, Graber and Wang (2010) report on the development of the Clinical Skills Assessment Rating Form (CSA-RF) a seven domain measure of clinical competence developed at the University of Leicester. These seven domains included (a) Rapport, (b) Exploration, (c) Understanding and reflection, (d) Structure, (e) Non-verbal behaviours, (f) Making psychological links and, (g) Awareness and appropriateness of own reactions. Trainees submitted videotaped work of themselves interacting with simulated patients. Each
videotape was of 15 minutes duration and qualified clinical psychologists, identifying themselves as practicing a variety of theoretical orientations, rated each excerpt on a four point scale: good pass, pass, borderline and fail.

Tests of internal consistency were undertaken and Cronbach’s alpha was found to be .78 suggesting an acceptable level of inter-item homogeneity. A factor analysis extracted five factors with this structure accounting for 50.74% of the variance. These domains were later named (a) Demonstrating professional therapeutic engagement, (b) Creating a secure base, (c) Formulation, (d) Facilitating mutual understanding and (e) Session structure. On the issue of inter-rater reliability, intra-class correlations were conducted with reference to the five domains extracted from the factor analysis. Results ranged from .04 - .12 suggesting generally poor agreement between raters for the domains specified. Clearly the issue of inter-rater reliability must be addressed and may reflect the fact that raters identified themselves as operating from various theoretical orientations, which may or may not have aligned with the theoretical orientation taught in the Doctoral programme. It may also be worth noting that raters were oriented to the rating process with only brief written instructions. The authors conclude that further work is required, in particular to investigate the psychometric properties of the assessment tool.

Perhaps the most interesting development in the assessment of competencies relevant to the education of postgraduate professional psychology students is that of Gonsalvez (2012) who developed an assessment methodology for use by supervisors when rating trainee performance during external clinical placement. Gonsalvez and Freestone (2007) recognised both a leniency and halo effect in the rating of trainee performance whilst on external placement, expressing concerns that, without accurate formative assessment, interns would be denied the opportunity to appropriately address competency development needs. The vignette-matching system attempts to address this issue by providing detailed descriptions of
trainee performance on each eight competency domains and one progress domain across four levels of performance from beginner to competent (defined as equivalent to a clinical psychology graduate). Competency domains include (a) Relational skills, (b) Clinical assessment skills, (c) Formulation and intervention skills, (d) Psychometric skills, (e) Scientist practitioner approach, (f) Personal capacities, (g) Ethical practice, (h) Professional skills and (i) Response to supervision. External clinical supervisors are asked to best match the performance of the intern under supervision against these detailed 100 word descriptions and by so doing, hopefully provide a more accurate analysis of the trainee's performance. Gonsalvez reports that preliminary psychometric data indicate that, in comparison to conventional clinical rating forms, the vignette matching approach reduces the leniency and halo biases often observed in the rating of trainees on external placement, and according to feedback from external clinical supervisors, has good face and ecological validity.

**Section summary**

All domains in which the competency movement has been adopted have witnessed attempts to develop a range of valid and reliable competency assessment tools. Further, a significant body of literature has emerged to guide such developments. However, it would appear that the development of psychometrically sound assessment methodologies has been more readily achievable in some areas than others. In particular, as the tasks to be assessed become more complex, challenges to the development of psychometrically sound assessment methodologies become more pronounced. These challenges are obvious in areas such as professional psychology, in which there can be seen to be a lack of sound assessment methodologies designed specifically for the purpose.
The Relationship between the Psychological Functioning of Professional Psychologists and the Development of Competence

Very little is known about the factors that encourage or impede the development of competence in postgraduate professional psychology students, although curriculum, teaching, supervision and student variables have all been implicated (Baillie, et al., 2011; Brear & Dorrian, 2010; Falender & Shafranske, 2007; Gonsalvez, Oades, & Freestone, 2002; Hunt & Sharpe, 2008; Nel, 2010; O’Donovan, Halford, & Walters, 2011; Stedman, Wood, Curle, & Haslam, 2005). Anecdotally many students appear to excel in the development of competence, whilst others are slower to acquire the necessary knowledge, skills and attitudes. Others experience significant difficulty demonstrating required competencies, and sometimes fail to meet the requirements of the training programme altogether. Little is known about the factors that encourage or impede the maintenance of competence in qualified psychologists, but the bulk of the literature on the topic explores the issues of personal, academic or professional stressors and the mental health status of the individual psychologist.

The possibility that postgraduate professional psychology students might report elevated levels of stress and psychological disorder is hardly surprising. Life presents a range of personal stressors to all individuals that may impact negatively on interpersonal, academic and/or occupational functioning (Guy, Poelstra, & Stark, 1989). University study in general, and post graduate study in particular, may present a range of stressors including transition from undergraduate to postgraduate roles and responsibilities, high workload, academic deadlines, frequent evaluation, financial hardship and dislocation from family and friends (Andrews & Wilding, 2004; Stewart-Brown et al, 2000). Post graduate training in professional psychology more specifically involves transition from accomplished student to novice therapist, exposure to a clinical caseload, close clinical supervision, academic and professional deadlines, repeated academic and clinical skills observation and assessment, and
juggling the roles of student, researcher and clinician (Schwartz-Mette, 2009). Finally, exposure to the field of mental health in a professional capacity often involves regular contact with individuals and groups experiencing high levels of emotional distress and others who may display suicidal and/or self-harming behaviour. There may also be the growing realisation that clinical work is not particularly glamorous and is fraught with ambivalence and uncertainty. Change may or may not occur and if it does, may take a significant period of time (Hellman, Morrison, & Abramowitz, 1986; Moore & Cooper, 1996).

Surprisingly then, relatively few studies have sought to profile the psychological functioning of postgraduate professional psychology students (Pakenham & Stafford-Brown, 2012) or indeed qualified professional psychologists, and examine the interrelationship between this and the acquisition and maintenance of clinical competence. Nonetheless, those that have, provide some support for the assertion that postgraduate professional psychology students and qualified psychologists are particularly vulnerable to stress and psychological disorders, with a probable associated impact on service delivery and quality of care (Burrows & McGrath, 2000; Cushway & Tyler, 1996; Guy, et al., 1989; Hellman, et al., 1986; O'Connor, 2001; Rupert & Morgan, 2005; Sherman, 1996).

For example, Cushway (1992) surveyed 287 British Clinical Psychology Trainees (CPT) regarding levels and sources of stress, general psychological functioning as well as coping strategies employed. Respondents completed a self-report stress survey, a measure of type and frequency of coping strategies employed and the General Health Questionnaire (GHQ) (Goldberg, 1978), a screening device designed to estimate minor psychiatric disorders in the general population. The GHQ may be scored for extent of distress or in binary form to indicate "caseness"- the possibility that distress is at such a level that might be associated with a psychiatric diagnosis. GHQ results revealed that 59% of trainees indicated possible caseness, 75% reported that they were moderately to severely stressed as a result of training,
and that there was an increase in perceived stress levels in the second and third years of
training. Female trainees reported higher GHQ scores than male trainees, with more use of
active cognitive and behavioural coping techniques.

Kuyken, Peters, Power and Lavender (1998) profiled the psychological functioning of
British postgraduate professional psychology students. Of the 304 trainees surveyed, 183
(60.2% response rate) completed measures of psychological functioning as defined by
responses on the 120-question Employee Assistance Program Inventory (EAPI) (Anton &
Reed, 1994), as well as measures of appraisal, coping strategies and social support. Of
particular interest here, the EAPI measures ten domains including anxiety, depression, self-
esteeem problems (negative self-evaluation and satisfaction with personal achievement),
marital problems, family problems, external stressors (stressful events external to work
settings), interpersonal conflict in the work context, work adjustment (satisfaction with
features of work including pay, opportunities for advancement and work conditions), problem
minimization (the degree to which the person minimizes the extent or severity of problems)
and substance abuse. Whilst self-report scores for the group as a population of trainees on
measures of psychological, social and occupational adaptation were within the normal range
for employed adults, 25% of trainees reported significant problems with self-esteem, anxiety,
depression and work adjustment. Of the male participants 42% reported substance abuse
problems and used less approach and more avoidant coping than women.

Kuyken, Peters, Power, Lavender and Rabe-Hesketh (2000) conducted a one year
follow-up of these participants with 167 of the 183 initial respondents participating in the
second phase of the study (91.3% of initial sample, 55% of the total sample). They found
stable patterns in psychological functioning over time with the percentage of trainees
experiencing significant problems remaining relatively constant for all scales on the EAPI.
Further, they reported that over that same period of time trainees, as an overall group,
indicated an increase in the degree of work adjustment problems, depression and interpersonal conflict experienced, with significant changes occurring between year one and two of a three year training sequence.

In a sample of 364 British trainee clinical psychologists, Brooks, Holttum and Lavender (2002) explored personality type, psychological functioning, accuracy of expectations regarding the demands of training and use of social support. They found overall personality adjustment to be significantly better than the normal population. As a group, measures of self-esteem, anxiety and depression were significantly poorer than the normal population, but still within the range defined as normal adjustment. However 8% of the group demonstrated “poor” personality adjustment with significantly higher scores on measures of self-esteem problems, work adjustment problems, depression, external stressors, family problems, anxiety, interpersonal conflict and marital problems compared to the rest of the sample. Further, it was this group that reported the greatest discrepancy between expectations and actuality regarding their course. That is, this group reported greater discrepancy between initial expectations of their programme, and their actual experience in a number of aspects of their training: supervision, clinical work, formation of personal and professional identity, impact on life and the teaching of research skills compared with the rest of the participants. Overall, poor personality adjustment and expectation shortfall predicted anxiety, depression and poor work adjustment. Satisfaction with social support was not a significant factor in predicting psychological adaptation.

Kumary and Baker (2008) surveyed 109 British professional psychology trainees (41% response rate) regarding experiences of stress and general psychological functioning. Respondents completed the 36-item Counselling Psychology Trainee Stress Survey (CPTSS), adapted from Cushway's (1992) stress survey for clinical psychology trainees, and the GHQ 12, a 12-item short form of the GHQ. Results on the CPTSS indicated that trainees rated 13
items on the CPTSS as particularly stressful, items clustering around the three issues of the management of time, finances and clinical placements. Fifty nine per cent of trainees fell within the GHQ "caseness" range with levels of distress remaining steady over the duration of training, a rate that equates with Cushway's (1992) findings. Further, GHQ ratings were significantly and positively correlated with each subscale of the CPTSS indicating that the higher the stress rating for any aspect of training, the clearer the indicators of psychiatric distress became.

Multiple observations have been made indicating that qualified professional psychologists also experience stress, anxiety, depression, issues with substance misuse and personality difficulties, and that the experience of these psychological issues may well impact on patient care (O'Connor, 2001; Sherman, 1996). Cushway and Tyler (1994) surveyed 101 qualified clinical psychologists (response rate of 67%) working in the UK National Health Service regarding levels of stress, general psychological functioning and coping strategies. Respondents completed a 58 item stress survey, a coping questionnaire and the GHQ-28. GHQ results revealed that 29% of respondents indicated possible caseness. Seventy five per cent indicated that they felt moderately to very stressed as a result of their job. A moderate correlation was found between stress survey totals and GHQ totals, stress survey totals and rating of extent of distress, and stress survey totals and impact on work. Further, self-reported extent of stress was negatively associated with age and years of practice indicating that increased age and experience protected against the experience of stress. Significant gender differences were found whereby women were more likely to demonstrate caseness, have higher GHQ total scores, and higher scores on the somatic dysfunction and anxiety/insomnia dysfunction subscales of the GHQ. When the sample was divided into cases vs. non-case, cases had higher stress survey total scores, higher avoidant coping scores, were younger and had been practicing for fewer years. The most frequently employed coping
strategies were behavioural e.g. talking to other clinical psychologists, exercise and talking to partners.

Pope, Tabachnick and Keith-Spiegel (1987) surveyed 456 qualified professional psychologists (response rate of 45.6%) in the USA and found that 62% reported "working when too distressed to be effective" at frequencies varying from "rarely" to "very often". Guy, Poelstra and Stark (1989) surveyed 318 qualified professional psychologists (response rate 44%) and found that 74.3% of respondents reported experiencing "personal distress" during the previous three years with 36.7% of those indicating that this distress had decreased the quality of patient care provided. Five per cent reported that this reduction in quality constituted inadequate treatment.

These results, both for students and qualified professionals, largely echo those regarding the psychological functioning of individuals within the medical profession where the volume of research on the topic is extensive. As with similar research in the field of psychology, rates of psychological distress and impact on clinical practice are difficult to gauge given methodological limitations (sampling bias and survey design) and vary considerably from low rates considered not significantly different to that of the general population (Helmers, Danoff, Steinert, Leyton, & Young, 1997; Toews et al., 1997) through to 44% of Australian medical students classified as psychologically distressed (Leahy, et al., 2010) and on to very high rates with approximately 60% of one sample of medical students reporting significant levels of depression and anxiety (Inam, Saqib, & Alam, 2003). Overall, in a systematic review of studies investigating rates of depression, anxiety and other indicators of psychological distress amongst US and Canadian medical students Dyrbeye, Thomas and Shanafelt (2006) reported that there is consistent support for findings that indicate high levels of overall psychological distress amongst medical students, and that these levels are consistently found to be higher than rates within the normal population.
Section summary

Literature exists supporting the observation that psychological distress is experienced by both post graduate students of psychology and qualified psychologists, as well as other health professionals. The literature also suggests that this distress is a possible precursor to problems of academic and professional competence. However the precise nature of the relationship between psychological distress and the acquisition and maintenance of competence, particularly in the domain of professional psychology, and in the helping professionals generally, is largely empirically unexamined.

Problems of Professional Competence

Competency assessments will, at times, identify individuals who have difficulty demonstrating the necessary competencies (Kaslow, Rubin, Forrest, et al., 2007), and a body of literature has emerged examining issues relating to individuals who demonstrate such difficulties from initial training and onwards across the professional lifespan (Huprich & Rudd, 2004). Historically much of this work has referred to issues of "impairment", and as such has examined issues of terminology and definitions (Bissell, 1983; Laliotis & Grayson, 1985; Lamb et al., 1987; Sherman, 1996), aetiology (Cushway & Tyler, 1994; Hellman, et al., 1986), prevalence (Thoreson, Miller, & Krauskopf, 1989), the relationship between psychological distress and impairment (Guy, et al., 1989; Looney, Harding, Blotcky, & Barnhart, 1980; Sherman & Thelen, 1998), impact on the impaired practitioner (Lee, Lim, Yang, & Min Lee, 2011), and proposed management strategies (Floyd, Myszka, & Orr, 1998; Laliotis & Grayson, 1985).

By mid-2000 however, within the field of psychology the term impairment was being rejected in favour of the term "problems of professional competence" (Elman & Forrest, 2007). This shift in terminology occurred as a flow-on from the 2002 Competencies
Conference (Kaslow, et al., 2004) where attendees were called upon to specify core competencies in professional psychology, articulate a developmental sequence of competence acquisition tied to appropriate educational activities, identify and develop appropriate competence assessment philosophies and methodologies to be employed at milestones across the professional lifespan, as well as develop responses to competence problems. Most notably, and to recap, the work of the conference resulted in the development of the Cube Model (Rodolfa, et al., 2005) whereby competence was conceptualized as being composed of foundational competencies underpinning the practice of all psychological services as well as functional competencies relating to specific skill sets applied in specific areas of practice. The conceptualization of competence in this fashion saw the term "problems of professional competence" proposed as a term to describe those individuals who were having difficulty achieving or maintaining foundational or functional competencies. This term was thought to be less likely to be offensive to the individual experiencing such difficulties, and maintained a focus on the issues of competence, standards and performance (Elman & Forrest, 2007).

Estimates of the prevalence of failure to meet and maintain the required professional competencies in professional psychology vary and are elusive (Lamb, et al., 1987). Most studies on the topic were published prior to the adoption of the term "Problems of Professional Competence" and suffer from the problem of lack of definitional specificity thereby contributing to variability of findings. For example, many of the available studies have employed the term "impairment", but in using the term, have not sought to operationalize it. Where studies have sought to investigate "impairment" in professional psychologists, student or qualified, the term has variously referred to difficulties learning and meeting professional standards, problems acquiring and developing clinical skills and difficulties performing the work (Lamb, et al., 1987), the experience of a psychological disorder by the psychologist (Huprich & Rudd, 2004), the interference in professional
functioning as a result of "chemical dependency, mental illness or personal conflict" (Laliotis & Grayson, 1985), or the existence of problems in professional activities (Guy, 1987; Sherman & Thelen, 1998). However, even with regard to the latter, problems in professional activities have ranged from the self-rated perception of working whilst too distressed to do so, through to possible instances of inadequate treatment provision for the client.

Further, most studies in the area are survey-based and may suffer from the methodological difficulties inherent in survey-based research e.g. low response rates, self-selection of responders, biasing of samples etc., all potentially leading to problems of generalizability of findings. However, those studies that have been performed have produced interesting results that appear to point towards the possibility that a significant number of practicing professionals, both during training and after graduation, exhibit problems of professional competence, where such problems refer to substandard professional performance at times.

For example, Vacha-Haase, Davenport and Kerewsky (2004) surveyed the Training Directors of 281 American Psychological Association-accredited clinical, counselling and school psychology programmes regarding the experience of problematic students over the previous three year period, with a useable survey response rate of 37%. Of the programmes surveyed 52% reported terminating at least one student over the survey period, with 114 students terminated in total. Inadequate clinical skills were the most often cited reason for termination. A wide range of problematic behaviours not leading to termination were also listed including inadequate clinical skills, defensiveness in supervision and deficient interpersonal skills. Gabautz and Vera (2006) suggested that estimates of postgraduate professional psychology students exhibiting problems due to interpersonal, emotional, skills-based or other professional fitness reasons remediated or dismissed are 4% to 5% with rates increasing up to 10% when samples are widened to include unremediated trainees.
Mearns and Allen (1991) surveyed 29 faculty and 73 graduate students and found that 95% were aware of peers whom they regarded as impaired in their professional functioning. Respondents report between one and three impaired students per cohort, where impairment related to interpersonal difficulties, Diagnostic and Statistical Manual (DSM) Axis I and Axis II issues that hindered professional functioning and/or inability to meet the expectations of the training programmes. Shen-Miller et al (2011) surveyed 4,000 trainees in clinical, counselling and school psychology programmes and reported an 8% response rate. They reported that 44% of respondents were aware of peers experiencing problems of professional competence where problems of competence included difficulties with professionalism, difficulties with interpersonal skills, knowledge and skill based difficulties and mental health related problems.

However, with regard the rate of problems of professional competence amongst qualified psychologists, figures are harder to locate (Smith & Moss, 2009). Professional psychology often occurs unobserved within the context of private practice or behind the closed doors of consulting rooms in hospitals or community settings. Psychologists observing problems of professional competence in colleagues rarely report or confront the problematic individual (Good, Thoreson, & Shaughnessy, 1995; Skorina, Bissell, & De Soto, 1990) and clients, by virtue of the unequal power differential inherent in the client-therapist relationship, and often themselves without the benefit of training in professional psychology, cannot always detect these problems. When they do, it is likely that many simply exercise their right to discontinue and seek help elsewhere rather than reporting the problem.

**Section summary**

It is difficult to gain a thorough understanding of the issue of problems of professional competence amongst both trainee and registered psychologists. The literature that exists has
typically addressed the issue as one of "impairment" and suffers from lack of definitional specificity. Nonetheless, it would appear that a proportion of both trainee and registered psychologists experience difficulties at some point in their careers acquiring and/or maintaining competence. The relationship between these competence difficulties and patient care is, however, unclear.

**Chapter Summary**

In a move that parallels similar developments in the fields of business, education, and medicine, the profession of psychology has become increasingly focussed on the issue of competence, its development, assessment and maintenance. In Australia the education and training of professional psychologists occurs largely within the university system, and multiple pathways exist to both generalist and specialist registration and endorsement. However, the degree to which these pathways contribute to the development and maintenance of professional competence is largely empirically unexamined. Further, whilst some literature exists that suggest multiple variables contribute to the development and maintenance of competence, the psychological functioning of psychologists themselves appears to be implicated. In order to more fully explore those factors that impact on the development and maintenance of competence, and indeed the impact of potential problems of professional competence, definitions of competence and associated competencies must be clarified, and psychometrically sound assessment methodologies must be developed.
CHAPTER 3 – LITERATURE REVIEW

The Theoretical and Empirical Relationship between Psychological Functioning and Performance

Theoretical relationship

Many theories regarding the possible relationship between psychological functioning and performance have been proposed over the last century but perhaps the most influential has been the “Inverted U Hypothesis”. This theory had its foundations in the work by Yerkes and Dodson (1908), who reported on a series of experiments in which mice were required to learn tasks of varying difficulty, while being subjected to a series of electrical shocks of increasing intensity. On the basis of these experiments, Yerkes and Dodson concluded that speed of learning increased as tasks became easier, and that overall, moderate levels of shock intensity were associated with optimal rates of learning.

The Yerkes and Dodson (1908) findings, apparently describing a curvilinear relationship between stimulation and performance at least in relation to the learning of more difficult tasks, seemed to strike a chord with researchers. It was intuitively appealing to many that some degree of stimulation was required to prompt behaviour and that too much stimulation impeded it. However, examination of the original paper reveals a number of methodological inadequacies such as small sample size, inconsistent calibrations of shock intensity and inadequate statistical analyses that render the findings of the original reports and the “Yerkes and Dodson Curve” in doubt. Clearly, these studies would not meet the experimental standards of today. Nonetheless, the Yerkes Dodson findings, couched initially in strictly animal behavioural terms, became popular and widespread within research communities seeking to understand those factors that shaped human performance.

Successive generations of experimental, industrial/organisational and clinical psychologists
appropriated the theory to support the most popular concepts of their day such that the "law" - originally intended to describe a relationship between stimulus strength, task difficulty and rapidity of learning in mice - has been used to examine and explain relationships between a variety of independent and dependent variables well beyond the scope of the original study.

**Figure Two:** Adapted from original data, Yerkes & Dodson (1908)

Other theories have since been proposed to explain the relationship between the psychological functioning of the individual and performance. Drive Theory (Hull, 1943; Spence & Spence, 1966) rose to prominence between 1940 and 1970. At the basis of this theory was Hull's assertion that living organisms were born with basic needs and were motivated to maintain a state of homeostasis, balance or equilibrium with regards to these needs. When needs, such as hunger or thirst, were unfulfilled the organism experienced a state of tension and was therefore motivated to reduce tension and restore equilibrium. When
tension was reduced a state of relaxation occurred until the need or drive arose again. The offset of tension associated with satisfaction of the drive was said to reinforce the behaviour that produced it, thereby increasing the likelihood that the drive-reducing behaviour would occur when the need arose again. As such, the relationship between drive and performance was held to be positive and linear, in that performance increased in proportion to arousal or drive. Spence and Spence (1966) elaborated on the theory to incorporate considerations of task familiarity. That is, increases in drive were said to increase the likelihood that well-learned responses would occur, in contrast to increases in drive being associated with decreases in performance of tasks that were not well-learned. Eventually however, Drive Theory fell from favour due to insufficient empirical support, and a significant weight of anecdotal evidence to the contrary (Neiss, 1988).

By the mid twentieth century, thinking regarding those factors that shaped human performance began to shift away from Behavioural theories towards Cognitive Theories. These theories focussed on human factors such as perception, memory and the processing of information thought to be responsible for influencing behaviour in general, and learning and performance in particular (Neisser, 1967). Running parallel to this development, advances in the neurobiological sciences had occurred, and investigators such as Moruzzi and Magoun (1949) were exploring the neural components regulating the brain’s sleep-wake cycle. Research and scientific thinking moved towards an interest in the concept of arousal, and the role it may or may not play in organizing cortical activity specifically and human performance in general.

This confluence of neurobiological exploration and philosophical thought came together when Hebb (1955) published his work entitled "Drives and the CNS (Conceptual Nervous System)". In this paper, Hebb presented an inverted U to describe the relationship between arousal and performance there referred to as "cue function". Hebb, interested in
illustrating a relationship between arousal and performance, inverted the Yerkes Dodson U and represented optimal performance at the highest point on the x axis, giving rise to the familiar Inverted U Hypothesis. Hebb (1955) stated "thus there will be an optimal level of arousal for effective behavior" (p 250).

The exploration of the relationship between arousal and performance, and with it, the geometric inversion of the U, was further consolidated when Broadhurst, working in the Department of Psychiatry at the Maudsley Hospital, published a paper reporting on a study exploring the relationship between learning, emotionality and motivation in mice (Broadhurst, 1957). Broadhurst produced a 3 x 4 x 2 factorial design with five replications whereby he employed three levels of task difficulty, four levels of motivation and two levels of supposed mouse emotionality. The study found support for the concept that moderate levels of arousal were associated with optimal learning, and in reporting the findings, Broadhurst immediately drew a comparison between his results and anecdotal observations regarding "workers reporting a curvilinear relationship between motivation and performance when increasingly intense motivation is employed". However in exploring the performance of "emotionals" and "non-emotionals" he found no support for his predictions that more highly emotional mice, as indicated by increased frequency of defecation, would respond to the learning task differently to the "non-emotional" mice.

In 1959 a possible explanation for the research findings supporting the Inverted U hypothesis was put forward when Easterbrook published a paper entitled "The effect of emotion on cue utilization and the organization of behavior" (Easterbrook, 1959). Easterbrook asserted that emotional arousal acted to reduce the range of cues that an organism uses or utilizes, where cues refer to pieces of information in the environment available to be attended to. Moderate levels of arousal were said to improve performance by helping the individual to screen out irrelevant cues and focus on relevant cues, but as arousal
increased, so too did this gating or screening process such that eventually even relevant cues were also excluded from availability and therefore from processing. Focus had now expanded to incorporate emphasis on the role of the individual's own responding in mediating the arousal performance relationship, and this theory remains the standard explanation of the Inverted U hypothesis (Teigen, 1994).

Learning theories continued to develop and began to consider the manner in which the individual interacted with their environment during the learning process, apparently "constructing" their own learning experience. Through the 1960s and 1970s psychological theories of emotional functioning and abnormal psychology, sitting alongside this constructivist learning approach, began to explore the manner in which individuals transacted or interacted with their environment, and emphasized emotional and behavioural responding being dependent upon the meaning of the stimulus to the perceiver (Beck, 1967; Lazarus, 1966). Mahoney and Arnkoff (1979) expanded this focus with an emphasis on the coping styles employed by the individual in response to arousal levels, and suggested that higher levels of arousal were not absolutely detrimental to performance but depended on the coping strategies contained within the individual's behavioural repertoire. For Mahoney and Arnkoff, the important factor was determining the optimal level of arousal for each individual. From this point forward the Inverted U Hypothesis was often applied to investigations regarding the relationship between emotion and/or psychological functioning and performance.

Since that time, theories regarding the relationship between psychological functioning and performance have continued to evolve and these evolutions have continued to be informed by the prevailing learning and emotion theories of the day. These more recent theories have focussed on understanding the manner in which personality plays a mediating role in the relationship between psychological functioning and performance (H. Eysenck, 1967, 1981), how the individual interprets both the demands of the task and their own arousal
response, the manner in which such interpretations may change during the performance of a task, the interplay between the performer's multiple emotional responses and performance, the coping strategies the individual brings to bear on managing the demands of the situation, and on the role of personality style (Apter, 1982; Fazey & Hardy, 1988). Underpinning all of these theories however, remains some form of inverted U function.

The Inverted U hypothesis, however, has been criticised on both theoretical and methodological grounds, and it is these flaws that serve to limit its scientific usefulness in the investigation of the possible relationship between psychological functioning and performance in the current study. A number of authors have commented that the inverted U hypothesis is at best a correlational rather than a causal hypothesis about the relationship between independent and dependent variables (Landers, 1980; Neiss, 1988). Landers (1980) stated "In actuality, the inverted U hypothesis is not an explanation for the arousal-performance relationship; it merely posits that this relationship is curvilinear without explaining what internal state or process produces it" (p. 78).

Other authors suggest that, whilst holding intuitive appeal, the inverted U hypothesis is essentially irrefutable (Landers & Arent, 2001; Neiss, 1988; Teigen, 1994). That is, the hypothesis is often applied to the exploration of relationships between variables where the independent variables at least are vaguely defined constructs e.g. "arousal". Teigen (1994) stated that the hypothesis "will never be conclusively established or disproved as long as it can be taken to predict any dynamic variable to have almost any (facilitating or inhibiting) effect upon any desired task" (p. 542).

The difficulty of producing the independent variables of interest e.g. "arousal" or "anxiety" in the laboratory environment has been noted by researchers (Neiss, 1988). There appears to be no guarantee that these variables, if created in the laboratory, relate accurately to the functioning of that construct in naturalistic settings (Staal, 2004). Further, these
variables are not easily manipulated in incremental amounts against which to gauge changes in performance outcomes (Neiss, 1988). Ethical considerations also impact on the researcher’s ability to administer extreme levels of the independent variable such that the potentially descending or right side of the bell-shaped curve can be fully explored.

Further, it is possible that research in naturalistic settings may suffer from range restrictions whereby individuals experiencing extreme levels of arousal might self-select from the population under investigation, leaving the possibility again that the furthest reaches of a bell-shaped curve might not be fully examined. Other authors suggest that the continued application of the inverted U hypothesis to performance-based research obscures important individual differences (Hanin, 1978). Reflecting on these points, Neiss (1988) argued for the retirement of the inverted-U hypothesis stating that "If, the inverted U hypothesis reveals only that the motivated outperform the apathetic and the terrified it should be consigned to the true-but-trivial category" (p. 355).

Given that the absolute and unitary concept of the Inverted U Hypothesis has ambivalent status, how should the potential relationship between psychological functioning and performance be conceptualized? It would appear that, at best, the relationship between emotional functioning and performance is not a simple one, and may depend on the particular independent and dependent variables under investigation. The operation of mediating variables also cannot be ruled out.

**Section summary**

Clearly, although continuing to stand as the dominant theory regarding the emotion-performance relationship, the theoretical shortcomings of the Inverted U Hypothesis, along with the methodological difficulties associated with testing the theory in naturalistic settings, limit its usefulness in this study. Perhaps more fundamentally, the theory that a relationship
exists between emotional functioning and performance for the sample in question must first be tested. That is, whilst empirical data exist that suggest that such a relationship exists in a variety of settings including for university students, the existence of such a relationship amongst students in postgraduate programmes of professional psychology, has yet to be confirmed.

**Empirical relationship**

Empirical exploration of the relationship between individual differences and performance began towards the beginning of the 20th century with attempts to predict scholastic performance (Richardson, Abraham, & Bond, 2012). Binet and Simon (1916) sought to explore individual differences in intellectual ability, and determined that these differences predicted, to some extent, differences in educational outcomes. However, these intellectual or cognitive factors were incomplete predictors, and subsequent research focussed on exploring the influence of non-cognitive factors, such as individual psychological state, on educational outcome. Research here explored the impact of personality style, emotional or mood states such as depression, anxiety and stress, coping strategies, motivation and learning styles. However, this vast body of literature has yet to clarify precisely how these factors might be related to outcome (Richardson, et al., 2012).

