RESILIENCE, COMPLETE MENTAL HEALTH AND ACADEMIC ACHIEVEMENT IN TRADITIONAL AND NON-TRADITIONAL FIRST YEAR PSYCHOLOGY STUDENTS

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Bachelor of Health Science (Hons), Bachelor of Arts

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SUMMARY

Since reforms in Australian higher education in the late 1980s, students from historically under-represented backgrounds (i.e., 'non-traditional' students) have become increasingly the norm. While some argue that widening participation is problematic, research regarding the relationships between non-traditional backgrounds, mental health and academic outcomes has yielded inconsistent results. This research therefore aims to improve the understanding of resilience, complete mental health and academic achievement, among traditional and non-traditional university students. Four independent and related research papers have been produced.

Study One is a systematic review of the definition of the term 'non-traditional student' within mental health studies conducted in higher education settings. Thirteen demographic categories were used to define the concept of 'non-traditional'. Researcher-imposed definitions were found to be ambiguous and highly inconsistent among studies. A student-centred approach to definition (i.e., self-perception) in operationalising the concept 'non-traditional' was therefore adopted in the subsequent research studies.

Studies Two, Three and Four report the findings of three quantitative studies resulting from an online survey which involved 442 first year students from the University of Adelaide. Study Two explores the prevalence and predictors of complete mental health among traditional and non-traditional students. It was shown that 30.5% of participants reported complete mental health. 'Non-traditional' students did not report lower likelihood of complete mental health compared to their traditional peers. Furthermore, an absence of significant adverse life events in the past two years, higher levels of resilience and reported campus-based social support were significantly associated with complete mental health in both traditional and non-traditional students.

Study Three compares the levels of resilience between traditional and non-traditional students. It was found that students who identified themselves as being 'non-traditional', in terms of employment, role as a parent, and age, reported significantly higher resilience compared to students who perceived themselves to be a 'traditional' student.

Study Four explores the relationship between resilience, complete mental health, and prospective first-year grade point average (GPA), controlling for students' demographic factors and known predictors of university academic achievement. Overall, resilience and complete mental health did not significantly predict GPA after controlling for the effect of covariates (e.g., adverse events, motivation). However, students who perceived lower institutional support were found to require a higher level of resilience to achieve the same GPA compared to others. The majority of 'non-traditional' demographic factors identified in Study One, and perception as a 'non-traditional' student did not predict GPA to a significant extent.

The current results have several implications for the development of strategies to improve mental health and academic outcomes among increasingly diverse university students. First, the development of resilience could be useful in promoting academic achievement for some students. Second, resilience and campus-based social support protect mental health for both traditional and non-traditional students and therefore more focus should be placed on strengthening these aspects. Third, there is a need for universities to adequately support students who have experienced a significant adverse event. Fourth, more recognition and understanding of the strengths which 'non-traditional' backgrounds bring is required.

DECLARATION

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material that has been accepted for the award of any other degree or diploma of a university or other tertiary institution. In addition, I certify that this work contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to this copy of my thesis when deposited in the University Library, being made available for loan and photocopying, subject to the provisions of the Copyright Act 1968. I also give permission for the digital version of my thesis to be made available on the web, via the University's digital research repository, the Library Search and also through web search engines, unless permission has been granted by the University to restrict access for a period of time. The author acknowledges that copyright of published works contained within this thesis resides with the copyright holder(s) of those works.

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Ethel Wen-Yin Chung

Signed: _____ Date: 10/6/2016

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To my longsuffering fiancé Keeven – where do I even begin? Thank you for being my rock.

DEDICATIONS

To Stephen, Christina, Robert, Imm, Clara and Keeven.

KEY TO ABBREVIATIONS

ATAR	Australian Tertiary Admission Rank
CD-RISC	Connor-Davidson Resilience Scale
CES-D	Center for Epidemiologic Studies Depression Scale
CIDI-SF	Composite International Diagnostic Interview - short form
CMH	Complete Mental Health
DCM	Dual-Continua Model
DEEWR	Department of Education Employment and Workplace Relations
GPA	Grade Point Average
K-10	Kessler Psychological Distress Scale
MHC-SF	Mental Health Continuum - short form
nAch	Needs for Achievement
NTS	Non-Traditional Students
PHQ	Patient Health Questionnaire
RMHS	Resilience and Mental Health Survey
SEQ	Student Engagement Questionnaire
SES	Socioeconomic Status
TS	Traditional Students

OVERVIEW

Outline of Thesis

The program of research that forms the basis of this thesis sought to provide information about resilience, mental health and academic achievement of 'traditional' and 'non-traditional' university students. For the purpose of this thesis, the term 'non-traditional student' refers to students who are from demographic backgrounds which are historically underrepresented in higher education in Australia and other countries such as the United States and the United Kingdom. Four related studies were undertaken and the papers produced are reported as chapters in this thesis. The thesis concludes with a chapter providing the broader context and discussion relevant to the research program as a whole.

Chapter One provides the historical and contextual background of the research, a critical review pertaining to literature around academic achievement and mental health of non-traditional students, and a discussion of theoretical approaches adopted in the research. Chapter Two outlines the aims of this thesis and identifies the gaps in the literature that this thesis will address. Chapter Three provides an exegesis for each of the four studies conducted. The aim of this chapter is to provide the rationale for each study and additional information which was deemed out of scope in the individual papers. Chapters Four to Seven contain the four papers that were produced and the statements outlining each author's respective contributions. Chapter Eight provides a summary of results, a discussion of the practical application of the results, issues to overcome, future directions, and a concluding statement.

Outline of Candidature

The current thesis was undertaken to fulfil the requirements of a combined Clinical Master of Psychology/ Doctor of Philosophy degree at The University of Adelaide, South Australia. This program includes a full Clinical Masters course load (2 years full-time

equivalent) and a full research program for a Doctor of Philosophy (3 years full-time equivalent). The four papers that stemmed from the research program, along with the nine Masters subjects and three clinical placements, were completed within four years of full-time study. All subject and practical requirements of the Masters component of the program were completed successfully, leading to eligibility for registration as a psychologist with the Australian Health Practitioner Regulation Agency (AHPRA). The following thesis is submitted to fulfil the requirements of a Doctor of Philosophy.

Chapter 1: Literature review

1.1 Widening participation of higher education

In the past few decades, many developed countries have made increasing citizens' accessibility to high quality higher education their major priority, for economic and social equity reasons (Altbach, Reisberg, & Rumbley, 2009; Bradley, Noonan, Nugent, & Scales, 2008; Norton, 2010). Statistics show that the percentage of the global population enrolled in higher education increased from 19% to 26% from 2000 to 2007, meaning there were around 150.6 million higher education students worldwide (Altbach *et al*., 2009). The expansion of the higher education sector in Australia also saw a 17% increase in university enrolment, from 470,537 in 2009 to 569,064 in 2014 (Department of Education and Training, 2010, 2015a).

Historically, individuals who make up the majority of the student body within an elite education system (often referred to as 'traditional students') tend to come from a more privileged socioeconomic background, participate in university directly after high school, without concurrent demands for employment or/ and parenting, study full-time, on-campus, and until relatively recently, be male (Bradley *et al*., 2008; Choy, 2002; James, Baldwin, Coates, Krause, & McInnis, 2004). In contrast, the term 'non-traditional students' refers to other types of students who do not fit into the 'traditional' student mould – those who are typically under-represented in the higher education system for a host of complex socio-cultural, financial and political factors (Devlin, 2010). According to Devlin (2010), a 'non-traditional student' within the Australian context of higher education may be categorised by age, entry pathways, socio-economic status, parental education level, mode of study, location of study, rurality, and Indigenous background. However, other domains of categorisation,

including cultural and linguistic diverse background, international students, and disability have also been adopted (James, Krause, & Jennings, 2010; McKay & Devlin, 2014).

A number of writers have remarked that the definition of non-traditional student has not been consistent or precise in the literature (M. L. Johnson & Nussbaum, 2012; K. A. Kim, Sax, Lee, & Hagedorn, 2010; Smit, 2012). For example, while the concept of non-traditional primarily rests on the notion of being in the minority or underrepresented, in some contexts, its meaning can be extended to being at-risk of dropping-out. In a report published by the Department of Education of the United States, Horn (1996) defined 'non-traditional students' as those who possess at least one of the seven risk factors towards university incompletion (i.e., delayed enrolment into postsecondary education, part time attendance, being financially independent, working full time while enrolled, having dependents other than a spouse, being a single parent, or without a standard high school diploma qualification).

Currently, various equity initiatives have made higher education more accessible for all, resulting in increases in number of enrolments from underrepresented students. However, students with more privileged socio-economic status are still more likely to enrol in universities (Altbach *et al*., 2009; James *et al*., 2010). In Australia, students who are Indigenous, of low socio-economic status, first in their family to attend university, and/or from regional or remote areas, remain some of the most disproportionately underrepresented groups in higher education, particularly within elite research universities which are known as 'Group of Eight' institutions (Australian Government, 2009; Bradley *et al*., 2008; Group of Eight Australia, 2015). While continued effort is undoubtedly required to attract students from underrepresented backgrounds to participate in higher education, many have emphasised the need for institutions to take a proactive role in supporting students from all backgrounds in order to maximise their potential, as Engstrom and Tinto (2008, p. 46) stated: "access without support is not opportunity".

1.2 **Academic achievement and retention of university students**

Academic outcomes are generally assessed in terms of academic achievement (e.g., Grade Point Average) and retention rates in the contexts of research and practice. Research on facilitators of and barriers to academic achievement and retention of university students is longstanding and voluminous. Research has identified a wide range of predictors of academic outcomes, which can be classified into the following areas: cognitive (e.g., intelligence, past academic achievement), social (e.g., demographic background, social support), affective/ motivational (e.g., conscientiousness, self-efficacy, motivation, self-regulation), and metacognitive (e.g., study habits, approach to learning) (Credé & Kuncel, 2008; Credé, Roch, & Kieszczynka, 2010; McAbee & Oswald, 2013; Perera & DiGiacomo, 2013; M. Richardson, Abraham, & Bond, 2012; Vedel, 2014; Voyer & Voyer, 2014).

The centrality of achievement and retention in higher education research is likely to stem from practical concerns. First and foremost, recent evidence shows that not only do graduates of higher education receive a higher income, they report a healthier lifestyle and lower risks of developing life threatening diseases (Baum, Ma, & Payea, 2013). In order to maximise students' likelihood in fully harnessing the benefits of higher education, it is important to ensure that they successfully complete their studies. Second, according to the human capital theory, a skilled labour force is essential to a successful economy (Lange & Topel, 2006). The provision of university education is seen as an investment of the government towards a country's economic future. Non-completion of university study can therefore be seen as a waste of investment in that a qualification is not conferred and skills to the community not realised. It was reported that in 2012, the Australian government spent $15 billion in financial support for higher education. This is equivalent to around $11,538 per university student (Department of Education, 2013). The attrition rate, adjusting for transfers between institutions in 2012 was 13.47% (Department of Education and Training, 2013). It is

therefore possible to infer that the government may be spending close to $2.02 billion on university students who do not obtain university qualifications. Improving retention rates in university is an important matter considering the significant financial cost to the government and institutions. This cost is of course independent of the emotional and other extrinsic costs for students and the staff who work with them. Unsatisfactory academic performance has shown to be a major predictor of attrition (Allen, Robbins, Casillas, & Oh, 2008; Friedman & Mandel, 2011). For instance, Allen *et al*. (2008) found a strong correlation (r=.52) between first year GPA and retention by third year in a large sample (n=6872) of American students from 23 colleges. Similarly, a recent meta-analysis including a sample of 189,612 students from 50 institutions found that first year academic performance is more predictive of retention by the third year (estimated mean correlation=.38, 95% confidence interval= .36 - .39) compared to high school GPA (estimated mean correlation =.22, 95% confidence interval= .21 - .24) (Westrick, Le, Robbins, Radunzel, & Schmidt, 2015). Hence, it is also important to identify predictors of academic performance.

Among students from all year-levels, first-year students in particular are the least prepared for the rigour of university studies. They are required to adapt to greater academic demands and autonomy, reduced academic support and structure compared to secondary school, a new social environment, as well as managing new roles and responsibilities (Bouteyre, Maurel, & Bernaud, 2007; Credé & Niehorster, 2012; Reavley & Jorm, 2010). They are at the greatest risk of withdrawing from higher education without completing their studies. For example, statistics obtained in the Europe and Australia suggest that first year attrition rates are around double of those in second year (Marks, 2007; van Stolk, Tiessen, Clift, & Levitt, 2007). The first year at university therefore represents a prime opportunity to actively support students as they develop the skills to negotiate a new and challenging learning environment (Pitman, Koshy, & Phillimore, 2014).

1.3 **Mental health of university students**

The traditional focus of higher education has been on students' academic outcomes, namely, academic achievement and retention. However, it is increasingly acknowledged that strategies to improve academic outcomes should not overlook students' mental health needs (Seligman, Ernst, Gillham, Reivich, & Linkins, 2009; Topham & Moller, 2011). The high levels of psychological distress among higher education students has been a growing concern. Psychological distress is associated with a wide range of definitions in the psychology and medical literature. These definitions range from formally diagnosed illnesses, such as depression and anxiety disorders, to the broad terms of stress and "the external sign that all is not well" (Wilhelm, 2002, p. S7). For the purpose of this thesis, psychological distress is defined as persistent feelings of being upset, stressed, anxious, depressed, and any emotional or psychological symptoms which lead to the hindrance of normal healthy functioning (Leahy *et al*. 2010). This definition is adopted because it explicitly addresses hindrance to functioning which is not always specified in other definitions of distress (e.g., Wilhelm, 2002). Dysfunction is a key element in defining abnormality and is often incorporated in diagnostic criteria for mental disorders (e.g., Diagnostic and Statistical Manual of Mental Disorders (DSM) (American Psychiatric Association, 2000; Rieger, 2014)).

National and international studies suggest that university students may be particularly at risk of psychological distress compared to an age-matched general population (Leahy *et al*., 2010; Ron Roberts, Golding, Towell, & Weinreb, 1999; Stallman, 2010; Stewart-Brown *et al*., 2000). University counselling services have reported an increased number of students with severe distress (Benton, Robertson, Tseng, Newton, & Benton, 2003; Collins & Mowbray, 2005; Gallagher, 2011). Furthermore, epidemiological studies have shown that the peak occurrence of several mental illnesses coincides with the late teenage/ young adult age group of most university students (Kessler *et al*., 2007).

Psychological distress is a significant health issue that is associated with severe health problems such as drug and alcohol abuse and heightened suicidal risks (Linden, Lau-Barraco, & Hollis, 2014; Vivekananda, Telley, & Trethowan, 2011). Furthermore, it has also been shown to impair students' ability to learn. For instance, psychological distress can lead to significant interpersonal and academic difficulties, including poorer exam performance, absenteeism and higher drop-out rates, as well as a general reduced capacity to work or study (Martinez, Sher, Krull, & Wood, 2009; Reavley & Jorm, 2010; Stallman, 2010).

1.4 **Research on student diversity, academic achievement, and mental health**

Given the importance of ensuring optimal mental health and academic achievement among an increasingly diverse university student population, there is an ongoing interest in understanding the connections between socio-demographic factors, mental health and academic outcomes. Transition to university is likely to present various challenges for both traditional and non-traditional students alike. However, despite the growing number of historically 'non-traditional' students on campus in recent years, they are generally expected to have greater difficulty adjusting to university and performing well, as higher education has long been viewed as the realm of the elite and upper middle class (Cassidy & Giles, 2009). As such, the majority of university experience research has focused on investigating challenges faced by non-traditional students.

The body of research regarding non-traditional students' academic achievement and mental health can be broadly categorised as follows: (1) research on university experience which relates to achievement and mental health among 'non-traditional' students and predominantly adopts a qualitative approach; (2) quantitative investigations of the

relationship between socio-demographic and academic outcome variables (e.g., Grade Point Averages or retention rates); (3) quantitative research on the relationship between socio-demographic and mental health variables (predominantly psychological distress and mental illness). Non-traditional students represent a heterogeneous group with diverse experiences in navigating their university journeys. The sub-sections below provide a summary of the literature concerning the university experience, achievement and mental health status, particularly relevant to three groups of non-traditional students, namely, mature-aged students, low socioeconomic status (SES) students, and so-called 'first-generation students', because of the relevance of these demographic groups to findings presented in the latter part of this thesis.

1.4.1 University experience and challenges of 'non-traditional' students

1.4.1.1 Multiple life roles

A body of research has explored challenges non-traditional students commonly face when attempting to accommodate study demands in addition to other life responsibilities, such as parenting and work (Home, 1997; Kirby, Biever, Martinez, & Gómez, 2004; Munro, 2011; Waller, Bovill, & Pitt, 2011). Although having multiple responsibilities can foster a sense of accomplishment for some students, the need to manage childcare and work responsibilities in addition to academic workload can contribute to increased levels of role strain (Bowl, 2001; Christensson, Vaez, Dickman, & Runeson, 2011; Home, 1997). These pressures can be compounded, unsurprisingly, with financial concerns and additional demands at home or at work, such as being a single parent, having more children, and increased work hours (Leathwood & O'Connell, 2003; van Rhijn & Lero, 2014). In addition to role strains and financial stress, some studies have identified that students with other

significant life roles (e.g., as a parent) may not consider their role as a student as the one that should be prioritised at all times, which can subsequently influence their commitment to study and academic success (Devlin, 2010; Munro, 2011).

1.4.1.2 A lack of cultural capital

While not all non-traditional students are the first in their family to participate in higher education (i.e., 'first-generation student'), being 'non-traditional' implies minimal experience with higher education in previous generations of the family. A number of writers argue that non-traditional students may lack familiarity and proficiency with the dominant cultural codes and practices in the university often referred to as 'cultural capital' (Collier & Morgan, 2008; Leathwood & O'Connell, 2003; Munro, 2011). In contrast, traditional students develop cultural capital readily through previous educational experience or cultural ideologies/ resources passed down by their parents who have been university educated (Collier & Morgan, 2008; Munro, 2011). Some authors, on the other hand, suggest that non-traditional students do not lack cultural capital per se, but rather, possess a different set of knowledge and ways of knowing that is incongruent to the dominant university culture (e.g., Devlin, 2011; Luzeckyj, Scutter, King, & Brinkworth, 2011).

It is argued that a lack of cultural capital specific to the university context can lead to a range of challenges towards positive university adjustment. For example, McKay and Devlin (2014) found that students who are first in their family to study at university are more likely than their continuing-generation peers to report struggles with academic writing, which may be partly contributed by the lack of exposure to the academic discourse and an absence of university-educated mentor or parents who can assist with academic writing. Furthermore, Collier and Morgan (2008) argue that higher education promotes values and expectations

specific to the 'ruling class' in the society that are not always clearly identified (referred to as 'tacit expectations'). Given the lack of exposure to these tacit expectations in their pre-university context, non-traditional students may have difficulty responding to such requirements, and subsequently be less able to demonstrate their actual capacity in assessment tasks. Consistent with this proposition, findings from an Australian study involving 2422 students found that students from a low socio-economic background tended to report more difficulties in understanding course material and adapting to university teaching styles (James *et al*., 2010).