The need to predict educational outcome has implications for educational service planners, educational institutions and for individuals themselves. An accurate knowledge of the factors that predict academic success fosters the prediction of who will or will not achieve in a course of study, encourages the growth of individual self-awareness which in turn helps direct individuals towards programmes of study they may be most suitable for, and supports the development of balanced academic curricula that capitalize on what is known regarding the needs of the learner. Further, given that it may become increasingly difficult to predict
academic performance with progression through the academic levels as student selection procedures reduce variation in intelligence (Furnham, Chamorro-Premuzic, & McDougall, 2002), the need to develop an accurate understanding of the non-cognitive factors that influence educational outcomes has become more acute.

A significant body of research has sought to explore the prediction of performance generally and educational outcomes specifically, via an understanding of the role of the personality of the individual. From the early 1900s to the 1980's this research was characterized by attempts to correlate results on numerous personality inventories with performance on specific job related tasks. This research was underpinned by incoherent and at times conflicting conceptualizations of personality structure, with the myriad personality inventories developed at this time influenced by these theoretical differences (Barrick, Mount, & Judge, 2001). Unsurprisingly, this research produced ambiguous findings in relation to the influence of personality on performance, leading some researchers to conclude that personality and job performance were not related in any meaningful way across traits and situations (Guion & Gottier, 1965).

By the 1980's however, the Five Factor Model (FFM) (McCrae & Costa, 1987), based on factor analytic research and theorizing that personality consisted of emotional stability, extraversion, openness to experience, agreeableness and conscientiousness, had become the dominant conceptualization of personality structure. Each factor was said to encompass a cluster of second order, more narrowly defined personality traits. A significant body of literature validated the FFM across countries and cultures, and began to influence the production of personality assessment inventories. Two broad strands of research followed, the first seeking to determine how well "the big five" factors predicted employment and academic success, and the second exploring the narrower personality traits and how well they predicted performance in a variety of domains (O'Connor & Paunonen, 2007).
Much of the research relating to the relationship between personality and work performance has been subjected to meta-analyses. For example, Barrick and Mount (1991) conducted one of the first meta-analyses to employ the FFM as an organising principle in examination of this relationship and concluded that the factor of Conscientiousness best predicted overall job performance. Hurtz and Donovan (2000) drew similar conclusions, as did Barrick, Mount and Judge (2001). All found that personality measures, in particular Conscientiousness, are consistently and positively related to performance across a variety of occupations.

With regard to the prediction of academic performance, although several of the big five personality traits have been found to be predictive of some aspects of academic functioning, most studies have produced mixed results. For example, Openness to Experience scores have been found to predict undergraduate Grade Point Average (GPA) (Farsides & Woodfield, 2003; Lievens, Coetsier, De Fruyt, & De Maeseneer, 2002; Phillips, Abraham, & Bond, 2003), and psychology exam grades (Dollinger & Orf, 1991). However, a large number of studies have found no relationship between this factor and the criterion outcomes in question. O'Connor and Paunonen (2007), in a thorough review paper, estimate the average population correlation between Openness to Experience and academic performance at only $r = .06$, with 90% confidence intervals ranging from $r = -.10$ to $r .22$. Similarly, whilst some studies have found Extraversion to be a negative predictor of post-secondary academic performance (Chamorro-Premuzic & Furnham, 2003b), others have found a positive association (Rothstein, Paunonen, Rush, & King, 1994) or no association at all. O'Connor and Paunonen (2007) however, suggest a mean population correlation between Extraversion and academic performance of $r = -.05$ with 90% confidence intervals ranging from $r = -.15$ to $r .05$, and propose that the largely mixed findings for both of these factors
may indicate the operation of one or more moderator variables in the personality-performance relationship.

Studies of the relationship between Neuroticism and academic performance have also produced mixed results, with some negative correlations between neuroticism and GPA (Chamorro-Premuzic & Furnham, 2003b) however most findings suggest it is largely unassociated with academic performance. Likewise, Agreeableness has been found to be largely unassociated with academic performance (O’Connor & Paunonen, 2007).

However, similar to findings regarding the relationship between personality factors and occupational performance, Conscientiousness has been found to be the most consistent predictor of academic performance. It has been theorized that this factor is associated with motivation (Chamorro-Premuzic & Furnham, 2005), compliance (Trautwein, Ludtke, Schnyder, & Niggli, 2006), effort and goal setting (Steel, 2007), and orderly learning styles (De Feyter, Caers, Vigna, & Berings, 2012), which in turn may influence academic outcomes. Studies have found Conscientiousness to positively predict undergraduate GPA (Conard, 2006), grades in undergraduate courses and exams (Busato, Prins, Elshout, & Hamaker, 2000) and essay grades (Hair & Hampson, 2006). O’Connor & Paunonen (2007) estimate the mean population correlation between Conscientiousness and academic performance at $r = .24$ with 90% confidence intervals ranging from $r = .12$ to $r .36$. Other authors have supported the conclusion that Conscientiousness is the most consistent predictor of academic outcome (Chamorro-Premuzic & Furnham, 2003a; De Fruyt & Mervielde, 1996; Lievens, et al., 2002; Poropat, 2009; Richardson, et al., 2012), whilst Poropat (2009) has even suggested that Conscientiousness and intellect have similar levels of predictive validity at both the secondary and tertiary levels.

Other studies have sought to explore the relationship between performance and psychological factors such as depression, anxiety and stress. Depression for example is one
of the world's leading causes of disability, ranking with ischaemic heart disease, road traffic accidents and cerebrovascular disease in terms of overall disease burden (Murray & Lopez, 1997), making it an obvious variable for exploration. Depressive disorders have been noted to confer to afflicted individuals functional limitations and role disability, and lifetime prevalence rates within the general population have been estimated at approximately 16% (Kessler et al., 2003). The relationship between depressive disorders and impact on performance has been largely examined within the workplace, where research has focussed on the three outcome indicators of employment status, absenteeism, and presenteeism (Lerner & Henke, 2008). Individuals suffering from depression have been noted to experience higher rates of unemployment (Dooley, Praise, & Ham-Rowbottom, 2000; Ettner, Frank, & Kessler, 1997), less stability in employment with both increased risk of earlier retirement (Doshi, Cen, & Polsky, 2008) and higher employment turnover rates (Adler et al., 2004), under-employment (Adler, et al., 2004; Ettner, et al., 1997) higher rates of absence from work (Lerner et al., 2004; Pflanz & Ogle, 2006; Simon, Von Korff, & Lin, 2005), at-work performance deficits (Adler, McLaughlin, Rogers, Chang, & et al., 2006; Emptage, Sturm, & Robinson, 2005) and productivity losses (Kessler et al., 1999). These negative correlates appear to be dose-dependent, in that depression severity predicts severity of impact (Lerner, et al., 2004) and many of these performance gaps have been noted to remain over time even as depression is treated and/or remits (Adler, et al., 2006).

However, much less is known about the relationship between depressive symptoms and disorders, and academic performance (Owens, Stevenson, Hadwin, & Norgate, 2012). Some studies have suggested that depressive disorders have become more prevalent within academic environments over the last twenty or so years (Andrews & Wilding, 2004; DeRoma, Leach, & Leverett, 2009; Furr, Westefeld, McConnell, & Jenkins, 2001). Others have suggested that university students may be at particular risk for the development of this
disorder (Stewart-Brown, et al., 2000), and estimate point prevalence rates within this population at approximately 10% (Price, McLeod, Gleich, & Hand, 2007; Rimmer, Halikas, & Schuckit, 1982). Peluso, Carleton and Asmundson (2011) noted that estimates of the prevalence of depression within the post-graduate student community are limited but reported that when completing the Centre for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977) 33% of post-graduate psychology students reported clinically significant symptoms of depression, with six per cent of this group indicating significant functional impairment.

Other studies have noted symptoms of mood disorders including difficulties concentrating, ruminative thinking, tendency to worry and deficits in working memory, and have suggested that depressive symptoms may impact on academic performance. Such disruption may occur via impaired cognitive ability, in particular when complex concepts and/or skills must be acquired (Owens, et al., 2012), or via the experience of an increased rate of co-morbidity such as anxiety or substance abuse disorders, which in turn may place additional burden on the sufferer (Peluso, et al., 2011).

Other authors have suggested that a range of factors may be associated with both depression and academic performance including gender (Piccinelli & Wilkinson, 2000), drug and alcohol use (Rimsza & Moses, 2005), race (Castro & Rice, 2003), programme of study (Leahy, et al., 2010) and financial stressors (Andrews & Wilding, 2004). Stallman (2008) notes that the highest prevalence of psychological problems occurs within the 18-24 year age range, with 75% having an onset before 25 years. Extending on that point, Heiligenstein, Guenther, Hsu and Herman (1996) noted that traditionally university attendance occurs during these years and suggested that increasing academic and financial stressors may combine with mood disorders in a manner that intensifies both.
A small number of studies have also explored the impact of depression on college and university performance. Several of these studies have reported that depression correlates with poorer academic performance. For example, Andrews and Wilding (2004) demonstrated that depression had a significant negative effect on exam performance, even after controlling for prior performance. De Roma et al (2009) found that students with moderate levels of depression demonstrated significantly lower levels of academic performance as measured by grade point average than did their less depressed peers. Hysenbegasi, Hass and Rowland (2005) found that depression was associated with a half point decrease in GPA in college students, whilst Turner, Thompson, Huber and Arif (2012) found that even after adjustment for age, sex, year in school, race/ethnicity, substance use and level of debt, depressed students had an increased likelihood of achieving a lower cumulative grade average. Although much less examined, other studies have explored the relationship between experience of depression and student performance in clinical settings and have also reported a negative impact including reduced empathy for patients (Thomas et al., 2007), and an increase in cynicism leading to an unwillingness to care for chronically ill, unwell or terminal patients (Dyrbye, Thomas, & Shanafelt, 2005).

The impact of anxiety on performance has also been studied extensively (Seipp, 1991), and findings have been widely divergent. Studies have appeared to lean towards an acceptance of Eysenck’s processing efficiency theory (M. Eysenck & Calvo, 1992) later known as the attentional control theory (M. Eysenck, Derakshan, Santos, & Calvo, 2007), in which it was proposed that anxiety interferes with the efficiency of cognitive processing, in particular on working memory and the ability of the individual to focus attention on the most task-relevant cues, with such effects said to become more pronounced as task complexity increases.
Depending on specific subject characteristics, conceptualizations of anxiety and types of performance investigated, studies exploring the relationship between anxiety and performance have produced results that have varied widely from positive to negative, and weak to strong relationships leading many researchers to suggest the possible operation of various moderators in the anxiety/performance relationship (Díaz, Glass, Arnkoff, & Tanofsky-Kraff, 2001; Endler, Kantor, & Parker, 1994; Owens, et al., 2012).

In an attempt to explore the inconsistencies presented by previous research Seipp (1991) conducted a meta-analysis of 126 studies published between 1975 and 1988. A total population effect size of \( r = -.212 \) was reported, with a 95% credibility interval (which uses the residual instead of the observed standard deviation) ranging from -.37 to -.07. Interestingly, gender was not found to be a significant moderator in the anxiety-performance relationship, and when exploring a gender x nation interaction in this relationship, the general impressions drawn from the literature indicating that women are more negatively impacted by anxiety than men appeared to arise as an over-generalization of the findings from the USA. Further, effect sizes for state and trait anxiety were almost identical, at -.194 and -.167 respectively, as were the 95% credibility intervals, suggesting only small effect sizes according to Cohen's (1988) conventions. Significant findings were reported regarding the relationship between test anxiety and performance, and general anxiety and performance, with test anxiety proving to be a better predictor of academic performance than general anxiety. Time of anxiety assessment also proved significant, in that, contrary to expectations, the relationship between anxiety and performance was stronger when it was measured after performance, rather than before or independent of performance. Seipp (1991) theorized that this result suggested that anxiety did not impair performance, but student recognition of performance outcome was the decisive factor in the amount of anxiety experienced. Alternatively, it was suggested that anxiety may have been employed as an excuse for poor
performance. Finally, the experience of worry was shown to be a significant moderator in the anxiety performance relationship with a population effect size of -.219, and a 95% credibility interval of -.40 to -.04. Seipp (1991) concluded "The relationship is thus clearly negative, which means that high anxiety goes together with poor performance and vice versa. However, one must keep in mind that this relationship is much weaker than has often been postulated" (p. 38).

The investigation of the relationship between stress and performance has been hampered by difficulties regarding the definition of the term "stress". Traditionally, stress was characterized in terms of a stimulus based construct where certain conditions were considered to be stressful and were dubbed stressors e.g. time pressure, work-load demands. Later attempts to define stress focussed on a response-based approach which held that stress was defined by an individual's pattern of responding in cognitive, behavioural and emotional terms.

By 1984, however, Lazarus and Folkman had developed the Transactional Model of Stress and Coping, (Lazarus & Folkman, 1984) and defined stress as a transaction between the individual and the environment. Stress was considered to result when an individual perceived an imbalance between the demands of the situation and the resources available with which to respond. As such, stress was not an inevitable response to a particular circumstance but rather a response mediated by the individual's perception of available environmental and internal resources including one's own coping strategies. Further, situations perceived as challenging were said to prompt positive or problem focussed coping responses e.g. studying harder, seeking social support, or where perceived as threatening, would prompt negative or emotion focussed coping responses e.g. venting, avoidance, withdrawal. It was asserted that the use of problem focussed coping responses was
associated with better outcomes whilst the converse was said to be true, that over-reliance on emotion focussed coping responses was associated with poorer outcomes.

From this point onwards investigations regarding the impact of stress on performance commonly incorporated an exploration of the role of individual appraisal of an event, coping strategies employed and perception of available resources as supposed mediating or moderating variables in the stress performance relationship. Whilst this would appear a positive step forward, an examination of the literature reveals however, that this area of research continues to be characterised by lack of definitional clarity. Tepas and Price (2001) for example list a number of concepts that continue to be connected to the term: adaptation, anxiety, arousal, burnout, coping, exertion, exhaustion, exposure, fatigue, hardiness, mental load, repetitiveness, strain, stressor and tension. Unsurprisingly, Staal (2004) states "Given the formidable breadth of the domain it is not difficult to see why stress as a construct has become unwieldy for most researchers" p. 2.

Nonetheless, stress in whatever manner it is defined, has been found to be prevalent in many environments. In academia in particular, students are said to be experiencing progressively increased amounts of stress and with it, increased frequency of mental health problems (Andrews & Wilding, 2004; Manthorpe & Stanley, 2001). Stress may be experienced as a result of demands both intrinsic to the academic environment e.g. workload, deadlines, exams and time management, transition to university life and the financial cost of study (Robotham, 2008), and typical at this life stage e.g. less stability in interpersonal relationships, greater transience in living accommodation, and more frequent first time onset of mental health disorders. Lawrence, Ashford and Dent (2006) comment on a general shift in higher educational environments towards encouraging students to be more responsible, independent and reflective in the learning environment, whilst students who engage in courses of study with vocational or clinical components may also experience stressors
associated with switching between the roles of student and practitioner, the shift from successful student to novice practitioner and adjustment to novel, non-pencil and paper forms of assessment (Pakenham & Stafford-Brown, 2012).

The impact of such stressors on performance is not well understood. Those studies that do exist appear to demonstrate a general acceptance that overwhelming levels of stress have a negative impact on performance, and that coping strategies employed by the individual serve as mediators in this relationship. However, research findings have been mixed. For example, Brown, Westbrook and Challagalla (2005) investigated the impact on work performance of negative emotion and coping styles following an adverse work event e.g. loss of important sale in an industrial sales firm. They reported, unsurprisingly, that negative emotion following this work event adversely affected performance where the individual did not employ effective coping strategies, and that coping responses either ameliorated or amplified adverse effects according to the coping strategies employed. Further, they reported that high level venting of emotion amplified the effects of negative emotion, and that more restrained coping strategies minimized the impact of the negative emotion on performance. Finally, they also reported that the use of task-focussed coping strategies had a direct and positive effect on performance overall.

On the other hand, Nelson et al (2001), in a study designed to investigate the relationship between stress, coping styles and academic performance in doctoral level psychology students reported that the students with higher GPAs were most likely to be women, were most likely to use denial coping strategies, religious coping strategies, and the focus on and venting of emotions. They were also most likely to report stress in interpersonal relationships and most likely to seek emotional social support. Struthers, Perry and Menec (2000) sought to examine the relationship between stress, academic coping styles and student performance in university students and, unsurprisingly found that academic stress was
negatively related to course grade. However, greater levels of academic stress were associated with greater use of both problem-focussed and emotion focussed coping strategies. Finally, Lawrence et al (2006) investigated the differences in coping strategies adopted by male and female first year university students, and contrary to other research, found no relationship between coping strategies adopted and end of year grade. Clearly, these mixed results indicate that the relationship between stress, coping and performance is far from clear, and suggests the possibility of the operation of additional mediating variables.

Section summary

The exploration of the relationship between non-cognitive factors and performance, particularly in the academic domain, is characterized by mixed results. It would appear that stable personality factors, transient emotional states and coping styles have all been implicated as predictors of performance at some time or another, and results may in fact vary according to population and measure of performance studied. Most consistently however, research has supported the utility of the personality factor of Conscientiousness as a positive predictor of performance (O’Connor & Paunonen, 2007; Poropat, 2009; Richardson, et al., 2012), and depressed mood as a negative predictor of performance (Andrews & Wilding, 2004; DeRoma, et al., 2009; Hysenbegasi, et al., 2005). Clearly, however further research is required to more fully understand this relationship, in particular with regards to the relationship between psychological functioning and the development of competence amongst postgraduate professional psychology students.
Chapter Summary

An understanding of the relationship between psychological factors and performance has been sought from both theoretical and empirical perspectives. It would appear that the majority of theories regarding this potential relationship have been underpinned by the acceptance of some form of inverted u functioning e.g. a nominated psychological state is required to prompt task behaviour, performance improves as levels of this psychological state increase but only to a certain point, beyond which performance diminishes. Acceptance of this theory in its various forms has been widespread, and it has been employed to explore relationships between predictor and criterion variables beyond the scope of the original Yerkes and Dodson (1908) studies. Furthermore, the inverted U functioning has been criticized on both theoretical and methodological grounds, leading a substantial number of theorists to abandon it as simplistic, correlational and irrefutable.

However, the bulk of the literature exploring the empirical nature of relationship between psychological functioning and performance has found that an understanding of the psychological functioning of the individual does contribute, at least in part, to the prediction of performance. For example, a number of studies exploring the prediction of academic and work-place performance have found that the personality factor of Conscientiousness may be a positive predictor of performance and depressed mood a negative predictor of performance.

Nonetheless, with regard to the current study, which addresses the issue of the prediction of the development of competence amongst postgraduate professional psychology students, the existence of such a relationship has yet to be verified.
CHAPTER 4

The Psychological Functioning of Postgraduate Professional Psychology Students

Context

Masters' degrees of professional psychology emphasize the development of the knowledge, skills and attitudes necessary for independent psychological practice. They seek to produce graduates who work within a scientist-practitioner framework, and do so by linking components of coursework, research and clinical placement. Within the Australian context initial placements, in particular for Masters' Degrees of Clinical Psychology, are completed within a university-based clinical training unit, where close supervision may be provided, and are often the first opportunity for students to apply the knowledge, skills and attitudes accumulated to that point in their educational careers. Students must successfully complete 1000 placement hours across a variety of settings with a number of client groups, and typically, assessment of competence within these settings involves the subjective judgement of supervising clinical psychologists. Rarely does assessment involve the administration of valid and reliable competence assessment instruments, and little is known about those factors that foster the successful completion of such placements.

Therefore, set within the context described above, three studies were conducted to explore the possible relationship between the psychological functioning of postgraduate professional psychology students and their ability to acquire the clinical competencies required for successful completion of their first clinical practicum. Here "psychological functioning" was taken to involve stable personality factors, changeable mood states e.g. levels of depression, anxiety and stress, and the individual's use of coping strategies employed in the management of life's demands.
Study One involved the administration of a battery of valid and reliable psychometric self-report psychological questionnaires. These questionnaires were administered on three separate occasions: at the commencement of this initial 42 week clinical practicum and prior to any clinical work, at the 21 week mid-placement assessment, and again at the conclusion of the placement.

Study Two sought to develop a valid and reliable clinical skills assessment methodology that could be employed within these assessment periods, and was referred to as the Clinical Skills Assessment Tool (CSAT).

Finally, Study Three examined the results obtained on the psychological questionnaires relative to results obtained on the CSAT in order to investigate the possible degree of relationship between student psychological state and ability to demonstrate the required clinical competencies.

All three studies were carried out in a clinical training unit, the UWS Psychology Clinic, School of Psychology, University of Western Sydney. However these studies should be considered within the context of a larger body of work carried out within the Professional Psychology programmes, School of Psychology, UWS. That is, in the year prior to the commencement of Study One, the School of Psychology had implemented a Structured Observation of Learning Outcomes (SOLO) taxonomy project (Biggs, 2003). The project sought to articulate the graduate attributes deemed appropriate to the development of professional psychologists at the Masters level, and aligned and reconstructed the curriculum for the Masters' of Psychology programmes accordingly.

As a flow-on of this process various aspects of the initial university-based clinical placement system were also modified. For example, the structure and length of the initial placement was altered and extended. This initial placement was now set as one day per week over a 42 week period, with a three week shut down over the Christmas period. During this
placement students were required to manage, under supervision, a series of cases that involved both psychometric assessments e.g. clarification of intellectual functioning, diagnosis of learning difficulties, and therapeutic interventions for a range of emotional difficulties including mood and/or anxiety disorders, or matters relating to general life stressors. All students were required to commence this initial placement at the beginning of semester two in the first year of their studies. Successful completion of semester one academic units was stipulated as a prerequisite for entry to initial placement. For the first time, learning contracts were negotiated with students in which were stipulated the core clinical competencies that were to be acquired and assessed at two points throughout the placement, mid-way through the placement and at completion of the placement. Audio-visual observation and recording equipment was installed in each of the clinic consultation rooms in order to enhance the supervision process and students were instructed to record all sessions with clients (with client permission) via this system.

Furthermore, the mid placement review period was set for the 20-21 week point half way through the duration of the placement, and students were informed that successful completion of the mid placement review would enable them to take up concurrent external placements one or two days per week totalling two or three placement days per week, or discontinue the initial placement within the university clinic in order to take up the external placement two or three days per week. The end of placement review period was set for the 40-41 week point. Students were informed that at these assessment periods they would be required to submit a series of video vignettes of themselves demonstrating the core clinical competencies outlined within the initial placement learning contracts. Video vignettes were to be selected from the footage recorded during routine clinical work.

The role of the researcher in these studies requires clarification. The principal researcher throughout these projects functioned in a number of roles. That is, the principal
researcher was also Clinic Director (Lecturer) with responsibilities including the daily management of the UWS Psychology Clinic and supervision and oversight of clinic supervisors. Cohort one (2008-2009) was divided into 4 supervision groups, and during that cohort the principal researcher also had a direct supervisory responsibility for one group. Cohort two (2009-2010) was divided into 3 supervision groups, for which the principal researcher had no direct supervisory involvement.

Method

Participants

Two successive cohorts of students enrolled in masters' degrees of professional psychology, both clinical and forensic, were invited to participate in these studies. Participation in the study was voluntary. The study was granted ethics approval by the UWS Human Research Ethics Committee (Protocol Number HREC H6214) and adhered to the ethical standards of the National Statement on Ethical Conduct in Research Involving Humans (2007).

Data regarding the psychological functioning of postgraduate professional psychology students were collected across these two successive cohorts. The first cohort included 40 students enrolled in both Masters degrees of clinical ($n = 28$) and forensic ($n = 12$) psychology across 2008-2009, (29 women and 11 men) of mean age 29.11 years ($SD = 7.40$, range = 23 to 51 years old). Three of the students did not provide their age, and two entered the programme as registered psychologists. The second cohort included 22 students enrolled in the Masters' degree of clinical psychology (2009-2010), (20 women and 2 men) of mean age 26.42 years ($SD = 4.83$, range = 22 to 38 years old), the Masters' degree of forensic
psychology having been discontinued at the university at the beginning of 2009. Five of the students entered the programme as registered psychologists.

**Procedure**

A comprehensive battery of psychometric self-report questionnaires was administered to each cohort on three occasions: on day one of a 42 day clinical placement and before commencement of client contact, at the mid-placement review period just prior to student participation in the assessment process, and at the end-placement review period again just prior to student participation in the assessment process. The questionnaires administered were the Beck Depression Inventory-II (Beck, Steer, & Brown, 1996), the State Trait Anxiety Inventory Form Y (Spielberger & Gorsuch, 1983), the Depression Anxiety and Stress Scale (Lovibond & Lovibond, 1995), the Coping Styles Questionnaire (Roger, Jarvis, & Najarian, 1993) and the NEO-PI-R (Costa & McCrae, 1992). These questionnaires are reviewed below.

On the first assessment occasion the principal researcher met with the supervision groups and described the study. Participants were then provided with a package containing an information sheet and instructions regarding participation in the study, a consent form for signature and the battery of psychological questionnaires. Given that the students were considered to be existing in a dependent or unequal relationship with the principal researcher in the form of a supervisor/student relationship, they were informed that they were not required to discuss participation in the study with the principal researcher, instead they could simply hand back the sealed package which included consent form and questionnaires at the end of the day. In this way the principal researcher would not know if the students had elected to participate in the study at that time. If they did participate in the study they were informed they could withdraw consent at any time during their year on placement. Also, given that the forms contained highly personal information, students were informed that the
questionnaire battery would remain sealed until the end of the placement 42 weeks later and would only be opened by the principal researcher if they did not withdraw consent to participate in the study.

**Selection of Comparison Samples**

When considering the degree to which our sample compares to various standardization samples on the range of psychometric questionnaires used, it is worth noting that the majority of published studies presenting normative data regarding the questionnaires employed in this study, relate to community samples or "normals", clinical groups or special populations e.g. first year psychology students. Very few studies present normative data relating to the psychological functioning of postgraduate professional psychology students in training that might allow direct comparisons between the psychological functioning of our group and that of similar groups. Therefore, for the purposes of this study the results obtained by our sample were firstly compared to normative data collected from community samples. Where statistically significant differences were found between the results obtained by our sample and the normative sample, results obtained by our sample where then compared to data derived from clinical populations relevant to the psychometric questionnaire in question. Finally, where appropriate comparison norms were available, our results were also compared to data derived from first year psychology students.

**Results**

**Depression, anxiety and stress**

The results obtained by our sample on the Beck Depression Inventory-II (Beck, et al., 1996), the State Trait Anxiety Inventory Form Y (Spielberger & Gorsuch, 1983) and the Depression Anxiety and Stress Scale (Lovibond & Lovibond, 1995) will be examined in turn.
The Beck Depression Inventory-II (BDI-II) is perhaps the mostly widely used self-report screening measure for depression in psychological research today. It contains 21 items and reflects the DSM-IV diagnostic criteria for Major Depressive Disorder. It is based on the two factor theory of depression that conceptualizes depression as having two components: the affective or mood component, and the physical or somatic component. The affective subscale contains eight items: pessimism, past failures, guilty feelings, punishment feelings, self-dislike, self-criticalness, suicidal thoughts or wishes, and worthlessness. The somatic subscale consists of the other thirteen items: sadness, loss of pleasure, crying, agitation, loss of interest, indecisiveness, loss of energy, change in sleep patterns, irritability, change in appetite, concentration difficulties, tiredness and/or fatigue, and loss of interest in sex.

Procedurally, respondents are asked to consider how they have been feeling over the previous two weeks. Each of the 21 items contains four descriptors representing increasing degree of severity for each symptom and is rated on a 0-3 scale. Respondents are required to best match their subjective experience with one of the four descriptors. A total score is calculated by summing the scores for the relevant items and can therefore range from 0-63. The scores are evaluated according to the following cut offs: minimal depression 0–13; mild depression 14–19; moderate depression 20–28 and severe depression 29–63. According to these criteria, in the original Beck et al (1996) sample, 64% were asymptomatic, 15% mildly depressed, 13% moderately depressed and 8% were severely depressed.

The BDI-II possesses adequate psychometric properties. Beck et al (1996) reported internal consistencies of .93 among college students and .92 among outpatients, and these findings have been largely mirrored in other studies (Steer & Clark, 1997; Steer, Rissmiller, & Beck, 2000; Whisman, Perez, & Ramel, 2000). Beck et al (1996) reported test-retest reliability over a one week period of .93, whilst other studies have reported correlations ranging from .74 to .96 over retest periods from 3 to 7 days (Leigh & Anthony-Tolbert, 2001;
Sprinkle et al., 2002). The authors also reported that the BDI-II demonstrated correlations of .71 and .68 with the Hamilton Psychiatric Rating Scale for Depression (Hamilton, 1960) and the Beck Hopelessness Scale (Beck & Steer, 1988) respectively, while Steer, Ball, Raneeri and Beck (1997) reported that the BDI-II correlated .89 with the depression subscale of the SCL-90-R (Derogatis, 1996). Factor analytic studies have provided different factor solutions, suggesting that the dimensions of the BDI-II may vary according to the types of clinical and non-clinical groups being studied (Buckley, Parker, & Heggie, 2001; Johnson, Neal, Brems, & Fisher, 2006; Osman, Kopper, Barrios, Gutierrez, & Bagge, 2004). Two factor solutions consisting of Somatic-Affective and Cognitive factors, have often been found in clinical samples (Arnau, Meagher, Norris, & Bramson, 2001; Beck, et al., 1996; Steer, Ball, Ranieri, & Beck, 1999) whilst two and three factor solutions have often been found in non-clinical samples. For example, in student populations the Somatic-Affective and Cognitive factors were found in a number of studies (Beck, et al., 1996; Steer & Clark, 1997; Whisman, et al., 2000), whilst in others a three factor solution consisting of Negative Attitude, Performance Difficulty and Somatic Elements has been identified (Byrne, Stewart, & Lee, 2004). Diagnostic discrimination has also been established with mean scores on the BDI-II significantly higher for the mood disorder sample, than for anxiety and adjustment disordered samples (Beck, et al., 1996).