1.4.1.3 Low academic self-efficacy

It appears that a lack of cultural capital may negatively affect the beliefs students hold about their own competencies, which have been shown to predict achievement (M. Richardson *et al*., 2012). Writers argue that an understanding of tacit expectations helps students to master a 'student role'. Mastery of this role is related to a sense of belonging in the university and boosts academic confidence (Christie, Tett, Cree, Hounsell, & McCune, 2008; Christie, 2009). Consistent with this perspective, a number of studies have found that non-traditional students express worries about unfamiliarity with the university culture and expectations, as well as uncertainty about one's academic capability and worthiness for being in university (Christie, 2009; Collier & Morgan, 2008; Leathwood & O'Connell, 2003; Munro, 2011). These findings are supported by a quantitative study which found that first generation students reported lower academic self-efficacy (i.e., a confidence that one can attain positive academic outcomes) compared to their continuing-generation peers (Vuong, Brown-Welty, & Tracz, 2010), although the relationships between self-efficacy and other non-traditional characteristics (e.g., mature-aged, low SES) have not been investigated quantitatively.

1.4.1.4 Low perceived collegiate support

Findings from qualitative studies suggest that non-traditional students, including mature-aged and first generation students, report feeling marginalised and socially isolated in the university environment (Meuleman, Garrett, Wrench, & King, 2014; Read, Archer, & Leathwood, 2003; Scott & Lewis, 2012; Stuber, 2011). Students also report low levels of academic support by their institutions, describing a sense of being "left to sink or swim" (Leathwood & O'Connell, 2003, p. 610). However, other qualitative studies suggest that a lack of support provided by institutions may not be the sole reason for low perceived collegiate support. Y. K. Kim and Sax (2009) showed that non-traditional students (including low SES and first-generation students) tend to report lower uptake of support from teaching staff, and lower satisfaction in student-staff interaction. Another study examining factors contributing to poor academic progress in first generation students who were dismissed from their institution suggested that the reluctance in seeking academic help was perceived as the main reason of dismissal by the students (Brost & Payne, 2011). Findings from Y. K. Kim and Sax (2009) and Brost and Payne (2011) thus indicate the presence of potential barriers towards the uptake of available academic support by non-traditional students.

1.4.2 Academic achievement, retention, and 'non-traditional' characteristics

In an era of widening participation, concerns are often expressed by educators and policy makers in Australia and internationally, that the broadening social base of university entrants could signify declining quality of education (see Pitman *et al*. (2014) and Smit (2012) for a detailed discussion). Frequently, commentaries regarding widening participation and the prospective decline of educational quality offered by journalists and higher education policy makers are accompanied by international statistics which suggest the association between admission of 'non-traditional' students and rising rates of attrition (Centre for the

Study of Higher Education, 2008; Crawford, 2014; National Audit Office, 2007). Given university success is primarily seen as the responsibility of the student within the Western culture, academic problems are commonly attributed to individual factors, such as home backgrounds, and lack of goals and motivations, by researchers, educators and policy makers (Gabb, Milne, & Cao, 2006; Meuleman *et al*., 2014; Snowden & Lewis, 2015). This biased attribution can lead to the stereotyping of 'non-traditional' students as being deficient in abilities required for universities – a process known as 'deficit thinking' (Shields, Bishop, & Mazawi, 2005; Smit, 2012; Valencia, 1997). A recent content analysis of Australian news reports confirmed that deficit assumptions about 'non-traditional' students, such as those positioning low SES as an insurmountable obstacle to success, remain common in the present era, more than two decades after the reforms in Australian higher education in the late 1980s (Coates & Krause, 2005; Snowden & Lewis, 2015). Such assumptions reinforce entrenched positions about social class, individual ability and suitability for higher education, which can alienate and demoralise students who aspire to participate in university (Snowden & Lewis, 2015).

Despite common perceptions about 'non-traditional' students, research on the relationship between academic achievement, retention, and demographic factors has found that demographic characteristics typically associated with being 'non-traditional' do not necessarily contribute to poorer academic performance or retention rates (see for example, Hahs-Vaughn, 2004; Marks, 2007). Although being non-traditional has been shown to associate with a number of unique personal, cultural and educational challenges, many students go on to achieve in their studies and complete their degrees successfully.

1.4.2.1 Academic outcomes and low SES students

It is generally agreed that students from higher SES backgrounds attain higher GPAs than do their respective counterparts (Cassidy & Giles, 2009; Dennis, Phinney, & Chuateco, 2005; S. B. Robbins *et al*., 2004). For instance, a meta-analysis of 241 studies found a small effect between SES measures (derived by income and educational levels) and university GPA (M. Richardson *et al*., 2012). Similar results were obtained in a more recent meta-analysis, whereby the estimated mean correlation between SES and first year GPA was .26 (Westrick *et al*., 2015). However, the relationship between low SES and retention rate is less consistently found within the literature. A number of studies based on national data obtained in the United States and the United Kingdom found that that low SES students are more likely to drop-out from universities (Allen *et al*., 2008; Terenzini, Cabrera, & Bernal, 2001; Titus, 2006; S. E. Turner, 2009; Vignoles & Powdthavee, 2009). For example, S. E. Turner (2009) found that in the United States, while the strongest growth in college enrolment was amongst students who were in the lowest parental income group, college completion rates were also the poorest among this group. Similar findings have been observed in the United Kingdom (S. E. Turner, 2009). In contrast, a study consisting of an Australian student sample (n= 13,613) found that students from a household with low SES (derived based on parental education and occupation) were no less likely than their high SES peers to complete their courses successfully (Marks, 2007). Despite inconsistencies regarding the way SES predicts retention, evidence suggests that where SES does have a significant influence on retention, the effect tends to be small. For instance, a meta-analysis showed only negligible correlations between SES and retention by the third year (estimated mean correlation=.09; 95% CI= .08-.11) (Westrick *et al*., 2015). Furthermore, it has been shown that much of the gap in retention rates between high and low SES students disappears when prior achievement and university characteristics are taken into account (Vignoles & Powdthavee, 2009).

1.4.2.2 Academic outcomes and first-generation students

Research findings regarding academic outcomes of first-generation students have been inconclusive. While the majority of studies indicate lower academic achievement and retention among first-generation students, other studies show no significant difference between first and continuing-generation students. For example, a study including students (n=1,849) from one of the most prestigious Canadian universities found that those who come from families in which at least one parent who did not complete a university degree had a slightly lower first-year GPA compared to their continuing-generation peers (Grayson, 1997). Furthermore, a longitudinal study conducted with 3,290 American students at a similar institutional context to that studied by Grayson (1997) found that students who had two parents without a college degree had significantly lower rates of university completion (Martinez *et al*., 2009). Similar findings have been reported by Ishitani (2006), in which 4,427 entries of student records from a national database in the United States were analysed. This study further suggests that students who have at least one parent with some university experience (e.g., started but never completed a degree) achieve higher GPA and have lower attrition rate (44% less likely to graduate) compared to students with parents who had no university experience (51% less likely to graduate). In contrast, a longitudinal study which utilised information from a database in the United States (n=1,629) found no significant difference in cumulative GPA over four years and university completion, between students with and without university-educated parents (Hahs-Vaughn, 2004).

Interestingly, some studies have found that challenges among first-generation students commonly reported in qualitative research, for instance, limited cultural capital, work demands and low perceived social support on campus, do not automatically put students at a higher risk of academic failure. Grayson (2011) found that first generation students differ

from their continuing generation peers in a few aspects of university experience (e.g., longer work hours, fewer friends on campus, lower involvement in campus activities). However, these differences were not found to predict GPA. Moreover, Dumais and Ward (2010) explored the effect of cultural capital on first generation students' academic outcomes over a four-year period. Although cultural capital variables were found to be important for initial access to higher education (i.e., the decision to enrol in a university), they had no effect on GPA and only a small effect on successful graduation. These findings potentially indicate the presence of protective factors among first-generation students which may buffer against the effect of risk factors towards their achievement. For instance, a study involving a sample of students from South Australia (n=11,240) found that students who were first in their immediate family (including parents and siblings) to participate in higher education expect to study more per week and have their assignments back quicker than other students (Luzeckyj *et al*., 2011). It is possible that the willingness to work hard among first-generation students could compensate for some potential limitations of their background.

1.4.2.3 Academic outcomes and mature-aged students

Mature-age is perhaps one of the most well-researched 'non-traditional' demographics within the literature of university academic achievement and retention. Research based on constructs stemming from social cognitive theories of motivation (e.g., intrinsic/ extrinsic motivation (Ryan & Deci, 2000) and achievement goal (Linnenbrink & Pintrich, 2002)) has classified students into two broad categories based on their motivation towards learning tasks – being driven by the internal rewards of learning, such as self-improvement, intellectual stimulation and mastery of new knowledge, or by external rewards (e.g., approval of others or achievement of contingent goals). Research has demonstrated that older students are more likely to be motivated by the intrinsic rewards of learning (Eppler &

Harju, 1997; Eppler, Carsen-Plentl, & Harju, 2000; M. L. Johnson & Nussbaum, 2012). The different motivational pathway of learning for older students may underlie their decisions to return to university after the establishment of important life responsibilities (e.g., career and family) (Carney-Crompton & Tan, 2002). Research shows that students who are motivated by the intrinsic enjoyment of learning are more likely to display curiosity, autonomy and initiatives in their learning, contributing to higher academic persistence and achievement (Credé & Kuncel, 2008; S. B. Robbins *et al*., 2004). Consistent with social cognitive research, the relationship between older age and higher GPA is well-supported by empirical findings (Birch & Miller, 2007; Cantwell, Archer, & Bourke, 2001; Carney-Crompton & Tan, 2002; Martin, Wilson, Liem, & Ginns, 2013). The findings from a meta-analysis further confirmed the relationship between age and academic achievement (M. Richardson *et al*., 2012).

While research suggests that mature-aged students possess the cognitive capacity to achieve their academic goals, a number of surveys show that students who begin their studies over the age of 21 are more likely to drop-out compared to younger students (e.g., Arulampalam, Naylor, & Smith, 2004; National Audit Office, 2007). However, contradictory findings were obtained in Schofield and Dismore (2010), where the academic records of 457 students who were 32 years old or above, were analysed. It was found that age appeared to contribute to higher retention rates and academic achievement.

1.4.3 Mental health and 'non-traditional' characteristics

Negative aspects of mental health, including psychological distress, substance abuse, suicide and self-harming behaviours, have been the subject of numerous international and Australian studies on university students' mental health (e.g., Eisenberg, Gollust, Golberstein,

& Hefner, 2007; Linden *et al*., 2014; Stallman, 2010; Tosevski, Milovancevic, & Gajic, 2010). Not surprisingly, studies regarding non-traditional students' psychological adjustment to university have predominantly focused on psychological distress. Only a minority of studies have included measures of subjective well-being (e.g., life satisfaction). A number of inconsistencies can be located in research regarding 'non-traditional' demographic factors and mental health. While most studies suggest that 'non-traditional' characteristics can be associated with poorer mental health (e.g., Bayram & Bilgel, 2008; Eisenberg & Chung, 2012), some studies have suggested otherwise (e.g.,Saïas *et al*., 2014).

1.4.3.1 Mental health and low SES students

Consistent with the well-established relationship between economic disadvantage and prevalence of mental illness (depression and anxiety) in the wider community (Jury, Smeding, Court, & Darnon, 2015; van Rhijn & Lero, 2014), low SES has been found to predict symptoms of depression, anxiety and/or suicidal ideation in epidemiological research (Bayram & Bilgel, 2008; Eisenberg *et al*., 2007). For instance, in a survey involving a sample (n=1,617) from a Turkish university, students who evaluated their family's economic situation as being poor had higher depression and anxiety compared to students who perceived their economic situation as being moderate or good (Bayram & Bilgel, 2008). A study involving a sample (n=2,843) from an American college similarly found that students who perceived their family to be in a poor financial situation reported higher level of depressive and anxiety symptoms compared to those who perceived themselves to be in a moderate financial situation (Eisenberg *et al*., 2007). Despite these findings, students with higher family SES do not always fare better in mental health compared to their less privileged peers. For instance, Eisenberg *et al*. (2007) found that students who perceived their family to be 'well-to-do' reported significantly more suicidal thoughts compared to those who

perceived their family to be in a moderate financial situation. This finding suggests that SES may not have a positive relationship with students' mental health, particularly when perceived family wealth approaches the higher end of the spectrum. On the other hand, a study including a sample of American students (n=5,048), which operationalised SES as family income, found a non-significant relationship between low SES and psychological distress (Saïas *et al*., 2014).

1.4.3.2 Mental health and first-generation students

Cross-sectional studies on the mental health of first-generation students generally report significantly higher levels of psychological distress in this cohort (Covarrubias, Romero, & Trivelli, 2015; Jenkins, Belanger, Connally, Boals, & Durõn, 2013; Stebleton, Soria, & Huesman, 2014). For instance, a study including a sample (n=1,647) from an American university found that students who were first in their immediate family to go to college (i.e., including parents and siblings) reported lower life satisfaction and slightly higher depressive symptoms on standardised instruments, compared to their continuing-generation peers (Jenkins *et al*., 2013). Similar results were found in another smaller, single-institution study (n=255) which utilised a standardised measure of depression (Covarrubias *et al*., 2015). A larger study (n=145,150) across six research-intensive institutions in America, measured depressive symptoms using a one-item, non-standardised measure, has found comparable results (Stebleton *et al*., 2014). Conversely, in a study including 1,500 students from a Cypriot university, students whose father had attained a university degree reported significantly higher levels of depressive symptoms compared to students whose father had lower educational attainment (Sokratous, Merkouris, Middleton, & Karanikola, 2014). It was speculated that more highly educated parents may have unrealistically high academic

expectations for their children, contributing to an increased risk of depression (Sokratous *et al*., 2014).

1.4.3.3 Mental health and mature-aged students

Consistent with research findings regarding challenges commonly reported by mature-aged students (e.g., juggling different life roles, social isolation), some researchers have found that older students who have multiple life responsibilities report higher distress compared to a normative sample (Chang, 2007; Chow, 2010). For instance, a survey conducted with 961 Taiwanese college students found that those who had at least one year between high school and college and had multiple life roles reported higher levels of anxiety and depression as measured by standardised screening tools (Chang, 2007). Furthermore, a Canadian study involving 373 undergraduate students found that those who experienced stress in relation to balancing multiple roles tended to report more depressive symptoms (e.g., feeling sad, lonely, suicidal) on a non-standardised measure (Chow, 2007). R. Roberts *et al*. (2000) found similar results in a study involving 482 students from two British universities, using the General Health Questionnaire (GHQ). On the other hand, some studies have found that older students enjoy higher levels of mental health compared to their younger counterparts. For example, Christensson *et al*. (2011) surveyed a sample of 1,700 Swedish students and found that those who are over the age of 30 and working reported significantly less depressive symptoms. Similarly, A. P. Turner, Hammond, Gilchrist, and Barlow (2007) surveyed 527 students from a newly established university in the United Kingdom and found that a smaller proportion of mature students (i.e., over 25 years of age) reported mental health problems as measured by a non-standardised instrument compared to traditional students (68% versus 72%), although it is unclear if the difference between the two groups reached statistical significance.

1.4.4 Further notes on quantitative research on non-traditional students' academic and mental health outcomes

Considerable variations have been identified in the findings of quantitative studies reviewed in Sections 1.4.2 and 1.4.3. Part of the inconsistency in the research findings may be related to methodological issues, including inconsistency in operationalising the term 'non-traditional student' and differences in study design.

There exists a wide range of variance in how researchers operationalise concepts including 'mature-aged' (e.g., over 21 (Arulampalam *et al*., 2004; National Audit Office, 2007) or over 32 (Schofield & Dismore, 2010)), 'first-generation' (e.g., at least one parent did not complete a university degree (Grayson, 1997), both parents did not complete a university degree (Martinez *et al*., 2009), at least one parent with some university experience (Ishitani, 2006), or parents and siblings without university education (Luzeckyj *et al*., 2011)), and 'low SES' (e.g., based on parental income alone (Titus, 2006; S. E. Turner, 2009), a composite index (Marks, 2007; Terenzini *et al*., 2001), or self-perception (Bayram & Bilgel, 2008; Eisenberg *et al*., 2007)). This observation is consistent with controversies noted by a number of authors, in relation to operationalising 'non-traditional' demographic criteria (e.g., Devlin, 2011; Kenny *et al*., 2007; Rubin *et al*., 2014; Spiegler & Bednarek, 2013).

In addition, variations in findings may be related to differences in study design (e.g., cross-sectional (Sokratous *et al*., 2014) versus longitudinal study (Hahs-Vaughn, 2004)), outcome measures (e.g., first-year GPA/ retention (Grayson, 1997) versus cumulative GPA / course completion (Dumais & Ward, 2010), standardised measure of distress (Chang, 2007) versus non-standardised measure of distress (Stebleton *et al*., 2014)), institutional context (e.g., single (Grayson, 1997) versus multiple institutions (Stebleton *et al*., 2014), elite research (Grayson, 1997) versus newly established institution (A. P. Turner *et al*., 2007)), and cultural norms and perceptions towards university participation.

Despite the inconsistencies in research findings, the preceding summary of research suggests that, while it is likely for non-traditional students to face a number of cultural, personal and educational challenges adjusting to university, they do not inevitably fare worse academically and psychologically. Instead, a number of studies show that non-traditional students bring with them skills and strengths which may facilitate the achievement of their academic potential and foster a sense of well-being. For instance, while first-generation students may not be able to rely on family resources to navigate their university journey (Collier & Morgan, 2008; Munro, 2011), they are prepared to work harder (Luzeckyj *et al*., 2011) and are perhaps subjected to a more realistic level of parental expectation of achievement (Sokratous *et al*., 2014). Although mature-aged students may be required to manage multiple life roles (Home, 1997) and are less socially-engaged on campus (Read *et al*., 2003), they may be motivated by the intrinsic joy of learning (M. L. Johnson & Nussbaum, 2012), which has been shown to enhance achievement (Credé & Kuncel, 2008). Similarly, while students from a lower SES background appear to be disadvantaged in academic achievement and mental health outcomes (Bayram & Bilgel, 2008; Cassidy & Giles, 2009), the gap in retention rates between the rich and poor diminishes as the effect of confounding factors (such as previous achievement) is adjusted for (Vignoles & Powdthavee, 2009). This indicates that many low SES students adapt well to the rigour of higher education, regardless of their initial level of university preparation. As noted in section 1.4.1, the majority of research on student diversity, academic achievement, and mental health has focused on identifying problems. Research on strengths, on the other hand, is substantially lacking by comparison and therefore would warrant further exploration.

1.5 **Themes of Positive psychology research and their relevance in the enhancement of positive academic and psychological outcomes in university students**

The literature about 'non-traditional' university students' academic experience has focused on challenges, whereas research about their psychological outcomes has predominantly focused on psychological distress (see for example: Leathwood and O'Connell (2003) and Bayram and Bilgel (2008)). This highlights the tendency to emphasise identifying or remediating problems or deficits in the fields of psychology and education. Efforts into mental health promotion can be categorised into two approaches, namely, 'risk-reduction' and 'competence-enhancement' models (Barry, 2001). It was argued that in the post-World War II era, the risk-reduction model which is concerned with the identification and remediation of mental illnesses, had become increasingly prominent in the field of psychology, given the rising demand for psychological treatment by returning servicemen (Seligman & Csikszentmihalyi, 2000). At the same time, higher education experienced unprecedented expansion in student numbers and diversity, prompting educators to adopt emerging psychological theories to inform their work (Shushok & Hulme, 2006). For example, Tinto's influential theory on university attrition was adapted from Durkheim's theory of suicide (Tinto, 1993). As a consequence of a focus on risks and deficits, educators frequently know more about students who have dropped-out or have performed poorly than they do about students who have achieved or persisted despite challenges (Shushok & Hulme, 2006). However, the importance of a more balanced understanding of students' mental health and academic needs, which takes into account positive and negative aspects of their experience, is being increasingly recognised (Davoren, Fitzgerald, Shiely, & Perry, 2013; Shushok & Hulme, 2006).

1.5.1 What is Positive psychology?

Following the advent of the positive psychology movement in 1997, there has been an exponential growth in research concerning positive human functioning and the enhancement of well-being (Kristjánsson, 2012; Seligman & Csikszentmihalyi, 2000). Positive psychology represents a unifying term that encompasses "the science of positive subjective experience, positive individual traits, and positive institutions [which] promises to improve quality of life and prevent the pathologies that arise when life is barren and meaningless" (Seligman & Csikszentmihalyi, 2000, p. 5). Positive psychology research is characterised by the competence-enhancement model, which focuses on enhancing protective factors, such as psychological strengths and contexts that may be conducive for well-being, and which buffer against the exposure of risk factors of psychopathology (Siegel, 2014). In other words, the positive psychology movement signals a shift from the traditional research focus on mental illness or distress, to positive emotions, psychological strengths and optimal human functioning, in the hope to assist people to achieve joy and fulfilment rather than merely to exist (Keyes & Haidt, 2003; Seligman, Steen, Park, & Peterson, 2005). Research from this perspective does not consider the risk-reduction approach of mental health (i.e., identifying and treating mental illness or distress) to be misguided. Rather, it represents a supplementary approach to the study of positive human experiences in the pursuit of a more balanced understanding of human functioning (Seligman *et al*., 2005). Research stemming from two major themes of positive psychology (namely, positive emotions and positive personal traits) (Seligman *et al*., 2005) have influenced the theoretical orientations taken in the current thesis.

1.5.2 A shift from a focus on psychological distress to well-being

The World Health Organization (2014, p. 1) defines mental health as "a state of well-being in which the individual realises his or her own abilities, can cope with the normal stresses of life, can work productively, and is able to make a contribution to his or her community". It is increasingly recognised that a holistic measurement of mental health should not only take into account distress or mental illness but also well-being (WHO, 2005). Two approaches towards the study of well-being can be identified, namely, hedonism and eudaimonism (Lim, 2014). Hedonism defines well-being as the experience of high levels of positive affect and life satisfaction. Eudaimonism, on the other hand, considers well-being as positive psychosocial functioning and the ability to actualise one's virtuous potentials.

While considerable overlap between the experience of well-being (i.e., comprising hedonia and eudaimonia) and an absence of psychopathology has been shown, this relationship is not exact (Keyes, 2002). In a study including a sample of American adults (n=3,032), Keyes (2005) found that while the latent factors of mental illness and well-being were correlated (r=-.53), only 28.1% of the variance was explained by each other, suggesting that well-being and mental illness/distress are not directly opposite endpoints on a single continuum. Other studies involving adolescents (Lim, 2014; Venning, Eliott, Kettler, & Wilson, 2013) and adults from Dutch and South African cultures (Keyes *et al*., 2008; Westerhof & Keyes, 2010) have similarly found psychopathology and well-being to be correlated but independent factors. Findings from these studies demonstrate that individuals experiencing a high level of distress have a greater chance of experiencing low well-being, such as few positive emotions and lowered functioning on an individual or social level. However, it is possible for one to live a satisfying and fruitful life while managing the distressing and debilitating symptoms of mental illness. Likewise, individuals who experience a relatively low level of distress do not necessarily live a meaningful, contributing

life (S. M. Lamers, Westerhof, Bohlmeijer, Ten Klooster, & Keyes, 2011). Consequently, the study of well-being can contribute to an understanding of factors that propel a loftier state of mental health.

1.5.2.1 The Dual-Continua Model of Mental Health

In keeping with the aforementioned empirical evidence, the Dual-Continua Model (DCM) proposes mental health and illness as two related but distinct dimensions (Keyes, 2002, see Figure 1). The 'illness continuum' concerns whether symptoms of psychopathology are present, whereas the 'mental health continuum' concerns the presence of well-being (i.e., positive emotion and social functioning). The DCM classifies individuals into categories, based on their "symptoms" of mental health and illness (Keyes, 2002, p. 208). Individuals can be classified as having 'flourishing', 'moderate' or 'languishing' mental health based on their levels of positive emotions and functioning, in addition to high, moderate or low levels of mental illness.

Flourishing with a low level of mental illness represents the hallmark of optimal well-being and functioning, and is referred to as 'complete mental health' by Keyes (2005). Individuals who have complete mental health experience a high level of positive emotions, have low distress, and are able to fulfil their potential and purposely attain their aspirations or goals (Venning *et al*., 2013). It is consistently associated with better functional outcomes compared to other mental health states (Keyes, 2002, 2005, 2006, 2007, 2009). For instance, a study with a sample of American adults found that completely mentally healthy individuals displayed the fewest health-related limitations of daily activities, loss of workdays, and high levels of psychosocial functioning, compared to those with a lower level of mental health (e.g., moderate or languishing mental health), while languishing mental health appears to be as damaging to one's functioning as the presence of a high level of mental illness (Keyes,

2005). Knowledge about the prevalence and determinants of complete mental health is therefore important for informing strategies in promoting both physical and mental health (Gilmour, 2014).

Figure 1. Dual-Continua Model of Mental Health (Keyes, 2013, p. 17)

1.5.2.2 Operationalising the mental health continuum

It has been argued that traditional survey instruments that measure subjective well-being do not simultaneously assess all three dimensions of well-being (i.e., emotional, social and psychological) (S. M. Lamers *et al*., 2011). The Mental Health Continuum - short form (MHC-SF) was therefore developed in order to provide a brief questionnaire that encompasses the three aspects of well-being. MHC-SF includes 14 items adapted from the original instruments used in the Midlife in United States survey (Keyes, 2002; 2005). The MHC-SF has demonstrated excellent psychometrics properties. Studies involving adult samples in North America, South Africa, Iran and the Netherlands have supported its 3-

factor-structure and have demonstrated excellent internal consistency (>.80) (Keyes, 2005; Keyes *et al*., 2008; S. M. Lamers *et al*., 2011). Furthermore, good test-retest reliability (.65) over a period of 9 months has been found (S. M. A. Lamers, Glas, Westerhof, & Bohlmeijer, 2012).

1.5.2.3 Operationalising the mental illness continuum – considerations for the higher education context

The original study which leads to the theorising of the DCM defines mental illness as a major depressive episode based on the DSM-III-R(Keyes, 2002, 2005; Rieger, 2014), operationalised by a robust screening tool (i.e., Composite International Diagnostic Interview Short Form (CIDI-SF) administered by a trained interviewer). However, on the whole, studies which apply the DCM have utilised diverse screening tools, with varying specificity and sensitivity in detecting a mental illness, to operationalise the mental illness continuum. For instance, studies which explore university students' mental health have used paper-and-pencil type screening measures in detecting depression and/or anxiety-like symptoms, including the Center for Epidemiologic Studies Depression Scale (CES-D) at a 16 point cut-off (sensitivity: .81, specificity:.72 (Klinkman, 1997)) and the Patient Health Questionnaire (PHQ) (sensitivity: .77-.80, specificity: .92-.94 (Gilbody, Richards, Brealey, & Hewitt, 2007; Wittkampf, Naeije, Schene, Huyser, & van Weert, 2007)) (Keyes *et al*., 2012; Low, 2011).

While mood and anxiety disorders are the most frequently reported mental health problems on campus, the literature indicates a need to consider the needs for students who are distressed but not necessarily mentally ill (Kitzrow, 2003). Distress is a part of defining mental illness but the presence of distress does not always mean that a diagnosable illness is present. Individuals who report being distressed may include those with a mental illness and those who experience transient distress associating with situational demands (Stallman,

2008). For instance, in the face of stressors, such as university transition, financial difficulties, and the need to manage work or/and family demands in addition to academic work, students may temporarily experience heightened level of distress yet without qualifying for a diagnosis of a mental illness.

While distress constitutes a normal human response to stress at times, research shows that persistent psychological distress (defined as being longer than 4 weeks) can have a considerable impact on students (Stallman, 2008; Stallman & Shochet, 2009; Stallman, 2010). For instance, mental distress is a significant health issue that is associated with severe health problems such as drug and alcohol abuse and elevated suicidal risks (Linden *et al*., 2014; Vivekananda *et al*., 2011). Students experiencing high levels of distress report being unable to work or study for 8 days, in addition to having reduced level of functioning for 9 days out of a 4-week period (Stallman, 2010). Disability stemming from high distress may contribute to the lower level of achievement found within this group (Stallman, 2010). In light of these considerations relevant to the higher education context, the application of the DCM to understand university students' mental health may benefit from incorporating the concept of distress. Specifically, it may be instrumental to operationalise the mental illness continuum based on non-disease specific distress, rather than symptoms of mental illness per se. In order to distinguish between these two operational approaches, for the purpose of this thesis, the original 'mental illness continuum' of DCM has been renamed as a 'distress continuum'.

1.5.2.4 Complete Mental Health in university students

Studies conducted among American university students have found that around 49.7% to 60.5% of the sample reported complete mental health (Keyes *et al*., 2012; Low, 2011). Completely mentally healthy students are more likely to engage in civic and community

services (Low, 2011), exhibit less suicidal behaviours and fewer days out of role (Keyes *et al*., 2012). While research suggests the relationship between complete mental health and adaptive behaviours is associated with positive academic and psychological outcomes, a lack of research exploring predictors of complete mental health has been noted (Keyes *et al*., 2012). Although a recent study has examined predictors of flourishing mental health in American college students, a measure of psychological distress was not included. It is therefore unclear if the findings from the study apply to the concept of complete mental health (Fink, 2014). Furthermore, the relationship between complete mental health and traditional academic measures, such as GPA, has not been explored, although a study has explored the relationship between flourishing mental health (i.e., without assessing symptoms of mental illness/ distress), and average scores of subjects taken in a particular semester (Van Zyl & Rothmann, 2012).

1.5.3 A focus on the identification and development of strengths and resilience

Resilience is broadly defined as the ability to achieve successful outcomes in the face of adversity (Earvolino-Ramirez, 2007). Being a positive personal characteristic, resilience is a topic that falls within the area of positive psychology (B. D. Robbins & Friedman, 2011). While resilience has an important place in the emerging framework of positive psychology, this concept was coined before the movement, tracing back half a century ago, in research about young people who had demonstrated the ability to overcome various challenges (e.g., emotional, developmental, economic) as they grew up (B. D. Robbins & Friedman, 2011).

Multiple operational definitions of resilience have been proposed (Herrman *et al*., 2011). A review has analysed the definitions of resilience across multidisciplinary literature and identified the lack of precision and terminological inconsistencies in the meanings of resilience (Windle, 2011). Various conceptualisations of resilience were found between

different disciplines. For instance, the field of developmental psychology commonly refers to resilience as good outcomes (e.g., achievement of developmental milestones) despite of serious threats to development (Masten, Cutuli, Herbers, & Reed, 2009). In contrast, an environmental perspective on resilience considers the ability of groups or communities to cope with external stresses and disturbances as a result of social, political and environmental change (Fourie & Follér, 2012; Gooch, Butler, Cullen-Unsworth, Rigano, & Manning, 2012). The fields of biology and psychiatry, on the other hand, view resilience as a dynamic process that is influenced by neural and psychological self-organisations, leading to the avoidance of psychopathology, despite environmental or genetic risks (Carli *et al*., 2011). Definitional inconsistencies have been similarly highlighted by other literature reviews (Mandleco & Peery, 2000; Tusaie & Dyer, 2004).

Regardless of the inconsistencies in defining resilience, one way of conceptualising resilience is that it represents the dynamic process which mediates the cognitive, emotional and behavioural response towards stress and adversity, and reduces the negative impact of stress and adversity on achievement (Harvey & Delfabbro, 2004; Southwick, Litz, Charney, & Friedman, 2011; Windle, 2011). This conceptualisation, which is commonly referred to as the 'process-oriented' approach, suggests that the acquisition of resilience is not a linear learning process, but involves frequent disruptions and reintegration (Grafton, Gillespie, & Henderson, 2010; Herrman *et al*., 2011; Toland & Carrigan, 2011). Resilience can be learned and developed, and therefore is potentially achievable by all human beings (Grafton *et al*., 2010).

1.5.3.1 Resiliency Model

The Resiliency Model represents one of the process-oriented models that outlines the dynamic process in which one acquires the intrapersonal qualities that lead to adaptive

responses towards stress and adversity (also known as 'resiliency'[1]) (G. E. Richardson, 2002). The Resiliency Model suggests that the biopsychospiritual homeostasis within individuals, which refers to a state of well-being, can be interrupted by adversity (G. E. Richardson, 2002). The disruption of this comfortable balance can be an opportunity for personal growth as well as destruction (G. E. Richardson, 2002). According to the Resiliency Model, following the disruption of homeostasis, there is a reintegration/ recovery process, which can lead to one of four outcomes: (1) resilient recovery, which results in growth, self-understanding and increased resilience; (2) recovery back to homeostasis, which indicates an effort just enough to get past the disruption; (3) recovery with loss, which leads to a lower level of homeostasis; and (4) dysfunctional reintegration in which maladaptive strategies, such as self-destructive behaviours, are used to cope with adversity (Connor & Davidson, 2003; G. E. Richardson, 2002). In essence, the Resiliency Model suggests that one's ability to thrive under adversity is based on the engagement in a cyclic process of successful cognitive reintegration following stress or adversity (i.e., resilient recovery). Resilience does not merely result in 'bouncing back' to the original level of biopsychospiritual well-being following stress or adversity, but rather results in strengthened and sustained well-being due to the reduced vulnerability to future adversity (G. E. Richardson, 2002).

1.5.3.2 Operationalising resilience

Resilience can be operationalised as "constitutional variables like temperament and personality, in addition to specific skills, such as active problem solving" (Campbell-Sills, Cohan & Stein, 2006, p.586), which assist an individual to cope successfully with adversity and gain skills to cope with future ones. A number of standardised measurements of resilience have been developed, one of which is the Connor-Davidson Resilience Scale (CD-RISC) (Connor & Davidson, 2003). Guided by the Resiliency Model, CD-RISC aims to

[1] In this thesis, 'resilience' and 'resiliency' will be used interchangeably.

assess an individual's ability to achieve positive outcomes under adversity, and therefore their likelihood of experiencing resilient recovery (Connor & Davidson, 2003; G. E. Richardson, 2002). The development of the scale was guided by existing literature concerning a wide range of characteristics of individuals who coped well under adversity, such as hardiness, action orientation, positive coping with change, faith and spirituality (Connor & Davidson, 2003). A factor analysis showed a five-factor structure of CD-RISC, which includes: (1) personal competence, high standards and tenacity; (2) trust in one's instincts, tolerance of negative emotions, strengthening effects of stress; (3) positive acceptance of change, and secure relationships; (4) self-control; and (5) spirituality (Connor & Davidson, 2003). Higher scores on CD-RISC have been shown to be associated with lower levels of mental distress (Connor & Davidson, 2003). A common criticism regarding operationalising resilience as a trait-like construct is that it implies that resilience is a stable characteristic, and hence suggesting that it is a quality that one either has or does not have (Luthar, Cicchetti, & Becker, 2000). However, growing research evidence shows that resilience is modifiable, even when measured by a trait-resilience measure (i.e., CD-RISC), as it can be significantly increased following interventions designed to promote its growth (Gerson & Fernandez, 2013; Peng *et al*., 2014).

While the CD-RISC has shown strong psychometric properties, some problems have been identified in relation to the original five-factor structure (Campbell-Sills, Cohan, & Stein, 2006; Campbell-Sills & Stein, 2007; Yu & Zhang, 2007). These problems include inconsistent factor loading across items, items with no salient loadings, and a factor with too few items (Campbell-Sills & Stein, 2007). In order to improve the psychometric properties of the original CD-RISC, a one-factor scale of CD-RISC (i.e., CD-RISC 10) has been developed by eliminating all items with inconsistent and non-salient loadings (Campbell-Sills & Stein, 2007). The CD-RISC 10 has demonstrated higher stability of factor structure and

reliability in an American student sample when compared to the original CD-RISC (Hartley, 2010).

1.5.3.3 Resilience, psychological and academic outcomes in university students

Research has so far demonstrated a correlation between resilience and psychological distress or academic outcomes in tertiary students, using CD-RISC and its variant (Bitsika, Sharpley, & Peters, 2010; Hartley, 2012; Peng *et al*., 2012). To date, three studies which examined resilience and psychological distress in tertiary students have consistently found negative correlations between the two variables (Bitsika *et al*., 2010; Hartley, 2012; Peng *et al*., 2012). On the other hand, some discrepancies have been identified in research findings regarding resilience and academic achievement as measured by GPA. Most of the existing literature supports the positive association between resilience and GPA (Allan, McKenna, & Dominey, 2013; Hartley, 2011, 2013). However, a more recent study including 116 undergraduates showed that resilience does not have a significant direct association with GPA (M. L. Johnson & Nussbaum, 2012). There is, therefore a need to clarify the relationship between resilience, academic achievement and mental health outcomes. In particular, given past studies have not controlled for the effect of known predictors of achievement (e.g., motivation, past achievement and socio-economic status), a study which incorporates these factors may provide new insights on the topic.

1.6 **Summary**

With the expansion of higher education in many developed countries, including Australia, students with sociodemographic characteristics that are traditionally underrepresented in higher education are increasingly the norm. Higher education institutions assume an important role in supporting not only academic achievement, but also the mental health of the increasingly diverse population of university students. It has been

widely recognised that research on academic and psychological outcomes of non-traditional students will be beneficial and is ethically essential in the era of continued massification of higher education. However, it is argued that a shift from the traditional focus on psychological distress encountered by non-traditional students, to positive emotions and psychosocial functioning, may contribute to a more holistic understanding of their mental health. Furthermore, while previous literature has been devoted to identifying challenges faced by non-traditional students, an improved knowledge about their strengths may lead to more balanced understanding about their university experience. In view of these considerations, the next chapter will discuss the aim and rationale for this thesis.

Chapter 2: Aims of thesis

This thesis aims to improve the understanding of resilience, complete mental health and academic achievement, among traditional and non-traditional university students. The four gaps identified in the literature and the practical issues that shaped the form and content of the four papers are discussed below.