Studies have also been conducted with the BDI-II in order to establish group norms, with the majority of these focussing on clinical and special populations such as first year psychology student samples, and Roelofs et al (2013) noted that relatively few studies have sought to establish norms for the general population. Means and standard deviations from several of these studies are listed in Table 4.1.
Table 4.1. BDI-II Normative Samples

<table>
<thead>
<tr>
<th>Authors</th>
<th>Sample</th>
<th>N</th>
<th>M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roelofs et al (2012)</td>
<td>Community sample</td>
<td>7500</td>
<td>10.6 (10.9)</td>
</tr>
<tr>
<td>Steer &amp; Clark (1999)</td>
<td>Depressed outpatients</td>
<td>210</td>
<td>28.64 (11.75)</td>
</tr>
<tr>
<td></td>
<td>Males</td>
<td>205</td>
<td>15.02 (11.07)</td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td>203</td>
<td>20.49 (13.50)</td>
</tr>
<tr>
<td></td>
<td>Males</td>
<td>50</td>
<td>23.18 (12.86)</td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td>80</td>
<td>25.42 (12.68)</td>
</tr>
<tr>
<td>Beck et al (1996)</td>
<td>1st year psychology students</td>
<td>120</td>
<td>12.56 (9.93)</td>
</tr>
<tr>
<td>Steer &amp; Clark (1997)</td>
<td>1st year psychology students</td>
<td>160</td>
<td>11.86 (8.06)</td>
</tr>
<tr>
<td>Whisman et al (2000)</td>
<td>1st year psychology students</td>
<td>576</td>
<td>8.36 (7.16)</td>
</tr>
<tr>
<td>Storch et al (2004)</td>
<td>Psychology students in years 1-5 of study</td>
<td>414</td>
<td>11.03 (8.17)</td>
</tr>
<tr>
<td>Dozois et al (1998)</td>
<td>1st year psychology students</td>
<td>1022</td>
<td>9.11 (7.57)</td>
</tr>
</tbody>
</table>

It can be seen from examination of the normative samples that, according to the Beck et al (1996) cut-off score descriptions, the mean scores for the normal population and the first year psychology student populations fall within the minimally depressed range. The mean scores for the clinical populations fall within the moderately depressed range with depression scores approximately twice that of the normal and student populations.

With regard to the current sample, the means and standard deviations obtained on the BDI-II are shown in Table 2. Shapiro-Wilk tests of normality indicated that the scores were
non-normally distributed on each assessment occasion (Time One $W = .92$, $p = .008$, Time Two $W = .89$, $p = .002$, Time Three $W = .85$, $p = .000$). However, Howell (2007) suggested that the current sample size, with a $n$ above 25 or 30, was sufficiently large to ensure that parametric tests would be robust to violations of normality, and consequently a repeated measures Analysis of Variance (ANOVA) was conducted in order to determine if BDI-II scores changed significantly over the three assessment occasions. Mauchly’s Test of Sphericity indicated that the assumption of sphericity had been met, $\chi^2(2) = 2.63$, $p = .27$, and the ANOVA proved non-significant, indicating that BDI-II scores reported by the current sample remained stable across the three assessment occasions $F(2,72) = .83$, $p = .44$. Means and standard deviations for the current sample are shown in Table 4.2.

Table 4.2. BDI-II Means and Standard Deviations, Current Sample

<table>
<thead>
<tr>
<th>BDI-II scores</th>
<th>Time One $N = 59$</th>
<th>Time Two $N = 53$</th>
<th>Time Three $N = 37$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>8.58</td>
<td>8.96</td>
<td>10.03</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>6.75</td>
<td>8.06</td>
<td>9.47</td>
</tr>
</tbody>
</table>

Following the recommendations of Tabachnick and Fidell (2007), one outlier in the Time One sample (with an unusually high $z$ score of >3.29) was changed to have a score one point higher than the next most extreme BDI-II score. Further, a Bonferroni adjustment with an alpha of $.05/3 = .016$ was used to adjust the significance level in order to reduce the possibility of type 1 error. Again, although the data were not normally distributed, Howell’s (2007) recommendations were followed and consequently, independent sample $t$ tests were conducted to compare the results obtained by this sample on the BDI-II on each of the three assessment occasions.
assessment occasions, and the normal population sample reported by Roelofs et al (2013). The \( t \) tests indicated no statistically significant differences between the two groups on any of the assessment occasions. That is, the BDI-II results obtained by this sample were not significantly different to those reported by Roelofs and colleagues at Time One \( t (df = 7557) = 1.42, p = 0.1 \), Time Two \( t (df = 7551) = 1.09, p = 0.27 \) and Time Three \( t (df = 7535) = 0.32, p = 0.75 \). These results indicate that, on the whole, this group functioned well within normal range with regards to levels of depression. As such, it was not considered necessary to compare our data with various clinical populations.

Further, by employing the cut off descriptions suggested by the authors, and examining the data without adjustment of outliers, it is possible to examine the proportion of students experiencing varying levels of depressive symptomatology. According to the Beck et al (1996) criteria suggesting minimal depression 0–13; mild depression 14–19; moderate depression 20–28 and severe depression 29–63, at the time of initial assessment 46 of the 59 students (78\%) in the current sample scored in the minimally depressed range, 6 (10\%) scored in the mild range, 6 (10\%) scored in the moderate range, and 1 (2\%) scored in the severe range. During the second assessment 42 of the 53 students (79\%) scored in the minimal range, 5 (9\%) scored in the mild range, 3 (6\%) scored in the moderate range, and 3 (6\%) scored in the severe range. During the final assessment period 26 of the 37 students (70\%) of the current sample scored in the minimal range, 5 (14\%) fell into the mild range and 3 (8\%) fell into each of the moderate and severe ranges (Table 4.3).
Table 4.3. Percentage of Current Sample Falling within the Beck et al (1996) Descriptive Ranges

<table>
<thead>
<tr>
<th>BDI-II Total Scores</th>
<th>Time One N = 59</th>
<th>Time Two N = 53</th>
<th>Time Three N = 37</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 13</td>
<td>46</td>
<td>42</td>
<td>26</td>
</tr>
<tr>
<td>Minimal Depression</td>
<td>78%</td>
<td>79%</td>
<td>70%</td>
</tr>
<tr>
<td>14 – 19</td>
<td>6</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Mild Depression</td>
<td>10%</td>
<td>9%</td>
<td>14%</td>
</tr>
<tr>
<td>20 – 28</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Moderate Depression</td>
<td>10%</td>
<td>6%</td>
<td>8%</td>
</tr>
<tr>
<td>29 – 63</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Severe Depression</td>
<td>2%</td>
<td>6%</td>
<td>8%</td>
</tr>
</tbody>
</table>

Therefore, across the three assessment occasions between 84% and 88% of students reported experiencing minimal to mild levels of depressive symptomatology, and 12% - 16% of students reported depressive symptomatology within the moderate to severe range. Interestingly, Beck et al (1996) reported that a cut off score of 17 yielded a 93% true-positive rate and an 18% false-positive rate for the presence of major depression in a university clinical sample (n = 127). Employing this cut off score with the current data, at Time One 11 of 59 (19%) of this sample may have been experiencing depressive symptomatology sufficient to warrant a diagnosis of depressive disorder. At Time Two 8 of 53 (15%), and at Time Three 7 of 37 (19%) met the same cut off score criteria.

To investigate the possibility of the existence of a clinically distressed subgroup, the data were examined at the level of the individual student. Ten students reported symptoms in the moderate to severe range on at least one assessment occasion. Three of these students reported symptoms at these levels on only one assessment occasion, five students reported symptoms at these levels on two assessment occasions, and two students reported depressive symptoms within these ranges on all three assessment occasions. It would appear then that
70% of those students reporting depressive symptoms in the moderate to severe range did so on more than one occasion, raising the possibility that for this subgroup, significant psychological distress may have been experienced for a large proportion of their time on clinical placement.

Thus while these results suggest that, as a group, this sample experienced depressive symptomatology at a level equivalent to the normal population, there also appeared to be a subgroup that reported depressive symptoms at a potentially significant level, the majority of whom reported these symptoms for extended periods across the duration of the clinical placement.

The State-Trait Anxiety Inventory Form Y (STAI) (Spielberger & Gorsuch, 1983) is a widely used 40-item self-report measure of anxiety, where anxiety is conceptualized as being characterised by subjective feelings of tension, apprehension, nervousness and worry along with activation of the autonomic nervous system. These scales are based on the work of Cattell (Cattell, 1966) and Spielberger (Spielberger, 1966, 1972) and include two scales differentiating between temporary or "state anxiety" and a more general or long standing "trait anxiety". Trait anxiety, considered akin to a personality disposition (Spielberger, 1966), is said to relate to the tendency to perceive stressful situations as threatening, with such a tendency said to be relatively stable across time and circumstance. The concept of state anxiety on the other hand relates to observations that the emotion of anxiety may be transient, vary in intensity and be activated by cognitive or environmental contingencies. In Spielberger’s model, these cognitive or environmental contingencies are appraised, and depending on the nature of the appraisal, may produce state anxiety. The nature of the appraisal itself is said to be influenced by individual levels of trait anxiety, and a tendency to high trait anxiety is therefore considered a vulnerability to the development of a range of affective disorders (Elwood, Wolitzky-Taylor & Olatunji, 2012).
Each of the two scales contains 20 items. The state anxiety scale invites respondents to consider how they feel "right now, at this moment" while the trait anxiety scale invites respondents to consider how they generally feel. Each descriptor is then rated on a 4 point scale from 1 = not at all to 4 = very much so with total scores ranging from 20-80. In order to facilitate comparison between scales, raw scores may be converted to t-scores (X=50, SD=10), whereby "borderline" elevations are those scores ranging from 60-69 and "significant" elevations are described as scores of 70 or higher. Percentile ranks are also provided to enable individual scale score comparison across a variety of normative samples including psychiatric patients, general medical and surgical patients, students, military recruits and prison inmates. As such, a t-score of 30 is equivalent to the 2.3rd percentile, 40 equals the 15th percentile, 60 equates to the 85th percentile, while a t-score of 70 equates to the 97.7th percentile.

The psychometric properties of the STAI have been well established, and overall the measure is said to possess good psychometric properties. The manual (Spielberger & Gorsuch, 1983) reported that internal consistency as measured by Cronbach's alpha varied according to the subscale and population examined but ranged from .86 -.95 with median coefficient of .93 in the case of the State scale, and .90 for the Trait scale. Test-retest correlations also varied according to the subscale and the retest interval. In particular, for the STAI-S scale which purports to measure a transient emotional state, test-retest correlations ranged between .16 and .36, whilst test-retest correlations for the STAI-T scale ranged between .65 and .86.

With regard to issues of validity, the manual reported that the STAI-S scale appears to be sensitive to manipulations of environmental stress, with scores consistently altering in predicted directions. Mean STAI scores also varied between groups examined e.g. psychiatric patients, medical/surgical patients and prison inmates (Spielberger & Gorsuch, 1983). Again,
the manual reported that the STAI-T appears to correlate well with other trait anxiety scales, with for example, correlations of between .75 - .83 reported for the STAI-T and the Taylor Manifest Anxiety Scale (J. Taylor, 1953). However studies have found that the STAI-T scale correlates more highly with measures of depression than measures of anxiety (Creamer, Foran, & Bell, 1995) suggesting that the Trait scale may be measuring a general negative affect factor. Factor analytic studies have varied in their findings with the manual reporting four factors, a structure unsupported by other studies (Bieling, Antony, & Swinson, 1998; Caci, Baylé, Dossios, Robert, & Boyer, 2003). Overall, however, the STAI appears to have acceptable psychometric properties and is frequently employed for research use.

Table 4.4. STAI Form Y Normative Samples

<table>
<thead>
<tr>
<th>Authors</th>
<th>Population</th>
<th>N</th>
<th>STAI-State M (SD)</th>
<th>STAI-Trait M(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crawford et al (2011)</td>
<td>Normal population</td>
<td>729</td>
<td>33.16 (11.69)</td>
<td>36.35 (11.39)</td>
</tr>
<tr>
<td></td>
<td>Males</td>
<td>1387</td>
<td>35.72 (10.40)</td>
<td>34.89 (9.19)</td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td>451</td>
<td>35.20 (10.61)</td>
<td>34.79 (9.22)</td>
</tr>
<tr>
<td>Spielberger et al (1983)</td>
<td>1st year Psychology students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>324</td>
<td>36.47 (10.02)</td>
<td>38.30 (9.18)</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>531</td>
<td>38.76 (11.95)</td>
<td>40.40 (10.15)</td>
</tr>
<tr>
<td>Endler et al (1992)</td>
<td>1st year Psychology students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>221</td>
<td>35.22 (10.56)</td>
<td>41.48 (10.21)</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>384</td>
<td>36.23 (11.23)</td>
<td>42.31 (10.60)</td>
</tr>
<tr>
<td>Spielberger et al (1983)</td>
<td>Adults with Anxiety Disorders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>60</td>
<td>49.02 (11.62)</td>
<td>48.08 (10.65)</td>
</tr>
<tr>
<td>Brennan et al (2005)</td>
<td>Adult psychology clinic out-patients</td>
<td>58</td>
<td>55.79 (11.51)</td>
<td>59.50 (11.52)</td>
</tr>
</tbody>
</table>
A number of studies have also been conducted in order to develop normative samples for the STAI and norms exist for the following populations: Working adults, university students, high school students, military recruits, psychiatric patients, general medical and surgical patients and young prisoners. Means and standard deviations for a number of these studies are shown in Table 4.4.

The means and standard deviations obtained on the STAI by the current sample are shown in Table 4.5. With regard to the STAI-S, Shapiro-Wilk tests of normality indicated that whilst the data was normally distributed at Times One and Three, it was not normally distributed at Time Two, (Time One W = .95, p = .08, Time Two W = .92, p = .008, Time Three W = .95, p = .11). Again, following Howell's (2007) recommendations regarding the robustness of sample sizes in excess of 25-30 to violations of normality, a repeated-measures ANOVA was conducted. Mauchly's Test of Sphericity indicated that the assumption of sphericity had been met, $\chi^2(2) = .41, p = .81$. The ANOVA was non-significant, $F(2,72) = 1.88, p = .16$, indicating that the STAI-S scores did not differ significantly across the three assessment occasions.

With regard to the STAI-T data, Shapiro-Wilk tests of normality indicated that whilst the STAI-T data was normally distributed at Times One and Three, it was not normally distributed at Time Two, (Time One W = .98, p = .81, Time Two W = .89, p = .003, Time Three W = .96, p = .22). Again, a repeated measures ANOVA was conducted. Mauchly's Test of Sphericity indicated that the assumption of sphericity had been met, $\chi^2(2) = .70, p = .70$. The ANOVA was non-significant, $F(2,70 = .23, p = .79)$, indicating that scores did not differ across the three assessment occasions, and that students reported consistent levels of trait anxiety over time.
Table 4.5. STAI Form Y Means and Standard Deviations, Current Sample

<table>
<thead>
<tr>
<th>STAI Scores</th>
<th>Time One</th>
<th>Time Two</th>
<th>Time Three</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>STAI-State</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>42.27 (14.46)</td>
<td>43.11 (10.87)</td>
<td>39.00 (10.56)</td>
</tr>
<tr>
<td></td>
<td>N = 11</td>
<td>N = 9</td>
<td>N = 5</td>
</tr>
<tr>
<td>Female</td>
<td>39.62 (11.70)</td>
<td>43.34 (12.64)</td>
<td>44.31 (12.10)</td>
</tr>
<tr>
<td></td>
<td>N = 47</td>
<td>N = 44</td>
<td>N = 32</td>
</tr>
<tr>
<td>Total</td>
<td>40.12 (12.17)</td>
<td>43.30 (12.26)</td>
<td>43.59 (11.91)</td>
</tr>
<tr>
<td></td>
<td>N = 58</td>
<td>N = 53</td>
<td>N = 37</td>
</tr>
<tr>
<td></td>
<td><strong>STAI-Trait</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>41.83 (13.58)</td>
<td>39.33 (8.94)</td>
<td>41.00 (8.61)</td>
</tr>
<tr>
<td></td>
<td>N = 12</td>
<td>N = 9</td>
<td>N = 5</td>
</tr>
<tr>
<td>Female</td>
<td>42.07 (9.99)</td>
<td>42.43 (9.70)</td>
<td>42.81 (11.01)</td>
</tr>
<tr>
<td></td>
<td>N = 46</td>
<td>N = 44</td>
<td>N = 32</td>
</tr>
<tr>
<td>Total</td>
<td>42.02 (10.76)</td>
<td>41.91 (9.56)</td>
<td>42.57 (10.63)</td>
</tr>
<tr>
<td></td>
<td>N = 58</td>
<td>N = 53</td>
<td>N = 37</td>
</tr>
</tbody>
</table>

Independent sample $t$ tests were conducted to compare the results obtained by the student sample on both scales, on each of the three assessment occasions, and those reported by Crawford, Cayley, Lovibond, Wilson and Hartley (2011), who presented Australian norms on a range of self-report psychological measures including the STAI. An adjusted alpha of $0.05/3 = 0.016$ was again employed to adjust the significance level in order to reduce the possibility of type 1 error. Independent sample $t$ test results conducted on the STAI-State scores indicated a statistically significant difference between the normal group and the current sample on each of the three assessment occasions, Time One $t$ ($df = 785$) = 4.35, $p < 0.0001$, Time Two $t$ ($df = 780$) = 6.07, $p < 0.0001$ and Time Three $t$ ($df = 764$) = 5.29, $p < 0.0001$. Similarly, $t$ test results conducted on the STAI-Trait scores indicated a statistically significant difference between the normal group and the current sample on each of the three occasions.
assessment occasions, Time One \( t (df = 785) = 3.66, p = 0.0003 \), Time Two \( t (df = 780) = 3.46, p = 0.0006 \) and Time Three \( t (df = 764) = 3.25, p = 0.0012 \). That is, on each assessment occasion the mean STAI-S and STAI-T scores obtained by the student sample were significantly higher than those in the normal group. These results suggest that the student sample experienced state and trait anxiety at a greater level than the normal population.

In order to determine whether the results obtained in the current sample fell within the clinical range, the STAI-State and Trait scales were compared to the anxiety disordered clinical population reported in the manual (Spielberger & Gorsuch, 1983). Independent sample \( t \) tests were conducted with an adjusted significance level of 0.016. The \( t \) test results for the STAI-State scores indicated a statistically significant difference between the clinical group and the student sample on the first two assessment occasions, Time One \( t (df = 116) = 4.06, p < 0.0001 \), Time Two \( t (df = 111) = 2.54, p = 0.0123 \) but not on the third assessment occasion, Time Three \( t (df = 95) = 2.21, p < 0.0292 \). That is, on the first two assessment occasions the results obtained by the current sample were significantly lower than those reported by the clinical sample, but not on the third occasion. \( t \) test results conducted on the STAI-Trait scores indicated a statistically significant difference between the clinical group and the student sample on each of the three assessment occasions, Time One \( t (df = 116) = 3.04, p = 0.0026 \), Time Two \( t (df = 111) = 3.22, p = 0.0017 \) and Time Three \( t (df = 95) = 2.47, p = 0.015 \). That is, on each of the assessment occasions the results obtained by the current sample were significantly lower than those reported by the clinical sample. Overall, and given the possibility of increased risk of Type II errors with the use of the Bonferroni correction, these results can be taken to suggest that the mean STAI-S and STAI-T scores obtained by the current sample were significantly lower than those in the clinical population. The current student sample, although experiencing anxious symptomatology at a greater level
than the normal population, did not experience either state or trait anxiety within the clinical range.

Finally, the student sample results were compared to the first year psychology student sample reported by Spielberger et al (1983). Spielberger and colleagues found that mean scores obtained by females in their university population were significantly higher than those obtained by the males, and so presented results according to gender. Examining the current sample, independent sample $t$ tests were conducted and revealed no significant differences between the mean scores obtained by males and females on the STAI-State scale on any of the three assessment occasions, Time One $t (df = 116) = 3.04, p = 0.0026$, Time Two $t (df = 111) = 3.22, p = 0.0017$ and Time Three $t (df = 95) = 2.47, p = 0.015$, indicating that for this sample males and females reported experiencing comparable levels of state and trait anxiety across the duration of their placement. None-the-less, in order to facilitate comparison with the Spielberger et al (1983) sample, the results reported by the current sample were also examined according to gender.

Looking first at the STAI-S scale for females, and employing $\alpha = .016$, independent sample $t$ tests were conducted in order to compare results obtained by this sample with those reported by Spielberger et al (1983). No significant difference was found between the group means on the first assessment occasion, that is, on day one of the placement, Time One $t (df = 576) = 0.47, p = .64$. However significant differences were found between the Spielberger sample and the current sample on the second and third assessment occasions, Time Two $t (df = 573) = 2.43, p = 0.0053$ and Time Three $t (df = 561) = 2.55, p = 0.011$, indicating that at mid- and end- of placement reviews the females in this sample were reporting significantly more situational anxiety than the females in the Spielberger first year university sample.
However, with regard to the STAI-T scale, independent sample t tests were conducted, again utilizing an adjusted alpha of .016, and revealed no significant differences in mean scores between the female sample and the Spielberger sample across the three assessment occasions, Time One $t (df = 575) = 1.07, p = 0.28$, Time Two $t (df = 573) = 1.28, p = 0.20$ and Time Three $t (df = 561) = 1.29, p = 0.19$. These results indicate that both groups of women reported experiencing trait anxiety at comparable levels across the three assessment occasions.

Finally, and with regard to the STAI-S and STAI-T scales for males, again using an adjusted $\alpha = .016$, independent sample $t$ tests were conducted and revealed no significant differences between mean scores for the Spielberger sample and this sample on either of the scales across any of the three assessment occasions, STAI-S Time One $t (df = 333) = 1.85, p = 0.06$, Time Two $t (df = 331) = 1.95, p = 0.05$, Time Three $t (df = 327) = .56, p = 0.58$ and STAI-T Time One $t (df = 334) = 1.28, p = 0.20$, Time Two $t (df = 331) = 0.33, p = 0.74$, Time Three $t (df = 327) = .65, p = 0.51$. These results indicate that the males in this sample reported state and trait anxiety at levels comparable to the males in the Spielberger first year university student sample.

Taken together, these results suggest that the current sample experienced state and trait anxiety at levels higher than the normal population, but not within the clinical range. Levels of anxiety appeared to be very similar to that experienced by first year psychology students, with perhaps the exception of our female students who reported elevated state anxiety levels at examination times.

As previously mentioned, for both scales raw scores may be converted to $t$-scores ($X=50, SD=10$), whereby "borderline" elevations are those scores ranging from 60-69 and "significant" elevations are described as scores of 70 or higher. According to these criteria, at
the time of the first assessment 52 of 58 students (90%) completing the STAI-S were asymptomatic, 3 (5%) fell within the borderline range and 3 (5%) fell within the significant range. On the STAI-T 47 of 58 (81%) of this sample were asymptomatic, 9 (16%) fell within the borderline range with a further 2 (3%) falling within the significant range.

At the time of the second assessment (mid placement review), 43 of the 53 students (81%) were considered asymptomatic, 7 (13%) scored in the borderline range, while 3 (6%) scored in the significant range for both the STAI-State and Trait subscales.

On the final assessment occasion (end-placement review), 29 of the 37 students (78%) completing the STAI-S were considered asymptomatic, 7 (19%) scored in the borderline range, and 1 (3%) scored in the significant range. For the STAI-T scale, 30 (81%) of the students were considered asymptomatic, 6 (16%) scored in the borderline range, while 1 (2%) scored in the significant range (Table 4.6).

Table 4.6. Percentage of Current Sample Falling within the Spielberger et al (1983) Descriptive Ranges

<table>
<thead>
<tr>
<th>STAI Scores</th>
<th>Time One</th>
<th>Time Two</th>
<th>Time Three</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STAI-S</strong></td>
<td>N = 58</td>
<td>N = 53</td>
<td>N = 37</td>
</tr>
<tr>
<td>Asymptomatic</td>
<td>52 (90%)</td>
<td>43 (81%)</td>
<td>29 (78%)</td>
</tr>
<tr>
<td>Borderline</td>
<td>3 (5%)</td>
<td>7 (7%)</td>
<td>7 (19%)</td>
</tr>
<tr>
<td>Significant</td>
<td>3 (5%)</td>
<td>3 (3%)</td>
<td>1 (3%)</td>
</tr>
<tr>
<td><strong>STAI-T</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asymptomatic</td>
<td>47 (81%)</td>
<td>43 (81%)</td>
<td>30 (81%)</td>
</tr>
<tr>
<td>Borderline</td>
<td>9 (16%)</td>
<td>7 (13%)</td>
<td>6 (16%)</td>
</tr>
<tr>
<td>Significant</td>
<td>2 (3%)</td>
<td>3 (6%)</td>
<td>1 (2%)</td>
</tr>
</tbody>
</table>
Across the three assessment occasions then, between 78% and 90% of students reported experiencing minimal levels of state anxiety, 5% to 19% reported borderline levels of state anxiety, and 1% to 5% of students reported state anxiety symptomatology within the significant or clinical range. For the STAI-T scale 81% students reported minimal levels of trait anxiety across the three assessment occasions, 13% to 16% reported trait anxiety in the borderline range, while between 1% and 6% reported levels of trait anxiety within the significant or clinical range.

To once again explore the possibly of a clinically distressed subgroup, the data was examined at the level of the individual student. With regard to the STAI-S, six students reported symptom levels within the clinically significant range across any of the three assessment occasions. One student reported significant scores across two separate assessment occasions, with the remaining five students reporting symptoms in the significant range on one occasion only. Interestingly, five of these six students had also reported symptoms within the moderate to severe ranges on the BDI-II suggesting the possibility of co-morbid mood and anxiety issues for a subgroup of this student sample.

For the STAI-T, five students reported symptom levels within the clinically significant range on at least one of the three assessment occasions. Again, one student reported symptoms within the clinical range on two assessment occasions, with the remaining four students doing so on one occasion only. All five students reporting symptom levels within the clinically significant range on the STAI-T had previously reported symptoms within the moderate to severe ranges on the BDI-II. Finally, four students fell within the clinical range on both the STAI-S and STAI-T scales. The proportion of students falling within each range is outlined in Table 6. A chi-square analysis was conducted examining the number of responses falling within each category across the three assessment occasions for both the STAI State and Trait scales. The tests were non-significant, indicating that
proportion of individuals falling within each category did not change significantly across time, State $\chi^2 (4, N = 148) = 4.78, p = .31$, and Trait $\chi^2 (4, N = 148) = .71, p = .94$.

Overall, these results suggest that, as a group, the current sample experienced both state and trait anxiety at levels significantly above the normal population, but not at levels equivalent to a clinical population. When compared to a university student sample, whilst the males in this sample reported both state and trait anxiety symptomatology at levels comparable to other male university students, it would appear that on at least two of the three assessment occasions, the females in this sample reported state anxiety at a level higher than a group of first year psychology students. Further, in a manner echoing the results of the BDI-II, a subgroup of students reported experiencing anxiety at apparently clinically significant levels. Interestingly, the majority of these students had also reported experiencing moderate to severe levels of depressive symptomatology. This suggests that a subgroup of students may have experienced co-morbid mood and anxiety issues.

The Depression Anxiety and Stress Scale 42 Item (DASS-42), (Lovibond & Lovibond, 1995) is a 42-item self-report questionnaire which includes three scales designed to measure the negative emotional states of depression, anxiety and tension/stress. Each of the three scales contains 14 items, divided into subscales of 2-5 items with similar content. The Depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia. The Anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The Stress scale, originally labelled "tension/stress", assesses difficulty relaxing, nervous arousal, agitation, irritability/over-reactivity and impatience.

Procedurally, respondents are asked to indicate the degree to which an item related to them over the previous week, on a 4 point Likert scale ranging from 0 = did not apply to me
at all to 3 = applied to me very much, or most of the time. Scores are calculated by summing the scores for the relevant items, and range from 0 - 42. For most purposes the authors suggest that these scores may be interpreted relative to the means and standard deviations for the full normative sample provided in the DASS manual (Lovibond & Lovibond, 1995). However, severity cut off scores and labels are also provided and are based on percentiles (Table 4.7).

Table 4.7. DASS Severity Interpretations, Lovibond & Lovibond (1995)

<table>
<thead>
<tr>
<th>DASS Interpretation</th>
<th>Percentile</th>
<th>Depression</th>
<th>Anxiety</th>
<th>Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>0 – 78</td>
<td>0 – 9</td>
<td>0 – 7</td>
<td>0 – 14</td>
</tr>
<tr>
<td>Mild</td>
<td>78 – 87</td>
<td>10 – 13</td>
<td>8 – 9</td>
<td>15 – 18</td>
</tr>
<tr>
<td>Moderate</td>
<td>87 – 95</td>
<td>14 – 20</td>
<td>10 – 14</td>
<td>19 – 25</td>
</tr>
<tr>
<td>Severe</td>
<td>95 – 98</td>
<td>21 – 27</td>
<td>15 – 19</td>
<td>26 – 33</td>
</tr>
<tr>
<td>Extremely Severe</td>
<td>98 - 100</td>
<td>28+</td>
<td>20+</td>
<td>34+</td>
</tr>
</tbody>
</table>

Studies indicate that the DASS-42 possesses adequate psychometric properties. The authors report Cronbach's alpha coefficients of .91, .84 and .90 for the depression, anxiety and stress scales respectively, and these findings have been replicated in clinical samples (Antony, Bieling, Cox, Enns, & Swinson, 1998; T. Brown, Chorpita, Korotitsch, & Barlow, 1997). The DASS also exhibits high convergent validity with other measures of anxiety and depression, for example the authors report that the DASS-D and BDI correlate .74, whilst the DASS-A and the BAI correlate .81. Similar correlations have been reported in both community and clinical samples (T. Brown, et al., 1997; Crawford & Henry, 2003). A range of studies have examined the factor structure of the instrument, and although they have all identified some misspecification of a minor number of individual items, all have supported
the three factor structure identified by the authors (T. Brown, et al., 1997; Clara, Cox, & Enns, 2001; Crawford & Henry, 2003).

Importantly for this study, normative data are available on a number of Australian samples (Crawford, et al., 2011; Page, Hooke, & Morrison, 2007). Means and standard deviations from these and a range of other studies are outlined in Table 4.8.

Table 4.8. DASS Normative Samples

<table>
<thead>
<tr>
<th>Authors</th>
<th>Population</th>
<th>Depression M (SD)</th>
<th>Anxiety M (SD)</th>
<th>Stress M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crawford et al (2011)</td>
<td>Adult normal Population N = 497</td>
<td>5.02 (7.54)</td>
<td>3.36 (5.07)</td>
<td>8.10 (8.04)</td>
</tr>
<tr>
<td>Page et al (2007)</td>
<td>Adults diagnosed with mood disorders N = 816</td>
<td>30.20 (10.09)</td>
<td>19.90 (10.10)</td>
<td>27.20 (10.00)</td>
</tr>
<tr>
<td>Lovibond &amp; Lovibond (1995)</td>
<td>1st year psychology students N = 717</td>
<td>7.19 (6.54)</td>
<td>5.23 (4.83)</td>
<td>10.54 (6.94)</td>
</tr>
<tr>
<td>Alexander &amp; Harris (2013)</td>
<td>1st year psychology students N = 84</td>
<td>7.71 (7.21)</td>
<td>6.37 (5.39)</td>
<td>11.48 (7.89)</td>
</tr>
</tbody>
</table>
The means and standard deviations obtained on the DASS by the current sample are outlined in Table 4.9. With regard to the DASS-Depression data, Shapiro-Wilk tests indicated that the assumption of normality was violated for each of the three assessment occasions (Time One W = .80, p = .000; Time Two W = .79, p = .000; Time Three W = .73, p = .000). Following Howell's (2007) recommendations, a repeated measures ANOVA was conducted in order to determine if DASS-Depression scores changed significantly over time. Mauchly's test of Sphericity indicated that the assumption of sphericity had been met ($\chi^2 = 4.33, p = .11$), and the ANOVA proved non-significant, indicating that DASS-Depression scores remained stable across the three assessment occasions.