2.1 Gaps identified in the literature

2.1.1 Inconsistent definition of 'non-traditional'

The inconsistent definition of 'non-traditional' students represents an overarching limitation within the literature. When operationalised as a dichotomous concept, as was the case in most studies summarised in Section 1.4, decisions need to be made regarding which and how many criteria, and if applicable, which cut-off points to choose, in order to label an individual 'non-traditional' (Rubin *et al*., 2014). Such decisions can be difficult and controversial to make. For example, K. A. Kim *et al*. (2010) critiqued the frequent adoption of age as the sole criterion of being 'non-traditional' within the literature and argued the point to include more student characteristics in defining non-traditional students. However, the inevitable problem when attempting to include more defining criteria of 'non-traditional' students is that some students may present both criteria commonly classed as 'traditional' and 'non-traditional' (e.g., an older student who does not work or who is not a parent) (K. A. Kim *et al*., 2010). As demonstrated in Section 1.4.4, controversies pertaining to the definition of 'non-traditional' students can render research findings incomparable among studies. A systematic review of definitions of 'non-traditional student' in the literature is therefore

needed to clarify existing criteria and methods being employed, in an attempt to inform the development of more nuanced and consistent approaches in operationalising this term.

2.1.2 A lack of research regarding a more holistic concept of mental health

As explained in Section 1.4.3, the relationship between non-traditional demographic factors and psychological distress is inconclusive. Furthermore, some studies have shown that some non-traditional students experience an increase of self-esteem and sense of accomplishment as a result of university education, despite the challenges encountered (Chang, 2007; Home, 1997). This indicates that access to university can be an opportunity to experience success and an overall sense of well-being for non-traditional students (Chang, 2007). However, whilst the bulk of the literature concerning non-traditional students' mental health has focused on the experience of psychological distress (e.g., Bayram & Bilgel, 2008; Eisenberg & Chung, 2012), only a minority of researchers has included measures of well-being, and such measures are generally limited to emotional well-being, such as life satisfaction (e.g., Jenkins *et al*., 2013). On the whole, there is a need for research that explores a more holistic concept of mental health, which simultaneously addresses emotional and functional well-being, in addition to psychological distress.

2.1.3 A lack of research regarding strengths of 'non-traditional' students

The focus of research exploring factors that may impact on non-traditional students has typically been on challenges or deficits which may hinder optimal university academic performance and psychological adjustment (Brewer, 2010; Curtis, 2014). While research focusing on challenges encountered by non-traditional students has informed strategies to identify and assist students who are struggling, a deficit focus in research often overlooks

students' strengths and ability to adapt (Shushok and Hulme, 2006; Smit, 2012). Compared to challenges faced by non-traditional students, potential strengths/ skills that students bring with them, which facilitate achievement in this cohort, are less well-known. Research on strengths (e.g., motivation) has focused on mature-aged students, whereas students from other non-traditional backgrounds are rarely included. It is possible that non-traditional students who participate in higher education, despite challenges towards access and academic outcomes, are a particularly resilient group. This hypothesis has been speculated by some researchers (e.g., Eppler & Harju, 1997), but has not been empirically tested. There is, therefore, a need for research to explore resilience among different groups of non-traditional students.

2.1.4 A need for research on how resilience and complete mental health predict first year academic achievement

Although previous research has demonstrated the importance of complete mental health towards a range of academic and psychosocial outcomes in university student populations (e.g., Keyes *et al*., 2012; Low, 2011), there is a lack of study which directly examines its relationship with academic achievement. Furthermore, the relationship between resilience and academic performance, as operationalised by GPA, has been inconclusive and therefore requires further exploration. In particular, previous studies have not explored whether resilience and complete mental health predict academic achievement, after controlling for known predictors of achievement, such as motivation and past academic achievement (Bitsika *et al*., 2010; Hartley, 2012; Peng *et al*., 2012). Moreover, given the increasing diversity of university students, it is important to explore potential differences in the way resilience and complete mental health influence academic achievement among various student groups (e.g., non-traditional versus traditional).

2.2 **Practical issues**

2.2.1 Why a shift of focus from distress to well-being is needed for mental health promotion in universities

Frontline mental health support for university students is traditionally delivered in the form of personal counselling (Bishop, 2010; Lee, Michelson, Elizabeth, Odes, & Locke, 2009). Students typically come to access professional counselling services through self-presenting or referral by university staff, after being sufficiently impaired (Leahy, 2010). Although it is recognised that a competence-enhancement therapy framework can be adopted within counselling sessions (e.g., Acceptance and Commitment Therapy), it can be argued that the very approach of providing counselling or treatment after students have already developed problems can be classified as the risk-reduction model of mental health promotion (A. Andrews *et al*., 2011).

The literature has suggested a number of challenges encountered by university counselling services (Hartley, 2012). For instance, it has been reported that in North America, it is not uncommon for counsellors to be asked to support larger number of students with fewer resources, which may limit the capacity to provide one-on-one counselling (Hartley, 2012). A limitation of resources similarly affects Australian counselling services, with the most recent figures available indicating a significantly higher student to counsellor ratio (4,957 to 1) compared to the international guidelines (1,000 – 1,500 to 1) (Boyd *et al*., 2003; Stallman, 2012). Furthermore, it has been consistently shown that students rarely seek professional help when encountering a mental health crisis (Eisenberg, Hunt, Speer, & Zivin, 2011; Stallman & Shochet, 2009). Therefore, the approach of targeting 'at-risk' populations could mean some students miss out on the opportunity to receive help. In addition, the impossibility of eliminating all stressors in the university setting (e.g., financial burden, academic stress, drug and alcohol use) (Hartley, 2010), and increasing diversity in mental

health needs within student cohorts (A. Andrews *et al*., 2011), have further amplified the complexity in providing high quality mental health services.

Campus counselling services make valuable contributions in assisting students to meet the demands of study and life in general (Bishop, 2010). For instance, although it is reported that as with individuals in the general community, students are more likely to consult general practitioners for psychological distress, counselling services have several advantages over community services, including low cost, convenience of access, and expert knowledge regarding student issues (Stallman, 2012; Wynaden, Wichmann, & Murray, 2013). Counselling services have been shown to significantly increase the likelihood students stay enrolled (Lee *et al*., 2009; A. L. Turner & Berry, 2000). Consequently, counselling services will continue to play an important role in mental health promotion within universities. However, it is imperative that a risk-reduction approach to mental health promotion is supplemented with strategies to build competence to enhance overall well-being and prevent mental health problems from happening at the first place.

A competency-enhancement mental health promotion approach has a number of merits which are relevant to the current higher education context. For instance, competency-based mental health promotion methods appear to be relatively less affected by issues regarding cost-effectiveness, stigma associated with help-seeking and low help-seeking behaviour among students, and the ubiquitous nature of stressors normally associated with campus-life (Stallman, 2011). Furthermore, a universal target group may also mean that more students can benefit, as both distressed and non-distressed students can acquire skills to cultivate more positive emotions and higher psychosocial functioning. There is, therefore, a need to identify protective factors which may facilitate optimal mental health outcomes in diverse students, in order to inform development of mental health promotion strategies in the current higher education environment.

2.2.2 Why a focus on resilience is important for understanding non-traditional students' achievement

In the era of widening participation where students are increasingly diverse in their demographic background, academic preparation and expectations, it may be particularly important to understand the role of strengths which may facilitate optimal mental health and learning outcomes. Negative stereotypes associated with being non-traditional can have an adverse impact on students' self-efficacy and sense of belonging on campus (Keith, Byerly, Floerchinger, Pence, & Thornberg, 2006), which in turn influence their aspiration in participating in higher education (Snowden & Lewis, 2015) and subsequent academic outcomes (Vuong *et al*., 2010). Interestingly, inconsistencies have been identified between common assumptions about non-traditional students (i.e., they do not fare worse in university compared to traditional students) and their actual experience, as many students overcome less adequate educational backgrounds to achieve. There is, therefore, a need to foster a more multifaceted and balanced understanding towards their campus experience, and academic and mental health needs.

An exegesis is now presented prior to the four papers. The exegesis aims to provideadditional background and contextualising information related to the studies discussed in the papers. It also provides a rationale for why decisions were made in addition to information already presented in the journal papers.

Chapter 3: Exegesis

Preamble

Four studies were conducted in order to address the gaps in the literature presented in the previous chapter. This chapter will begin by outlining the aims of, and connections between each study conducted. The remainder of the chapter provides justifications regarding the methods of enquiry adopted in the research program, which were not included in individual journal papers.

3.1 Outline of research

The objective of Study One was to systematically review how the term 'non-traditional student' is defined within mental health studies conducted in a higher education setting, given the evidence from the literature suggests that there is no well-agreed definition for 'non-traditional student'. The purpose of this study within the specific context of the thesis was to inform the development of a working definition of 'non-traditional students' for the research program. Studies Two, Three and Four were part of a prospective cohort study which involved a 'baseline' and a 'follow-up' stage (more information about the prospective cohort design is presented in Section 3.3.1). The findings from the baseline data were presented in Study Two and Study Three. The aim of Study Two was to explore the prevalence and predictors of Complete Mental Health among a university student sample, and determine whether these observations vary by traditional and non-traditional student status. The main aim of Study Three, was to compare levels of resilience between traditional and non-traditional students. A secondary aim of this study was to explore whether the use of inconsistent working definitions of 'non-traditional' students in research would result in

different findings. Finally, Study Four reported the findings of the prospective cohort study (i.e., using baseline measures to predict outcome measures at follow-up). Specifically, it aimed to explore if Complete Mental Health and resilience predict first year academic achievement (i.e., GPA), after controlling for factors which are known to be predictors of achievement (e.g., motivation, past academic achievement, social support and institutional support). Figure 3.1 represents an outline of the research conducted in the thesis.

3.2 **Study One – systematic review**

A systematic review method was chosen for Study One. This method is characterised by the use of a replicable method to locate, assemble and evaluate the literature and thus lead to more reliable findings compared to non-systematic reviews (Hemingway & Brereton, 2009). The use of a standardised review protocol is crucial for the systematic review method, however, given it is uncommon for concepts to be systematically reviewed, no published protocol for this purpose existed. The review protocols for qualitative and narrative materials published by the Joanna Briggs Institute were adapted for use in Study One because they are a peer-reviewed and widely-used tool for systematic reviews in the applied health area (The steps involved in adapting the review protocol will be described in Chapter Four) (Joanna Briggs Institute, 2011). Furthermore, only articles which adopted any quantitative or qualitative outcome measures broadly related to the topic of pedagogy and mental health were included in Study One. This was to enable the inclusion of studies with a similar topic of interest to the present research program, ensuring that a working definition of the term 'non-traditional student' could be derived for the purpose of the thesis.

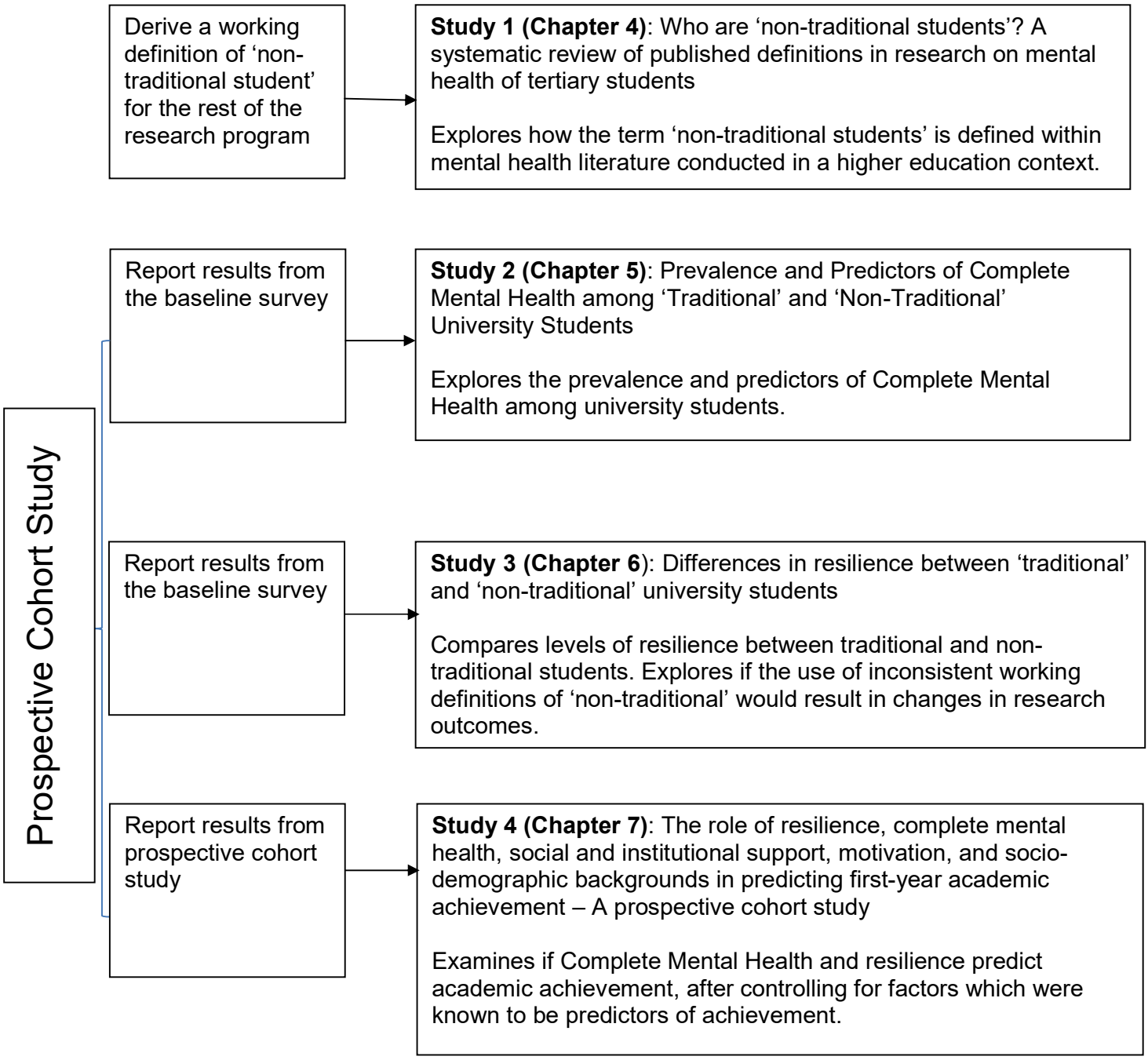

Figure 3.1. Outline of the research conducted in this thesis.

3.3 **Study Two, Three and Four – prospective cohort study**

The other three papers presented in this thesis aimed to provide information on the mental health, resilience and academic achievement of 'traditional' and 'non-traditional' university students. Study Two set out to explore the prevalence and predictors of Complete Mental Health among a sample of first-year university students. In particular, whether resilience predicts Complete Mental Health after taking into account campus-based social support and institutional support, and whether the prevalence and predictors of Complete Mental Health vary by traditional and non-traditional student status[2]. The purpose of Study Three was to compare levels of resilience between traditional and non-traditional students. Furthermore, to explore whether the use of inconsistent working definitions of 'non-traditional' students in research would result in different findings. Study Four examined if Complete Mental Health and resilience predict academic achievement (i.e., GPA), after controlling for factors which are known to predict achievement (e.g., motivation, past academic achievement, social support and institutional support). The secondary purpose was to explore if resilience and complete mental health have an interaction effect with demographic factors, campus-based social support and institutional support, on first-year GPA.

The Resilience and Mental Health Survey (hereafter referred to as RMHS) was undertaken in early 2012 in order to obtain the data for these studies. For Study Four, information collected from the internal database of the Faculty of Health Sciences at the University of Adelaide was also utilised. The RMHS was a web-based questionnaire which collected information about resilience, psychological distress, subjective well-being, motivation, campus-based social support, institutional support, past academic achievement

[2] 'Non-traditional' status is operationalised based on findings of Study One. A detailed discussion will be provided in the preamble of Chapter Five (Study Two).

and demographic backgrounds from students who were enrolled in first year psychology courses at the University of Adelaide in 2012. A discussion on the research design, survey design, content of survey, and sampling frame, is now presented.

3.3.1 Setting

The RMHS was undertaken at the University of Adelaide, which is a publicly-funded university located in South Australia. This university belongs to the Group of Eight - one of the five major coalitions within the Australian university sector (Koshy, 2014). Group of Eight incorporates Australia's oldest research-intensive universities (all founded before 1960), which rank higher on national and international ranking lists (Group of Eight Australia, 2015; Luzeckyj *et al*., 2011). A comparison of characteristics between commencing students at the University of Adelaide and other Australian universities will be provided in Section 3.3.3.2.

3.3.2 Prospective cohort design

Prospective cohort study design represents a form of observational study, in which investigators obtain their data through observation with no intervention carried out (Mann, 2003). In a prospective cohort study, a group of individuals who do not have the outcome of interest initially are identified, and the predictor variables are measured at baseline. These individuals are then followed over a period of time in order to assess their eventual outcomes (Meirik, 2008).

Compared to other types of observational studies (i.e., case-control and cross-sectional studies), the prospective cohort design has the highest reliability in inferring causation, and it is therefore ideal for the purpose of Study Four (i.e., establishing predictors

of an outcome). However, the level of evidence produced from a prospective cohort study is generally considered as less conclusive than those from experimental studies (e.g., randomised control trials) because of the lower control over confounding factors (Mann, 2003). Confounding factors refer to variables that are independently associated with both the predictor and outcome variables of interest. If not controlled for in a study, confounding factors can contribute to false conclusions about cause and effect (Meirik, 2008).

While the baseline study represents a part of the broader prospective cohort study, it can also be viewed as a stand-alone cross-sectional study. A cross-sectional design is predominantly used to determine prevalence of an observation and thus was appropriate for the purpose of Study Two and Three. However, a potential limitation is that cross-sectional studies only identify association but not causation between variables (Mann, 2003).

3.3.3 On-line survey

Online surveys have a number of advantages over traditional paper-and-pencil surveys, including fast application, interactivity, cost-effectiveness (Sax, Gilmartin, & Bryant, 2003); higher degree of self-disclosure particularly for sensitive topics (Booth-Kewley, Larson, & Miyoshi, 2007; Wells, Cavanaugh, Bouffard, & Nobles, 2012); capacity for complex logic and branching, real-time error checking and automated data-entry (Couper, 2001; Solomon, 2001). In addition to these benefits, university students have convenient access to the Internet and are technologically savvy, making them a group particularly suited for this mode of data collection (Wells *et al*., 2012).

One of the primary concerns with an online survey is non-response error, which can undermine the quality of the information collected (Couper, 2001). Consequently, strategies outlined in the Tailored Designed Method (i.e., a scientific approach to conducting surveys

that aims to reduce survey error) were adopted (Dillman, Smyth, & Christian, 2009). Non-response error stems from not getting all individuals included in the sampling frame to respond to the survey request, and that respondents differ from non-respondents in a way (e.g., attitudes, beliefs, behaviours and characteristics) which may skew research findings (Dillman *et al*., 2009). Dillman *et al*. (2009) proposed that a strategy to maximise the response rate is to increase perceived reward of responding to the survey. In addition to social rewards (e.g., appreciation from the researcher, a sense that participation would assist others, survey topic being of personal interest), tangible rewards such as financial incentives, lucky draw, and gift vouchers have been shown to significantly increase the likelihood for participation and completion of online surveys (Dillman *et al*., 2009; Göritz, 2006). As very limited funding was available to support this research, a way to promote participation while limiting cost was essential. While the intended participants of the research were first-year students, students who are enrolled in first-year psychology subjects were selected as the sampling frame. This was because the School of Psychology offered additional course credit for students who participated in research projects conducted within the School as part of an initiative to encourage new students to learn about psychological research (School of Psychology, 2015). More justifications for the use of the first-year psychology students as participants will be provided in Section 3.3.3.2.

Another way to increase response rates is to reduce perceived costs of responding (Dillman *et al*., 2009). Some strategies adopted to address this point included making the questionnaire as short and easy to complete as possible, minimising requests for personal or sensitive information, and ensuring confidentiality and security of information (Dillman *et al*., 2009). In addition to relevance to the research topic and psychometric properties, all standardised questionnaire items were chosen based on their brevity, in order to reduce time burden on participants (more detailed information regarding questionnaire items will be

provided in Section 3.3.2.1). Participants were able to skip over certain questions which may be considered sensitive (e.g., parental income, significant adverse events that occurred in the past two years). Furthermore, participants were assured that confidentiality would be preserved in the study and that the information they provided would be kept securely and would not affect their grades. They were advised that should they wish to withdraw from the study, they could do so at anytime without their rights being violated.

3.3.3.1 Content

The on-line survey consisted of 66 questions pertaining to nine domains of interest: psychological distress, subjective well-being, resilience, motivation, social support, institutional support, significant life events, previous academic achievement and demographic questions. To reduce errors in respondents' answers due to poor question wording or survey design, all survey materials (including an information sheet and the questionnaire) were pilot-tested with 20 psychology postgraduate students, a student service provider, and two experienced researchers from the disciplines of Education and Psychology respectively. Questions which were deemed problematic, and were not part of a standardised measurement, were modified. A copy of the questionnaire, consent form, invitation email, and information sheet can be found in Appendix 1-4.

3.3.3.1.1 Outcome measures

The sub-sections below will provide the rationale for the selection of measures included in the survey. To avoid repetition, more detailed information about psychometric properties of each instrument will be presented in individual papers (i.e., Study One to Four).

3.3.3.1.1.1 Psychological distress (K-10)

The present study adopted a dimensional measure of nonspecific psychological distress (Kessler *et al*., 2002). The Kessler Psychological Distress Scale (K-10) has been chosen for this study over other instruments because it has been frequently applied in mental health research conducted among Australian university students (Beyond Blue, 2013; Leahy *et al*., 2010; Stallman & Shochet, 2009; Stallman, 2010), and thus comparison with a population norm was possible. Other reasons for choosing K-10 included brevity, its capacity for being completed online, and its ability for capturing distress stemming from a broad array of problems beyond mood or anxiety disorders.

Various methods in interpreting K-10 scores have been used (Australian Bureau of Statistics, 2012). According to the method adopted by the Victorian Population Health Survey (Department of Human Services, 2002) and the National Mental Health Survey of Doctors and Medical Students (Beyond Blue, 2013), a score of 25 or above is considered high and represents an elevated likelihood for moderate severity mental disorder and is therefore used as a cut-off between High and Low distress in this study.

3.3.3.1.1.2 Subjective well-being (MHC-SF)

As discussed in Section 1.5.2.2, the MHC-SF was adopted in this research as unlike most of the measures of subjective well-being, it simultaneously assesses all three dimensions of well-being (i.e., emotional, social and psychological). It has demonstrated excellent psychometric properties in studies of university students (Keyes *et al*., 2012; Low, 2011). While it has not been validated using an Australian sample, a number of cross-national studies found that the MHC-SF functions similarly across cultures including the Netherlands, Iran and South Africa (Joshanloo, Wissing, Khumalo, & Lamers, 2013; S. M. Lamers *et al*.,

2011; S. M. A. Lamers *et al*., 2012). These findings appeared to support the use of the MHC-SF in the present research program.

3.3.3.1.1.3 Grade Point Average (GPA)

Academic achievement can be operationalised in various ways (e.g., learners' satisfaction, cognitive learning outcomes such as problem-solving skills, affective learning outcomes such as development of self-concept, and intention to drop-out) (Duque, 2013). GPA was chosen in the research program as it is a commonly used indicator of achievement in research as well as a major predictor of attrition (Allen *et al*., 2008; Friedman & Mandel, 2011).

3.3.3.1.2 Predictor variables

3.3.3.1.2.1 Resilience (CD-RISC 10)

CD-RISC represents one of the most commonly used and validated resilience measures among university student populations (e.g., Galli & Gonzalez, 2014; Hartley, 2013; Marcus L. Johnson, Taasoobshirazi, Kestler, & Cordova, 2015). CD-RISC 10 was adopted instead of the full CD-RISC as it has excellent psychometric properties and contains substantially less questions compared to the full CD-RISC (i.e., 10 questions versus 25 questions).

3.3.3.1.2.2 Demographic factors

The demographic questions were informed by the categories of 'non-traditional' resulting from Study One, as well as demographics appropriate to the Australian context (i.e.,

Indigenous, rural and remote background). To avoid repetition, more discussion on decisions made regarding demographic questions will be provided in the afterword to Chapter Four (Study One).

3.3.3.1.3 Confounding variables

As discussed in section 3.3.1, the inclusion of confounding variables which may be associated with both predictor and outcome variables of interest in a prospective cohort study can improve the validity of the research findings. Therefore, survey items relating to a number of confounding variables were included for the purpose of Study Two (i.e., social support, institutional support, and significant life events) and Study Four (i.e., social support, institutional support, significant life events, motivation, and previous academic achievement), as previous research shows correlations between these variables and outcome variables of interest (i.e., mental health and academic achievement).

3.3.3.1.3.1 Social support and institutional support (SEQ)

Strong social networks have been found to be a significant predictor of positive mental health outcomes in research conducted among individuals of all ages (Siedlecki, Salthouse, Oishi, & Jeswani, 2013), and specifically among university students (Brannan, Biswas-Diener, Mohr, Mortazavi, & Stein, 2013; Gülaçti, 2010; Wilks & Spivey, 2010). In addition, social support has shown to have a small positive effect on tertiary academic outcomes in a meta-analysis (M. Richardson *et al*., 2012).

While many studies of social support involving university students have focused on support provided by friends and family (e.g., Brannan *et al*., 2013; Gülaçti, 2010; Wilks & Spivey, 2010), this research selected a measure of social support experienced specifically

within the campus (i.e., peers, teachers, administrators and the broader institution). This is because information pertaining to the relationship between this form of social support and student outcomes may have more direct impact towards the development of institution-wide strategies in promoting mental health and achievement among students. The subscale 'Supportive Learning Environment' of the Student Engagement Questionnaire (ACER, 2010; SEQ) was utilised in this research. The SEQ is largely similar to the North American Survey of Student Engagement (NSSE), and is adapted and validated for Australia and New Zealand by the Australian Council for Educational Research (ACER, 2010; Coates, 2010).

3.3.3.1.3.2 Motivation (nAch)

Achievement motivation, which refers to "one's motivation to achieve success; enjoyment of surmounting obstacles and completing task undertaken; the drive to strive for success and excellence", is a major non-cognitive predictor of achievement (S. B. Robbins *et al*., 2004, p. 267). A number of measures of motivation exists (e.g., Achievement Scale (Paunonen & Ashton, 2001), Achievement Needs Scale (Pascarella & Chapman, 1983), Needs for Achievement (nAch) (Heckert *et al*., 2000)). However, nAch was chosen because of its brevity (5 questions), and good psychometric property (psychometric details will be provided in Chapter 7).

3.3.3.1.3.3 Significant life events

Significant life events, such as divorce of parents, relationship breakdown, or losing a loved one, can negatively influence students' well-being and academic outcome (Huurre, Junkkari, & Aro, 2006; Peng *et al*., 2012). Significant life events are commonly measured by checklists detailing the types of events which can cause adverse impact on a person's life

(e.g., the Social Readjustment Rating Scale (Holmes & Rahe, 1967), the Hassles scale (Kanner, Coyne, Schaefer, & Lazarus, 1981), Life Events and Stress Scale (Anderson, 1972)). These checklists often contain a large number of events. For example, the Life Events and Stress Scale which focused on common stressors faced by university students, contains 45 items (Anderson, 1972). Given the purpose of assessing significant life events for this research program was to identify whether the presence of an adverse event would confound the relationship between resilience, mental health and academic outcome, detailed information to do with the nature of the event was not required. A single closed-question item was thus included: "Have you experienced any events during the last two years that have impacted negatively on your life and studies?", followed by an optional item to provide additional information about the event.

3.3.3.1.3.4 Previous academic achievement (ATAR)

Past academic achievement is a key cognitive predictor of achievement (M. Richardson *et al*., 2012). In Australia, the Australian Tertiary Admission Rank (ATAR, formerly known as the Tertiary Entrance Rank) is a measure reflecting how well a student performed in the final year of high school (i.e., Year 12), relative to all other students in a particular year (South Australian Tertiary Admissions Centre, 2012). Each student who has completed Year 12 is assigned an ATAR on a percentile scale between 0 and 99.95 with intervals of 0.05, based on the student's exam results (South Australian Tertiary Admissions Centre, 2012). ATAR represents the official measure of academic merit within the secondary school and higher education sector and was therefore adopted in the present studies.

3.3.3.2 Sample

A sample of first-year Psychology students of the University of Adelaide in the 2013 academic year, who were over the age of 16, was included in this research. One of the factors in support of the use of a first-year psychology student sample was described in Section 3.3.1. Another reason was that a sufficient sample size would be achievable using this sample alone. An a priori power calculation showed that 352 participants were sufficient to detect a medium effect (r=.3) if any resilience by distress interaction occurred. Based on the data of 2012, the number of first-year students was 523. It was expected the number of new students in 2013 would be comparable to that of 2012. Therefore, a response rate of 67.3% was needed to ensure sufficient power for the research project - a realistic figure based on past experience of research projects conducted within the School.

Originally no age range was targeted, however, the University of Adelaide Human Research Ethics Committee stipulated that students under the age of 17 would be required to provide parental consent, and thus this group was excluded from the study. Information from the School indicated that the youngest student in the 2013 cohort was 15 years of age and that there were three students under the age of 17 within the target population. Given the inclusion of younger students would necessitate adjustments to the consenting method (e.g., parental consent forms need to be completed as hard copy whereas student consent forms are electronically-based), which may have unduly complicated the data collection process, a decision was therefore made to limit the age range of participants to 17 years of age or above. Students under 17 years of age who expressed an interest to participate in the study were directed to the first-year course coordinator to help identify other research projects within the School for which they would be eligible.

Offering extra course credit for research participation among first year psychology students has been a common practice in psychological research, as it has been shown

empirically to result in a significant increase in research response rates and support students' learning (de Liaño, León, & Pascual-Ezama, 2012; Sharp, Pelletier, & Lévesque, 2006). However, this approach has also attracted considerable controversies. In particular, writers have suggested that offering extra credit for research participation may not provide a representative sample of university students for researchers (Padilla-Walker, Thompson, Zamboanga, & Schmersal, 2005; Sharp *et al.*, 2006). For instance, Padilla-Walker *et al.* (2005) found that students who participated in an extra-credit research project (response rate=38%) performed significantly better academically compared to students who did not participate, suggesting systematic differences in characteristics of respondents and non-respondents. However, the high response rate (i.e., 76.47%) in Study Two, and the non-significant difference between participants and non-participants in Study Four in terms of previous academic achievement suggest that this bias may be minimal in the present research (please refer to Chapter Seven for more detailed discussion).

Another limitation relating to the use of first year psychology students as the research sample is that, it may not be representative of the University of Adelaide student population, or of university students more broadly. However, as psychology subjects are popular electives among first-year students from all disciplines, it was anticipated that the sample mightbe sufficiently similar to all incoming students within the University of Adelaide, to allow generalisation of findings within this particular institutional context (i.e., a Group of Eight institution). An analysis of the demographic features of the present sample showed that participants come from 13 different degree programs in addition to Bachelor of Psychology (51.1%, n=226), including Health Science (22.6%, n=100), Science (20.1%, n=89), Arts (17.4%, n=77), and Business/ Commerce (9.3%, n=41). About 35.5% of students (n=157) participated in more than one program. For a comparison of gender and age profiles between the current sample and the university population, please refer to Chapter Five.

Systematic differences between characteristics of students who are admitted to Group of Eight institutions and those who are admitted to non-Group of Eight institutions have be found. Group of Eight universities often have higher cut-off entry points (Australian Universities, 2014), have higher degree-completion rates (Department of Education and Training, 2015d), and have lower levels of participation from underrepresented groups (Koshy, 2014). Based on the 2012 data, the participation of low SES students in Group of Eight universities was the lowest among all university alliances (10% - which is 7.3% lower than national average) (Koshy, 2014). Similar findings were observed for participation rates of other groups of underrepresented students (e.g., students with a disability and Indigenous students) (Koshy, 2014). As a result, whilst the present sample may resemble a population of students from Group of Eight universities, it may not reflect the characteristics of first year university students more broadly in Australia. Nevertheless, it may be possible to infer that the characteristics of the present sample may be similar to international universities which share similar institutional characteristics to the University of Adelaide (i.e., long-established, publicly-funded, elite research-intensive university, in a developed country).

3.3.3.2.1 Systemic data collection

Information regarding academic outcomes (e.g., GPA, enrolment status, and reasons of non-enrolment) and previous academic achievement was collected through the university database. The university database was utilised instead of students' self-report information in order to minimise potential sources of reporting bias. For instance, students may forget or misreport their grades. There is also a risk for students to report their respective data in a socially desirable way. As the Faculty's database is not open for direct access by researchers due to obvious security reasons, an officer at the Faculty of Health Sciences was contacted by the researcher. The researcher provided the officer with evidence of ethics clearance, consent

from individual students, information about data required, and an electronic data collection form (developed using the Microsoft Excel program). The officer completed the data collection form based on the instructions provided, using information from the Faculty's internal database.

This exegesis has provided information about how the four studies conducted as part of this thesis are connected and has provided justifications regarding the use of the particular research design, sampling frame, and survey instrument. Against the backdrop of this discussion, the four studies are now presented.

Chapter 4: Study One

Statement of authorship

Title of Paper	Who are 'non-traditional students'? A systematic review of published definitions in research on mental health of tertiary students
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By signing the Statement of Authorship, each author certifies that:

i. the candidate's stated contribution to the publication is accurate (as detailed above);

ii. permission is granted for the candidate in include the publication in the thesis; and

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Abstract

The term ‘non-traditional students’ is commonly used in higher education research and yet its definition has been unclear. This study systematically reviewed 45 definitions of ‘non-traditional student’ in mental health research conducted within the higher education context using a standardised data extraction and appraisal tool. Findings suggested a wide range of variations in how this term was defined. Thirteen different categories of meaning have been used, including age, multiple roles, mode of study, gap in studies, commuter status, being demographically ‘different’ from the norm, sex, admission pathway, enrolment in ‘non-traditional’ programs, being ‘disadvantaged’, disability and trauma, ethnicity, and having a previous degree. Different combinations of categories were mentioned in the reviewed definitions and wide variations existed within each category of meaning. The term ‘non-traditional student’ does not currently represent a functional category in communicating a distinct concept. Future research should improve the clarity and consistency in which it is defined.

Keywords: definition; non-traditional student; systematic review; tertiary education

For many years students have typically entered university directly from secondary school, studying on campus, full-time, and from high socioeconomic backgrounds (Bradley *et al*., 2008; Choy, 2002). However, in the past two decades, the higher education sector in many industrialised countries has gone through significant transformation from elite to mass access, characterised by a marked increase in student numbers and diversity (Devlin, 2010). Students who do not conform to the traditional privileged image of university students are increasingly the norm (Altbach *et al*., 2009; Bradley *et al*., 2008; Higher Education Funding Council for England, 2013). In Australia, about 17% of domestic university students commencing in 2012 were from a low socioeconomic background, representing a 9.1% increase from 2011 (Department of Industry and Science, 2012).

The term 'non-traditional students' is commonly used in education research and policy-making to refer to those with socio-demographic characteristics that differ from traditional participants in higher education. In an era of increasing student diversity, such terminology may promote an awareness for researchers to explore issues particularly relevant to the growing number of students who arrive on campus via widening participation initiatives, leading to evidence-based policies and practices which support their well-being and achievement (K. A. Kim *et al*., 2010). Research proposes that 'non-traditional students' are likely to face unique concerns which impact on their educational and mental health needs (Adebayo, 2006). For instance, students who have family or work responsibilities may face a higher load of external demands in comparison to 'traditional students' (Gilardi & Guglielmetti, 2011). Strategies to reduce conflict between work and study are therefore paramount for their success (Adebayo, 2006; Adebayo, Sunmola, & Udegbe, 2008). Nevertheless, many have questioned the usefulness of the term 'non-traditional students' in research examining the experience of students from diverse backgrounds (Greenland, 1993; K. A. Kim *et al*., 2010; Smit, 2012). In particular, inconsistent definitions used in research

have led to little agreement regarding who 'non-traditional students' are (Hughes, 1983; M. L. Johnson & Nussbaum, 2012; K. A. Kim *et al*., 2010). This may also risk generalising characteristics of some groups of students to others, due to the use of a single "umbrella term" to refer to diverse groups which may potentially have very different needs (Smit, 2012, p. 370).

Reviewing the range of definitions used in research could lead to a clearer understanding of the term and the way in which it is applied. A previous article reviewed the definition of 'non-traditional students' in the education literature (K. A. Kim, 2002). However, this study was conducted more than a decade ago and focused on community colleges in the United States. K. A. Kim (2002) also did not mention methods used to select studies included in the review and how definitions were extracted and analysed.

The aim of the present study is to systematically review how the term 'non-traditional students' has been defined in mental health research conducted with higher education students. This area of interest was chosen because the mental health of university students has become a growing source of concern in recent years (Dyrbye *et al*., 2010; Storrie, Ahern, & Tuckett, 2010). Studies have shown that university students are more at-risk of mental distress compared to the age-matched general population (Leahy *et al*., 2010; Stallman, 2010), with the prevalence of severe mental distress within this population also on the rise (Benton *et al*., 2003; Collins & Mowbray, 2005; Gallagher, 2011). As the diversification of students' backgrounds increases, the mental health needs of university students are expected to evolve (Byrd & McKinney, 2012). Mental health research which considers student diversity issues is critical in guiding the development of initiatives which promote well-being among all students. A clearer understanding of the meaning of 'non-traditional students' within the mental health literature would therefore assist the translation of research into practice. In addition, the systematic review methodology was adopted because it is an

increasingly recognised approach in clarifying concepts or definitions (Frank *et al*., 2010; Oh, Rizo, Enkin, & Jadad, 2005; Wlodzimirow, Eslami, Abu-Hanna, Nieuwoudt, & Chamuleau, 2012). The use of an explicit and auditable method to locate, assemble and evaluate the body of literature serves to reduce bias in the review process, leading to more reliable findings compared to traditional reviews (Hemingway & Brereton, 2009).