With regards to the DASS-Anxiety data, Shapiro-Wilk tests indicated that the assumption of normality was violated for each of the three assessment occasions (Time One W = .79, p = .000; Time Two W = .71, p = .000; Time Three W = .77, p = .000). Howell's (2007) recommendations were followed, and a repeated-measures ANOVA was conducted in order to determine if DASS-A scores changed significantly over time. Mauchly's Test indicated that the assumption of sphericity had been met ($\chi^2 = .39, p = .82$), and again the ANOVA was non-significant, indicating that for the current sample DASS-Anxiety scores remained constant over time $F(2,72) = 2.32, p = .11$.

With regards to the DASS-Stress data, Shapiro-Wilk tests indicated that the assumption of normality was violated for Time One and Time Three data (Time One W = .91, p = .006; Time Two W = .96, p = .29; Time Three W = .92, p = .009). A repeated measures ANOVA was conducted in order to determine if DASS-S scores changed significantly over the three assessment occasions. A Mauchly's Test of Sphericity indicated that the assumption of sphericity had been violated, ($\chi^2 = 9.96, p = .007$), as such the degrees of freedom were corrected employing the Huynh-Feldt estimates of sphericity ($\epsilon = .83$). Results were non-significant indicating that DASS-S scores reported by the current sample
remained stable over the three assessment occasions $F(1.66,59.98) = .56, p = .54$. Finally, comparison to the Lovibond and Lovibond (1995) severity criteria suggest that all mean responses fell within the "normal" range for each scale.

Table 4.9. DASS Means and Standard Deviations, Current Sample

<table>
<thead>
<tr>
<th>DASS Scores</th>
<th>Time One</th>
<th>Time Two</th>
<th>Time Three</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 59</td>
<td>N = 53</td>
<td>N = 37</td>
</tr>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Depression</td>
<td>5.08 (5.45)</td>
<td>4.96 (5.95)</td>
<td>4.92 (6.44)</td>
</tr>
<tr>
<td>Anxiety</td>
<td>4.61 (5.01)</td>
<td>4.19 (5.89)</td>
<td>3.41 (4.13)</td>
</tr>
<tr>
<td>Stress</td>
<td>11.83 (9.26)</td>
<td>10.74 (6.90)</td>
<td>11.51 (8.40)</td>
</tr>
</tbody>
</table>

Outliers were adjusted. For Time One data, one outlier for the Depression data and one for the Anxiety data were reduced to have a score one point higher than the next most extreme score. For Time Two data one outlier was adjusted within the Depression data and two within the Anxiety data, whilst for Time Three data one outlier was adjusted within the Depression data. An adjusted alpha of $0.05/3 = 0.016$ was again employed to adjust the significance level in order to reduce the possibility of type 1 error. Independent sample $t$ tests were conducted to compare the results obtained by our sample on the DASS on each of the three assessment occasions, and those reported by Crawford et al (2011). There were no significant differences on the DASS-D or DASS-A scales found between our sample and the community sample on any of the three assessment occasions, DASS Depression Time One $t$ ($df = 86.83) = 0.08, p = 0.94$, Time Two $t$ ($df = 71.12) = 0.07, p = 0.95$ and Time Three $t$ ($df = 43.69) = 0.09, p = 0.93$ and DASS Anxiety Time One $t$ ($df = 72.83) = 1.81, p = 0.07$, Time Two $t$ ($df = 60.50) = 0.99, p = 0.33$ and Time Three $t$ ($df = 44.49) = 0.07, p = 0.94$. 


However, on the DASS-S scale on the first and second assessment occasions, the current sample reported mean scores significantly higher than the normal population sample, Time One $t (df = 68.78) = 2.96, p = 0.0042$ and Time Two $t (df = 67.99) = 2.60, p = 0.0113$. On the third assessment occasion no significant difference was found between the mean scores reported by the current sample and the comparison group, Time Three $t (df = 41.06) = 2.39, p = 0.02$. These results suggest that on two assessment occasions the current sample reported significantly more stress than does the normal population.

Given the findings regarding the DASS-Stress scale, results from the current sample were compared to first year university samples. Independent sample $t$ tests were conducted to compare results reported by Lovibond & Lovibond (1995) and revealed that, as a group, the current sample reported significantly lower levels of depression than did the Lovibond group across each assessment occasion, Time One $t (df = 72.47) = 2.81, p = 0.0063$, Time Two $t (df = 61.66) = 2.61, p = 0.0112$ and Time Three $t (df = 39.37) = 2.87, p = 0.0066$.

With regards to the Anxiety scale, no significant differences were found between the groups at the first and second assessment occasions, Time One $t (df = 67.18) = .91, p = 0.36$ and Time Two $t (df = 57.99) = 2.29, p = 0.21$, but on the third assessment occasion the current sample reported significantly fewer anxiety symptoms, Time Three $t (df = 41.25) = 2.59, p = 0.013$. No significant differences were found between the groups on the mean scores for the Stress scale, Time One $t (df = 63.47) = 1.05, p = 0.29$, Time Two $t (df = 60.04) = 0.20, p = 0.84$ and Time Three $t (df = 38.58) = 0.69, p = 0.49$. These results suggest that the current sample were less depressed, similarly anxious and equally stressed when compared to a first year sample of students studying psychology.

On the whole these results suggest that, according to responses on the DASS, the students did not report experiencing depression or anxiety at levels above the normal population, but reported experiencing significantly more stress. However, these levels of
stress were comparable to those reported by a sample of first year university students studying psychology.

According to the severity cut-off score criteria established by the authors, at the time of the first assessment 50 of 59 (85%) of this sample were asymptomatic on the DASS Depression scale, 3 (5%) fell within the mild range, 4 (7%) fell within the moderate range, 1 (2%) fell within the severe range and 1 (2%) fell within the extremely severely depressed range. At the time of the second assessment 44 of 53 (83%) of the sample were asymptomatic, 4 (7%) fell within the mild range, 2 (4%) fell within the moderate range, 2 (4%) fell within the severe range and 1 (2%) fell within the extremely severe range. At the time of the third assessment 31 of 37 (84%) of this sample were asymptomatic, 2 (5%) fell within the mild range, 2 (5%) fell within the moderate range, 1 (3%) fell within the severe range and 1 (3%) fell within the extremely severe range.

With regard to the DASS Anxiety scale, at the time of the first assessment 46 of 59 (78%) of the current sample were asymptomatic, 5 (8%) fell within the mild range, 4 (7%) fell within the moderate range, 3 (5%) fell within the severe range and 1 (2%) fell within the extremely severe range. At the time of the second assessment 44 of 53 (83%) of this sample were asymptomatic, 2 (4%) fell within the mild range, 3 (6%) fell within the moderate range, 1 (2%) fell within the severe range and 3 (6%) fell within the extremely severe range. At the time of the third assessment 31 of 37 (84%) of this sample were asymptomatic, 2 (4%) fell within the mild range, 2 (4%) fell within the moderate range, 1 (3%) fell within the severe range with no students falling within the extremely severe range.

In relation to the DASS Stress scale, at the time of the first assessment 40 of 59 (68%) of the current sample were asymptomatic, 7 (12%) fell within the mild range, 6 (10%) fell within the moderate range, 4 (7%) fell within the severe range and 2 (3%) fell within the
extremely severe range. At the time of the second assessment, 40 of 53 (75%) of the sample were asymptomatic, 6 (11%) fell within the mild range, 5 (9%) fell within the moderate range, 2 (4%) fell within the severe range while none of the students fell within the extremely severe range. At the time of the third assessment 24 of 37 (65%) of this sample were asymptomatic, 5 (14%) fell within the mild range, 4 (11%) fell within the moderate range, 4 (11%) fell within the severe range with again no students falling within the extremely severe range. These results are shown in Table 4.10.

Table 4.10. Percentage of Current Sample Falling within the Lovibond and Lovibond (1995) descriptive ranges

<table>
<thead>
<tr>
<th>Severity Ratings</th>
<th>Time One N = 59</th>
<th>Time Two N = 53</th>
<th>Time Three N = 37</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>50 (85%)</td>
<td>44 (84%)</td>
<td>31 (84%)</td>
</tr>
<tr>
<td>Mild</td>
<td>3 (5%)</td>
<td>4 (7%)</td>
<td>2 (5%)</td>
</tr>
<tr>
<td>Moderate</td>
<td>4 (7%)</td>
<td>2 (4%)</td>
<td>2 (5%)</td>
</tr>
<tr>
<td>Severe</td>
<td>1 (2%)</td>
<td>2 (4%)</td>
<td>1 (3%)</td>
</tr>
<tr>
<td>Extremely Severe</td>
<td>1 (2%)</td>
<td>1 (2%)</td>
<td>1 (3%)</td>
</tr>
<tr>
<td>Anxiety</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>46 (78%)</td>
<td>44 (83%)</td>
<td>31 (84%)</td>
</tr>
<tr>
<td>Mild</td>
<td>5 (8%)</td>
<td>2 (4%)</td>
<td>3 (8%)</td>
</tr>
<tr>
<td>Moderate</td>
<td>4 (7%)</td>
<td>3 (6%)</td>
<td>2 (4%)</td>
</tr>
<tr>
<td>Severe</td>
<td>3 (5%)</td>
<td>1 (2%)</td>
<td>1 (3%)</td>
</tr>
<tr>
<td>Extremely Severe</td>
<td>1 (2%)</td>
<td>3 (6%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Stress</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>40 (68%)</td>
<td>40 (75%)</td>
<td>24 (65%)</td>
</tr>
<tr>
<td>Mild</td>
<td>7 (12%)</td>
<td>6 (11%)</td>
<td>5 (14%)</td>
</tr>
<tr>
<td>Moderate</td>
<td>6 (10%)</td>
<td>5 (9%)</td>
<td>4 (11%)</td>
</tr>
<tr>
<td>Severe</td>
<td>4 (7%)</td>
<td>2 (4%)</td>
<td>4 (11%)</td>
</tr>
<tr>
<td>Extremely Severe</td>
<td>2 (3%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>
To further investigate the possibility of a clinically distressed subgroup, the data were once again examined at the level of the individual student. Three students reported depressive symptoms within the clinically significant range, each on one assessment occasion. Two of these three students had also reported symptoms in the clinical range on multiple other measures. With regard to the DASS-A scale, three students reported symptom levels within the clinically significant range on at least one assessment occasion. One student reported clinically significant scores across two consecutive assessment occasions, whilst the remaining two students reported these symptoms on only one occasion. Again, however, each of these three students had also reported symptoms in the clinical range on multiple other measures. For the DASS-S, again three students reported symptom levels within the clinically significant range on one assessment occasion each. Again, these three students had also reported symptoms in the clinical range on multiple other measures. The proportion of students endorsing responses within potentially clinically significant levels across multiple measures is outlined in Table 4.11.

Table 4.11. Students Reporting Symptoms in Clinical Ranges

<table>
<thead>
<tr>
<th>Total Number of Students</th>
<th>Number of Students in Clinical Ranges on BDI-II, STAI or DASS</th>
<th>Number of Students in Clinical Range by measure</th>
<th>Number of Students in Clinical Range on at least one measure across multiple assessment occasions</th>
</tr>
</thead>
<tbody>
<tr>
<td>59</td>
<td>12 (20%)</td>
<td>One measure = 5/12 (42%)</td>
<td>7/12 (58%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Two measures = 3/12 (25%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Three measures = 4/12 (33%)</td>
<td></td>
</tr>
</tbody>
</table>
Section summary

Depression - Results on the BDI-II and DASS-D suggest that as a group the current sample did not experience significant problems with symptoms of depression. However, a subgroup of 10 (17%) students reported experiencing depressive symptoms in the clinical range on at least one of the three assessment occasions, 7 (70%) of whom reported symptoms in the clinical range on more than one occasion. These results suggest that a subgroup of students may have experienced problems with depression for a significant proportion of their time through the 42 week clinical placement.

Anxiety – Results on the STAI-S and STAI-T suggest that as a group the current sample experienced anxiety at levels above the normal Australian population, but not within the clinical range. These levels of anxiety were comparable to the significantly elevated levels reported by other studies examining anxiety in university students studying first year psychology. An exception was noted, however, in that the female students in the current sample reported state anxiety levels higher than other university samples on two of the three assessment occasions.

These results appear to contrast with the results obtained on the DASS-A scale, where no significant differences were noted between responses provided by the students in the current sample and the general population. Examination of the individual items within each anxiety scale may suggest an explanation, as it would appear that each scale may measure different aspects of the anxiety response. For example, the STAI-S and STAI-T scales contain items that require the respondent to provide ratings of subjective experiences of anxiety e.g., "I feel secure", "I feel at ease", "I feel confused". The DASS-A, on the other hand, includes a significant number of questions specifically assessing symptoms of physiological arousal e.g., "I experienced trembling", "I had difficulty swallowing", "I was
aware of the action of my heart". Taking STAI and DASS-A results together would suggest that students in the current sample reported higher than normal levels of the subjective experience of anxiety, but with regard to autonomic arousal, levels were comparable to the normal population.

Again, a subgroup of 7 (12%) students was observed who reported anxiety symptoms within the clinical range on the STAI-S, STAI-T or DASS-A. All students who reported experiencing clinically significant levels of anxiety on the DASS-A also reported clinically significant levels of anxiety on the STAI-S. Six of these 7 students also reported experiencing depressive symptoms in the moderate to severe range on the BDI-II, raising the possibility that this subgroup of students experienced co-morbid mood and anxiety problems.

Stress – Results on the DASS-S scale suggest that as a group the students in the current sample reported experiencing significant problems with symptoms of stress when compared to the normal population, and that this experience was sustained over much of the duration of the 42 week clinical placement. However, whilst significantly elevated, as a group these levels were comparable to the levels of stress reported by first year university students studying psychology. Three students reported levels of stress within the clinical range, and each had previously reported scores within this range on the measures already discussed.

Overall, these results suggest that participation in a Master's degree of professional psychology may be associated with increased risk of the experience of anxiety and stress/tension. It would also appear that a small subgroup of students experienced mood, anxiety and stress-related difficulties within the clinical range, and that the majority of this subgroup did so for sustained periods throughout their clinical placement.
Coping styles

The Coping Styles Questionnaire (CSQ), (Roger, et al., 1993) is a 60 item self-report questionnaire designed to assess primary coping styles where coping is conceptualized as a process of adaptation to perceived threat or “an individual’s efforts to master demands (conditions of harm, threat or challenge) that are appraised (or perceived) as exceeding or taxing his or her resources” (Monat & Lazarus, 1991).

The Coping Styles Questionnaire includes four scales designed to measure primary coping styles: rational (or task-focussed), emotional, avoidant and detached, with rational and detached coping considered adaptive coping styles, and emotional and avoidant coping considered maladaptive coping styles. Each of the four scales contains a different number of items with Rational Coping = 16 items, Detached Coping = 15 items, Emotional Coping = 16 items and Avoidant Coping = 13 items.

Procedurally respondents are invited to consider each of 60 cognitive and behavioural coping strategies, and indicate the frequency with which they employ that particular strategy from 0 = Never to 3 = Always. Scores are calculated by summing the scores for each of the items endorsed across each of the four scales.

Studies have indicated that the CSQ possesses adequate psychometric properties. Roger et al (1993) reported internal consistencies of .85 for the Rational Coping scale, .73 for the Emotional Coping scale, .69 for the Avoidant Coping scale and .90 for the Detached Coping scale. These findings were largely confirmed by Elklit (1996) who reported alpha coefficients of .81, .79, .77 and .66 respectively. Test retest reliability over periods of 4-12 weeks have been reported as ranging between .80 - .85 for Rational Coping, .79 - .80 for Detached Coping, .76 - .79 for Emotional Coping and .70 - .74 for Avoidant Coping (Elklit, 1996; Roger, et al., 1993). The authors reported that factor analysis supported the four factors of the test, identifying three factors commonly found in coping styles research: task
focussed, emotion focussed and avoidance focussed, with the addition of another factor relating to items associated with feelings of detachment from stressful events.

Multiple studies have been conducted to establish norms for The Coping Styles Questionnaire, the means and standard deviations of which can be found in Table 4.12.

Table 4.12. CSQ Normative Samples

<table>
<thead>
<tr>
<th>Authors</th>
<th>Population</th>
<th>Rational M (SD)</th>
<th>Detached M (SD)</th>
<th>Emotional M (SD)</th>
<th>Avoidant M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matud (2004)</td>
<td>Convenience sample</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Males</td>
<td>25.06 (6.14)</td>
<td>11.61 (4.86)</td>
<td>11.55 (5.69)</td>
<td>9.02 (3.19)</td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td>23.15 (6.21)</td>
<td>10.61 (4.64)</td>
<td>13.19 (6.25)</td>
<td>10.09 (3.11)</td>
</tr>
<tr>
<td>Roger, Jarvis &amp; Najarian</td>
<td>Undergraduate University</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>students</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Males</td>
<td>27.26 (5.83)</td>
<td>18.71 (6.42)</td>
<td>16.8 (6.11)</td>
<td>15.38 (5.00)</td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td>24.28 (6.45)</td>
<td>16.01 (4.87)</td>
<td>18.22 (5.94)</td>
<td>15.69 (5.37)</td>
</tr>
<tr>
<td>Palmer &amp; Roger (2009)</td>
<td>Undergraduate University</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>students</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Males</td>
<td>27.36 (6.85)</td>
<td>21.9 (7.11)</td>
<td>15.04 (9.55)</td>
<td>15.73 (4.98)</td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td>25.12 (7.2)</td>
<td>15.9 (5.71)</td>
<td>16.48 (7.79)</td>
<td>16.51 (5.23)</td>
</tr>
<tr>
<td></td>
<td>N = 133</td>
<td>20.03 (8.41)</td>
<td>23.53 (7.95)</td>
<td>18.02 (5.89)</td>
<td>21.58 (6.76)</td>
</tr>
</tbody>
</table>

The means and standard deviations obtained on the CSQ by the current sample are shown in Table 4.13. One outlier was adjusted in the Time Three data on the Emotional Coping subscale, and was reduced to have a score one point higher than the next most extreme score. Employing the Mauchly's Test, the assumption of sphericity was met for the
data across all four subscales, (Rational $\chi^2(2) = .32, p = .85$; Detached $\chi^2(2) = 1.75, p = .42$; Emotional $\chi^2(2) = .12, p = .94$; Avoidant $\chi^2(2) = .19, p = .91$). The assumption of normality was met for the Rational Coping subscale (Time One $W = .98, p = .78$, Time Two $W = .97, p = .51$, Time Three $W = .97, p = .61$), the Detached Coping subscale (Time One $W = .94, p = .051$, Time Two $W = .97, p = .45$, Time Three $W = .97, p = .73$) and the Avoidant Coping subscales (Time One $W = .97, p = .35$, Time Two $W = .97, p = .57$, Time Three $W = .95, p = .13$). With regards to the Emotional Coping subscale, the assumption of normality was met for the Time One data ($W = .96, p = .28$) but not for the Time Two ($W = .92, p = .02$) or Time Three data ($W = .96, p = .28$). Again, given the size of the current sample, and Howell's (2007) comments regarding sample size and robustness against violations of assumptions of normality, parametric tests were employed. The repeated measures ANOVA conducted on group means indicated no significant differences in responses on any of the four scales over the three assessment occasions, suggesting that as a group use of coping strategies remained stable across the 42 week placement, Rational Coping, $F(2,68) = 1.086, p = .34, \eta^2 = .31$, Detached Coping $F(2,68) = .64, p = .53, \eta^2 = .02$, Emotional Coping $F(2,68) = .33, p = .72, \eta^2 = .01$ and Avoidant Coping $F(2,68) = 2.14, p = .13, \eta^2 = .06$.

Independent sample t tests were conducted to examine gender differences in the use of coping strategies within the current sample. Unlike other studies, where significant gender differences have been found, no significant differences were found, Rational Coping Time One $t(df = 57) = .61, p = .54$, Time Two $t(df = 51) = .53, p = .53$ and Time Three $t(df = 34) = .07, p = .95$, Detached Coping Time One $t(df = 57) = 1.12, p = .27$, Time Two $t(df = 51) = 1.45, p = .15$ and Time Three $t(df = 34) = .37, p = .72$, Emotional Coping Time One $t(df = 57) = 1.26, p = .21$, Time Two $t(df = 51) = 1.3, p = .19$ and Time Three $t(df = 34) = .58, p = .56$ and Avoidant Coping Time One $t(df = 57) = .82, p = .41$, Time Two $t(df = 51) = .03, p = .98$ and Time Three $t(df = 34) = .92, p = .36$. That is, the males and females in the current
sample employed the various coping strategies to the same degree. However, to facilitate comparison to other samples stratified by gender, in particular first year psychology students, the responses provided by this sample will also be compared by gender.

Table 4.13. CSQ Means and Standard Deviations, Current Sample

<table>
<thead>
<tr>
<th>CSQ Scores</th>
<th>Time One</th>
<th>Time Two</th>
<th>Time Three</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M = 12</td>
<td>M = 10</td>
<td>M = 5</td>
</tr>
<tr>
<td></td>
<td>F = 47</td>
<td>F = 43</td>
<td>F = 31</td>
</tr>
<tr>
<td></td>
<td>N = 59</td>
<td>N = 53</td>
<td>N = 36</td>
</tr>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Rational</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>24.50 (6.40)</td>
<td>27.00 (9.04)</td>
<td>23.80 (6.49)</td>
</tr>
<tr>
<td>Females</td>
<td>25.81 (6.62)</td>
<td>25.33 (7.15)</td>
<td>23.58 (6.64)</td>
</tr>
<tr>
<td>Total</td>
<td>25.54 (6.54)</td>
<td>25.64 (7.47)</td>
<td>23.61 (6.53)</td>
</tr>
<tr>
<td>Detached</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>17.92 (6.42)</td>
<td>19.50 (7.27)</td>
<td>16.80 (3.11)</td>
</tr>
<tr>
<td>Females</td>
<td>15.51 (6.72)</td>
<td>16.02 (6.74)</td>
<td>15.55 (6.07)</td>
</tr>
<tr>
<td>Total</td>
<td>16.00 (6.68)</td>
<td>16.68 (6.91)</td>
<td>15.72 (6.99)</td>
</tr>
<tr>
<td>Emotional</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>13.67 (5.42)</td>
<td>13.10 (4.79)</td>
<td>14.00 (3.80)</td>
</tr>
<tr>
<td>Females</td>
<td>16.04 (5.93)</td>
<td>15.81 (6.08)</td>
<td>15.68 (6.07)</td>
</tr>
<tr>
<td>Total</td>
<td>15.56 (5.86)</td>
<td>15.30 (5.92)</td>
<td>15.44 (5.80)</td>
</tr>
<tr>
<td>Avoidant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>13.08 (4.46)</td>
<td>12.70 (3.46)</td>
<td>10.20 (3.70)</td>
</tr>
<tr>
<td>Females</td>
<td>11.98 (4.10)</td>
<td>12.65 (5.15)</td>
<td>12.16 (4.50)</td>
</tr>
<tr>
<td>Total</td>
<td>12.20 (4.13)</td>
<td>12.66 (4.85)</td>
<td>11.89 (4.41)</td>
</tr>
</tbody>
</table>

Unfortunately, community normative data does not appear to be available for the CSQ. One Spanish convenience sample exists (Matud, 2004) but as with all convenience samples, it is impossible to determine the representativeness of this sample, and its usefulness as a point of comparison is questionable. The results obtained by our sample, were therefore compared to Roger et al, (1993) who reported means and standard deviations for a large sample of first year psychology students.
Adjusted alphas of .05/3 = 0.016 was again employed. Comparisons between the scores obtained by the current sample and the scores reported by first year psychology students in Roger et al (1993) showed no significant differences in the use of Rational coping strategies by either males, Time One $t (df = 11.98) = 1.46, p = .17$, Time Two $t (df = 9.33) = .09, p = .93$ and Time Three $t (df = 4.14) = 1.18, p = .30$, or females, Time One $t (df = 60.80) = 1.48, p = .14$, Time Two $t (df = 52.49) = .91, p = .37$ and Time Three $t (df = 36.23) = .56, p = .58$. Similarly, no significant differences were found between the groups in the use of Detached coping strategies by either males, Time One $t (df = 12.19) = .42, p = .68$, Time Two $t (df = 9.63) = .34, p = .74$ and Time Three $t (df = 4.78) = 1.31, p = .25$, or females, Time One $t (df = 53.99) = .49, p = .63$, Time Two $t (df = 48.62) = .01, p = .99$ and Time Three $t (df = 34.19) = .41, p = .68$.

With regard to the use of Emotional coping, comparisons between the scores reported by the males in the current sample and the scores reported in Roger et al (1993) showed no significant differences in the use of strategies, Time One $t (df = 12.52) = 1.94, p = .07$, Time Two $t (df = 10.33) = 2.36, p = .04$ and Time Three $t (df = 4.14) = 1.18, p = .30$. Comparison between scores reported by the females in the current sample were however significantly lower than those reported by Roger and colleagues on each of the three assessment occasions, Time One $t (df = 62.09) = 2.88, p = .0054$, Time Two $t (df = 55.11) = 3.02, p = .0038$ and Time Three $t (df = 44.48) = 2.71, p = .0096$, indicating that the females in the current sample reported utilizing fewer emotionally focussed coping strategies.

Finally, comparisons between the scores obtained by the current sample and those reported by Roger et al (1993) on the Avoidant coping scale showed no significant differences in the in the use of these coping strategies by the males in the current sample, Time One $t (df = 12.51) = 1.73, p = .11$, Time Two $t (df = 10.73) = 2.34, p = .04$ and Time Three $t (df = 4.33) = 3.07, p = .03$. The females in the current sample however, demonstrated
significantly lower scores than the sample group on each of the three assessment occasions, Time One $t (df = 73.82) = 5.49, p < 0.0001$, Time Two $t (df = 56.22) = 3.60, p = 0.0007$ and Time Three $t (df = 48.09) = 4.34, p < 0.0001$.

These results suggest that, on the whole, the males and females in this sample reported utilizing rational and detached adaptive coping strategies in a similar fashion to first year psychology students. It would appear however, that the females within the current sample reported less reliance on maladaptive emotional and avoidant coping strategies than did their junior academic colleagues.

In order to examine the proportion of students in this sample that relied on each individual set of coping strategies, CSQ raw scores were converted to T scores ($X=50$, $SD=10$). T Scores within the following ranges were assigned the following labels:

1. $<30 =$ very low
2. $31-40 =$ low
3. $41-59 =$ average
4. $60-69 =$ high
5. $70+ =$ very high

According to these criteria, at the time of the first assessment and in relation to scores on the CSQ Rational Coping scale, 2 of 59 (3%) of this sample endorsed responses indicating very low use of rational coping strategies, 8 of 59 (14%) indicated low use of rational coping strategies, 40 of 59 (68%) indicated average use of rational coping strategies and 9 of 59 (15%) reported strong use of rational coping strategies falling within the high range. None of the sample indicated a very high use of rational coping strategies. Regarding the CSQ Detached Coping scale, none of the sample reported a very low use of detached coping strategies, 12 of 59 (20%) reported a low use of detached coping strategies, 34 of 59 (58%)
reported an average use of detached coping strategies whilst 13 of 59 (22%) reported a high use of detached coping strategies. Regarding the CSQ Emotional Coping scale, again none of the sample reported a very low use of emotional coping strategies, 11 of 59 (19%) reported a low use of emotional coping strategies, 37 of 59 (63%) reported an average use of emotional coping strategies, 10 of 59 (17%) reported high use of emotional coping strategies, and 1 of 59 (2%) reported very high use of emotional coping strategies. Regarding the CSQ Avoidant Coping scale none of the sample reported a very low use of avoidant coping strategies, 9 of 59 (15%) reported a low use of avoidant coping strategies, 42 of 59 (71%) reported an average use of avoidant coping strategies, 6 of 59 (10%) reported a high use of avoidant coping strategies whilst 2 of 59% (3%) reported a very high use of avoidant coping strategies.

At the time of the second assessment, and in relation to scores on the CSQ Rational Coping scale, 1 of 53 (2%) of the current sample endorsed responses indicating very low use of rational coping strategies, 10 of 53 (17%) indicated low use of rational coping strategies, 32 of 53 (60%) indicated average use of rational coping strategies and 10 of 53 (19%) reported strong use of rational coping strategies falling within the high range. None of the sample indicated a very high use of rational coping strategies. Regarding the CSQ Detached Coping scale, 1 of 53 (2%) reported a very low use of detached coping strategies, 9 of 53 (17%) reported a low use of detached coping strategies, 32 of 53 (60%) reported an average use of detached coping strategies, 9 of 53 (17%) reported a high use of detached coping strategies and 2 of 53 (4%) reported a very high use of detached coping strategies. Regarding the CSQ Emotional Coping scale, again none of the sample reported a very low use of emotional coping strategies, 7 of 53 (13%) reported a low use of emotional coping strategies, 37 of 53 (70%) reported an average use of emotional coping strategies, 7 of 53 (13%) reported high use of emotional coping strategies, and 2 of 53 (4%) reported very high use of emotional coping strategies. Regarding the CSQ Avoidant Coping scale again none of the
sample reported a very low use of avoidant coping strategies, 11 of 53 (21%) reported a low use of avoidant coping strategies, 34 of 53 (64%) reported an average use of avoidant coping strategies, 5 of 53 (11%) reported a high use of avoidant coping strategies whilst 2 of 53 (4%) reported a very high use of avoidant coping strategies.