Method

Inclusion criteria

type of studies. We included empirical quantitative and qualitative studies with primary data collection. Only peer-reviewed articles written in English were selected. Studies which were published from 1980 onwards were included to coincide with the emergence of influential research on 'non-traditional students' [e.g. Bean and Metzner (1985) and Metzner and Bean (1987)].

type of participants. The review included studies that dealt with students who were enrolled in any programs in any tertiary institutions (e.g. vocational institutions, universities and colleges). In addition, only studies in which participants were labelled as being 'non-traditional' were included.

type of outcome measures. The review included studies which consisted of any quantitative or qualitative outcome measures broadly related to the topic of pedagogy and mental health/ distress.

Search strategy

An initial scoping exercise was conducted to develop a list of keywords appropriate for database searches. In collaboration with an experienced university librarian, the following keywords were developed: "*Non-traditional student*/ learner*/ undergraduate**", *"Non*

traditional student/ learner*/ undergraduate*" and "Nontraditional student*/ learner*/ undergraduate*".*

Six electronic databases (Scopus, PsycInfo, ERIC, Education Research Complete, AEI, and Sociological Abstracts) were searched using the identified keywords (see Appendix A). From the scoping search, it was clear that there existed numerous variations of the term 'non-traditional students' in the literature [e.g. 'nontraditional male students' (Smith, 2006); 'non-traditional community college students' (Miller, Pope, & Steinmann, 2005)]. To ensure that these variations were sufficiently captured, we utilised the proximity search feature of each database. Using this function enabled the detection of word strings that contained up to three words between the term 'non-traditional/ non traditional/ nontraditional' and 'student*/ learner*/ undergraduate*'.

The primary reviewer (E.C.) screened the title and abstract of the search results. Duplicated citations were removed and citations were then selected based on relevance to the inclusion criteria. Full manuscripts of all selected citations were then retrieved. Articles which did not fulfill the inclusion criteria, based on information provided in the full manuscript, were then removed. The reference lists of all resulting articles were hand-searched to identify relevant articles which were not listed electronically.

In order to ensure reliability of the article selection process, the primary reviewer randomly selected 10% of all potentially eligible articles, and two reviewers (D.T. and A.C.H.) independently screened the title and abstract to assess their relevance to the inclusion criteria. Discrepancies of findings between the primary reviewer and the independent reviewers were discussed in a face-to-face meeting and resolved by consensus.

Review methods

The primary reviewer used a standardised data extraction and critical appraisal tool (referred to as 'the tool' hereafter) to extract information, and to evaluate definitions within all included studies. The tool was developed by adapting the Qualitative Assessment and Review Instrument (QARI) data extraction tool, and Narrative, Opinion and Text Assessment and Review Instrument (NOTARI) critical appraisal tool from the Joanna Briggs Institute (2011), as well as findings from a background literature search.

To ensure the reliability of the tool, the same two independent reviewers applied the tool to a selection of 10 articles (different from the articles used for checking reliability of articles selection), which were randomly selected by the primary reviewer. Discrepancies in findings were discussed in a face-to-face meeting and modifications were proposed. The primary reviewer then made changes based on recommendations. The revised tool was applied to a new selection of 10 articles by the same two independent reviewers. Discrepancies in findings were resolved by consensus among the two reviewers, and further changes to the tool were proposed. These changes were made by the primary reviewer, and the final version of the tool was developed (see Appendix B).

This final tool was divided into two parts. The purpose of the first part was to extract background information about the studies (e.g. study method, country in which the study was conducted), as well as definitions of 'non-traditional students'. The present review differentiated two types of definitions used in the literature, namely, general definitions and working definitions. General definitions referred to broad defining statements in relation to previous research. Working definitions, which were the focus of the present review, were defined as statements made in the background or methods sections for the explicit purpose of the study. To facilitate the identification of categories involved in each working definition (e.g. age, sex, mode of study), a checklist containing common defining criteria of 'non-traditional students' identified in the scoping literature review was also included.

The second part of the tool assessed how well the term 'non-traditional students' was defined in each article based on three criteria as follows: whether a working definition of 'non-traditional students' in reference to the study sample could be clearly identified ; whether the working definition identified was sufficiently clear and unambiguous, to a standard which would enable study replication; and whether the definition was referenced from the extant literature and any incongruence with it logically explained.

Results

We identified 2155 unique records for initial relevancy screening by title and abstract. In total, 49 sources satisfied all inclusion criteria and form the basis of the systematic review (see Figure 1). Of these records, all were published in journal article format except one being a book chapter. Most of the articles (*N*=28, 57.1%) were published from 2000 onwards, of these, 10 were published in the past 5 years. The majority of the 49 relevant records originated from the United States (*N*=37, 75.5%) while the others were from the United Kingdom (*N*=7, 14.3%), Canada (*N*=2, 4.1%), Nigeria (*N*=2, 4.1%) and Taiwan (*N*=1, 2%). The majority (*N*=45, 92%) of the studies were conducted in universities and colleges, among the remaining articles, two were conducted in community colleges, and two did not specify the type of institution. The studies were conducted among undergraduates (*N*=34, 69.4%), postgraduates (*N*=4, 8.2%), students undertaking a university introductory module (*N*=1, 2%), and the remainder did not specify the year level of participants (*N*=11, 22%). While most of the articles did not target students from a specific discipline (*N*=27, 55.1%), others were conducted within a particular disciplinary context. These disciplines included: Business, Computer technology, Education, Law, Mathematics, Nursing, Occupational therapy, Psychology, and Social work.

Four out of the 49 relevant records did not contain a working definition for 'non-traditional students'. Of the remaining 45 records, working definitions were as short as four words and as long as 258 words. Twenty out of 45 definitions were explicitly referenced from other authors' work, whilst 22 definitions did not include a reference, and three definitions were only partly referenced (see Table 1).

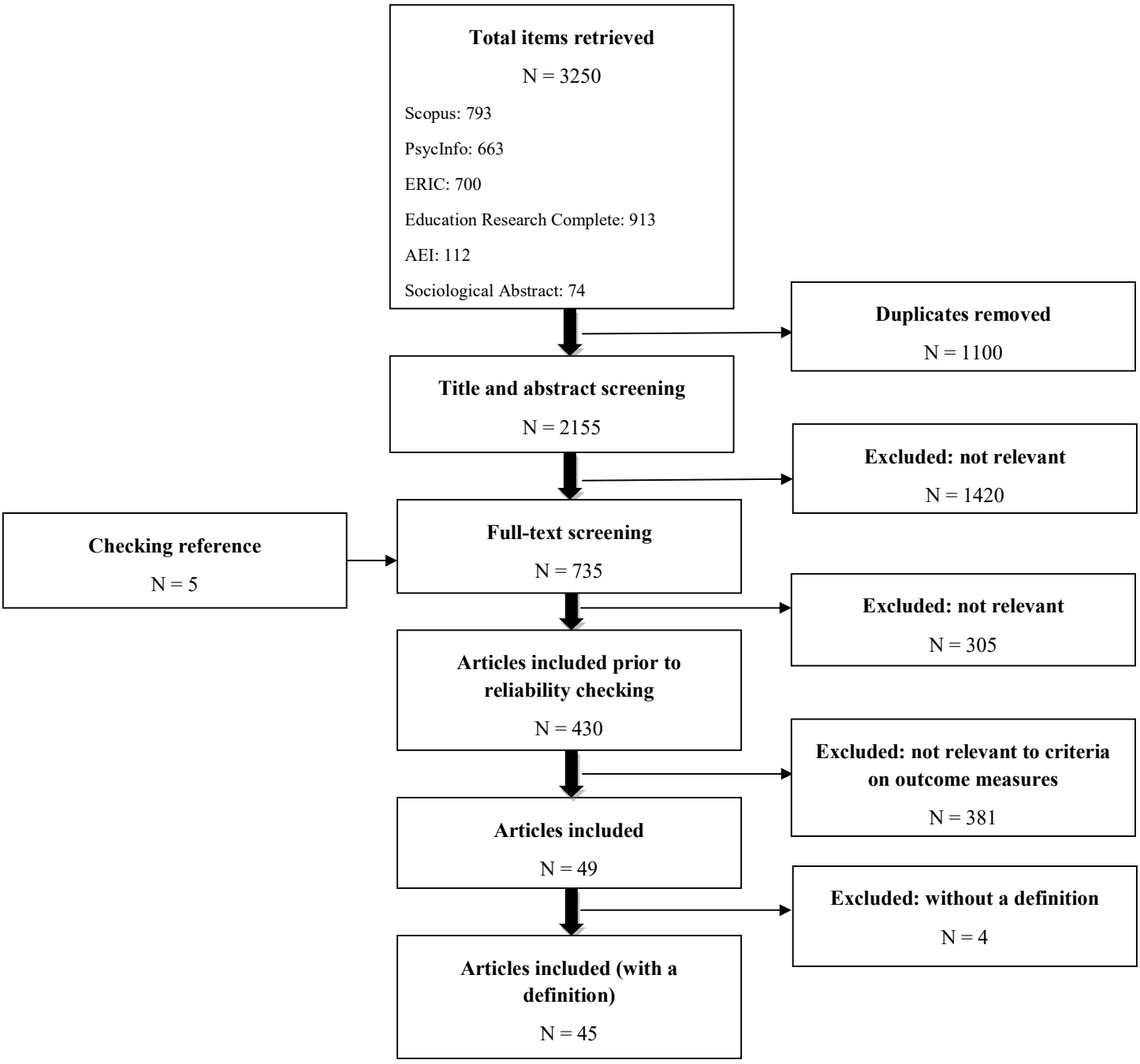

Figure 1. Flow chart of selection of articles.

Table 1

Verbatim definitions extracted from selected articles

	Author	Year	Working definition	Referenced
1	Adebayo	2006	"Nontraditional students, as used in this context, refer to part-time/full-time student-workers ages 24 and older and working on a part-time or full-time basis" (p.126)	Yes
2	Arbuckle	1996	"[T]he cutoff between the traditional age and the nontraditional age student is 23" (p.23)	No
3	Backels	2008	"25 years of age or older" (p.46)	Yes
4	Bell	2003	"[T]wenty-five and older" (p.158)	No
5	Bennett	2007	"Nontraditional students were 25 year-old or older who did not immediately pursue college following high school graduation" (p.155)	No
6	Bitner	1994	"Subjects were defined as traditional students if they were under 21 years of age and single without children. All other subjects were considered nontraditional" (p.36)	No
7	Bye	2007	"[N]ontraditional students are defined as those aged 28 and older, for whom the undergraduate experience is not necessarily age normative" (p.141)	No
8	Carney-Crompton	2002	"25 years of age or older" (p.140)	Yes
9	Chang	2007	"[A]ttended the evening programmes and had at least one year between high school and college" (p.350)	No
10	Chartrand	1990	"Nontraditional undergraduate student was defined as someone who held two or more major life roles (i.e., employee, partner, or parent) in addition to the student role at the beginning of the quarter" (p.68)	Yes
11	Chartrand	1992	"Nontraditional undergraduate students were defined, consistent with extant research, as being at least 24 years of age, living off-campus, and enrolled either on a part-time or a full-time basis" (p.195)	Yes
12	Christie	2008	"[S]tudents from non-traditional pathways" (p.569) "[N]on-traditional students who entered an 'elite' Scottish university directly from further education colleges" (p.567)	No
13	Christie	2009	"[A]ged 25 years or younger at the time of entering university" (p.125) "[Y]oung people from disadvantaged backgrounds, and from a relatively under-researched location, who had actively chosen to study at elite universities" (p.126)	Partial
14	DeGregoria	1987	"The term refers to students who have entered or returned to college after a hiatus in their formal education. It usually describes that student who enters or returns to college after age 22; however, some surveys, including this one, utilize age 30+ in defining the nontraditional student" (p.38)	Partial
15	Dill	1998	"24 years old or older and had spent at least 1 year in a nonacademic role, such as housewife or employee, between high school or their last college experience and their present enrollment in college" (p.27)	Partial

	Author	Year	Working definition	Referenced
16	Elliot	1990	"Students at least 25 years old" (p.160)	No
17	Everly	1994	"[H]aving previously completed a baccalaureate degree" (p.1023)	No
18	Fortune	1987	"[S]pouses, parents, and workers" (p.81)	No
19	Hansen	1999	"[B]eyond traditional school age (i.e., beyond the mid-20s), ethnic minorities, women with dependent children, underprepared students and other special groups who have historically been underrepresented in post secondary education" (p.192) "[S]tudents who are physically or learning challenged and those with psychiatric histories. Another neglected group included those who postpone college because of substance abuse problems, or other issues such as childhood sexual or physical abuse which may have affected their development and overall readiness for college" (p.192)	Yes
20	Hemby	1997	"[S]tudents who are 25 years old or older or who have assumed at least one of the social roles characteristic of adult status, including (a) being primarily financially self-supporting; (b) acting as a primary caregiver for a relative(s); or (c) being married and living with spouse, or being divorced or widowed and not living with parents or receiving primary financial support from others." (p.29)	Yes
21	Hemby	1998	"[S]tudents who were 25 years old or older or who had assumed at least one of the social roles characteristic of adult status, including (a) being primarily financially self-supporting; (b) acting as a primary caregiver for a relative(s); or (c) being married and living with spouse, or being divorced or widowed and not living with parents or receiving primary financial support from others" (p.305)	Yes
22	Hollis-Sawyer	2011	"[A]ge 40 and older" (p.294)	No
23	Home	1997	"[A]t least 23 years old, enrolled as part- or full-time students, employed at least nine hours a week, and carrying parental or caregiving responsibilities. Caregivers were defined as women providing informal care to a relative (child or adult) with physical, intellectual, emotional, or learning disabilities" (p.337)	No
24	Hooper	1983	"Returning women students over 50" (p.233)	No
25	Hudson	2008	"[S]tudent 25 years old and older adults who return to school full- or part-time while maintaining responsibilities such as employment, family, and other responsibilities of adult life" (p.106)	Yes
26	Johnson	2012	"84 subjects with the average age of 27.3 years (SD = 7.8), 80% having taken time off from school, approximately 60% having been married, and approximately 30% with parental responsibilities. They were deemed the nontraditional student cluster" (p.48)	Yes
27	Keith	2007	"25 years or older" (Procedure, para 1)	No
28	Kirby	2004	"[S]tudents in a nontraditional, degree-granting weekend college program for working adults" (p.67)	No
29	Giancola	2009	"[W]hose ages ranged from 20 to 56 years" (p.250)	Partial

	Author	Year	Working definition	Referenced
30	Leathwood	2003	"Many of the participants in this study would be regarded as 'non-traditional' students, i.e. those students who are the focus of widening participation policy initiatives." (p.597)	No
31	Macari	2005	"In 1996, Horn, writing for the National Center for Educational Statistics (NCES) defined nontraditional students as those who fall into any of the following seven categories: (a) those who delayed enrollment into college, that is, those who did not enroll in college immediately after high school, (b) part-time students, defined as students attending school less than 12 credits a semester or 10 credits a quarter, (c) financially independent students. [The federal government and most colleges and universities define this as any student 24 years and older, however, Horn states that those who do not rely on parents or others for financial support, regardless of age, should be considered financially independent], (d) those who work full-time, defined as working 35 or more hours per week outside of the home, (e) those with dependents other than a spouse including children or other relatives such as a parent or grandparent, (f) single parents, or those who are responsible for more than 50% of their child's upbringing and, (g) those who did not receive a standard high school diploma including those with a high school equivalency degree or who have taken the GED (NCES, 1996). Horn further categorizes nontraditional students by suggesting that the student who faces one of these seven nontraditional characteristics be considered minimally nontraditional, students ascribing to two or three nontraditional characteristics be considered moderately nontraditional, and students who possess four or more of the nontraditional characteristics be considered highly nontraditional. It is this more inclusive definition and description of the nontraditional student that was used in this study." (p.285)	Yes
32	Mello	2004	"[W]ork full- or part-time, have family responsibilities, are over 25 and have delayed enrollment" (p.264)	Yes
33	Menks	1987	"[T]hose who had children less than 18 years old who were living with them while they were enrolled in an occupational therapy curriculum" (p.21)	No
34	Metzner	1987	"Commuter, part-time" (p.15) "Part-time students were defined as students enrolled for less than 12 credit hours." (p.21)	Yes
35	Morris	2003	"Nontraditional college students were defined as 22 years of age or older and as having more multiple roles (i.e. parents, spouses, employees)" (Method, para 1)	No
36	Myers	2004	"[A]ge 25 years and over" (p.41)	No
37	Norris	2011	"[O]lder undergraduates, also known as "nontraditional undergraduates" are defined as college students aged twenty-five and older" (p.176)	Yes
38	Pierceall	2007	"24 years of age or older" (p.708)	Yes
39	Query	1992	"[O]lder than the traditional 17-22 year-old group, enrolled part-time, and employed" (p.84)	No

	Author	Year	Working definition	Referenced
40	Quimby	2006	"Nontraditional undergraduate students were defined, consistent with extant research, as being at least 25 years of age, off-campus residents, and part-time or full-time students." (p.452)	Partial
41	San Miguel Bauman	2004	"Students were considered nontraditional if they were age 25 or older" (p.14)	Yes
42	Sweet	2007	"[T]hose who enrolled in school at age 25 or later with a gap in school of at least two years after age 22" (p.238)	Yes
43	Villella	1991	"[T]hose who are older (25 years and older), or attend college on a part-time basis, or commute to school, or a combination of these characterisitics" (p.334)	No
44	Waltman	1997	"Non-traditional students were defined as students 25 years or older or those students who had assumed at least two of the social roles characteristic of adult status such as marriage, parenthood, and financial independence." (p.172)	Yes
45	Yarbrough	1990	"[O]ver the age of 25 who were either returning to school to complete Baccalaureate degrees, teacher certification requirements, or were enrolled in the university for the first time." (p.82)	No

Categories included in working definitions

Thirteen categories of meaning were identified in the extracted definitions (see Table 2). The majority of these included only one category (19 out of 45), two categories were included in 14 out of 45 articles, and the remainder contained three or more categories. The following sections provide further details into how 'non-traditional students' were defined by these categories.

age. Most definitions (35 out of 45) included the category of age. 'Non-traditional students' were commonly referred to as being older than a specific age, however, one article defined this student group in terms of being younger (Christie, 2009). The cut-off point most frequently adopted was that of 25 years (Backels & Measheу, 1997; J. A. Bell, 2003; Bennett, Evans, & Riedle, 2007; Carney-Crompton & Tan, 2002; Christie, 2009; Elliott, 1990; Hemby, 1997, 1998; Hudson, Towey, & Shinar, 2008; Keith, 2007; Mello, 2004; Myers & Mobley, 2004; Norris, 2011; Quimby & O'Brien, 2006; San Miguel Bauman *et al*., 2004; Sweet & Moen, 2007; Villella & Hu, 1991; Waltman, 1997; Yarbrough & Schaffer, 1990).