At the time of the third and final assessment and in relation to scores on the CSQ Rational Coping scale, none of the sample endorsed scores indicating a very low use of rational coping strategies, 6 of 36 (17%) indicated low use of rational coping strategies, 25 of 36 (69%) indicated average use of rational coping strategies, 4 of 36 (11%) reported high use of rational coping strategies and 1 of 36 (3%) indicated use of very high use of rational coping strategies. Regarding the CSQ Detached Coping scale, none of the sample reported a very low use of detached coping strategies, 7 of 36 (19%) reported a low use of detached coping strategies, 24 of 36 (67%) reported an average use of detached coping strategies, 3 of 36 (8%) reported a high use of detached coping strategies and 2 of 36 (6%) reported a very high use of detached coping strategies. Regarding the CSQ Emotional Coping scale, again none of the sample reported a very low use of emotional coping strategies, 8 of 36 (22%) reported a low use of emotional coping strategies, 25 of 36 (69%) reported an average use of emotional coping strategies, 1 of 36 (3%) reported high use of emotional coping strategies, and 2 of 36 (6%) reported very high use of emotional coping strategies. Regarding the CSQ Avoidant Coping scale none of the sample reported a very low use of avoidant coping strategies, 8 of 36 (22%) reported a low use of avoidant coping strategies, 23 of 36 (64%) reported an average use of avoidant coping strategies, 4 of 36 (11%) reported a high use of avoidant coping strategies whilst 1 of 36 (3%) reported a very high use of avoidant coping strategies (Table 4.14).
Table 4.14. Percentage of Current Sample Falling within T Score Categories for CSQ

<table>
<thead>
<tr>
<th></th>
<th>Rational Adaptive</th>
<th>Detached Adaptive</th>
<th>Emotional Maladaptive</th>
<th>Avoidant Maladaptive</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time One</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N = 59</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very Low</td>
<td>2 (3%)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Low</td>
<td>8 (14%)</td>
<td>12 (20%)</td>
<td>11 (19%)</td>
<td>9 (15%)</td>
</tr>
<tr>
<td>Average</td>
<td>40 (68%)</td>
<td>34 (58%)</td>
<td>37 (63%)</td>
<td>42 (71%)</td>
</tr>
<tr>
<td>High</td>
<td>9 (15%)</td>
<td>13 (22%)</td>
<td>10 (17%)</td>
<td>6 (10%)</td>
</tr>
<tr>
<td>Very High</td>
<td>0</td>
<td>0</td>
<td>1 (2%)</td>
<td>2 (3%)</td>
</tr>
<tr>
<td><strong>Time Two</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N = 53</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very Low</td>
<td>1 (2%)</td>
<td>1 (2%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Low</td>
<td>10 (17%)</td>
<td>9 (17%)</td>
<td>7 (13%)</td>
<td>11 (21%)</td>
</tr>
<tr>
<td>Average</td>
<td>32 (60%)</td>
<td>32 (60%)</td>
<td>37 (70%)</td>
<td>34 (64%)</td>
</tr>
<tr>
<td>High</td>
<td>10 (19%)</td>
<td>9 (17%)</td>
<td>7 (13%)</td>
<td>6 (11%)</td>
</tr>
<tr>
<td>Very High</td>
<td>0</td>
<td>2 (4%)</td>
<td>2 (4%)</td>
<td>2 (4%)</td>
</tr>
<tr>
<td><strong>Time Three</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N = 36</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very Low</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Low</td>
<td>6 (17%)</td>
<td>7 (19%)</td>
<td>8 (22%)</td>
<td>8 (22%)</td>
</tr>
<tr>
<td>Average</td>
<td>25 (69%)</td>
<td>24 (67%)</td>
<td>25 (69%)</td>
<td>23 (64%)</td>
</tr>
<tr>
<td>High</td>
<td>4 (11%)</td>
<td>3 (8%)</td>
<td>1 (3%)</td>
<td>4 (11%)</td>
</tr>
<tr>
<td>Very High</td>
<td>1 (3%)</td>
<td>2 (6%)</td>
<td>2 (6%)</td>
<td>1 (3%)</td>
</tr>
</tbody>
</table>

Examining these results at the level of the individual student, three students scored in the very low range on the adaptive scales of rational and detached coping, one of whom scored in this range on both scales. Seven students scored in the very high range on the maladaptive scales of emotional and avoidant coping, one of whom had also fallen within the very low ranges for both rational and detached coping. In total, nine students fell within the problematic range on any of the coping scales. Six of these students had also previously fallen within the clinical ranges on the BDI-II, STAI or DASS scales, suggesting a clustering
of problematic responding across domains of emotional functioning and coping styles for a subgroup of students.

**Section summary**

There appeared to be little difference between the males and females in our group in their use of coping strategies. Further, both males and females appeared to use adaptive rational and detached coping strategies in a fashion comparable to first year psychology students, with however, less reliance by the females in the current sample on maladaptive emotional and avoidant strategies. Finally, a subgroup of students demonstrated results suggestive of difficulties with coping strategies, either limited use of adaptive, or overuse of maladaptive coping strategies. The majority of this subgroup also reported responses within the clinical range on one or more of the BDI-II, STAI or DASS, suggesting a possible relationship between emotional dysfunction and coping strategies.

**Personality**

Revised NEO Personality Inventory (NEO PI-R) (Costa & McCrae, 1992) is a 240-item self-report questionnaire designed to assess the Five-Factor Model of Personality that measures the "Big Five" Personality Traits: Neuroticism, Extraversion, Openness to Experience, Agreeableness and Conscientiousness. Each of these five major domains is defined by six facet scales or groups of intercorrelated traits, 30 in total and each of these facets is composed of six statements or items. Two versions exist, Form S is a self-report form, and Form R is an observer report form.

The Neuroticism domain identifies individuals susceptible to psychological distress. Facets include: (p. 16)

i. Anxiety – apprehension, fearfulness, proneness to worry, nervousness, tension, feeling jittery
ii. Angry Hostility - tendency to experience anger, frustration and bitterness

iii. Depression – tendency to experience depressive affect,

iv. Self-Consciousness – tendency to experience shame, embarrassment, sensitivity to ridicule and feelings of inferiority

v. Impulsiveness – inability to control cravings and urges

vi. Vulnerability – vulnerability to stress with an associated tendency to become dependent, hopeless and panicked in the face of emergency situations

The Extraversion domain identifies the degree to which individuals direct their energies towards social interactions. Facets include (p. 17)

i. Warmth – relevant to issues of interpersonal intimacy, represents affection and friendliness directed towards others.

ii. Gregariousness – the preference for the company of others

iii. Assertiveness – the degree of social dominance, forcefulness of expression, social ascendancy

iv. Activity – the need to keep busy, sense of energy, tempo of living

v. Excitement seeking – the degree to which individuals seek excitement and stimulation

vi. Positive emotion – tendency to experience positive emotions such as joy, happiness, love and excitement

The Openness to Experience domains identifies the degree to which individuals are imaginative, aesthetically sensitive, are attentive to their inner feelings, enjoy variety and are intellectually curious. Facets include (p.17)
i. Fantasy – the degree to which individuals have a vivid imagination and an active fantasy life

ii. Aesthetics – the degree to which individuals appreciate art and beauty

iii. Feelings – the degree to which individuals are open to their inner emotions and evaluate this experience as an important part of life.

iv. Actions – the degree to which individuals are willing to engage in different activities

v. Ideas – the degree to which individuals are intellectually curious and open-minded

vi. Values – the degree to which individuals are willing to re-examine social, political, and religious values.

The Agreeableness domain represents the interpersonal tendency towards altruism, sympathy towards others and helpfulness on the assumption that others will respond in kind.

Facets include (p. 17)

i. Trust - the degree to which individuals believe in the sincerity and goodness of others

ii. Straightforwardness - the degree to which individuals are straightforward, frankness and ingenuous in their communication

iii. Altruism – the degree to which individuals demonstrate active concern for the welfare of others

iv. Compliance - the degree to which individuals respond with compliance or aggression in the face of interpersonal conflict

v. Modesty – the degree to which individuals demonstrate humility or arrogance relative to others
vi. Tender mindedness - the degree to which individuals demonstrate sympathy and concern for others.

The Conscientiousness domain represents the degree of planning, organizing and perseverance an individual demonstrates in carrying out goal directed behaviour (p. 18)

i. Competence - the degree to which individuals demonstrate a belief in their own capability and efficacy

ii. Order - the degree to which individuals demonstrate neatness, tidiness and personal organization

iii. Dutifulness - the degree to which individuals demonstrate adherence to their own ethical principles and moral obligations

iv. Achievement striving - the degree to which individuals demonstrate high aspiration levels and work hard to achieve them

v. Self-Discipline - the degree to which individuals demonstrate the ability to begin tasks and carry them through to completion in the face of distractions.

vi. Deliberation - the degree to which individuals demonstrate the tendency to think carefully before acting.

The NEO-PI-R may be administered individually or in groups. Respondents are provided with an item booklet and scoring sheet and most individuals required 30-40 minutes to complete the questionnaire. For each of the 240 statements respondents are invited to indicate the degree to which the statement e.g. "I am not a worrier" or "I am easily frightened" applies to them on a five point Likert scale from 1 = Strongly Disagree to 5 = Strongly Agree. Scores are calculated by summing the values of the circled responses for each of the eight items per facet. These scores represent the raw scores for each facet. When all facet scores are calculated they are then added together and represent domain raw scores.
Raw scores are then converted to standard scores and can be compared to various normative samples.

The NEO-PI-R has excellent psychometric properties, and it is frequently referred to as the gold standard for personality assessment. Internal consistency reliabilities for the domain scales for Form R, used in this study, range from .89 to .95, whilst facet scales range from .69 to .90. Test-retest reliability has been examined in a number of studies ranging over years. The authors report domain test-retest reliability coefficients ranging between .63 and .83 over a 6 year period, and these findings have been supported by other studies (Costa, Herbst, McCrae, & Siegler, 2000; Kurtz & Parrish, 2001). Construct validity has been demonstrated by a number of studies that have correlated responses on the NEO-PI-R with a variety of theoretically related factors such as psychological well-being (Costa & McCrae, 1984), use of coping styles (McCrae & Costa, 1986), and academic performance (Conard, 2006). Convergent validity has been documented with high correlations between the various facets such as the Neuroticism and Extraversion factors and Neuroticism and Extraversion scales in other tests such as the Eysenck Personality Inventory (H. Eysenck, 1968) and the State-Trait Personality Inventory (Spielberger, 1986).

Normative data are available from a number of populations, the means and standard deviations of which are outlined in Table 4.15.

Table 4.15. NEO-PI-R Normative Samples

<table>
<thead>
<tr>
<th>Author</th>
<th>Population</th>
<th>Neuroticism M (SD)</th>
<th>Extraversion M (SD)</th>
<th>Openness to Exp. M (SD)</th>
<th>Agreeableness M (SD)</th>
<th>Conscientiousness M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costa &amp; McCrae (1992)</td>
<td>US normative sample</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Males N = 500</td>
<td>75.2 (19.9)</td>
<td>108.5 (18.5)</td>
<td>110.1 (17.5)</td>
<td>120.1 (16.1)</td>
<td>123.6 (17.4)</td>
</tr>
<tr>
<td></td>
<td>Females N = 500</td>
<td>83.1 (21.7)</td>
<td>110.3 (18.4)</td>
<td>111.0 (17.2)</td>
<td>128.5 (14.4)</td>
<td>122.7 (17.8)</td>
</tr>
<tr>
<td></td>
<td>Combined</td>
<td>79.1 (21.2)</td>
<td>109.4 (18.4)</td>
<td>110.6 (17.3)</td>
<td>124.3 (15.8)</td>
<td>123.1 (17.6)</td>
</tr>
</tbody>
</table>
The means and standard deviations obtained on the NEO-PI-R by the current sample are shown in Table 4.16. The Shapiro-Wilk tests indicated that the assumption of normality was met for each subscale on each assessment occasion, (Neuroticism Time One W = .98, p = .96, Time Two W = .95, p = .14, Time Three W = .98, p = .79; Extraversion Time One W = .96, p = .19, Time Two W = .98, p = .80, Time Three W = .98, p = .66; Openness Time One W = .94, p = .06, Time Two W = .96, p = .19, Time Three W = .98, p = .79; Agreeableness Time One W = .98, p = .81, Time Two W = .96, p = .24, Time Three W = .98, p = .59; Conscientiousness Time One W = .98, p = .95, Time Two W = .98, p = .68), except for Time Three NEO-PI-R Conscientiousness data (W = .93, p = .02). The assumption of sphericity was met for the NEO-PI-R Neuroticism ($\chi^2(2) = .99, p = .61$), Openness to Experience subscale ($\chi^2(2) = 2.36, p = .31$), Agreeableness ($\chi^2(2) = .25, p = .88$) and Conscientiousness subscales ($\chi^2(2) = 3.34, p = .19$). Where the assumption of sphericity was not met for the Extraversion subscale ($\chi^2(2) = 8.72, p = .01$), the Huynh-Feldt correction ($\epsilon = .85$) was employed. Again, following Howell (2007), the decision was made to employ parametric analyses, and the repeated-measures analyses of variance conducted on group means indicated no significant differences in responses on any of the five scales over the three assessment occasions. This suggested that as a group personality styles remained stable.
across the 42 week placement, Neuroticism, $F(2,72) = 1.21, p = .30, \eta^2 = .03$, Extraversion $F(1.71, 61.43) = .28, p = .72, \eta^2 = .008$, Openness to Experience $F(2,72) = .13, p = .87, \eta^2 = .004$, Agreeableness $F(2,72) = 2.31, p = .106, \eta^2 = .06$ and Conscientiousness $F(2,72) = .93, p = .39, \eta^2 = .025$.

Table 4.16. NEO-PI-R Means and Standard Deviations, Current Sample

<table>
<thead>
<tr>
<th></th>
<th>Time One N = 59</th>
<th>Time Two N = 53</th>
<th>Time Three N = 37</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuroticism</td>
<td>94.93 (25.34)</td>
<td>94.17 (24.84)</td>
<td>95.62 (24.04)</td>
</tr>
<tr>
<td>Extraversion</td>
<td>110.47 (21.18)</td>
<td>110.38 (20.69)</td>
<td>112.08 (20.04)</td>
</tr>
<tr>
<td>Openness to Experience</td>
<td>120.78 (17.57)</td>
<td>120.28 (18.18)</td>
<td>123.30 (18.30)</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>126.83 (15.22)</td>
<td>125.28 (12.94)</td>
<td>128.49 (13.68)</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>116.10 (20.16)</td>
<td>114.45 (19.06)</td>
<td>118.19 (21.44)</td>
</tr>
</tbody>
</table>

Independent sample t tests were conducted to compare the results obtained by the current sample on the NEO-PI-R on each of the three assessment occasions, and those obtained in a US general population survey reported by Costa and McCrae (1992). Bonferroni adjustments, with an alpha of $.05/3 = .016$ were again employed to protect against type 1 error. Significant differences were found between the two groups on the Neuroticism, Openness to Experience and Conscientiousness scales. That is, the current sample demonstrated significantly higher Neuroticism scores on all three assessment occasions, Time One $t(df = 62.88) = 4.70, p < 0.0001$, Time Two $t(df = 56.08) = 4.33, p < 0.0001$, and Time Three $t(df = 38.10) = 4.12, p = 0.0002$. The current sample also demonstrated significantly higher Openness to Experience scores across each of the three assessment occasions, Time One $t(df = 64.81) = 4.33, p < 0.0001$, Time Two $t(df = 57.10) = 3.79, p = 0.0004$, and Time Three $t(df = 38.42) = 4.15, p = 0.0002$. Finally, the current sample also demonstrated significantly lower Conscientiousness scores on the first two of the assessment occasions, Time One $t(df = 63.33) = 2.61, p = 0.0113$, Time Two $t(df = 56.80) = 3.23, p = 0.002$, and
Time Three $t (df = 37.82) = 1.37, p = 0.18$. No significant differences were found between the current sample and the normal population sample on measures of Extraversion, Time One $t (df = 63.27) = .38, p = 0.71$, Time Two $t (df = 56.44) = .34, p = 0.74$, and Time Three $t (df = 38.28) = .80, p = 0.43$ and Agreeableness, Time One $t (df = 65.59) = 1.24, p = 0.0113$, Time Two $t (df = 60.52) = .53, p = .59$, and Time Three $t (df = 39.64) = 1.82, p = 0.07$.

However, when the significantly different mean scores obtained by our sample on these three scales were compared to the Costa and McCrae (1992) scores obtained by US College students, results were comparable. That is, no significant differences were found between scores obtained by our sample on the Neuroticism scale and those reported by US College students on any of the three assessment occasions, Time One $t (df = 70.60) = .39, p = 0.69$, Time Two $t (df = 62.54) = .59, p = 0.55$, and Time Three $t (df = 41.39) = .17, p = 0.87$. No significant differences were found between the two groups on the Openness scale, Time One $t (df = 77.18) = 1.62, p = 0.11$, Time Two $t (df = 66.32) = 1.31, p = 0.19$, and Time Three $t (df = 42.74) = 2.07, p = 0.04$. Finally, no significant differences were found between scores obtained by our sample on the Conscientiousness scale and those reported by US College students on any of the three assessment occasions, Time One $t (df = 78.55) = .56, p = 0.57$, Time Two $t (df = 70.55) = .02, p = 0.98$, and Time Three $t (df = 42.90) = 1.00, p = 0.32$.

Overall, this would suggest that as a group the current sample demonstrate personality structures within the range commonly exhibited by adults and university students.

However, data analysis had previously indicated the existence of a subgroup of individuals within the current sample who have demonstrated responses within the clinical range for measures on mood, anxiety, stress and coping styles. Therefore, in order to examine the possibility of a subgroup exhibiting responses in the problematic range on the NEO-PI-R, raw scores were converted to T scores ($X=50, SD=10$), and individuals were placed within categories according to these scores. T scores within these categories were
assigned in order to facilitate comparison with results on other measures employed in this study:

1. <30 = very low
2. 31-40 = low
3. 41-59 = average
4. 60-69 = high
5. 70+ = very high

According to these criteria, at the time of the first assessment, 2 of 59 (3%) of the current sample fell within the very low range of the Neuroticism scale, 10 of 59 (17%) fell within the low range, 37 of 59 (63%) within the average range, 9 of 59 (15%) within the high range, and 1 of 59 (2%) fell within the very high range. Three of 59 (5%) fell within the very low range on the Extraversion scale, 8 of 59 (14%) fell within the low range, 38 of 59 (64%) in the average range, 10 of 59 (17%) in the high range, with none of the sample falling within the very high range. None of the current sample fell within the very low range on the Openness scale, 13 of 59 (22%) fell within the low range, 35 of 59 (59%) within the average range, 8 of 59 (14%) within the high range, and 3 of 59 (5%) fell within the very high range. One of 59 (2%) of the current sample fell within the very low range on the Agreeableness scale, 12 of 59 (20%) fell within the low range, 40 of 59 (68%) fell within the average range, 4 of 59 (7%) in high range, and 2 of 59 (3%) within the very high range. Three of 59 (5%) of the current sample fell within the very low range on the conscientiousness scale, 9 of 59 (15%) fell in the low range, 38 of 59 (64%) in the average range, 6 of 59 (10%) in the high range, and 1 of 59 (2%) within the very high range.

At the second assessment 1 of 53 (2%) of the current sample fell within the very low range of the Neuroticism scale, 10 of 53 (19%) fell within the low range, 32 of 53 (60%)
within the average range, 8 of 53 (15%) within the high range, and 2 of 53 (4%) fell within the very high range. Two of 53 (4%) fell within the very low range on the Extraversion scale, 7 of 53 (13%) fell within the low range, 33 of 53 (62%) in the average range, 5 of 53 (9%) in the high range, and 1 of 53 (2%) fell within the very high range. None of the current sample fell within the very low range on the Openness scale, 9 of 53 (17%) fell within the low range, 34 of 53 (64%) within the average range, 8 of 34 (15%) within the high range, and 2 of 53 (4%) fell within the very high range. Two of 53 (4%) of the current sample fell within the very low range on the Agreeableness scale, 6 of 53 (11%) fell within the low range, 39 of 53 (74%) fell within the average range, 4 of 53 (8%) in high range, and 2 of 53 (4%) within the very high range. One of 53 (2%) of the current sample fell within the very low range on the Conscientiousness scale, 9 of 53 (17%) fell in the low range, 34 of 53 (64%) in the average range, 7 of 53 (13%) in the high range, and 2 of 53 (4%) within the very high range.

At the time of the third assessment 1 of 37 (3%) of the current sample fell within the very low range of the Neuroticism scale, 5 of 37 (14%) fell within the low range, 26 of 37 (70%) within the average range, 4 of 37 (11%) within the high range, and 1 of 37 (3%) fell within the very high range. One of 37 (3%) fell within the very low range on the Extraversion scale, 5 of 37 (14%) fell within the low range, 25 of 37 (68%) in the average range, 5 of 37 (14%) in high range, and 1 of 37 (3%) fell within the very high range. One of 37 (3%) of the current sample fell within the very low range on the Openness scale, 5 of 37 (14%) fell within the low range, 24 of 37 (65%) within the average range, 6 of 37 (16%) within the high range, and 1 of 37 (3%) fell within the very high range. One of 37 (3%) of the current sample fell within the very low range on the Agreeableness scale, 4 of 37 (11%) fell within the low range, 27 of 37 (73%) fell within the average range, 5 of 37 (14%) in high range, and no one fell within the very high range. One of 37 (3%) of the current sample fell within the very low range on the conscientiousness scale, 6 of 37 (16%) fell in the low range, 26 of 37 (70%) in
the average range, 4 of 37 (11%) in the high range, and none fell within the very high range (Table 4.17).

Table 4.17. Percentage of Current Sample Falling within NEO-PI-R T Score Categories

<table>
<thead>
<tr>
<th>NEO-PI-R</th>
<th>Neuroticism</th>
<th>Extraversion</th>
<th>Openness</th>
<th>Agreeableness</th>
<th>Conscientiousness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time One</td>
<td>N = 59</td>
<td>N (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 30 Very Low</td>
<td>2 (3%)</td>
<td>3 (5%)</td>
<td>0</td>
<td>1 (2%)</td>
<td>3 (5%)</td>
</tr>
<tr>
<td>31-40 Low</td>
<td>10 (17%)</td>
<td>8 (14%)</td>
<td>13 (22%)</td>
<td>12 (20%)</td>
<td>9 (15%)</td>
</tr>
<tr>
<td>41-59 Average</td>
<td>37 (46%)</td>
<td>38 (64%)</td>
<td>35 (59%)</td>
<td>40 (68%)</td>
<td>38 (64%)</td>
</tr>
<tr>
<td>60-69 High</td>
<td>9 (15%)</td>
<td>10 (17%)</td>
<td>8 (14%)</td>
<td>4 (7%)</td>
<td>6 (10%)</td>
</tr>
<tr>
<td>70&gt; Very High</td>
<td>1 (2%)</td>
<td>0</td>
<td>3 (5%)</td>
<td>2 (3%)</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Time Two</td>
<td>N = 53</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 30 Very Low</td>
<td>1 (2%)</td>
<td>2 (4%)</td>
<td>0</td>
<td>2 (4%)</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>31-40 Low</td>
<td>10 (19%)</td>
<td>7 (13%)</td>
<td>9 (17%)</td>
<td>6 (11%)</td>
<td>9 (17%)</td>
</tr>
<tr>
<td>41-59 Average</td>
<td>32 (60%)</td>
<td>33 (62%)</td>
<td>34 (64%)</td>
<td>39 (74%)</td>
<td>34 (64%)</td>
</tr>
<tr>
<td>60-69 High</td>
<td>8 (15%)</td>
<td>5 (9%)</td>
<td>8 (15%)</td>
<td>4 (8%)</td>
<td>7 (13%)</td>
</tr>
<tr>
<td>70&gt; Very High</td>
<td>2 (4%)</td>
<td>1 (2%)</td>
<td>2 (4%)</td>
<td>2 (4%)</td>
<td>2 (4%)</td>
</tr>
<tr>
<td>Time Three</td>
<td>N = 37</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 30 Very Low</td>
<td>1 (3%)</td>
<td>1 (3%)</td>
<td>1 (3%)</td>
<td>1 (3%)</td>
<td>1 (3%)</td>
</tr>
<tr>
<td>31-40 Low</td>
<td>5 (14%)</td>
<td>5 (14%)</td>
<td>5 (14%)</td>
<td>4 (11%)</td>
<td>6 (16%)</td>
</tr>
<tr>
<td>41-59 Average</td>
<td>26 (70%)</td>
<td>25 (68%)</td>
<td>24 (65%)</td>
<td>27 (73%)</td>
<td>26 (70%)</td>
</tr>
<tr>
<td>60-69 High</td>
<td>4 (11%)</td>
<td>5 (14%)</td>
<td>6 (16%)</td>
<td>5 (14%)</td>
<td>4 (11%)</td>
</tr>
<tr>
<td>70&gt; Very High</td>
<td>1 (3%)</td>
<td>1 (3%)</td>
<td>1 (3%)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

When examining this data at the level of the individual student, ten students accounted for the twenty responses in the very high or very low ranges. Given the predicted stability of personality functioning, it is not surprising that four students endorsed responses in the clinical range over multiple assessment occasions, whilst three students endorsed clinical level responses on more than one scale. Interestingly, four of these students had also
reported clinical level or problematic responding in either the emotional functioning or coping styles questionnaires.

Section summary

Overall, it would appear that the students in the current sample exhibited personality structures comparable to both the general population and other university students. Again, the current data suggested the existence of a subgroup of students who demonstrated responses in the clinical range, a number of whom did so on more than one occasion, and on more than one scale. A proportion of this subgroup also demonstrated responses in the clinical range on measures of emotional functioning and use of coping styles.

Discussion

This study documented the psychological functioning of postgraduate students in clinical and forensic psychology whilst they participated in a 42 week clinical placement. Students were asked to complete psychological self-report questionnaires on three occasions: Time One on day one of the placement, Time Two or mid-way through the placement and coinciding with a mid-placement review, and again at Time Three at the conclusion of the placement, and coinciding with a final placement review. The self-report questionnaires included measures of depression, anxiety, stress, personality and coping.

Three specific questions were asked during this study.

1. To what extent do postgraduate professional psychology students, participating in their first university-based clinical practicum, report levels of depression, anxiety and stress?
2. What kinds of coping strategies do postgraduate professional psychology students employ to cope with the demands of their first university-based clinical practicum?

3. What kinds of personality styles do postgraduate professional psychology students, participating in their first university-based clinical practicum demonstrate?

Results revealed that as a group the students generally reported psychological functioning in the normal range. Specifically, the current sample reported responses within the normal range on measures of personality, mood, autonomic arousal and coping. Responses on measures of subjective anxiety were higher than normal. These results were accounted for by women reporting elevated levels of subjective anxiety on two of the three assessment occasions. As a group levels of stress/tension were also higher than normal, but comparable to levels often reported by other university students.

Interestingly, data analysis revealed the existence of a subgroup of students. That is, 32% of the current total sample endorsed responses in the clinical or problematic range on at least one questionnaire. Approximately half of the subgroup, 17% of the total current sample, endorsed responses in the clinical range on more than one questionnaire. Further, approximately half of the subgroup, 17% of the total current sample, endorsed responses in the clinical range on more than one assessment occasion across the duration of the placement. It would appear then, that whilst as a group the majority of students report psychological functioning in the normal range, a subgroup of students experienced multiple difficulties in psychological functioning for sustained periods of time across the duration of their clinical placement.

These results appear largely consistent with the findings from a small number of similar studies reviewed in Chapter Three. For example, Cushway (1992) surveyed British
postgraduate clinical psychology students and estimated the prevalence of psychological disturbance on the GHQ-28 at 59%. Kuyken et al (1998) surveyed 15 British clinical psychology training programmes and found that 25% of postgraduate clinical psychology students reported problems of self-esteem, work adjustment, depression and anxiety, while Kuyken et al (Kuyken, et al., 2000) reported that these initial rates of distress remained relatively stable across the three year duration of clinical training.

Brooks, Holttum and Lavender (2002) reported that 8% of their sample of postgraduate clinical psychology students reported personality adjustment scores in the problematic range, 41% reported a significant problem on one or more of their measures of anxiety, depression, low self-esteem and work adjustment, and a further one third of the sample reported probable substance use problems. Kuyken, Peters, Power and Lavender (2003) also surveyed postgraduate clinical psychology students and obtained measures of threat appraisal, coping, social support and attitudes to learning. They reported that students who perceived greater threat and less controllability in their circumstance, and those who employed more frequent avoidance coping strategies, experienced greater difficulties with regard to self-esteem, depression and anxiety than did their peers. Further, those trainees who reported fewer problems with self-esteem, anxiety and depression reported more consistent use of strategies said to be indicative of a "deep approach" to learning e.g. greater engagement in strategies described by the authors as thinking, planning, experiencing and reflecting.

These findings, set within a postgraduate training context, also appear consistent with the findings of a small number of studies seeking to document the psychological functioning of practicing professional psychologists. For example Sampson (1989) as cited in Cushway and Tyler (1994) found that 33% of clinical psychologists in the sample met caseness on the GHQ-28. Cushway and Tyler (1994), in a survey of 101 clinical psychologists, reported 29%
of respondents met caseness on the GHQ-28, with increased use of avoidant coping strategies being associated with poorer mental health outcomes.

Therefore, whilst the findings of the current study do appear to be consistent with findings from a limited number of similar studies, they must be viewed with caution. It should be noted that the current sample size is relatively small, and that the study was set within the context of a single university in the south-western suburbs of Sydney, NSW, Australia. The extent to which the students in the current sample, and indeed the university itself, are representative of postgraduate students studying professional psychology elsewhere remains to be seen. Replication of this study within Master's degrees of professional psychology at other Australian universities will increase sample size, and thereby increase confidence in the generalizability of the current findings regarding the psychological functioning of the postgraduate professional psychology students.
CHAPTER 5

The Development and Validation of the Clinical Skills Assessment Tool (CSAT)

This study sought to develop a valid and reliable clinical skills assessment methodology that could be employed within the assessment periods that occurred in the Psychology Clinic at the University of Western Sydney. Once developed, this assessment tool was referred to as the Clinical Skills Assessment Tool (CSAT).

Development of the CSAT

During the development of the CSAT a range of issues were discussed by staff teaching into the Masters' degrees of Clinical and Forensic Psychology. The mid-placement review period was the first formal opportunity in the placement sequence to provide students with feedback regarding their progress in the development of the clinical skills required for successful completion of that placement. As such, the mid-placement review, and with it the CSAT, were required to serve a formative assessment function. However, the mid-placement review was also to serve a gate-keeping function at which time students were required to pass all assessment tasks in order to be eligible to commence external placements. That is, depending on the structure of available external placements (external placements vary between 1-3 days per week across placement sites), on successful completion of the mid placement review students could either elect to remain at the UWS Psychology Clinic placement one day per week and take up concurrent external placements, or discontinue the UWS Clinic placement for sole involvement in an external placement. As such, the assessment tool was also required to serve a summative function at this point in time.
Should students be unable to satisfactorily demonstrate competence on the required items at mid placement review they could continue on internal placement to develop these skills until such time that they chose to re-present video vignettes of their work for reassessment.

At the final placement review period, students were required to pass all items presented and as such this judgement would be final, leading to either a pass or fail grade for the placement. Passing students would move on to subsequent clinical placements, failing students would be required to re-enrol in the placement unit. As such, the assessment process was considered to be a criterion-referenced assessment process whereby student performance was not reported in terms of rank ordering amongst students but according to mastery of clinical skills required.

Extending the issue of formative and summative assessment, programme staff determined that the skills assessment tool under development should not only allow judgements to be made regarding the student's ability to demonstrate competence on the necessary skills, but should also provide a list of behaviours indicating a range of proficiency levels in each skill. Students would be required to demonstrate competence on the necessary skills, but also be provided with the means to extend or enhance the quality or efficiency of performance of those skills over time.

When considering the format of the assessment tool, programme staff concluded that a rating scale rather than checklist would be most appropriate. The Behaviourally Anchored Rating Scale (BARS) (Cain-Smith & Kendell, 1963) format was selected. Behaviourally Anchored Rating Scales are typically used within the fields of education and psychology and routinely identify "critical incidents" or skills for assessment that are necessary in real-life task performance. Such a rating scale would allow for the assessment of a number of skills in a standardized fashion, where the behaviours defining those skills could be objectively and behaviourally described across graduated levels of proficiency. The BARS format was thus
considered both consistent with the Cognitive Behavioural Theoretical orientation of the programme of instruction students were enrolled in, but also as potentially supporting greater objectivity in the assessment process and with it, an increased likelihood of the assessment tool demonstrating acceptable psychometric properties.

In considering the importance, or relative weighting, of each skill to be demonstrated and therefore assessed during each assessment period, programme staff also decided that the skills assessment tool should reflect a non-compensatory model of assessment. That is, minimal competence should be demonstrated on each of the required skills. Excellent performance on one item, for example, should not compensate for substandard performance on another item.

Finally, and typical of most rating scales, teaching staff determined that three categories or gradients across the response continuum would be sufficient and for the purposes of this assessment process, and selected the terms: "developing", "competent" and "excellent". As such, scores on this assessment tool would be at the ordinal level but would be interpreted as interval values once summated for the purposes of the validation studies.

The Structured Observation of Learning Outcomes review (Biggs, 2003) and subsequent modifications implemented both throughout the professional programmes and within the Clinical Training Unit in the year prior to the development of the skills assessment tool highlighted the need to develop a valid and reliable clinical skills assessment methodology for use with Masters' of Psychology students. The development of such a tool was seen as a necessary step in the consolidation and enhancement of the changes implemented throughout the professional programmes.

Coincidental with the review and modifications occurring within the Professional Programmes in the School of Psychology, the University of Western Sydney Office of the Pro Vice Chancellor had begun the implementation of a Learning and Teaching Action Plan
(LTAP) 2006-2008, that was "intended to achieve improvements in learning and teaching, using evidence to establish priorities and proven methods to effect change" (http://www.uws.edu.au/learning_teaching/learning_and_teaching/deleted/archives_password_protected/ltap). Grants of up to $15,000 were available for allocation on a competitive basis to support projects consistent with these aims. Funding was successfully sought to support the initial phase of development and piloting of a clinical skills assessment methodology, and an amount of $15,000 was granted.

The development and piloting phase of the assessment methodology project saw the formation of a working party of three academics: the Clinic Director and principal investigator (Lecturer), the Head of Postgraduate Psychology Programmes (Associate Professor) and the Course Advisor for Clinical Psychology (Senior Lecturer). All three were clinical psychologists and taught into the Master's Degrees of Clinical and Forensic Psychology. This group reviewed the outcome documentation previously produced as a result of the SOLO taxonomy process outlined above, and identified 14 core or foundational clinical skills taught within academic units prior to and concurrent with the first clinical placement within which it was intended that the CSAT be used. These were:

1. Interpersonal skills
2. Ethical behaviour
3. Conducting initial assessments
4. Making DSM Diagnosis
5. Identifying specific Cognitive Behavioural aspects of problem
6. Developing Cognitive Behavioural Formulations
7. Presenting formulation(s) to client
8. Agenda setting and adherence
9. Gathering and Providing Feedback
10. Providing Psycho-education
11. Implementing Cognitive Behavioural change techniques
12. Home-based tasks
13. Conducting Psychometric assessments
14. Communicating with colleagues

Items One to Seven, incorporating a focus on interpersonal and ethical functioning, assessment, diagnosis and formulation skills involved skills taught throughout the first two semesters of the Masters' programmes, and so it was considered appropriate to assess the first seven of the foundational skills at mid-placement review. Items eight to fourteen, focussing on cognitive and behavioural change techniques were taught towards the latter part of second semester, and through to the third semester of study. At the final placement review it was decided then that students would be assessed on all 14 items of the CSAT, re-examining intern performance on the initial seven items with new clients, and including the remaining items focussing on cognitive behavioural therapeutic skills and psychometric assessment. Across a series of three meetings, each of these core skills were deconstructed into their component skills, and different levels of proficiency were defined for each in behavioural terms. Each of the core skills with their respective component skills were placed onto an assessment rubric with three levels of proficiency labelled as: Developing, Competent and Excellent, with behavioural descriptions of the Competent and Excellent grades being articulated.

For example, Task One, "Interpersonal Skills", required that "The intern must demonstrate appropriate interpersonal skills". In their determination of a proficiency grade assessors were invited to consider student performance with respect to the following prompt
behaviours: "listening to the client, responding to episodes of client distress, using reflective listening to take note of the client's emotional state and the specific content of the client's communication, demonstrating accepting, non-judgemental and respectful attitudes, appearing appropriately confident, emotional responses are appropriate to the situation, encouraging development of collaborative relationship with client, responding appropriately to questioning, challenging and resistance by client".

Following consideration of these prompt behaviours assessors were required to award a grade. A "Competent" grade might be awarded where "Some of the prompt skills are demonstrated whilst others are not, the prompt skills are demonstrated with some inefficiency or some of the skills are demonstrated but the intern does not appear comfortable". An "Excellent" grade might be awarded where "The majority of the behaviours listed are evident, the skills/behaviours are conducted with efficiency, and the intern appears calm and confident". Descriptors for the "Developing" grade were not provided, as it was considered appropriate to define this grading by default, being anything not meeting the criteria described in the "Competent" classification. On this matter however, where assessors might be struggling with the distinction between awarding a Developing or Competent grade, a "Key Point for Competent Rating" was provided to guide the assessor in his or her decision making regarding a rating for minimal competence. In the case of "Interpersonal skills" this was "The assessor judges that the client is sufficiently comfortable with the student's interpersonal skills". Each of the remaining thirteen items of the CSAT was similarly defined with relevant prompt behaviours, proficiency descriptors and key points to guide minimal ratings of competence.

The CSAT in this initial format was passed to the three clinic supervisors, one who was also the Clinic Director and principal researcher, then currently supervising students on placement within the Psychology Clinic. The CSAT was piloted by these supervisors during
the next available assessment period. During the assessment process students were assessed both by their own supervisor and the principal researcher. Students assigned to supervision under the principal researcher were also assessed by one of the other two supervisors. During the process students presented video vignettes of their clinical work addressing each of the 14 required CSAT criteria. The supervisor/assessors graded each of the intern's video items independently making notes on the CSAT document as they progressed. At the end of the process the intern was asked to leave the room in order for the supervisors to confer. Where supervisors experienced a disagreement in ratings on particular items, the standard instruction to supervisors was to re-read the proficiency descriptors and rating criteria carefully. This linked the supervisors back to behavioural descriptors or rating anchors and disagreements were resolved. When the supervisors had reached final agreement on a rating for each item the intern was asked to return to the room and feedback, along with a copy of the CSAT protocol with comments included, was provided. Where assessors agreed that intern performance on specific items was insufficient to meet a "Competent" grading, students were given specific feedback regarding the improvements in performance required to meet this criteria, were invited to address that issue in their work with clients, and represent that item to their individual supervisors for re-grading when they felt competent to do so.

Following assessment of all students during this assessment period, feedback was sought from the supervisors regarding the useability of the assessment rubric, proficiency descriptors and grading criteria. Feedback was largely positive but several modifications were made. For example, whilst initially students had been required to present video excerpts demonstrating each of the 14 assessment criteria, following the piloting project the assessors concluded that Items 1 "Interpersonal Skills", and 9 "Feedback" might be observed incidentally whilst observing items 2 "Ethical Behaviour", 7 "Presents formulation to client", 8 "Agenda setting and adherence", 10 "Psycho-education", and 11 "Cognitive and
behavioural therapy techniques”. As such it was agreed that in future students would be advised that they were not required to present individual video vignettes of themselves addressing items 1 and 9, providing they felt that they could adequately demonstrate competence on these items through presentation of items 2, 7, 8, 10 and/or 11. If however, students were particularly pleased with examples of their work addressing items 1 and 9 they were free to present these vignettes for assessment.

Assessors also agreed that during presentation of the video excerpts, they had some difficulty placing these excerpts into an appropriate context without first the provision of necessary background clinical information regarding the case. It was agreed therefore, that in order to allow assessors a fuller understanding of the cases being presented and to judge, therefore, the appropriateness of the students' behaviours, the students would, in future, be required to begin the assessment process by presenting a brief verbal summary of the case, complete with associated client file.

Further, assessors agreed that items 3 "Conducting initial assessment", 4 "DSM Diagnosis", 5 "Identifying cognitive behavioural aspects of the problem" and 6 "Development of cognitive behavioural formulations" were more efficiently presented as written documents within client files. It was decided also that Item 14 "Psychometric assessments" did not require specific presentation as adequate performance of this item was evidenced by the completion of the necessary psychometric assessment reports produced by the intern, and co-signed by the supervisor, during the course of the placement. Finally, it was considered that item 15 "Professionalism" was best rated only by the students' individual supervisors, the individual supervisor being best placed by provide an opinion regarding performance throughout the extended placement. As such, this item was not included in subsequent validation studies.
Therefore, the overall format of the assessment process was modified somewhat. Students would, in future, commence the assessment process with a brief clinical case presentation regarding any of the cases they would be presenting via either video or case file format. Case files were presented to the assessors for review and video vignette presentation then followed. Obviously, the most time efficient format would involve presentation of one case only, with the intern providing a brief case presentation, one completed file and a sequence of video vignettes moving sequentially through the items of the CSAT. Where the intern was unable to demonstrate all CSAT items within the management of one case, they would be required to present multiple cases in order to demonstrate all items on the CSAT. A brief case presentation, along with presentation of completed files, would therefore be required for each case.

Feedback was also sought from the students themselves regarding their experience of being assessed with the CSAT. Feedback was largely positive with students commenting that although the process provoked considerable anxiety, the clarity and transparency of both the assessment tool and the assessment process had helped them manage their anxiety, and had acted as a guide to their skill acquisition efforts throughout the placement. None described the process as onerous or overwhelming.

Some minor formatting changes were also made and the revised form of the CSAT was then available for use during the next assessment period. This incoming cohort and the subsequent cohort formed the sample utilized for the Studies One, Two and Three. The final version of the CSAT is included in Appendix One.

During the development and piloting phase of the CSAT, a successful application was made to the NSW Psychologists Registration Board, Education and Research Committee seeking funding to support the next phase in the project, which involved a series of validation
studies designed to determine the psychometric properties of the tool. The stated purpose of
the NSW Registration Board's education and research grants was "To provide opportunities
for Psychologists to obtain funding to undertake projects in accord with the objective of the
Psychologists Act 2001, that is, to “protect the health and safety of members of the public by
providing mechanisms to ensure that psychologists are fit to practice”
11+N?tocnav=y) ". It was considered that the development of a valid and reliable skills
assessment tool for use with Masters' of Psychology students was consistent with this purpose
and an amount of $35,000 was awarded.

Validation of the CSAT

Participants

Data regarding the psychometric properties of the CSAT was collected across two
successive cohorts. The first cohort included 40 students enrolled in both Masters degrees of
clinical ($n =28$) and forensic ($n = 12$) psychology across 2008-2009, (29 women and 11 men)
of mean age 29.11 years ($SD = 7.40$, range = 23 to 51 years old). Three of the students did
not provide their age, and two of the students entered the programme as registered
psychologists. The second cohort included 22 students enrolled in the Master's degree of
clinical psychology (2009-2010), (20 women and 2 men) of mean age 26.42 years ($SD =
4.83$, range = 22 to 38 years old), the Master's degree of forensic psychology having been
discontinued at the university at the beginning of 2009. Five of the students entered the
programme as registered psychologists.

Participation in the study was voluntary, whilst participation in the assessment process
was not. That is, consistent with university requirements, students were required to undergo
an assessment process for the purposes of passing the clinic placement. Students were
however able to elect to participate in the research by adding their assessment results on the
CSAT into the research data pool if they wished. On day one of the first clinical placement the principal researcher met with each supervision group and described the validation study. An information package was provided to the students containing an information sheet about the study, as well as a personal consent form. Students were also informed that if they wished to participate in the CSAT validation study they would need to obtain specific consent from each client they saw whilst on placement in the clinic, if they hoped to select excerpts from that work with that client for presentation during the two assessment periods. Client consent forms were provided to the students for later use with clients and a template of that form was placed in storage on the clinic database.

The study was scrutinized by the Education and Research Committee of the NSW Psychologists Registration Board, and the UWS Human Research Ethics Committee and adhered to the ethical standards of the National Statement on Ethical Conduct in Research Involving Humans, Protocol Number HREC 08/070.

All 40 students who commenced in Cohort One agreed to participate in the study. However during the first placement block and prior to the mid placement review period one intern withdrew from the clinical programme preferring to pursue alternative career options. Consequently, at mid placement review, data was available from 39 of the initial 40 students who commenced the placement. Following mid placement review, and having failed all items, one student was removed from the placement with grave concerns about suitability for the profession. A further ten students, (six forensic and four clinical) having successfully completed the mid-placement review elected to discontinue the initial placement in order to participate more fully in external placements.

Twenty two students commenced in Cohort Two, three did not consent to participate in the study and one intern withdrew from the clinical programme prior to mid placement review, leaving data available at mid placement review regarding 18 of the initial 22 students
who commenced the placement. Following successful completion of the mid placement review, three students elected to discontinue the initial placement in order to participate in external placements, leaving available data at final placement review for 15 of the 22 students who initially commenced the placement.

Data from both cohorts were merged, leaving data available regarding 43 students who completed the full placement across all three assessment occasions.

**Face and Content Validity**

**Procedure** - Following the initial phase of development of the CSAT and prior to the use of the CSAT during the subsequent assessment period, a survey of experienced clinical psychologists was conducted in order to establish the face and content validity of the tool. That is, this survey of practicing psychologists examined the degree to which the 14 core items, each with their component skills, represented core foundational cognitive behavioural therapy skills. This phase of the study was conducted prior to the Cohort One mid-placement review in order to allow adequate time to modify the CSAT according to the feedback obtained during the survey. Invitations to participate in this phase of the project were sent to 15 senior psychologists who were either academics teaching into professional psychology programmes at other Universities, or were other senior and high profile clinicians appointed to various government organisations. Thirteen of those invited to participate in the survey indicated they would be happy to do so, and five of those actually responded by providing completed questionnaires. Each was asked the following questions:

1. Are the 14 tasks listed in the CSAT appropriate to the Cognitive Behavioural skills required of interns enrolled in a Masters’ Degree in Clinical Psychology?
2. Are there any tasks that you would remove or see as unnecessary? Are there any tasks that could be combined?

3. Are there any tasks missing? Are there any tasks you would recommend be included in the CSAT?

4. Do you think the component skills listed under each of the 14 tasks are appropriate to and representative of each task?

5. Are there any component skills missing? Are there any component skills you would recommend be included in the CSAT?

6. Are there any component skills you would delete or combine?

7. What do you think of the CSAT and would you change anything not described previously?

**Results** - Responses were positive. All suggestions were thoughtful and constructive. The majority of suggestions were implemented. Most notably, the fourteen item CSAT was expanded to incorporate fifteen items, with the separation of the single item "Cognitive Behaviour Therapy Techniques" into "Cognitive Therapy Techniques" and "Behaviour Therapy Techniques".

Suggestions were not implemented where the research team considered the items had been adequately addressed by existing items within the CSAT, where items suggested for inclusion involved the assessment of skills not taught within the UWS programmes, or where items suggested for inclusion were considered beyond the developmental level for which the CSAT was designed. The modified version of the CSAT was then employed for the remainder of the validation studies.
Test-Retest Reliability

Procedure - The principal researcher was involved in the assessment of all students at mid and end of placement reviews across both cohorts. In order to obtain a measure of the test-retest reliability of the CSAT the principal researcher re-rated all items 6 months following each assessment period. The test-retest reliability of the CSAT was evaluated using Pearson's product-moment correlation (r), using an alpha level of .05.

Table 5.1: CSAT Test-Retest correlations

<table>
<thead>
<tr>
<th>Item</th>
<th>Correlation Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpersonal Skills</td>
<td>.83**</td>
</tr>
<tr>
<td>Ethical Behaviours</td>
<td>.75**</td>
</tr>
<tr>
<td>Conducting Initial Assessment</td>
<td>.66**</td>
</tr>
<tr>
<td>DSM Diagnosis</td>
<td>.74**</td>
</tr>
<tr>
<td>Identifying CB Aspects of Problem</td>
<td>.69**</td>
</tr>
<tr>
<td>CB Formulations</td>
<td>.90**</td>
</tr>
<tr>
<td>Presenting Formulations to Clients</td>
<td>.69**</td>
</tr>
<tr>
<td>Agenda Setting and Adherence</td>
<td>.90**</td>
</tr>
<tr>
<td>Feedback</td>
<td>.69**</td>
</tr>
<tr>
<td>Psycho-Education</td>
<td>.74**</td>
</tr>
<tr>
<td>Cognitive Therapy Techniques</td>
<td>.83**</td>
</tr>
<tr>
<td>Behaviour Therapy Techniques</td>
<td>.91**</td>
</tr>
<tr>
<td>Home Based Tasks</td>
<td>.80**</td>
</tr>
<tr>
<td>Psychometric Assessment</td>
<td>.46**</td>
</tr>
</tbody>
</table>

** $p < .01$

Results - As for Study One, the data from Cohorts One and Two were merged and correlations ranged from .46, $p<.01$ (Psychometric Assessment) to .91, $p<.01$ (Behaviour Therapy Techniques). Thirteen of the fourteen correlations fell within the strong to very strong ranges (Table 5.1).

Inter-Rater Reliability

Procedure - At the time of each assessment occasion performances by all students were rated twice, by both their direct supervisor and the principal researcher. However there was one exception to this where in cohort one the principal researcher had direct supervisory
responsibility for one of the supervision groups. This group was assessed by both the principal researcher and another of the clinic supervisors. Therefore, two ratings were obtained for each of the items presented for assessment. During the assessment process each rater provided their individual ratings and no discussion about respective ratings occurred until the conclusion of the assessment process.

**Results** - Ratings provided by the four individual assessors, other than the principal researcher, were collapsed into one data set. An inter-rater reliability analysis using the Kappa statistic was performed on each of the 14 CSAT items to determine consistency of ratings between those provided by the principal researcher and the grouped raters. According to Landis and Koch (1977) Kappa values of .41 - .60 represent a moderate degree of agreement between raters, .61 - .80 a substantial agreement, whilst values in excess of .81 are described as representing outstanding levels of agreement. Kappa values for two items fell within the moderate range of agreement, values for eight of the items fell within substantial range of agreement, and four of the items fell within the outstanding range of agreement.

Table 5.2: CSAT Inter-Rater Reliability Analysis

<table>
<thead>
<tr>
<th>Item</th>
<th>Kappa Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpersonal Skills</td>
<td>.83**</td>
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<tr>
<td>Ethical Behaviours</td>
<td>.78**</td>
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<td>Conducting Initial Assessment</td>
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<td>Identifying CB Aspects of Problem</td>
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<td>CB Formulations</td>
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<td>Presenting Formulations to Clients</td>
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<td>Feedback</td>
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<td>Psycho-Education</td>
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<td>Home Based Tasks</td>
<td>.78**</td>
</tr>
<tr>
<td>Psychometric Assessment</td>
<td>.71**</td>
</tr>
</tbody>
</table>

** p < .001
Internal Consistency Reliability

The CSAT, composed of the fourteen items assessed during the end of placement review, demonstrated a Cronbach's alpha of .94 indicating good internal consistency.

Construct Validity – Principal Components Analysis

Procedure - A Principal Components Analysis (PCA) was selected as a commonly used variable reduction procedures. Considerable debate exists within the literature regarding the minimum sample size appropriate for the performance of this form of analysis. Comrey & Lee (1992), suggest that “the adequacy of sample size might be evaluated very roughly on the following scale: 50 – very poor; 100 – poor; 200 – fair; 300 – good; 500 – very good; 1000 or more – excellent” (p. 217). Alternatively, the University of California, Los Angeles Statistical Consulting Group (UCLA, 2014) suggest that a minimum of ten observations per variable is necessary to avoid computational difficulties. Nonetheless, the sample size in this study must be considered small. As such, the findings must be considered with caution and suggest the need for replication with a larger sample size.

Prior to conducting the PCA the factorability of the CSAT was determined. The correlation matrix revealed the majority of items demonstrated correlation coefficients of .3 or above indicating the likelihood that the items assessed on the CSAT measured an underlying dimension or dimensions. Conversely, none of the items in the correlation matrix demonstrated extreme multicollinearity with correlation coefficients exceeding .9. The Kaiser-Meyer-Oklin value of .88 exceeded the recommended value of .6 (Kaiser, 1974), and Bartlett's test of sphericity (Bartlett, 1954) was significant, $\chi^2 (91) = 444.78, p = .000$, supporting the suitability of the data for factor analysis.
Table 5.3: CSAT Principle Components Analysis with direct oblimin rotation

<table>
<thead>
<tr>
<th>CSAT Items</th>
<th>Components</th>
<th></th>
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<th>$h^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>$h^2$</td>
<td></td>
</tr>
<tr>
<td>Cognitive therapy techniques</td>
<td>.88</td>
<td>...</td>
<td>.80</td>
<td></td>
</tr>
<tr>
<td>Interpersonal skills</td>
<td>.87</td>
<td>...</td>
<td>.61</td>
<td></td>
</tr>
<tr>
<td>Behaviour therapy techniques</td>
<td>.85</td>
<td>...</td>
<td>.79</td>
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<tr>
<td>Feedback</td>
<td>.82</td>
<td>...</td>
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<td>Agenda setting &amp; adherence</td>
<td>.79</td>
<td>...</td>
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<tr>
<td>Home-based tasks</td>
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<td>.52</td>
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</tr>
<tr>
<td>Psycho-education</td>
<td>.66</td>
<td>...</td>
<td>.68</td>
<td></td>
</tr>
<tr>
<td>Identifying CB aspects of problem</td>
<td>...</td>
<td>.90</td>
<td>.69</td>
<td></td>
</tr>
<tr>
<td>DSM diagnoses</td>
<td>...</td>
<td>.85</td>
<td>.68</td>
<td></td>
</tr>
<tr>
<td>Cognitive behavioural formulations</td>
<td>...</td>
<td>.84</td>
<td>.81</td>
<td></td>
</tr>
<tr>
<td>Ethical behaviour</td>
<td>...</td>
<td>.81</td>
<td>.72</td>
<td></td>
</tr>
<tr>
<td>Conducting initial assessment</td>
<td>...</td>
<td>.66</td>
<td>.55</td>
<td></td>
</tr>
<tr>
<td>Psychometric assessment</td>
<td>...</td>
<td>.62</td>
<td>.38</td>
<td></td>
</tr>
<tr>
<td>Presenting formulation to client</td>
<td>...</td>
<td>.62</td>
<td>.71</td>
<td></td>
</tr>
<tr>
<td>Percentage of variance</td>
<td>57.41</td>
<td>9.92</td>
<td>66.91</td>
<td></td>
</tr>
<tr>
<td>Label</td>
<td>Doing CBT</td>
<td>Assessment/ Diagnosis/ Formulation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Results** - A principal components analysis with direct oblimin rotation was performed. This form of rotation was selected as it was considered that underlying factors would likely be related (Field, 2005). Two components with eigenvalues greater than one were extracted, accounting for 66.91\% of the variance. The items and loadings for Component One were Cognitive Therapy Techniques (.88), Interpersonal Skills (.87), Behaviour Therapy Techniques (.85), Feedback (.82), Agenda Setting and Adherence (.79), Home Based Tasks (.71), and Psycho-Education (.66). These items appear to include skills associated with interpersonal ability and the “doing” of Cognitive Behavioural Therapy. Component Two included Identifying Cognitive Behavioural Aspects of the Problem (.90), DSM Diagnoses (.85), Cognitive Behavioural Formulations (.84), Ethical Behaviour (.81),
Conducting Initial Assessment (.66), Psychometric Assessment (.62) and Presenting Formulation to Client (.62). These items appear to include skills associated with assessment, diagnosis and development of formulations. The two components have therefore been labelled as Assessment/Diagnosis/Formulation and Cognitive Behavioural Therapy, and relate very strongly to the teaching emphasis provided throughout the Masters of Psychology programmes (Table 5.3).

**Construct Validity: Convergent Validity**

Construct validity is composed of both convergent and divergent validity. Convergent validity refers to the degree to which two measures of a construct, that are supposed to be related, are in fact related. Divergent validity tests whether two measures of a construct, supposedly unrelated, are unrelated. An indication of the construct validity of the CSAT was derived by examining the correlation between performance on the CSAT and three additional performance measures:

1. Correlation between CSAT Final placement review score and senior clinician rating of level of clinical competence (convergent validity)
2. Correlation between CSAT Final placement review score and senior academic rating of academic performance (divergent validity), and
3. Correlation between CSAT Final placement review score and NEO-PI-R Extraversion scores (divergent validity).

**Procedure** - The global judgement of a senior clinician following observation of clinical work is a common method of competence assessment. Such a global rating should correlate well with student performance as measured on the CSAT. In order to determine the convergent validity of the CSAT, video excerpts of Item 7 "Presents Formulation to Client" were rated by an academic member of staff, a senior clinical psychologist who had no supervisory contact with the current sample, and was unfamiliar with the CSAT. This item
was selected as it demonstrated a very strong correlation with the Total CSAT score, of $r = .83$.

**Results** - In order to calculate convergent validity total CSAT scores were calculated by summing results obtained one each of the 14 CSAT items. Total CSAT scores therefore ranged from 14 – 42. Convergent validity was then calculated by correlating the Total CSAT scores obtained by students with global competence ratings provided by an academic member of staff after observing Item 7 "Presents Formulation to Client". A Pearson's product moment correlation of $r = .811$ was observed indicating a very strong correlation between both the results obtained on the CSAT and global competence ratings.

**Construct Validity: Divergent Validity**

**Procedure** - Measures of intellect do not perfectly predict performance in clinical settings. Therefore, to derive a measure of the divergent validity of the CSAT, an academic member of staff (who had lectured into the programme but had not had supervisory or clinical contact with the current sample), provided global ratings of student academic performance. Each student was provided with a global rating on a 5 item scale with the following possible ratings: Fail, Pass, Credit, Distinction and High Distinction. This individual rating was then correlated with the total CSAT score obtained by the student. It was predicted that the correlations between individual ratings of academic ability and total CSAT scores would be lower than correlations between senior clinician skills/competence ratings and total CSAT scores, as derived in the previous test of convergent validity.

In addition, one recent study (Jerant et al, 2012) reported that, following interview, entry offers to medical schools were more likely to be extended to applicants who were extraverted. Therefore, the possibility exists that appraisals of competence may be elevated for individuals demonstrating greater degrees of extraversion in personality style. In order to
determine that assessors employing the CSAT were not simply rating students according to extraverted personality style, a further test of divergent validity was performed by examining the degree to which scores obtained by the current sample on the NEO-PI-R Extraversion scale correlated with total CSAT scores. It was predicted that, similar to the correlation coefficient obtained regarding the degree of relationship between the rating of academic performance and final CSAT score, the correlation between the final CSAT scores and the NEO-PI-R Extraversion scores would be lower than the correlation coefficient obtained in the test of convergent validity.

**Results** - A Pearson's product moment correlation of \( r = .53 \) was observed indicating a strong correlation between both the results obtained on the CSAT and global ratings of academic performance. A Pearson's product moment correlation of \( r = .25 \) was observed indicating a weak correlation between both the results obtained on the CSAT and scores obtained on the NEO-PI-R Extraversion scale. Taken together with the very strong result obtained in the demonstration of convergent validity, \( r = .811 \), this assessment of divergent validity suggests that the construct validity of the CSAT is adequate, and that it correlates more closely with another common method of performance assessment, than with measures of academic ability and personality style.

**Discriminant validity**

**Procedure** - This study examined the degree to which the CSAT is able to discriminate different skill levels across time. To recap, students presented items 1-7 at mid placement review, and then items 1-14 (with new cases) at final placement review. Attempts to determine the discriminant validity of the CSAT were made by comparing scores obtained at mid placement review on items 1-7 with scores obtained at final placement review on items 1-7.
Results - A paired samples $t$ test was conducted and indicated that mean mid placement review scores were significantly lower than mean final placement review scores on six of the seven items: Interpersonal Skills ($p = .006$), Ethical Skills ($p = .001$), Conducting Initial Assessment ($p = .001$), DSM Diagnoses ($p = .000$), Identify Cognitive Behavioural Aspects of Problem ($p = .018$) and Cognitive Behavioural Formulations ($p = .001$). Item seven, Presents Formulation to Client was not significantly different ($p = .135$).

Discussion

This study was conducted in an attempt to develop a psychometrically sound clinical skills assessment tool for use with postgraduate professional psychology students participating in the first of a series of clinical placements. The following question was therefore asked

4. Is it possible to develop a valid and reliable clinical skills assessment tool for use within Master's degrees of professional psychology?

The results of the present study suggest that the Clinical Skills Assessment Tool is a valid and reliable tool with which to assess the acquisition of clinical skills by students enrolled in Master's degrees of Clinical and Forensic psychology participating in the first of a series of professional placements. That is, test-retest reliability across a six month period, for thirteen of the fourteen items fell within the strong to very strong range according to Cohen's conventions, and inter-rater reliability for all fourteen items demonstrated acceptable levels of correlation. Principal Components Analysis revealed two components that together accounted for 67% of the variance in outcome, with the components loading on items that reflected skills associated with assessment/diagnosis/ formulation, and conducting cognitive behavioural therapy. These components reflected the teaching emphasis and content of the
Master's degrees of clinical and forensic psychology in which the trainees were enrolled, and for which the tool was developed. Tests of discriminant validity indicated that the CSAT was able to discriminate between items presented for assessment at mid and end of placement review, and studies of convergent and divergent validity, designed to determine the construct validity of the CSAT, suggested that it is indeed a valid measure of competence in the performance of clinical skills.

To consider these findings within the context of the studies reviewed in Chapter Three, Negri et al (2007) developed the Royal Melbourne Institute of Technology University Clinical Competency Assessment Tool. The tool identified nine competencies and required students to submit a fifteen minute excerpt of their work with clients in which they demonstrated as many of the nine competencies as possible during the required time-frame. The psychometric properties of the tool were not reported. In a test of clinical decision making, Pachana et al (2011) reported on the use of an assessment tool employing a Multi-Station Assessment Task format in which a series of vignettes involving scenarios commonly found in clinical practice are presented to students, who were then required to provide written responses. Again, no data regarding the validity or reliability of the assessment instrument was reported. Tweed et al (2010) identified seven competencies and employed a simulated patient methodology in order to assess student performance. The psychometric properties of the tool were mixed. The authors reported a Cronbach's alpha of .78, and factor analysis extracting five factors together accounting for 51% of the variance, however inter-rater reliability across the five factors ranged from .04 to .12 suggesting poor agreement between raters for the domains specified.