However, 9 other cut-off points were also used, including 20 (Giancola, Grawitch, & Borchert, 2009), 21 (Bitner, 1994), 22 (Morris, Brooks, & May, 2003), 23 (Arbuckle & Gale, 1996; Home, 1997; Query, Parry, & Flint, 1992), 24 (Adebayo, 2006; Chartrand, 1992; Dill & Henley, 1998; Macari, Maples, & D'Andrea, 2006; Pierceall & Keim, 2007), 28 (Bye, Pushkar, & Conway, 2007), 30 (DeGregoria, 1987), 40 (Hollis-Sawyer, 2011), and 50 years (Hooper & Traupmann, 1983).

multiple roles. In 18 definitions, 'non-traditional students' were referred to as individuals holding life roles in addition to that of student. Three sub-categories of role were commonly found, including spouse/ partner, employee/ worker, and parent/ carer of a dependent. Eight out of 18 of definitions mentioned all three sub-categories, while five mentioned a single sub-category, and the remainder included two sub-categories. Only one definition specified the duration in which these roles were held (i.e. at least one year) (Dill & Henley, 1998).

Fifteen definitions referred to 'non-traditional students' as 'employees' or 'workers' (Adebayo, 2006; Chartrand, 1990; Dill & Henley, 1998; Fortune, 1987; Home, 1997; Hudson *et al*., 2008; Kirby *et al*., 2004; Macari *et al*., 2006; Mello, 2004; Morris *et al*., 2003; Query *et al*., 1992), and/ or being 'financially independent' (Hemby, 1997, 1998; Macari *et al*., 2006; Waltman, 1997). Only a small proportion of these studies provided details regarding the nature of work, for instance, 'non-traditional students' were defined as those who worked full-time (Macari *et al*., 2006), or either part-time or full-time (Adebayo, 2006; Home, 1997; Mello, 2004). Furthermore, the definition of part-time or full-time work was only provided in two articles. One definition specified that full-time work constituted 35 or more hours per week (Macari *et al*., 2006), whereas another suggested that part-time work meant at least nine hours of work a week (Home, 1997).

'Non-traditional students' were defined as being 'married' (Hemby, 1997, 1998; M. L. Johnson & Nussbaum, 2012; Waltman, 1997), 'partners' (Chartrand, 1990), 'spouses' (Fortune, 1987; Morris *et al*., 2003), or not 'single' (Bitner, 1994). In contrast, 'non-traditional students' were also referred to as being 'divorced' or 'widowed' (Hemby, 1997, 1998)

'Non-traditional students' were referred to as being 'parents' (Chartrand, 1990; Fortune, 1987; M. L. Johnson & Nussbaum, 2012; Morris *et al*., 2003; Waltman, 1997), 'with dependents' (Hansen, 1999; Macari *et al*., 2006), 'with children' (Bitner, 1994), 'caregivers' (Hemby, 1997, 1998; Home, 1997), or having 'family responsibilities' (Hudson *et al*., 2008; Mello, 2004). One definition specified that 'non-traditional students' were responsible for 'more than 50% of their child's upbringing' (Macari *et al*., 2006). Three articles provided further description about the characteristics of dependents. A dependent was variously described as a child (Menks & Tupper, 1987), either a child or adult (Home, 1997), or either a child or adult but excluding a spouse (Macari *et al*., 2006). In addition, a dependent could be related to (Home, 1997; Macari *et al*., 2006) or simply living with the carer (Menks & Tupper, 1987). A dependent was also defined as having a physical, intellectual, emotional, or learning disability (Home, 1997).

mode of study. Eight articles included mode of study in the definition of 'non-traditional students'. Half of these articles referred to 'non-traditional students' as students enrolled part-time (Macari *et al*., 2006; Metzner & Bean, 1987; Query *et al*., 1992; Villella & Hu, 1991). In contrast, four articles suggested that non-traditional students' status could be applied to those enrolled either part-time or full-time (Adebayo, 2006; Chartrand, 1992; Hudson *et al*., 2008; Quimby & O'Brien, 2006).

gap in studies. Seven articles defined 'non-traditional students' as those who had taken time off from formal studies (Bennett *et al*., 2007; Chang, 2007; DeGregoria, 1987; M.

L. Johnson & Nussbaum, 2012; Mello, 2004; Sweet & Moen, 2007; Yarbrough & Schaffer, 1990). Three definitions specified the timing in which the break in study occurred, such as between high school and university (Bennett *et al*., 2007; Chang, 2007), or 'after the age of 22' (Sweet & Moen, 2007). In addition, inconsistencies were found in the duration of the gap in studies. One article defined 'non-traditional students' as those with at least a one year gap in studies (Chang, 2007), while another suggested at least two years away from studies (Sweet & Moen, 2007).

commuter status. Four articles defined 'non-traditional students' as those who did not live on campus (Chartrand, 1992; Metzner & Bean, 1987; Quimby & O'Brien, 2006; Villella & Hu, 1991).

being demographically 'different' from the norm. Three definitions referred to 'non-traditional students' as being 'different' demographically when compared to the normative student. 'Non-traditional students' were described as being 'historically underrepresented' (Hansen, 1999), 'the focus of widening participation policy initiatives' (Leathwood & O'Connell, 2003) and not being 'age normative' (Bye *et al*., 2007).

sex. Three articles referred to 'non-traditional students' as being women (Hansen, 1999; Home, 1997; Hooper & Traupmann, 1983).

admission pathway. Two articles defined 'non-traditional students' as those who did not follow a normative admission pathway to universities, including students entering university through a 'further education college' (Christie *et al*., 2008) and those who did not receive 'a standard high school diploma' (Macari *et al*., 2006).

enrolment in 'non-traditional' programs. Two articles associated 'non-traditional students' status with the type of program in which they were enrolled, such as 'evening programmes' (Chang, 2007) and 'weekend college program' (Kirby *et al*., 2004).

being 'disadvantaged'. Two articles referred to 'non-traditional students' as being 'disadvantaged' in some aspects of their lives. In this context they were described as being 'underprepared' (Hansen, 1999) and 'from disadvantaged backgrounds'(Christie, 2009). However, in these two instances, no further explanation was provided.

ethnicity. In one article, 'non-traditional students' were defined as being from 'ethnic minorities' (Hansen, 1999). However, no further elaboration was made in terms of what this meant.

disability and trauma. Only one article included physical, psychiatric or learning disabilities in the definition of 'non-traditional students' (Hansen, 1999). Furthermore, this article also included experiences of substance misuse, sexual or physical abuse in the definition.

having a previous degree. 'Non-traditional students' were referred to as those having had 'previously completed a baccalaureate degree' (Everly, Poff, Lamport, Hamant, & *et al*., 1994).

'Non-traditional students' as a continuum

The majority of articles conceptualised 'non-traditional students' as a categorical variable, whereby students were dichotomised into either a 'non-traditional' or 'traditional' group, depending on whether their characteristics met the defining criteria chosen by the authors. On the contrary, one article conceptualised 'non-traditional students' as a continuous variable (Macari *et al*., 2006). Using a scale developed by Horn (1996), Macari *et al*. (2006) deemed students to be minimally, moderately or highly non-traditional based on the number of criteria met. The 'non-traditional' criteria were those characteristics which have been shown to be associated with university attrition in previous research, including delayed enrolment and part-time students.

Table 2. Categories of meaning found in definitions of 'non-traditional students'

	Author	Year	Age	Multiple roles	Mode of study	Gap in studies	Commuter status	Being demographically 'different' from the norm	Sex	Admission pathway	Enrollment in 'nontraditional' programs	Being 'disadvantaged'	Ethnicity	Disability or trauma	Having previous degree(s)
1	Adebayo	2006	X	X	X										
2	Arbuckle	1996	X												
3	Backels	1997	X												
4	Bell	2003	X												
5	Bennett	2007	X			X									
6	Bitner	1994	X	X											
7	Bye	2007	X					X							
8	Carney-Crompton	2002	X												
9	Chang	2007				X					X				
10	Chartrand	1992	X		X		X								
11	Chartrand	1990		X											
12	Christie	2009	X									X			
13	Christie	2008								X					
14	DeGregoria	1987	X			X									
15	Dill	1998	X	X											
16	Elliott	1990	X												
17	Everly	1994													X
18	Fortune	1987		X											
19	Hansen	1999	X	X				X	X			X	X	X	
20	Hemby	1997	X	X											
21	Hemby	1998	X	X											
22	Hollis-Sawyer	2011	X												
23	Home	1997	X	X					X						
24	Hooper	1983	X						X						
25	Hudson	2008	X	X	X										
26	Johnson	2012	X	X		X									
27	Keith	2007	X												
28	Kirby	2004		X							X				
29	Kohler Giancola	2009	X												
30	Leathwood	2003						X							
31	Macari	2005		X	X					X					
32	Mello	2004	X	X		X									
33	Menks	1987		X											
34	Metzner	1987			X		X								
35	Morris	2003	X	X											
36	Myers	2004	X												
37	Norris	2011	X												
38	Pierceall	2007	X												
39	Query	1992	X	X	X										
40	Quimby	2006	X		X		X								
41	San Miguel Bauman	2004	X												
42	Sweet	2007	X			X									
43	Villella	1991	X		X		X								
44	Waltman	1997	X	X											
45	Yarbrough	1990	X			X									

Discussion

There has been a longstanding concern within the field of higher education regarding the lack of consistency in the way the term 'non-traditional students' has been defined in research (Greenland, 1993; Hughes, 1983; K. A. Kim *et al*., 2010). Confirming this problem, the present review shows that the term 'non-traditional students' encompasses a broad range of definitional categories within mental health research conducted in higher education settings. We found that students have been classified as 'non-traditional' based on 13 categories related to their demographic and educational background, such as age, multiple roles and admission pathway. This study also demonstrates wide variation within each category of meaning, for instance, multiple cut-off ages have been used. Furthermore, there were also differences in the approach in which this term was defined. Although 'non-traditional students' was predominantly conceptualised as a dichotomous variable, one study referred to it as a continuum.

In addition to the lack of consistency in categories involved in the definition of 'non-traditional students', this review demonstrates other problems which may further limit the usefulness of this already ambiguous term. First, around 9% of articles which fulfilled the inclusion criteria did not provide a working definition for 'non-traditional students'. It was therefore impossible for the reader to identify the group of students under study. Second, the sources of definitions were often unreferenced or partially referenced and it was unclear how the authors arrived at their method for categorising 'non-traditional students'. Third, definitions were not always clearly described to a standard permitting replication. In particular, generalised labels such as 'disadvantaged' (Christie, 2009) and 'underprepared' (Hansen, 1999), were mentioned in definitions of 'non-traditional students' without further explanation of their meanings. These limitations are likely to render findings incomparable, regarding the mental

health status of students from diverse backgrounds. Future research should therefore address these problems and work towards greater clarity and consistency in which this term is used.

Achieving a consensus definition for 'non-traditional students' is a complex task. One of the challenges suggested by other researchers was the lack of an agreed upon purpose for which the term is used (Greenland, 1993). The origin of the term 'non-traditional students' can be traced back to post-World War II, where changes in political, economic and societal contexts have led to diversification of students' demographics in higher education (Ogren, 2003). The label 'non-traditional students' served to denote students who were "new to higher education and that colleges and universities traditionally have not served people like them", thereby guiding the establishment of policies to meet their needs (Ogren, 2003, p. 641). However, some groups of students who were once thought of as 'non-traditional' have significantly increased in numbers and are quickly becoming 'traditional' (S. Bell, 2012; Greenland, 1993). For instance, while a large number of studies included in the present review defined 'non-traditional students' as those over 25 years of age, this group of students represents around 40% of all enrolled undergraduates in the United States in 2013 and a rise of 20% is expected by 2020 (National Center For Education Statistics, 2012; Snyder & Dillow, 2012). Similar trends regarding the changing age profile of university students are also evident in Australia, where the average age of students in 2011 was 26 years 11 months (Australian Council for Educational Research, 2013). Furthermore, recent figures show that 61% of Australian undergraduate students engaged in some form of employment as their primary source of income (Australian Bureau of Statistics, 2013a). Likewise, around 70% of American undergraduates are in paid employment (Davis, 2012). Our findings suggest that despite societal changes, endorsement of common definitions of 'non-traditional students' (e.g. age, multiple roles and mode of study) has not seemed to vary

significantly since the 1980s. This indicates that the use of the term 'non-traditional students' today does not necessarily reflect 'underrepresentedness' as suggested by its historical origin and serves little value in communicating a distinct concept. It is recommended that researchers re-examine the purposes for categorising 'non-traditional' status in the contemporary context of educational practice and research. For instance, does 'non-traditional' refer to having characteristics which are uncommon among the majority of students? Or does it refer to having characteristics which predispose university students to non-completion of their educational degree/program? A more consistent definition of 'non-traditional students' better aligned with this purpose can then be developed, taking into account on-going changes in student demographics as well as progress of higher education systems in responding to these changes.

As shown in the findings, 'non-traditional students' is a fluid concept within the literature and its meaning is likely to vary depending on the societal, geographical and systemic context in which the research is conducted. The authors therefore would not attempt to propose another definition of 'non-traditional students'. However, there is still a practical need for nuanced approaches in classifying 'non-traditional students' which consider a broad range of student characteristics (K. A. Kim *et al*., 2010). Given current difficulties in identifying a consistent researcher-assigned definition for 'non-traditional students', a student-centred approach of definition, which involves eliciting students' self-beliefs about whether they are 'non-traditional' and why, may be a promising alternative. The benefits of this approach are that it reduces the need for researchers to predefine the term, and it minimises the problem of overlapping 'traditional' and 'non-traditional' characteristics. It is common for 'non-traditional students' to present some characteristics which are typically 'traditional'. K. A. Kim *et al*. (2010) argued that many students under the age of 25, who are often considered as 'traditional', have work and

family responsibilities. On the contrary, some older students do not have these responsibilities. Self-definition represents a means to categorise students with overlapping characteristics of student status. We identified only one study that has adopted the student-centred definition (K. A. Kim *et al*., 2010) and therefore more research is needed to compare its usefulness in drawing meaningful conclusion with that of traditional approaches. This will ultimately contribute to the progress of research concerning student diversity in higher education.

Another contribution of the present study is that it documents the adaptation and application of a tool originally developed for systematically reviewing empirical health research (Joanna Briggs Institute, 2011). Research in any discipline often requires the clarification of key concepts under study. However, it has been critiqued that this process is sometimes overlooked by researchers, leading to methodological problems (Baldwin, 2008). The systematic review methodology has been increasingly used in reviewing definitions but no published tool for this purpose currently exists. This study offers a data extraction and appraisal tool for systematic review of definitions which can be adopted and refined by future research.

The current study has a number of limitations. First, it only included peer-reviewed literature and not grey literature (e.g. government reports, conference proceedings). Future studies may seek to review grey literature to gain a clearer understanding of how this concept is used more broadly. Furthermore, the scope of the search was confined to studies of mental health. For instance, a number of studies relating to academic achievement, attrition or attitude towards education of 'non-traditional students' were excluded (e.g. Devlin, 1996; Munro, 2011). The present study therefore cannot be taken as an exhaustive review of all published definitions of the term 'non-traditional students'. Future studies which review definitions used in the broader education literature would complement the findings of this study.

In conclusion, this study represents the first systematic review of the definitions of 'non-traditional students' within mental health research conducted within a higher education setting. It provides a summary of criteria adopted in existing definitions which can be a useful resource to facilitate communication among those working with students, including educators, mental health professionals, and policymakers. It might also stimulate discussions about more consistent definitions of 'non-traditional students', which would ultimately identify a common approach for research seeking to understand the needs of this diverse student group.

Appendix A. Database search syntax

Database	Syntax
Scopus	(TITLE-ABS-KEY("non traditional" W/3 student*) OR TITLE-ABS-KEY(nontraditional W/3 student*) OR TITLE-ABS-KEY("non traditional" W/3 learner*) OR TITLE-ABS-KEY(nontraditional W/3 learner*) OR TITLE-ABS-KEY(nontraditional W/3 undergraduate*) OR TITLE-ABS-KEY(nontraditional W/3 undergraduate*))
PsycInfo	("non-traditional" adj3 student*).ti. or ("non-traditional" adj3 student*).ab. or ("non-traditional" adj3 learner*).ti. or ("non-traditional" adj3 learner*).ab. or ("non-traditional" adj3 undergraduate*).ti. or ("non-traditional" adj3 undergraduate*).ab. or ("non traditional" adj3 student*).ti. or ("non traditional" adj3 student*).ab. or (nontraditional adj3 student*).ti. or (nontraditional adj3 student*).ab. or ("non traditional" adj3 learner*).ti. or ("non traditional" adj3 learner*).ab. or (nontraditional adj3 learner*).ti. or (nontraditional adj3 learner*).ab. or (nontraditional adj3 undergraduate*).ti. or (nontraditional adj3 undergraduate*).ab. or (nontraditional adj3 undergraduate*).ti. or (nontraditional adj3 undergraduate*).ab. *(Note: all syntax for PsycInfo was in lowercase)*
ERIC	AB,TI("non traditional" NEAR/3 student*) OR AB,TI("non traditional" NEAR/3 learner*) OR AB,TI("non traditional" NEAR/3 undergraduate*) OR AB,TI(nontraditional NEAR/3 student*) OR AB,TI(nontraditional NEAR/3 learner*) OR AB,TI(nontraditional NEAR/3 undergraduate*)
Education Research Complete	"non traditional" N3 student* OR "non traditional" N3 learner* OR "non traditional" N3 undergraduate* OR nontraditional N3 student* OR nontraditional N3 learner* OR nontraditional N3 undergraduate*
AEI	("non traditional" %3 student* OR "non traditional" %3 learner* OR "non traditional" %3 undergraduate* OR nontraditional %3 student* OR nontraditional %3 learner* OR nontraditional %3 undergraduate*) TI, AB
Sociological Abstracts	AB,TI("non traditional" NEAR/3 student*) OR AB,TI("non traditional" NEAR/3 learner*) OR AB,TI("non traditional" NEAR/3 undergraduate*) OR AB,TI(nontraditional NEAR/3 student*) OR AB,TI(nontraditional NEAR/3 learner*) OR AB,TI(nontraditional NEAR/3 undergraduate*)

Appendix B. Data extraction and critical appraisal tool

Critical Appraisal Tool for a systematic review of the definitions of 'non-traditional students' in tertiary education

Part 1. Background information (Mark as many as applied for each item)

1.	**First author** **Year** **Title** **Name of Publication**	
2.	**Source**	☐ Journal article ☐ Book chapter ☐ Others: _____
3.	**Study method**	☐ Quantitative ☐ Mixed method study ☐ Qualitative
4.	**Country in which study was conducted**	
5.	**Type of tertiary education institution in which study was conducted**	☐ University/ College ☐ Community College ☐ Vocational institution ☐ Unspecified ☐ Others: _____
6.	**Year level of participants**	☐ Undergraduate ☐ Diploma/ Certificate ☐ Postgraduate ☐ Unspecified ☐ Others: _____
7.	**Discipline of participants**	☐ Discipline specific *Insert discipline here:* ☐ Non-discipline specific
8.	**General definition**[3] [3]*Broad defining statements in relation to previous research, but not so that one can readily infer that it applies to current study.*	☐ Yes *Insert verbatim definition and page number here:* ☐ No **Use '(NV)' to indicate non-verbatim responses (if any).*
9.	**Working Definition**[4] [4]*Statements made in background or methods section, for the purposes of the current study (or words to that effect), that a specific definition has been applied.*	☐ Yes *Insert verbatim definition and page number here:* ☐ No **Use '(NV)' to indicate non-verbatim responses (if any).* *Skip to Part 2 if no definition can be extracted.*
10.	**Categories included in working definition**	☐ Age ☐ Being demographically 'different' from norm ☐ Cultural or ethnic background ☐ Indigenous b/g ☐ Other minority b/g ☐ Not specified ☐ Disability ☐ Enrolment in a 'nontraditional' program ☐ 'First in family' to enter tertiary instit. ☐ One parent not entered ☐ Both parents not entered ☐ Not specified ☐ Having previous degree(s) ☐ Life experience ☐ Low socioeconomic status ☐ Method of categorising SES: _____ ☐ Method of categorising SES not specified ☐ Mode of study (Part time/ Full time) ☐ Multiple roles ☐ Parent ☐ Spouse ☐ Employee ☐ Other role _____ ☐ Not specified ☐ Non-campus resident (i.e. commuter) ☐ 'Nontraditional' admission pathway ☐ Required academic support ☐ Rural/ remote geographical b/g ☐ Sex ☐ Other characteristics:

Part 2. Quality of working definitions

1. Is the working definition identified?

   ☐ Yes, explicit statement made in reference to the study sample
   ☐ No, only general statements made (End of appraisal)
   ☐ No reference to a definition at all (End of appraisal)

Comment:

_____
_____
_____

2. Is the working definition clear and unambiguous enough for study replication?

   ☐ Yes
   ☐ No

Comment:

_____
_____
_____

3. Is the working definition referenced from the extant literature and any incongruency with it logically explained?

   ☐ Yes
   ☐ Unclear
   ☐ No

Comment:

_____
_____
_____

4.1 **Afterword**

This section describes how the results of Study One have informed the way the concept 'non-traditional' student was operationalised in the subsequent part of the research program (i.e., prospective cohort study).