Finally, Gonsalvez (2012) reported on the development of an assessment methodology for use by supervisors when rating student performance during external clinical placement. Described as a vignette matching system, nine competency domains were
identified, each behaviourally described in detail across four levels of performance from beginner to competent. Clinical supervisors were asked to best match the performance of the student against the detailed behavioural descriptions provided. Gonsalvez reported that feedback from external clinical supervisors indicated that the system had good face and ecological validity, and that preliminary findings suggested that the assessment approach reduced the leniency and halo biases often observed in the rating of students on external placement.

Each of the assessment tools described therefore appears to have some element of merit, but uniformly, the available data regarding the psychometric properties of the tools are limited. Further, the degree to which the assessment tools are aligned to the teaching content of the programmes they serve is uncertain, and may limit their utility. Conversely, it would appear that the CSAT, aligned to the teaching content of the Master's degrees of clinical and forensic psychology at the University of Western Sydney, possesses sound psychometric properties and represents a step forward in the valid and reliable assessment of clinical competence amongst postgraduate professional psychology students.

However these findings must be viewed with caution. Whilst the initial evaluation of the psychometric properties of the tool appeared promising, the CSAT requires validation with other postgraduate student populations in alternative locations. In particular, the very strong findings of the validation study raise the possibility that such findings might not be replicated for the assessment tool when used within settings and programmes for which it was not developed. It should be noted, however that the research team has been approached by academic staff from two other universities seeking to employ and validate the CSAT within their clinical psychology training programmes.

Should the psychometric properties of the CSAT prove robust when examined in alternative locations the extension of the assessment tool may be warranted. As it stands in
its current iteration, the CSAT assesses competence development to a point part way through
the Master's degrees of clinical and forensic psychology. The development of the tool to
incorporate assessment of competencies at the conclusion of the Master's degrees and prior to
entry to independent professional practice would be an obvious and important step. Given
too, that within an Australian context there exist multiple pathways to professional
registration and specialist endorsement, an assessment tool that validly and reliably assesses
competence at the various milestones common to all such pathways e.g. commencement of
clinical contact, entry to independent practice, and expert practitioner status would be an
obvious asset to the profession in ensuring clinical competencies for each stage of
professional development.
CHAPTER 6

The Relationship between Psychological Functioning and Competence Development in Postgraduate Professional Psychology Students

Context

To summarize thus far, three studies were devised to explore the relationship between the psychological functioning of postgraduate professional psychology students, and their ability to acquire the clinical competencies required for successful completion of their first practicum. Study One involved the administration of a battery of psychometric self-report psychological questionnaires, administered on three occasions across the forty two week placement, while Study Two sought to develop a clinical skills assessment methodology to be used mid-way through, and at the conclusion of the placement.

Study Three, as described here, investigated the possibility of a relationship between the psychological functioning of postgraduate professional psychology students and their ability to acquire the competencies necessary for successful completion of the first of a series of clinical placements. It is the relationship between performance on the CSAT, as a measure of competence development, and results on the psychological questionnaires, that was examined in this study. More specifically, the literature reviewed in Chapter Three suggested that levels of depression and conscientiousness were frequently found to impact on the learning and performance of complex tasks, and as such the DASS-Depression and NEO-PI-R Conscientiousness subscales were selected as predictor variables. The DASS-Depression subscale was selected over the BDI-II given its development within an Australian university context and the ready availability of appropriate normative data.
Method

Participants

The students involved in the current study also participated in Studies One and Two, and were described more fully in Chapters Four and Five. To briefly summarize however, this study incorporated data from two successive cohorts of students enrolled in Masters’ degrees of clinical and forensic psychology across the 2008-2009 and 2009-2010 practicum cycles. A total of sixty two students across both cohorts commenced placements at the UWS Psychology Clinic. Forty-three of these students completed a full forty two week placement, and it was these students who contributed data regarding their performance on the CSAT as well as psychological self-report questionnaires.

Data Analysis

Multiple Regression analyses were selected as the most appropriate method of examining the potential relationship between predictor and criterion variables. However prior to conducting these analyses, the applicability of this form of statistical analysis was considered.

Regarding the ratio of cases to independent variables, Stevens (2002) and Field (2000) suggest that at least 15 cases per predictor variable are sufficient for a reliable regression equation. Given the sample size of students in the current study (N = 43), two predictor variables were selected in order to perform multiple regression analyses, and as previously mentioned they were the DASS-Depression and NEO-PI-R Conscientiousness subscales. For all regression equations scatterplots and partial regression plots were created to check the assumption of linearity between the criterion variable of CSAT performance and each of the predictor variables. Visual inspection suggested that the criterion variables were
linearly related to each of the predictor variables, with no potential outliers or influential observations. Visual inspection of plots of the standardized residuals by the regression standardized predicted value indicated homoscedasticity, whilst independence of observations/independence of residuals was confirmed by examination of the Durban-Watson statistic for each multiple regression equation, with all ranging in value between 1.8 – 2.3 indicating that the data did not show serial correlation amongst the residuals. An inspection of correlation coefficients and Tolerance/Variance Inflation Factor (VIF) values indicated that the data did not show multicollinearity, with no correlation coefficients beyond .9, and no VIFs greater than ten. Normality of residuals was assessed with visual inspection of the histograms and normal probability plots. Normal P-P plots of the residuals indicated all points close to the diagonal lines and studentized residual plots showed random scatters of points with constant variability and no definite outliers. Therefore, all assumptions were considered to have been met, and the data was subjected to multiple regression analyses.

Results

Five multiple regression analyses were performed with the scores obtained on the CSAT as the criterion, and the two predictor variables of the scores obtained on the DASS-Depression and the NEO-PI-R Conscientiousness subscales.

1. Time one DASS-Depression and NEO-PI-R Conscientiousness as predictors and CSAT mid placement review scores as criterion variables.

A standard multiple regression analysis was performed between the two predictor variables of the Time One DASS-Depression, and the NEO-PI-R Conscientiousness subscales, and the Time Two mid-placement review CSAT scores as the criterion variable, employing the forced entry method. The question was therefore asked, did scores on the DASS Depression and NEO-PI-R Conscientiousness subscales taken at Time One, on the
first day of a 42 week placement, predict performance on the CSAT at the mid-placement review 21 weeks later? Table 6.1 shows descriptive statistics and variable inter-correlations.

Table 6.1. Descriptive Statistics and Inter-Correlations between Time One DASS-Depression and NEO-PI-R Conscientiousness Subscales as Predictors; and Time Two Mid-Placement Review CSAT Scores as the Criterion

<table>
<thead>
<tr>
<th>Variables</th>
<th>Time Two Mid Placement Review CSAT Scores (criterion)</th>
<th>Time One DASS-Depression Scores</th>
<th>Time One NEO-PI-R Conscientiousness Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPR CSAT Scores</td>
<td>- .19</td>
<td>1.15</td>
<td>- .21</td>
</tr>
<tr>
<td>DASS-Depression</td>
<td>.19</td>
<td>5.08</td>
<td>116.10</td>
</tr>
<tr>
<td>NEO-PI-R-Conscientiousness</td>
<td>.15</td>
<td>5.45</td>
<td>20.16</td>
</tr>
<tr>
<td>M</td>
<td>13.02</td>
<td>5.08</td>
<td>116.10</td>
</tr>
<tr>
<td>SD</td>
<td>3.53</td>
<td>5.45</td>
<td>20.16</td>
</tr>
<tr>
<td>N</td>
<td>57.00</td>
<td>59.00</td>
<td>59.00</td>
</tr>
</tbody>
</table>

Table 6.2. Regression Table Time One DASS-Depression and NEO-PI-R Conscientiousness Subscales as Predictors; and Time Two Mid-Placement Review CSAT Scores as the Criterion

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>11.26</td>
<td>2.92</td>
<td></td>
</tr>
<tr>
<td>DASS-D</td>
<td>-.11</td>
<td>.09</td>
<td>-.16</td>
</tr>
<tr>
<td>NEO-C</td>
<td>.02</td>
<td>.02</td>
<td>.11</td>
</tr>
</tbody>
</table>

Results indicate that the combination of Time One DASS-Depression and NEO-PI-R Conscientiousness subscale scores did not significantly predict Time Two CSAT scores obtained at mid placement review, $F = (2,54) = 1.33, p = ns$.

2. Time One DASS-Depression and NEO-PI-R Conscientiousness as predictors and CSAT final placement review scores as criterion variables.

A standard multiple regression was performed between the Time One predictor variables of the DASS-Depression, and NEO-PI-R Conscientiousness subscales and Time Three final placement review CSAT score as the criterion variable, again employing the
forced entry method. The question was asked, did scores on the DASS-Depression and NEO-PI-R Conscientiousness subscales taken at Time One, on the first day of a 42 week placement, predict performance on the CSAT at the final-placement review 41 weeks later?

Table 6.3 shows descriptive statistics and inter-correlations.

Table 6.3. Descriptive Statistics and Inter-Correlations - Time One DASS-Depression and NEO-PI-R Conscientiousness Subscales as Predictors; and Time Three Final Placement Review CSAT Scores as the Criterion

<table>
<thead>
<tr>
<th>Variables</th>
<th>Time Three Final Placement Review CSAT Scores (criterion)</th>
<th>Time One DASS-Depression Scores</th>
<th>Time One NEO-PI-R Conscientiousness Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPR CSAT Scores</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DASS-Depression</td>
<td>-.42**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEO-PI-R-Conscientiousness</td>
<td>.39**</td>
<td>-.21</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>30.74</td>
<td>5.08</td>
<td>116.10</td>
</tr>
<tr>
<td>SD</td>
<td>6.52</td>
<td>5.45</td>
<td>20.16</td>
</tr>
<tr>
<td>N</td>
<td>42</td>
<td>59</td>
<td>59</td>
</tr>
</tbody>
</table>

**p<.01

Table 6.4. Regression table Time One DASS-Depression and NEO-PI-R Conscientiousness Subscales as Predictors; and Time Three Final Placement Review CSAT Scores as the Criterion

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>21.21</td>
<td>5.56</td>
<td>-.36*</td>
</tr>
<tr>
<td>DASS-D</td>
<td>-.43</td>
<td>.17</td>
<td></td>
</tr>
<tr>
<td>NEO-C</td>
<td>.10</td>
<td>.04</td>
<td>.31*</td>
</tr>
</tbody>
</table>

*p<.05

On this occasion, the combination of scores on the Time One DASS-Depression and NEO-PI-R Conscientiousness subscales significantly predicted Time Three CSAT scores, $F = (2,39) = 7.24, p = .002$. The multiple correlation coefficient was .52, indicating that together, scores on the DASS-Depression, and NEO-PI-R Conscientiousness subscales accounted for 27% of the variance in performance on the CSAT at the final placement review (Adjusted $R^2 = .23$). Scores on the DASS-D subscale were negatively related to results on the CSAT,
whilst scores on the NEO-PI-R Conscientiousness subscale were positively related to results on the CSAT. The regression coefficient for the DASS-D was -0.43 (95% CI = -0.76 - 0.09); and for NEO-PI-R Conscientiousness it was 0.10 (95% CI = 0.01 – 0.19). The regression equation for predicting final Total CSAT scores was:

Predicted Final Placement Review CSAT = 21.215 + (-0.43 x DASS-D) + (.10 x NEO-PI-R C)

3. Time Two DASS-Depression and NEO-PI-R Conscientiousness as predictors and CSAT mid placement review scores as criterion variables.

A standard multiple regression analysis was performed between the Time Two predictor variables of the DASS-Depression, and NEO-PI-R Conscientiousness subscales and Time Two mid-placement review CSAT score as the criterion variable, again employing the forced entry method. The question was therefore asked did scores on the DASS Depression and NEO-PI-R Conscientiousness subscales taken at Time Two at the twenty first week of the placement, and co-incident with the mid placement review, predict performance on the CSAT later that day? Table 6.5 shows descriptive statistics and variable inter-correlations.

Table 6.5. Descriptive statistics and inter-correlations between Time Two DASS-Depression and NEO-PI-R Conscientiousness subscales as Predictors; and Time Two Mid Placement Review CSAT scores as the Criterion

<table>
<thead>
<tr>
<th>Variables</th>
<th>Time Two Mid Placement Review CSAT Scores (criterion)</th>
<th>Time Two DASS-Depression Scores</th>
<th>Time Two NEO-PI-R Conscientiousness Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPR CSAT Scores</td>
<td>-0.22</td>
<td>.02</td>
<td>114.45</td>
</tr>
<tr>
<td>DASS-Depression</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEO-PI-R-Conscientious</td>
<td>.28**</td>
<td>4.96</td>
<td>19.06</td>
</tr>
<tr>
<td>M</td>
<td>13.02</td>
<td>5.95</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>3.53</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>N</td>
<td>57</td>
<td>53</td>
<td>53</td>
</tr>
</tbody>
</table>

**p<.01
Table 6.6. Regression Table Time Two DASS-Depression and NEO-PI-R Conscientiousness subscales as Predictors; and Time Two Mid Placement Review CSAT scores as the Criterion

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
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<td>2.85</td>
<td></td>
</tr>
<tr>
<td>DASS-D</td>
<td>-.13</td>
<td>.08</td>
<td>-.22</td>
</tr>
<tr>
<td>NEO-C</td>
<td>.05</td>
<td>.02</td>
<td>.29**</td>
</tr>
</tbody>
</table>

**p<.01

On this occasion, the combination of scores on the Time Two DASS-Depression and NEO-PI-R Conscientiousness subscales significantly predicted Time Two CSAT scores, \( F = (2,50) = 3.77, p = .03 \). The multiple correlation coefficient was .36, indicating that together, Time Two scores on the DASS-Depression, and NEO-PI-R Conscientiousness subscales accounted for 13% of the variance in performance on the CSAT at the mid placement review (Adjusted \( R^2 = .10 \)). Scores on the Time Two DASS-D subscale did not significantly independently contribute to the prediction equation, whilst scores on the NEO-PI-R Conscientiousness subscale were positively related to results on the CSAT. The regression coefficient for the DASS-D was - 0.13 (95% CI = -0.29 - 0.02); and for NEO-PI-R Conscientiousness it was 0.05 (95% CI = 0.004 – 0.102). The regression equation for predicting final Total CSAT scores was:

Predicted Mid Placement Review CSAT = 7.59 + (-.33 x DASS-D) + (.05 x NEO-PI-C C)

4. Time Two DASS-Depression and NEO-PI-R Conscientiousness as predictors and CSAT final placement review scores as criterion variables.

A standard multiple regression was performed between the Time Two predictor variables of the DASS-Depression, and NEO-PI-R Conscientiousness subscales and Time Three final placement review CSAT score as the criterion variable, again employing the forced entry method. The question was asked, did scores on the DASS Depression and NEO-PI-R
Conscientiousness subscales taken at Time Two, at the twenty first week of the placement, and co-incident with the mid placement review, predict performance on the CSAT at the final placement review? Table 6.7 shows descriptive statistics and variable inter-correlations.

Table 6.7. Descriptive statistics and inter-correlations between Time Two DASS-Depression and NEO-PI-R Conscientiousness subscales; and Time Three Final Placement Review CSAT scores as the Criterion

<table>
<thead>
<tr>
<th>Variables</th>
<th>Time Three Final Placement Review CSAT Scores (criterion)</th>
<th>Time Two DASS-Depression Scores</th>
<th>Time Two NEO-PI-R Conscientiousness Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPR CSAT Scores</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DASS-Depression</td>
<td>-.38**</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>NEO-PI-R-Conscientiousness</td>
<td>.37**</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>13.02</td>
<td>4.96</td>
<td>114.45</td>
</tr>
<tr>
<td>SD</td>
<td>3.53</td>
<td>5.95</td>
<td>19.06</td>
</tr>
<tr>
<td>N</td>
<td>57</td>
<td>53</td>
<td>53</td>
</tr>
</tbody>
</table>

**p<.01

Table 6.8. Regression table Time Two DASS-Depression and NEO-PI-R Conscientiousness subscales; and Time Three Final Placement Review CSAT scores as the Criterion

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
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<td>5.56</td>
<td></td>
</tr>
<tr>
<td>DASS-D</td>
<td>-.42</td>
<td>.15</td>
<td>-.38**</td>
</tr>
<tr>
<td>NEO-C</td>
<td>.13</td>
<td>.05</td>
<td>.37*</td>
</tr>
</tbody>
</table>

**p<.01. *p<.05

On this occasion, the combination of scores on the Time Two DASS-Depression and NEO-PI-R Conscientiousness subscales significantly predicted Time Three CSAT scores, $F = (2,37) = 7.31, p = .002$. The multiple correlation coefficient was .53, indicating that together, Time Two scores on the DASS-Depression, and NEO-PI-R Conscientiousness subscales accounted for 28% of the variance in performance on the CSAT at the final placement review (Adjusted $R^2 = .24$). Scores on the Time Two DASS-D were negative predictors of performance, whilst scores on the NEO-PI-R Conscientiousness subscale were positively
related to results on the CSAT. The regression coefficient for the DASS-D was -0.42 (95% CI = -0.73 - 0.11); and for NEO-PI-R Conscientiousness it was 0.13 (95% CI = 0.03 – 0.22). The regression equation for predicting final placement review CSAT scores was:

Predicted Final Placement Review CSAT = 18.17 + (-.42 x DASS-D) + (.13 x NEO-PI-C C)

5. Time Three DASS-Depression and NEO-PI-R Conscientiousness as predictors and CSAT final placement review scores as criterion variables.

Finally, a standard multiple regression was performed between the Time Three predictor variables of the DASS-Depression, and NEO-PI-R Conscientiousness subscales and Time Three final placement review CSAT score as the criterion variable, again employing the forced entry method. Could scores on the DASS Depression and NEO-PI-R Conscientiousness subscales taken at Time Three at the forty second week of the placement, and co-incident with the final placement review, predict performance on the CSAT later that day? Table 6.9 shows descriptive statistics and variable inter-correlations.

Table 6.9. Descriptive statistics and inter-correlations between Time Three DASS-Depression and NEO-PI-R Conscientiousness subscales; and Time Three Final Placement Review CSAT scores as the Criterion

<table>
<thead>
<tr>
<th>Variables</th>
<th>Time Three Final Placement Review CSAT Scores (criterion)</th>
<th>Time Three DASS-Depression Scores</th>
<th>Time Three NEO-PI-R Conscientiousness Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M SD N</td>
<td>M SD N</td>
<td>M SD N</td>
</tr>
<tr>
<td>FPR CSAT Scores</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DASS-Depression</td>
<td>-.46*</td>
<td>-.24</td>
<td>118.19</td>
</tr>
<tr>
<td>NEO-PI-R-Conscientiousness</td>
<td>.23</td>
<td>.24</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>30.74</td>
<td>4.92</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>6.52</td>
<td>6.45</td>
<td>21.44</td>
</tr>
<tr>
<td>N</td>
<td>42</td>
<td>37</td>
<td>37</td>
</tr>
</tbody>
</table>

**p<.01
Table 6.10 Regression Table Time Three DASS-Depression and NEO-PI-R Conscientiousness subscales; and Time Three Final Placement Review CSAT scores as the Criterion

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>28.43</td>
<td>5.90</td>
<td></td>
</tr>
<tr>
<td>DASS-D</td>
<td>-.44</td>
<td>.16</td>
<td>-.43**</td>
</tr>
<tr>
<td>NEO-C</td>
<td>.04</td>
<td>.05</td>
<td>.12</td>
</tr>
</tbody>
</table>

**p<.01

On this occasion, the combination of scores on the Time Three DASS-Depression and NEO-PI-R Conscientiousness subscales significantly predicted Time Three CSAT scores, $F = (2.34) = 5.02, p = .01$. The multiple correlation coefficient was .48, indicating that together, Time Three scores on the DASS-Depression, and NEO-PI-R Conscientiousness subscales accounted for 23% of the variance in performance on the CSAT at the final placement review (Adjusted $R^2 = .18$). Scores on the Time Three DASS-D subscale were negative predictors of performance, whilst scores on the NEO-PI-R Conscientiousness subscale did not contribute independently to the prediction equation. The regression coefficient for the DASS-D was -0.44 (95% CI = -0.76 - 0.12); and for NEO-PI-R Conscientiousness it was 0.04 (95% CI = -0.06 – 0.13). The regression equation for predicting final Total CSAT scores was:

Predicted Final Placement Review CSAT = 28.43 + (-.44 x DASS-D) + (.04 x NEO-PI-C C)

Overall therefore, it would appear that consideration of levels of both depression and conscientiousness contribute to the prediction of a student’s ability to develop the competence necessary to successfully complete the forty two week placement described in the current study. The strongest predictors of performance occurred when both depression and conscientiousness scores contributed uniquely to the model's ability to predict performance, and this occurred at Times One and Two, when DASS-Depression and NEO-PI-R Conscientiousness scores predicted approximately one third of the variance in final placement review performance.
However, when examining the issue of the ability of psychological measures to predict performance, it is also worth recalling that in Study One, examination of student responses on measures of personality (NEO-PI-R), mood (BDI-II, STAI, DASS) and coping (CSQ) revealed the existence of a subgroup of 20 students who, on at least one occasion, endorsed responses within the problematic or clinical ranges. Fifteen of these twenty students remained through the duration of the placement and therefore participated in the final placement review.

In order to further explore the possible impact of psychological functioning on CSAT performance during the final assessment period, students were allocated to one of two groups: 0 = no responses on any measure within the problematic/clinical range or 1 = at least one response on any measure within the problematic/clinical range. The means and standard deviations for both groups are shown in Table 6.11.

Table 6.11. CSAT Means and Standard Deviations at Final Placement Review According to Group Membership

<table>
<thead>
<tr>
<th>Group</th>
<th>CSAT Mean Score</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-clinical Responders N = 27</td>
<td>32.56</td>
<td>6.25</td>
</tr>
<tr>
<td>Clinical/Problematic Responders N = 15</td>
<td>27.47</td>
<td>5.83</td>
</tr>
</tbody>
</table>

An independent sample t tests was conducted to compare the CSAT results obtained by both groups at final placement review. A significant difference was found between the two groups, \( t (df = 40) = 2.59, p = .013 \), indicating that scores obtained by the problematic/clinical group were significantly lower than those obtained by the non-problematic/clinical group. It would appear that performance within the problematic/clinical
range on any of the measures administered in this study placed students at risk of significantly poorer performance during their final clinical assessment period.

Discussion

This study was designed to explore the relationship between the psychological functioning of postgraduate students in Clinical and Forensic psychology and their ability to demonstrate the clinical competencies required for successful completion of the first of a series of clinical placements. The question was asked

5. Is there a relationship between the psychological functioning of postgraduate professional psychology students and their development of clinical competence as measured on a clinical skills assessment tool?

A review of the literature regarding psychological functioning and performance in academic and work-related settings revealed that, at different times, various personality factors, a range of transient emotional states and a variety of coping styles have all been implicated in the prediction of performance. Most consistently however, research has pointed to the usefulness of the personality factor of Conscientiousness as a positive predictor, and depressed mood as a negative predictor of performance. As a consequence, and keeping in mind the relatively small sample size of the current study, the Depression Anxiety and Stress – Depression (DASS-D) and the NEO-PI-R Conscientiousness (NEO-PI-R-C) subscales were selected as predictor variables for inclusion in multiple regression analyses against which to examine clinical performance as measured on the CSAT.
The first multiple regression analysis examined the ability of scores on the DASS-Depression and the NEO-PI-R Conscientiousness subscales, reported on day one of the 42 week placement, to predict performance at both the mid and end of placement review periods, twenty one and forty two weeks later respectively. Whilst Time One DASS-Depression and NEO-PI-R Conscientiousness scores did not predict performance at the mid placement review, together they were significant predictors of performance at the final placement review. Similarly, the Time Two depression and conscientiousness scores were significant predictors of performance at times two and three, while scores on the same subscales taken at Time Three significantly predicted performance at Time Three. The strongest predictions occurred when scores at times one and two were considered in relation to performance at time three, with scores on the DASS-Depression and NEO-PI-C Conscientiousness scales accounting for almost 30% of the variance in performance.

The inability of the Time One DASS-Depression and NEO-PI-R Conscientiousness scores to significantly predict performance at the mid-placement review requires consideration, and it may be useful to examine the contexts of both assessment periods in search of confounding factors that may have impacted on the findings of the study. For the majority of students the current clinical placement, operating within a professional mental health service, was the first opportunity to work with clients and thereby applying the knowledge and skills acquired to that point of their academic careers. Within this context, the mid-placement review was the first performance-based assessment task that students had been exposed to across the previous five years of study, and the material gathered by the students for that assessment task was sampled from clinical work performed across the preceding twenty weeks. It would not be unreasonable to assume that for some students, participation in the current placement represented exposure to both a novel and demanding professional environment, as well as participation in a novel and complex assessment
process. Either of these factors may have suppressed or somehow modified student performance at the mid placement review, and thereby limited the validity of assessment findings.

Further, other factors inherent in the context may have served to modify student effort and motivation at the mid-placement review. Specifically, the mid placement review process was presented to the students as having multiple purposes, some of which differed from those of the final placement review. Students were made aware that a gate-keeping process was to be served by the mid-placement review procedure, and that those who wished to leave the current placement in order to participate in external placements were required to demonstrate competence on all seven items assessed at the mid-placement review. Failure to demonstrate competence on any of the seven items required that students continue to work with clients until additional experience had been gained which permitted skill remediation, and therefore allowed the gathering of additional stimulus material that might be resubmitted for the consideration of assessors. Interestingly, approximately 70% of students remained within the current placement following successful completion of the mid-placement review, suggesting that for the majority of students an urgent need to leave the placement and pursue external placement opportunities was not evident.

Further, the students were informed prior to the mid placement review of the formative element of the assessment process. That is, they were informed that the mid-placement review was an opportunity for them to engage in a structured process that permitted them to present their work to assessors and seek feedback regarding both their achievements to date, as well as direction regarding goals for further professional and skills development. This was in contrast to the summative requirements of the final placement review where students were required to demonstrate competence on all fourteen items presented for assessment. Students who failed to demonstrate competence on any item were
permitted to re-examine the recordings of their clinical work over the previous twenty weeks and re-select sample material that they thought might more successfully demonstrate their abilities on the required competencies, but failure to do so on any of the fourteen items would result in a failure grade for the placement. Should failing students wish to continue participation in their Master's degrees, re-enrolment in the placement during the following intake would be required, with a resulting minimal additional six month extension to the duration of their degrees. It would not be unreasonable to assume that students perceived there to be "higher-stakes" in the final placement review process, prompting greater performance motivation and potentially making clearer at that time, the relationship between predictor and criterion variables.

Various authors have commented on the above factors and their potential to modify or suppress performance in assessment tasks, and thereby reduce the validity of assessment findings. For example, Kooreman (2013), an economist, examined the issue of student decision making regarding the allocation of time to examination preparation. He observed that where resit exams are available, defined as opportunities for all students to do an equivalent exam again in the same calendar year, the rational student may make a decision to use the first exam opportunity to gain information about the nature and requirements of the examination process. He noted that the existence of second exam opportunities only slightly increased the probability of passing, whilst at the same time dramatically reducing total student effort. He acknowledged that certain motivated students might largely disregard the possibility of a resit opportunity, but suggested "unconditionally offering students more than one exam opportunity makes little sense. The main effect is that it provides them with a potential windfall gain of passing at the first attempt with minimal effort" (p 214). The possible application of this observation to the current study, in particular the findings relating to the mid-placement review, seems obvious. Student awareness of both the formative and
summative purposes of the mid-placement review, and with them the availability of non-deadline resubmission opportunities, may have modified performance such that the operation of predictive variables on CSAT performance was clouded.

The National Board of Medical Examiners, Philadelphia, Pennsylvania have also examined issues relating to factors that might influence the validity of scores obtained by individuals who participate in a clinical skills test administered as part of the US Medical Licensing Examination process. In this process examinees move through twelve stations constructed to represent typical clinical scenarios in which they interact with standardized patients as a medical practitioner. They are permitted fifteen minutes per station, in which they are required to gather a complete history, perform relevant physical examinations, and write-up patient notes. They are graded on a range of competencies, including the competency of Communication and Interpersonal Skills. The demonstration of competence is required across each domain, and where examinees fail they may repeat the examination at a time of their choosing. Swygert, Balog and Jobe (2010) noted that where examinees repeated the examination, average performance improvements occurred across all skill domains of approximately 0.87 standard deviation units with largest increases demonstrated in the Communication and Interpersonal Skills and Note Taking domains. The authors hypothesize a number of potential causes for this apparent improvement in performance including motivation and greater familiarity with the requirements of testing.

More specifically, Raymond and Luciw-Dubas (2010) suggested that observed improvements in performance from initial to subsequent test-taking attempts may occur due to skill remediation, but may also occur for reasons that compromise the validity of score interpretations. The factors suggested included initial measurement error and regression to the mean, memorization of test content and "construct-irrelevant variance", where the assessment process samples aspects of performance unrelated to the construct being tested.
On the matter of construct irrelevant variance, the authors suggest that improvements in performance on resit assessments, in particular for novel and complex assessment formats, may reflect increased familiarity with the particular requirements of that assessment process, rather than skill remediation for example. In fact, Raymond, Kahraman, Swygert and Balog (2011), investigating the factor structure of skills-based performances for initial and second assessment attempts, and correlating them with external measures of medical knowledge, concluded that performances on second skills assessment tasks might, in fact, be more valid measures of clinical skill than first attempts.

Therefore, in relation to the current study, it may be that the final placement review, examining stimulus material gained in the final twenty one weeks of the placement, occurred when students had not only become familiar with the requirements of the clinical placement itself, but also with the requirements of a complex skills-based assessment process. This factor may have increased the validity of the assessment findings at the final placement review, and allowed a clearer perspective on the operation of potential predictive factors.

Nonetheless, and irrespective of the potential confounding factor of assessment demands, it would appear that the results of this study point towards the usefulness of considering levels of conscientiousness and depression in the prediction of competence development with this particular population of students. Of particular note was the finding that a subgroup of students existed who endorsed responses within the clinical or problematic range on at least one of the psychological measures administered, and that these students demonstrated significantly lower scores on the Clinical Skills Assessment Tool at the final placement review. Previous studies exploring the relationship between the psychological functioning of professional psychologists and performance have relied on self-reported assessment (Cushway & Tyler, 1994; Guy, et al., 1989; Pope, et al., 1987). The accuracy of these self-reflective reports, given the impact that psychological distress may have on self-
awareness and cognitive functioning, remains empirically untested within this population. Others have noted situational demands that might cause professional psychologists to minimize or underreport the possibility of professional impairment (Schwartz-Mette, 2009), leaving open the possibility of an underestimation of the impact of impaired psychological functioning on performance. In contrast, this study documented the emotional functioning of postgraduate professional psychology students in relation to clinical performance as assessed and rated by senior clinical psychologists on a psychometrically sound clinical assessment tool.

Such findings, if replicated, may have implications for student selection for entry into postgraduate training programmes. For example, where competition for entry to postgraduate programmes in professional psychology is strong, the importance of predicting which students might benefit from access to such training is high. Assessment of an applicant's level of conscientiousness, for example, might assist in the selection of those students best equipped to apply themselves rigorously to the programme of study ahead. Practically though, the potential for such measures to be artificially inflated by students seeking to "fake good", would seem high, and it is difficult to imagine how the current findings might actually be employed to improve selection procedures.

Further, any future research seeking to explore issues relating to the psychological functioning of applicants, selection procedures and the prediction of performance would require a very sensitive approach. At this point in time, there appears to be no evidence regarding the psychological profile of the individual best suited to work as a professional psychologist, and refusing entry to applicants on the basis of current or prior history of mood instability, for example, appears unscientific, unethical and at the very least, impractical. The prevalence of mood disorders within the general population would suggest, rather than employing the current findings as a justification to select out those who are experiencing a
mood disorder or impaired levels of conscientiousness, research might best be directed towards investigating strategies aimed at raising self-reflection, self-awareness and self-care amongst the student population.

This study suffers from a number of limitations that may impact adversely on the generalizability of its findings. It must be acknowledged that the sample size in this study is relatively small. Realistically, all professional training programmes throughout Australia have small cohort sizes, of typically between eight and fifteen participants per cohort. Small cohort sizes impact on data analysis options, and ensure that prospective studies investigating factors associated with competence development in students require a long-term and broader multiple-site view. Further, as it would appear that the relationship between various predictive factors and competence development is likely to be one where mediating variables are implicated, time will need to allow the collection of data from additional cohorts in order to permit suitably sophisticated data analysis. Replication of this study within Master's degrees of professional psychology at other Australian universities will increase sample size, enable more comprehensive data analysis and increase confidence in the generalizability of findings.

In addition, whilst the two predictor variables examined in the current study did appear to account for a significant amount of the variance in final performance, it must be acknowledged that close to 70% of the variance remained unaccounted for. Existing literature points to the possible operation of factors such as intellectual ability, previous academic performance and subject knowledge (Rohde & Thompson, 2007), but other literature suggests that academic or cognitive factors become less predictive as individuals move towards postgraduate study, and the range of intellectual ability within samples restricts towards the higher end of the distribution scale (Furnham, et al., 2002). At this point, non-intellective factors may become increasingly predictive of performance (Richardson, et al.,
2012). Overall, the potential complexity of the relationship between predictor variables and performance outcomes will require sufficient sample sizes to ensure comprehensive data analysis such that the role of a larger number of predictor variables and potential mediating variables can be thoroughly investigated.

It should also be noted that the correlational nature of this study prevents conclusions about the directionality of the current findings regarding the observed relationship between psychological functioning and performance. Whilst it is easy to assume that, for example, levels of depression are responsible for the performance deficits observed in some students, it may be that the converse is true. Students perceiving that their general academic and performance abilities are reduced in comparison to their peers may have become depressed as a result. Future studies exploring self-evaluation of performance relative to peers, and issues of academic and performance self-efficacy may serve to clarify this issue.

Further, whilst this study is able to assert that, for the current sample, there is a relationship between aspects of psychological functioning and performance, it is unable to make definitive statements regarding the exact nature of this relationship. Whilst the findings of the current study suggest that the relationship between Conscientiousness and Depression, and performance on the CSAT, is a linear one, such conclusions must be viewed with caution. As previous authors (Landers & Arent, 2001; Neiss, 1988; Teigen, 1994) have noted, studies seeking to investigate the relationship between emotional functioning and performance in naturalistic settings may be hampered in their ability to thoroughly investigate the full range of emotional extremes. That is, in a postgraduate academic setting, it is entirely possible that range restriction was in operation whereby individuals experiencing clinically significant levels of depression and/or pathologically low levels of conscientiousness had been unable to successfully complete the requirement of undergraduate study, and had thereby self-selected from the student population seeking admission to postgraduate study. It
would seem that from this perspective, the extent of the statement that might be made with regard to the nature of the relationship between psychological functioning and competence development in the current study is limited. That is, these findings can state that, for the current population, conscientiousness has a positive linear relationship, and depression has a negative linear relationship to performance. However, given the methodological limitations of the study this study cannot refute the possibility of the operation of the Inverted U hypothesis commonly underpinning many of the current theories regarding the emotion-performance relationship.

Conclusion

Placement within a postgraduate educational setting is a limited resource. Predicting those students who will do best in training is a necessary step when considering how to most efficiently utilize scarce resources. Further, once entry to a postgraduate training programme has occurred, supporting students through an intensive educational process to gain maximum benefit from that process is vitally important. Both of these factors however should be viewed as necessary steps in the protection of the public, those individuals who will be recipients of the services provided by graduates throughout their professional careers. It is hoped that this study has increased the understanding of the factors that contribute to the development of competence in postgraduate professional psychology students, and has thereby taken a small but significant step towards the enhancement of psychological services provided to the public.
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APPENDIX

Clinical Skills Assessment Tool (CSAT)
Clinical Skills Assessment Tool

1. Intern and Assessor Details
   Intern: ____________________________          Assessor: ______________________________               Date: ____________________________

2. Client Details
   □ Child/Adolescent          □ Adult                    □ Older Adult
   □ Psychometric Assessment  □ Psychological Assessment  □ Therapy
   □ Clinical Disorders       □ Personality Disorders/     □ General Medical Conditions  □ Psychosocial/
                              □ Developmental Delay    □ Environmental Problems

3. Intern Assessment
   |   | Developing | Competent | Excellent | Not Assessed |
   |   |            |          |          |             |
   1. Interpersonal skills          □          □          □          □          □
   2. Ethical behaviour          □          □          □          □          □
   3. Conducting initial assessment □          □          □          □          □
   4. DSM Diagnosis          □          □          □          □
   5. Identify CB aspects of problem □          □          □          □          □
   6. Cognitive Behavioural Formulations □          □          □          □          □
   7. Presents formulation to client □          □          □          □          □
   8. Agenda setting and adherence □          □          □          □          □
   9. Feedback          □          □          □          □          □
   10. Psycho-education          □          □          □          □          □
    11. Cognitive Therapy techniques □          □          □          □          □
    12. Behaviour Therapy techniques □          □          □          □          □
    13. Home-based tasks          □          □          □          □          □
    14. Psychometric assessments          □          □          □          □          □
    15. Professionalism          □          □          □          □          □
**Task 1:** The intern must demonstrate appropriate interpersonal skills.

**Directions:** An individual video excerpt does not need to be presented. Instead, interpersonal skills can be observed throughout the other video excerpts presented.

**KEY POINT FOR COMPETENT RATING:** The assessor judges that the client is sufficiently comfortable with the interns’ interpersonal skills.

<table>
<thead>
<tr>
<th>Interpersonal skills</th>
<th>Competent</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listening to the client</td>
<td>A competent rating may be considered where:</td>
<td></td>
</tr>
<tr>
<td>Responding to episodes of client distress</td>
<td>- Some of the prompt skills are demonstrated whilst others are not or</td>
<td></td>
</tr>
<tr>
<td>Using reflective listening to take note of the client’s emotional state and the specific content of the client’s communication</td>
<td>- The prompt skills are demonstrated but with some inefficiency or</td>
<td></td>
</tr>
<tr>
<td>Demonstrating accepting, non-judgemental and respectful attitudes</td>
<td>- Some of the prompt skills are demonstrated but the intern does not appear comfortable.</td>
<td></td>
</tr>
<tr>
<td>Appearing appropriately confident</td>
<td>An excellent rating may be considered where:</td>
<td></td>
</tr>
<tr>
<td>Emotional responses are appropriate to the situation</td>
<td>- The majority of the behaviours listed are evident.</td>
<td></td>
</tr>
<tr>
<td>Encouraging development of collaborative relationship with client</td>
<td>- The skills/behaviours are conducted with efficiency.</td>
<td></td>
</tr>
<tr>
<td>Responding appropriately to questioning, challenging and resistance by client</td>
<td>- The intern appears calm and confident.</td>
<td></td>
</tr>
</tbody>
</table>

**Assessor Comments:**

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________
**Task 2:** All behaviours observed must be ethical and accordance with the APS Code of Conduct. In addition, the intern must demonstrate ethical behaviour by orienting the client(s) to the nature, purpose and limits of contact within the clinic, the functioning of the clinic and the role of the intern.

**Directions:** To be presented via video excerpt. It is acknowledged that the bulk of ethical behaviours will be observed and commented on during regular supervision.

**KEY POINT FOR COMPETENT RATING:** All items must be covered. A difference in ratings will reflect the efficiency with which the behaviours are demonstrated, and/or the manner in which items are delivered. Minimally, all behaviours must be demonstrated but in a fashion that does not compromise rapport with client. Where items are not covered intern will provide rationale for choices made.

<table>
<thead>
<tr>
<th>Ethical Behaviour</th>
<th>Competent</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explaining 5th and 6th year status &amp; conditional registration</td>
<td>A competent rating may be considered where:</td>
<td>An excellent rating may be considered where:</td>
</tr>
<tr>
<td>Explaining the presence of the AV equipment for supervision, monitoring and recording</td>
<td>• All of the behaviours listed are evident.</td>
<td>• All of the behaviours listed are evident.</td>
</tr>
<tr>
<td>Explaining peer and senior staff supervision</td>
<td>• The prompt skills are demonstrated but with some inefficiency or</td>
<td>• The skills/behaviours are conducted with efficiency</td>
</tr>
<tr>
<td>Explaining confidentiality and its limits</td>
<td>• Some of the prompt skills are demonstrated but the intern does not</td>
<td>• The skills/behaviours are conducted in a calm,</td>
</tr>
<tr>
<td>Obtaining written consent for observation and/or recording of sessions and communication with others on the case</td>
<td>appear comfortable, or conducts the behaviours in such a fashion as to compromise development of rapport with client.</td>
<td>confident and professional manner.</td>
</tr>
<tr>
<td>Talking through and obtaining written acknowledgement of &quot;intent to engage in psychological services&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Describing nature of service eg psychometric assessment and report, third party referral for forensic assessment and report, therapeutic assessment and report, or therapeutic assessment and treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Describing where appropriate both CBT orientation of service, and time-limited nature of therapy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Checking that all of the above is understood by and acceptable to client</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Assessor Comments:**

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**Task 3:** The intern must demonstrate the ability to conduct an initial assessment of the presenting problem(s)

**Directions:** To be presented via completed case file(s)

**KEY POINT FOR COMPETENT RATING:** Relates to the intern’s ability to gather information in a fashion that permits development of diagnostic and/or CB formulations.

<table>
<thead>
<tr>
<th>Conducting Initial Assessment</th>
<th>Competent</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifies presenting problem(s)</td>
<td>A competent rating may be considered when:</td>
<td>An excellent rating may be considered when:</td>
</tr>
<tr>
<td>Gathers information relevant to DSM diagnoses</td>
<td>• Some of the behaviours listed are evident</td>
<td>• All or most of the behaviours listed are evident.</td>
</tr>
<tr>
<td>Establishes developmental history of presenting problem(s)</td>
<td>• The behaviours are conducted with some degree of inefficiency</td>
<td>• The skills/behaviours are conducted with efficiency</td>
</tr>
<tr>
<td>Determines frequency, intensity and duration of presenting problem(s), relevant vulnerability, stressors &amp;/or triggers relevant to presenting problems(s), maintaining factors and positive and negative prognostic factors relevant to management of the case.</td>
<td>• The behaviours are demonstrated but the intern does not appear comfortable, or conducts the behaviours in such a fashion as to compromise development of rapport with client.</td>
<td>• The skills/behaviours are conducted in a calm, confident and professional manner.</td>
</tr>
<tr>
<td>Questions family history of mental illness, medical history &amp; current health, previous contact with mental health practitioners, nature of contact and outcome, previous psychiatric diagnoses, current substance &amp; medication usage, educational background, status of current interpersonal functioning, nature of family relationships past and present.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If necessary consults with individuals relevant to the client’s presenting problem - family, school and work context.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uses relevant psychometric self-report measures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identifies and prioritises client’s goals for treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Determines why client has presented now</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If indicated conducts suicide risk assessment, monitors outcome</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Assessor Comments:**

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**Task 4:** The intern demonstrates an ability to develop DSM diagnostic formulations based on their initial assessments

**Directions:** To be presented via completed case file(s)

**KEY POINT FOR COMPETENT RATING:** The difference between competent and excellent ratings relates to the complexity of the case presented.

<table>
<thead>
<tr>
<th>DSM Diagnosis</th>
<th>Competent</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intern summarises assessment findings listing the client’s symptoms</td>
<td>A competent rating may be considered when:</td>
<td>An excellent rating may be considered when:</td>
</tr>
<tr>
<td>Identifies provisional diagnosis</td>
<td>• All behaviours are completed</td>
<td>• All behaviours are completed</td>
</tr>
<tr>
<td>Identifies differential diagnoses</td>
<td>• A “Straightforward Case” is presented eg single DSM diagnosis</td>
<td>• A complex case is presented. “Complex Case” is defined as one in which</td>
</tr>
<tr>
<td>Articulates the reasoning involved</td>
<td></td>
<td>there is co-morbid presentation.</td>
</tr>
<tr>
<td>Summarises assessment findings according to the DSM multi-axial classification system</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Assessor Comments:**

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Task 5: The intern accurately identifies key cognitive and behavioural aspects of client’s presenting problems.

Directions: To be presented via completed case file(s)

**KEY POINT FOR COMPETENT RATING:** Assessor judges that intern is able to identify CB aspects of the clients presenting problems well enough to enable the development of CB formulations. Intern must be able to demonstrate a reasonably accurate understanding of the difference and interrelationships between thoughts, feelings, behaviours and physiology.

<table>
<thead>
<tr>
<th>Identifies CB aspects of problem</th>
<th>Competent</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accurately elicits client’s subjective self-report of the following:</td>
<td>A competent rating may be considered when:</td>
<td>An excellent rating may be considered when:</td>
</tr>
<tr>
<td>Emotional state(s) with use of SUDS levels to quantify emotional intensity</td>
<td>- Some of the skills are demonstrated whilst others are not or</td>
<td>- The majority of the behaviours listed are evident.</td>
</tr>
<tr>
<td>Negative automatic thoughts</td>
<td>- The skills are demonstrated but with some inefficiency or</td>
<td>- The skills/behaviours are conducted with efficiency.</td>
</tr>
<tr>
<td>Core dysfunctional assumptions</td>
<td>- Some of the prompt skills are demonstrated but the intern does not appear comfortable or conducts them in such a fashion as to interfere with the maintenance of rapport.</td>
<td>- The intern appears calm and confident</td>
</tr>
<tr>
<td>Situations/contexts in which negative thoughts/assumptions are activated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physiological reactions associated with negative thoughts/assumptions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavioural reactions associated with negative thoughts/assumptions.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Assessor Comments:**

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**Task 6:** The intern demonstrates an ability to develop formulations based on initial assessments.

**Directions:** To be presented via completed case file(s)

**KEY POINT FOR COMPETENT RATING:** As a minimum, the situational analysis (ABC) must be clear and accurate and contain an outline of Antecedents, Beliefs, and Consequences, with three response domains of emotion (plus SUDS), physiology and behaviour, and their inter-relationship. Alternatively, as a minimum a functional analysis of a presenting problem may be presented. It will assist the intern if the supervisor is able to see the derivation of the formulations.

<table>
<thead>
<tr>
<th>Development of CB Formulations</th>
<th>Competent</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the file the intern presents information gathered during initial assessments, formulated with clarity as:</td>
<td>A competent rating may be considered when:</td>
<td>An excellent rating may be considered when:</td>
</tr>
<tr>
<td>- Case level formulations</td>
<td>- The intern presents as a minimum, an accurate situational or functional analysis, and where</td>
<td>- All three levels of formulation are presented</td>
</tr>
<tr>
<td>- Specific problem level formulations</td>
<td>- The intern presents a case or specific problem formulation with some inaccuracies, and some further development is required.</td>
<td>- All are complete and accurate</td>
</tr>
<tr>
<td>- Situational analyses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>These may be presented in either narrative or graphic formats depending on intern preference</td>
<td></td>
<td></td>
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**Assessor Comments:**

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**Task 7**: The intern demonstrates an ability to present to the client a Cognitive Behavioural formulation of their presenting problem(s) at the case, specific problem and situational/functional level, and to outline treatment options based on these formulations.

**Directions**: To be presented via video excerpt

**KEY POINT FOR COMPETENT RATING**: The assessor judges that the intern is reasonably able to present a coherent picture to the client of their problem(s), how it or they fit within CB theory, and how treatment is derived from the formulation(s).

<table>
<thead>
<tr>
<th>Presents Formulations to clients</th>
<th>Competent</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presents to the client an outline of cognitive behavioural theory</td>
<td>A competent rating may be considered when:</td>
<td>An excellent rating may be considered when:</td>
</tr>
<tr>
<td>Presents to the client a case formulation, specific problem formulation and/or situational analysis or functional analysis</td>
<td>• Some of the prompt skills are demonstrated whilst others are not or</td>
<td>• The majority of the behaviours listed are evident.</td>
</tr>
<tr>
<td>Presents these formulations in a fashion that invites client collaboration by obtaining specific feedback of the client's understanding of his/her problems</td>
<td>• The skills are demonstrated but with some inefficiency or</td>
<td>• The skills/behaviours are conducted with efficiency.</td>
</tr>
<tr>
<td>Outlines relevant treatment options based on derived formulations and ensures client understands rationale for the use of treatment strategies</td>
<td>• Some of the prompt skills are demonstrated but the intern does not appear comfortable or conducts them in such a fashion as to interfere with the maintenance of rapport.</td>
<td>• The intern appears calm and confident</td>
</tr>
<tr>
<td>Obtains consent from client regarding intent to progress to treatment with intern or discusses with client a referral to a more appropriate treatment service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides client with written summary of assessment, diagnosis, formulation and treatment options if referring elsewhere</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reaffirms/negotiates with client treatment goals, and discusses next step in treatment</td>
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<td></td>
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**Assessor Comments:**

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**Task 8:** The intern manages time available within therapy sessions in a constructive fashion.

**Directions:** To be presented via video excerpt

**KEY POINT FOR COMPETENT RATING:** Assessor judges that the intern is, for the most part, directing the session and that the “business” of the session is attended to in a fashion that supports a collaborative relationship with the client.

<table>
<thead>
<tr>
<th>Agenda setting and adherence</th>
<th>Competent</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sets the agenda with explicit, agreed and prioritised items, that are feasible in the time available</td>
<td>A competent rating may be considered when:</td>
<td>An excellent rating may be considered when:</td>
</tr>
<tr>
<td>Sets the agenda with items that are appropriate to stage of therapy and client’s current concerns</td>
<td>• Some of the skills are demonstrated whilst others are not or</td>
<td>• The majority of the behaviours listed are evident.</td>
</tr>
<tr>
<td>Encourages the client to participate in prioritization of agenda items</td>
<td>• The skills are demonstrated but with some inefficiency or</td>
<td>• The skills/behaviours are conducted with efficiency.</td>
</tr>
<tr>
<td>Reviews homework and/or monitoring towards the beginning of sessions</td>
<td>• Some of the prompt skills are demonstrated but the intern does not appear comfortable or conducts them in such a fashion as to interfere with the maintenance of rapport.</td>
<td>• The intern appears calm and confident</td>
</tr>
<tr>
<td>Follows the agenda where appropriate but demonstrates flexibility where required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manages the session well with regard to time, reflecting client’s needs and speed of learning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demonstrates an ability to sensitively bring client back to task if digressions occur</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reviews progress in each session</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Assessor Comments:**

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**Task 9:** The intern both gives and seeks feedback from the client in an attempt to ensure accurate understanding of content of conversation.

**Directions:** An individual video excerpt does not need to be presented. Instead this skill can be observed throughout the other video excerpts presented.

**KEY POINT FOR COMPETENT RATING:** Assessor judges that the intern checks understanding with client and is able to accurately modify that understanding if necessary.

<table>
<thead>
<tr>
<th>Feedback</th>
<th>Competent</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Periodically pauses to summarize content of conversation so far in a manner that fits into the context of the conversation</td>
<td>A competent rating may be considered when:</td>
<td>An excellent rating may be considered when:</td>
</tr>
<tr>
<td>Asks if intern’s summary reflects an accurate understanding of conversation so far</td>
<td>• Some of the skills are demonstrated whilst others are not or</td>
<td>• The majority of the behaviours listed are evident.</td>
</tr>
<tr>
<td>Demonstrates an ability to modify inaccurate understanding based on client’s feedback</td>
<td>• The skills are demonstrated but with some inefficiency or</td>
<td>• The skills/behaviours are conducted with efficiency.</td>
</tr>
<tr>
<td>Conducts these behaviours in a fashion that appears easy and fluent.</td>
<td>• Some of the prompt skills are demonstrated but the intern does not appear comfortable or conducts them in such a fashion as to interfere with the maintenance of rapport.</td>
<td>• The intern appears calm and confident</td>
</tr>
</tbody>
</table>

**Assessor Comments:**

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**Task 10:** The intern provides accurate, relevant and useful psycho-education to client and ensures that client understands it.

**Directions:** To be presented via video excerpt

**KEY POINT FOR COMPETENT RATING:** Assessor judges that the intern provides information that is relevant and helpful to the client, in an attempt to support the client’s progress in treatment.

<table>
<thead>
<tr>
<th>Psycho-education</th>
<th>Competent</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides accurate, timely and relevant psycho-education to client</td>
<td>A competent rating may be considered when:</td>
<td>An excellent rating may be considered when:</td>
</tr>
<tr>
<td>Provides psycho-education clearly, comfortably and in a manner that is easy to understand by client</td>
<td>• Some of the skills are demonstrated whilst others are not or</td>
<td>• The majority of the behaviours listed are evident.</td>
</tr>
<tr>
<td>Uses analogies or examples from client’s own history that ensures information is well understood and relevant</td>
<td>• The skills are demonstrated but with some inefficiency or</td>
<td>• The skills/behaviours are conducted with efficiency.</td>
</tr>
<tr>
<td>Checks with client that psycho-education provided is understood</td>
<td>• Some of the prompt skills are demonstrated but the intern does not appear comfortable or conducts them in such a fashion as to interfere with the maintenance of rapport.</td>
<td>• The intern appears calm and confident</td>
</tr>
</tbody>
</table>

**Assessor Comments:**

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**Task 11:** The intern demonstrates proficiency in the use of Cognitive Therapy techniques.

**Directions:** To be presented via video excerpt. The technique(s) presented must be derived from an individualized assessment and formulation of the client’s presenting problem(s), presented to the client within a CB framework, the progress and effectiveness of the technique monitored throughout implementation, and adjustments to the course of intervention are made if necessary. Appropriate attention is given to end of therapy strategies, discharge planning and follow-up.

**KEY POINT FOR COMPETENT RATING:** The skills demonstrated by the intern must be embedded within a CB formulation and linked to relevant information, must be demonstrated in session, and the effectiveness of the strategy monitored.

<table>
<thead>
<tr>
<th>Cognitive Therapy Techniques</th>
<th>Competent</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive techniques presented may include, but need not be limited to:</td>
<td>A competent rating may be considered when:</td>
<td>An excellent rating may be considered when:</td>
</tr>
<tr>
<td>Techniques designed to elicit, monitor and otherwise identify negative thoughts, assumptions and rules</td>
<td>- Some of the skills are demonstrated whilst others are not or</td>
<td>- The majority of the behaviours listed are evident.</td>
</tr>
<tr>
<td>Techniques designed to identify and categorize information processing and logical errors</td>
<td>- The skills are demonstrated but with some inefficiency or</td>
<td>- The skills/behaviours are conducted with efficiency.</td>
</tr>
<tr>
<td>Thoughts designed to evaluate and challenge thoughts, assumptions and rules.</td>
<td>- Some of the prompt skills are demonstrated but the intern does not appear comfortable or conducts them in such a fashion as to interfere with the maintenance of rapport.</td>
<td>- The intern appears calm and confident</td>
</tr>
<tr>
<td>Techniques designed to increase helpful thinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effectiveness of intervention monitored throughout with regular collection of data, interventions modified if necessary.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate “end of therapy” strategies e.g. discharge planning, relapse prevention, termination of treatment, use of booster sessions, referral to alternative services etc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Assessor Comments:**

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Task 12: The intern demonstrates proficiency in the use of Behavioural Therapy techniques.

Directions: To be presented via video excerpt. The technique(s) presented must be derived from an individualized assessment and formulation of the client’s presenting problem(s), presented to the client within a CB framework, the progress and effectiveness of the technique monitored throughout implementation, and adjustments to the course of intervention are made if necessary. Appropriate attention is given to end of therapy strategies, discharge planning and follow-up.

KEY POINT FOR COMPETENT RATING: The skills demonstrated by the intern must be embedded within a CB formulation and linked to relevant information, must be demonstrated in session, and the effectiveness of the strategy monitored.

<table>
<thead>
<tr>
<th>Behavioural Therapy Techniques</th>
<th>Competent</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive techniques may include, but need not be limited to:</td>
<td>A competent rating may be considered when:</td>
<td>An excellent rating may be considered when:</td>
</tr>
<tr>
<td>De-arousal strategies</td>
<td>• Some of the skills are demonstrated whilst others are not or</td>
<td>• The majority of the behaviours listed are evident.</td>
</tr>
<tr>
<td>Sleep hygiene strategies</td>
<td>• The skills are demonstrated but with some inefficiency or</td>
<td>• The skills/behaviours are conducted with efficiency.</td>
</tr>
<tr>
<td>Behavioural experimentation</td>
<td>• Some of the prompt skills are demonstrated but the intern does not appear comfortable or</td>
<td>• The intern appears calm and confident</td>
</tr>
<tr>
<td>Exposure therapy (imaginal or in-vivo)</td>
<td>conducts them in such a fashion as to interfere with the maintenance of rapport.</td>
<td></td>
</tr>
<tr>
<td>Assertiveness and communication skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavioural rehearsal strategies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavioural activation and graded task assignments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effectiveness of intervention monitored throughout with data collection, interventions modified if necessary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate “end of therapy” strategies employed eg, discharge planning, relapse prevention, termination of treatment, use of booster sessions, referral to alternative services etc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Assessor Comments:
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Task 13: The intern encourages client participation, practice and generalisation of skills being taught by timely use of home-based tasks.

Directions: To be presented via video excerpt

**KEY POINT FOR COMPETENT RATING:** Assessor judges that the intern understands and conducts home-based tasks as a means of generalising skills.

<table>
<thead>
<tr>
<th>Home-based tasks</th>
<th>Competent</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sets monitoring tasks to gather data relevant to establishing a baseline measurement of presenting problem(s)</td>
<td>A competent rating may be considered when:</td>
<td>An excellent rating may be considered when:</td>
</tr>
<tr>
<td>Sets home-based practice tasks derived from topics in session, explains rationale for these and checks client understands</td>
<td>- Some of the skills are demonstrated whilst others are not or</td>
<td>- The majority of the behaviours listed are evident.</td>
</tr>
<tr>
<td>Sets up monitoring tasks around practice of home-based tasks</td>
<td>- The skills are demonstrated but with some inefficiency or</td>
<td>- The skills/behaviours are conducted with efficiency.</td>
</tr>
<tr>
<td>Reviews data collected via monitoring of home-based tasks</td>
<td>- Some of the prompt skills are demonstrated but the intern does not appear comfortable or conducts them in such a fashion as to interfere with the maintenance of rapport.</td>
<td>- The intern appears calm and confident</td>
</tr>
<tr>
<td>Reviews with client what they have learned from conducting home-based tasks.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Modifies formulation and therefore interventions based on data gathered</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Assessor Comments:**

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**Task 14:** The intern competently conducts psychometric assessments, interprets results and communicates findings in an appropriate fashion.

**Directions:** Not all interns will conduct psychometric assessments. However, when this does occur, competence is indicated when the supervisors are prepared to countersign reports to be sent to external parties. Please present all completed case files for assessment.

**KEY POINT FOR COMPETENT RATING:** The skills required for both excellent and competent ratings are largely the same. However, differences arise with both the degree of assistance required from the supervisor, and the more complicated nature of the case. That is, performing above skills with either child who is difficult to assess or presents a complicated clinical picture will allow an excellent rating.

<table>
<thead>
<tr>
<th>Psychometric assessments</th>
<th>Competent</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performs all tasks required of a psychometric assessment.</td>
<td>• Administers psychometric measures in a standardized fashion</td>
<td>• Administers psychometric measures in a standardized fashion</td>
</tr>
<tr>
<td>Interviews relevant individuals (individual in question, care-givers, teachers, co-workers all where appropriate), Administers psychometric tests, scores and interprets data, and writes report regarding findings.</td>
<td>• Scores data accurately</td>
<td>• Scores data accurately</td>
</tr>
<tr>
<td></td>
<td>• Accurately interprets results from these and other sources, but requires assistance from supervisor in interpretation</td>
<td>• Accurately interprets results from these and other sources, but requires minimal assistance from supervisor in interpretation</td>
</tr>
<tr>
<td></td>
<td>• Writes reports in an appropriate format as required by the UWS Psychology clinic</td>
<td>• Writes reports in an appropriate format as required by the UWS Psychology clinic</td>
</tr>
<tr>
<td></td>
<td>• Does all of the above with a straightforward case</td>
<td>• Does all of the above for a more complicated case</td>
</tr>
</tbody>
</table>

**Assessor Comments:**

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**Task 15:** The intern appropriately communicates with colleagues and referring agents about their clients. Files are kept up-to-date and are presented for inspection at mid and end placement review.

**Directions:** Professionalism is assessed on a monthly basis throughout the placement via the supervisor’s completion of "Clinical Supervision - Student Assessment Form" included in the Intern Clinic Manual. A summary of overall findings is included below for ease of communication with the intern.

**KEY POINT FOR COMPETENT RATING:** All behaviours whilst on placement to accord with APS Code of Conduct.

<table>
<thead>
<tr>
<th>Professionalism</th>
<th>Competent</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstration of knowledge relevant to the intern’s cases: psychopathology, assessment and diagnosis issues, CBT formulations and treatment options</td>
<td>A competent rating may be considered when:</td>
<td>An excellent rating may be considered when:</td>
</tr>
<tr>
<td>Adequate preparation for presentation of cases in supervision</td>
<td>- All behaviours whilst on placement to accord with APS Code of Conduct. Termination from placement may result for any major violation of this requirement.</td>
<td>- The majority of the behaviours listed are evident.</td>
</tr>
<tr>
<td>Open to supervision, adaptable and flexible</td>
<td>- Some of the skills are demonstrated whilst others are not</td>
<td>bvgghg///</td>
</tr>
<tr>
<td>Development of appropriate relationships within supervision team, with supervisors &amp; admin staff.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate attendance and punctuality, according to Placement Unit Outlines. Communicates with supervisor and administration staff on the issue.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Files complete and well written</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reports and outgoing correspondence completed within one month of the last contact with client</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Assessor Comments:**
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