4.1.1 Defining 'non-traditional' based on students' self-perception

The results from Study One indicate that the concept of 'non-traditional' is fluid and dependent on the social, cultural, and political contexts in which it is used. A valid researcher-imposed working definition of 'non-traditional' students, that applies across contexts, may not exist. As a result, a more student-centred approach of definition was adopted in the research program. Tajfel's social identity theory (Tajfel, 1981) suggests that people organise their external environment using social categories, which involve a psychological process of grouping people with similar characteristics together (e.g. behaviour, ethnicity, life experience or appearance). Social identity is an aspect of self-concept that is derived from perceived membership in significant social groups (Nakashima & Yanagisawa, 2015). Within higher education research, the use of self-perception has been increasingly adopted to operationalise 'low SES' students (e.g., Bayram & Bilgel, 2008; Eisenberg *et al*., 2007). In a similar vein, researchers have begun to explore self-perception as a 'non-traditional' student. For instance, K. A. Kim *et al*. (2010) compared the difference between the use of age in defining non-traditional, or students own perception of whether they are non-traditional based on their dominant life role. It was found that students' perception about being an employee accounted for more variance in student characteristics (e.g., gender, number of credits earned, number of friends in the same

college), activities (e.g., class attendance, engaging in class discussions), educational challenges (e.g., family responsibilities, transportation), objectives (e.g., highest academic degree desired) and beliefs (e.g., career prospects of college graduates), compared to determining 'non-traditional' based on age above 25 years alone. This research suggests that a self-perception approach may be a promising way in studying differences in characteristics in the increasingly heterogeneous higher education student body.

K. A. Kim *et al*. (2010) provides some initial insights of utilising self-perception in classifying non-traditional students in research. However, it can be argued that while having multiple life roles is a prominent feature among non-traditional students, it does not cover other aspects, for instance, socioeconomic status and cultural and linguistic background. A modified approach to K. A. Kim *et al*. (2010) was therefore adopted in the prospective cohort study (i.e., Study Two, Three and Four). Students were asked to identify if they perceived themselves to be 'non-traditional' (i.e., possess any characteristics which set them apart from the majority of students on campus and if so, in what way(s) they perceived themselves to be non-traditional).

4.1.2 Demographic questions

In addition to questions pertaining to students' perception about whether they are 'non-traditional', information about students' demographics was collected in order to provide a researcher-focused description of student diversity. Specifically, all 'non-traditional' categories identified in Study One were incorporated into the demographic questions in the prospective cohort study. Besides, as two of the categories (i.e., being disadvantaged and being demographically 'different') were too vague to be operationalisable, and the fact that Study One did not contain any Australian studies, demographic measures of underrepresented groups of

students within an Australian context, including Indigenous, rural and remote background, and low socioeconomic status, were also included (Bradley *et al*., 2008).

According to DEEWR (2009), the official method in determining the SES of higher education students in Australia is to rank home postcodes using the Australian Bureau of Statistics (ABS) Socio-Economic Indexes for Areas (SEIFA) Index of Education and Occupation (IEO). The postcodes that comprise the bottom 25% of the population based on the results of the latest census are considered as low SES postcodes, and students who have a home address in these postcodes are deemed low SES students. Although the SEIFA IEO measure may provide an indication of SES in a student's community, it may not be sensitive to the circumstances of particular individuals residing in the area (DEEWR, 2009). For instance, there may be people considered high SES residing in low SES suburbs. In order to provide a secondary dimension to indicate an individual student's SES, questions regarding parental education levels were also included in the survey of the prospective cohort study.

As a result of Study One, the following sociodemographic variables were included in the survey of the prospective cohort study: age; sex; Aboriginal and Torres Strait Islander background; completion of a previous degree; admission pathways; marital status; number of children; source of income; hours of employment; home postcode; part time/ full time study; gap year between secondary school and university; disability; educational level of father and mother, and language spoken at home. The variable 'significant adverse events' was also labelled as 'sociodemographic variables' in the subsequent papers for ease of reporting. However, the inclusion of this variable in the prospective cohort study is not a direct outcome of Study One, but rather, it being a potential confounding factor.

In summary, the results of Study One informed the use of a self-perception method in operationalisation of 'non-traditional' students, and the selection of demographic variables in the prospective cohort study. The findings of the prospective cohort study are now presented.

Chapter 5: Study Two

Statement of authorship

Title of Paper	Prevalence and Predictors of Complete Mental Health among 'Traditional' and 'Non-Traditional' University Students
Publication Status	☐ Published ☐ Accepted for Publication ☑ Submitted for Publication ☐ Unpublished and Unsubmitted w ork w ritten in manuscript style
Publication Details	

Principal Author

Name of Principal Author (Candidate)	Ethel Chung		
Contribution to the Paper	Collected, analysed and interpreted data, wrote manuscript and acted as corresponding author.		
Overall percentage (%)	85%		
Certification:	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.		
Signature		Date	10/6/2016

Co-Author Contributions

By signing the Statement of Authorship, each author certifies that:

iv. the candidate's stated contribution to the publication is accurate (as detailed above);

v. permission is granted for the candidate in include the publication in the thesis; and

vi. the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

Name of Co-Author	Deborah Turnbull		
Contribution to the Paper	Supervised development of work, helped in manuscript evaluation.		
Signature		Date	10/6/2016
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Contribution to the Paper	Supervised development of work, helped in manuscript evaluation.		
Signature		Date	10/6/2016

Abstract

Objectives: To explore prevalence and predictors of 'complete mental health' (CMH) in university students; including those from a historically underrepresented background (i.e., 'non-traditional students'). Participants: First year psychology students (316 female, 126 male) enrolled at a publicly-funded Australian university in the 2013 academic year. Methods: An online survey about psychological distress, subjective well-being, resilience, campus-based social support and institutional support. Results: The proportion of students who identified themselves as 'non-traditional' was 25.6% (n=113). About 30% of the participants reported CMH. Resilience and support from peers and administrative staff significantly predicted CMH in self-identified 'traditional' and 'non-traditional' students. There was no difference between the two student groups in the odds of reporting CMH (OR=0.82; 95% CI=0.5-1.31; p=.41). Conclusions: Our results suggest that the role of peers' and administrators' support, and individual resilience are areas which should be addressed when promoting mental health at university.

Keywords: Non-traditional students, higher education, complete mental health, resilience

International studies suggest that mental distress (i.e., persistent feelings of being upset, stressed, anxious, depressed, and any emotional or psychological symptoms which lead to the hindrance of normal healthy functioning (Leahy *et al*., 2010)) among university students is a cause for concern (Gallagher, 2011; Leahy *et al*., 2010; Stallman, 2010). Mental distress is a significant health issue associated with health problems such as drug and alcohol abuse and elevated suicidal risks (Linden *et al*., 2014; Vivekananda *et al*., 2011). Particularly relevant to the context of higher education may be the impact of distress on students' ability to work or study (Stallman, 2008, 2010). Disability stemming from high distress may contribute to lower levels of achievement (Stallman, 2010).

Rising levels of mental distress among students coincides with a period where higher education is becoming more accessible for 'non-traditional students' (NTS) (Altbach *et al*., 2009; Bradley *et al*., 2008). NTS is a term commonly used to refer to students who do not conform to the typical privileged image of university students. Examples include mature-aged students with multiple life roles, and those who are from a low socio-economic household (James *et al*., 2010; McKay & Devlin, 2014). In Australia, about 17% of commencing domestic university students are from a low socioeconomic background (Department of Industry and Science, 2012). Furthermore, over 60% of undergraduates hold some form of employment as their primary source of income (Australian Bureau of Statistics, 2013a). Students' demographic background may contribute to unique needs for educational and psychological support. For example, by virtue of being historically underrepresented within the higher education sector, NTS often do not have a family member who can assist them in navigating unfamiliar aspects of university culture, which may contribute to challenges towards academic achievement and positive university adjustment (Christie *et al*., 2008; Collier & Morgan, 2008). It is important for

university mental health services, educators and policy makers to gain knowledge about ways to support students coming from diverse backgrounds.

The majority of mental health research on university students has focused on preventing mental distress or illnesses (Low, 2011). For instance, characteristics commonly featured among NTS, including having multiple life roles (Adebayo, 2006; Adebayo *et al*., 2008; Dill & Henley, 1998; Gilardi & Guglielmetti, 2011), financial difficulties (Eisenberg *et al*., 2007; Verger *et al*., 2009), and being the first in the family to participate in university (Jenkins *et al*., 2013; Sy, Fong, Carter, Boehme, & Alpert, 2011) have been associated with increased mental distress. However, this tendency to emphasize mental distress may lead to a biased representation of the NTS experience, as access to university can be an opportunity for students to experience success and an overall sense of well-being (Chang, 2007; Home, 1997). As a result, studies aiming to explore mental health issues of NTS should move away from a sole focus on mental distress in order to foster a more balanced understanding about this student group. Consistent with this standpoint, this study adopts the Dual Continua Model (DCM) as a guiding framework in the assessment of mental health and distress (Keyes, 2013).

DCM theorises that mental health and illness are two related but distinct dimensions rather than polar opposite (Keyes, 2013). This proposition has been supported by studies conducted with individuals across age groups (Lim, 2014; Venning *et al*., 2013) and cultural backgrounds (Keyes *et al*., 2008; Westerhof & Keyes, 2010). For instance, a study including a sample of American adults found that while the latent factors of mental illness and well-being were correlated (r=-.53), only 28.1% of the variance was explained by each other (Keyes, 2005). Within the DCM, the 'illness continuum' is concerned with whether symptoms of psychopathology are present, such as negative emotions and disrupted functioning, whereas the

'mental health continuum' considers the presence of subjective well-being. DCM defines well-being as not merely happiness, but also positive psychosocial functioning, which entails one's effectiveness in handling tasks encountered in their private life as well as at a society or community level (Keyes, 2007). For the purpose of this study, the 'illness continuum' has been renamed as a 'distress continuum' given the study's focus on mental distress, and a need to consider students who are distressed but who do not necessarily meet the strict criteria of a mental illness (Stallman, 2008, 2010).

The DCM classifies individuals into those with high or low mental distress, and those with flourishing, moderate and languishing mental health (Keyes, 2002, 2013). 'Complete mental health' (i.e., flourishing and low distress, hereafter referred to as CMH) represents an optimal state in which individuals have low distress, and are happy and functioning well (Keyes, 2002, 2005). Research consistently finds that individuals with CMH manifest greater physical health and work productivity, compared to those in any other mental health categories (Keyes, 2002, 2004; Keyes & Simoes, 2012). American college students with CMH are more likely to engage in civic and community services (Low, 2011), display less suicidal behaviours and have fewer days out of role (Keyes *et al*., 2012). However, while the majority of the population can be classified as being without significant distress, CMH is a less common occurrence (Keyes, 2005). While 87.6 and 78% of students participated in two college mental health studies reported not being distressed, only 49.7 and 60.5% reported CMH (Keyes *et al*., 2012; Low, 2011).

Although previous studies demonstrate the relevance of CMH in relation to a range of academic and psychosocial outcomes in university students, factors that may contribute to CMH have remained unexplored, particularly among students from diverse backgrounds (Keyes *et al*.,

2012; Low, 2011). A clearer understanding of the predictors of CMH is crucial as it may inform future directions in mental health promotion within the higher education sector. Psychosocial factors including resilience and perceived support on campus have been shown to associate with reduced level of distress (Hartley, 2012; Leahy *et al*., 2010). However, whether these factors predict broader aspects of mental health in students, conceptualised as CMH, remains empirically untested. Resilience and perceived support are important strengths for student service providers and researchers to consider, because they are known to be malleable and can potentially be developed by all students and promoted by institutions (Connor & Davidson, 2003; Hartley, 2012; Mattanah *et al*., 2010). For the purpose of this study, resilience is defined as "the personal qualities that enable one to thrive in the face of adversity", including tenacity, ability to accept changes, distress tolerance, and beliefs in the strengthening effect of stressful events (Campbell-Sills & Stein, 2007, p. 67; Connor & Davidson, 2003).

The present study attempts to address gaps in the literature by examining prevalence and contributors of CMH within undergraduate students at an Australian university. Specifically, this study explores how psychosocial factors including resilience, social support and institutional support may predict CMH. Four research questions were as follows: What is the mental health status of the overall sample? Is there a difference in prevalence of CMH between students who perceived themselves to be from a 'non-traditional' background, compared to those who perceived themselves to be 'traditional students' (hereafter referred to as TS)? What are the demographic and psychosocial predictors of CMH? Does self-perceived 'non-traditional' student status mediate the association between CMH and its psychosocial predictors?

Methods

Participants

Participants included 442 students (316 female, 126 male) from a pool of 578 students who were enrolled in a first year undergraduate Psychology course in 2013, at a major publicly funded, research-intensive university in Australia (response rate = 76.47%). The average age of participants was 20.71 years (SD=5.71, range=17-58). Participants came from 13 different degree programs in addition to Bachelor of Psychology (51.13%, n=226). About 17.6% (n=78) of participants reported coming from a low socio-economic household, 0.90% (n=4) of students identified themselves as an Aboriginal or Torres Strait Islander person, and 8.6% (n=38) of respondents reported having a disability. These demographic characteristics are comparable to national statistics (Department of Education and Training, 2015b). However, the sample consisted of a lower proportion of part-time (8.14% versus 25.3%) and international students (10.41% versus 28.4%) compared to national averages (Department of Education and Training, 2015b). In addition, a substantial proportion of participants (n=194, 43.89%) reported at least one adverse event in the past 2 years (see Table 1).

Table 1.

Types of adverse events reported by participants (N=442)

	n (% of sample)
Personal health problems[1]	59 (13.35)
Family trauma[2]	57 (12.90)
Relationship difficulties[3]	31 (7.01)
Finance and employment difficulties[4]	14 (3.17)
Academic stress[5]	5 (1.13)
Missing data	28 (6.33)
Total number of students reporting at least one adverse event	194 (43.90)

Note. [1] Injuries, accidents, diagnosis of a medical/ mental illness. [2] Deaths, divorce of parents, divorce of the student him/herself, diagnosis of a medical/ mental illness in the family. [3]Bullying, death of a friend, loss of a significant friendship/ romantic relationship. [4] Increased financial pressure and workload. [5] Stress related to completing the final year of high school or the transition to university.

Measures

Participants completed a web-based, self-report survey comprising measures of demographic variables, self-perceived 'non-traditional/ traditional' student status, psychological distress, mental health, resilience, and social and institutional support. The survey was independently reviewed by a student service provider and two academics from the disciplines of Education and Psychology respectively, and was piloted among 20 postgraduate psychology students prior to being used. Non-standardised questionnaire items that were deemed ambiguous or difficult to understand were reworded accordingly. Overall, 66 items were included in the final version of questionnaire.

psychological distress. The Kessler Psychological Distress Scale (K-10) (Kessler *et al*., 2002) is a non-specific psychological distress scale that has been commonly used in Australian studies (Australian Bureau of Statistics, 2007; Furukawa, Kessler, Slade, & Andrews, 2003; Leahy *et al*., 2010). It includes 10 items concerning how frequently distress symptoms were experienced during the past 4 weeks, on a scale from 'none of the time' (score 1) to 'all of the time' (score 5). The K-10 has demonstrated high internal reliability (Cronbach's alpha = .93) and high convergent validity (r = .90, 95% CI: .89 - .91) with clinical diagnosis of mood and anxiety disorder based on the criteria of the Fourth edition of the Diagnostic and Statistical Manual of Mental Disorder (DSM-IV) (American Psychiatric Association, 2000; Kessler *et al*., 2002). The Cronbach alpha in the current sample was .88.

psychosocial well-being. The Mental Health Continuum – Short Form (MHC-SF) (Keyes *et al*., 2012) includes 14 questions concerning how frequently symptoms of positive emotions and psychosocial functioning were experienced. It has demonstrated high internal reliability (Cronbach's alpha = .89), moderate test-retest reliability (Cronbach's alpha = .68, p<

.001), and high convergent validity with similar measures in an American adult sample (Keyes, 2002). The internal reliability of the MHC-SF in the current sample was .92.

resilience. The Connor-Davidson Resilience Scale (CD-RISC 10) (Campbell-Sills & Stein, 2007) is a 10-item questionnaire which assesses the ability to cope with adversity (Campbell-Sills *et al*., 2006; Campbell-Sills & Stein, 2007). Each item is rated on a 5-point scale, with higher scores indicating greater resilience. CD-RISC 10 has demonstrated good psychometric properties in university student populations (Cronbach's alpha = .87) (Hartley, 2012). The Cronbach's alpha of the CD-RISC 10 in the current sample was .88.

social and institutional support. The subscale 'Supportive Learning Environment' (SLE) of the Student Engagement Questionnaire (SEQ) (ACER, 2010) was used in the survey. The SEQ has been validated for use among Australian students (ACER, 2010). SLE contains six items, the first three relate to the quality of relationships with people within the institution, including peers, teachers and administrative personnel and services (i.e., social support variable), whereas the remaining items relate to perceived level of support provided by the institution towards learning and fulfilling non-academic responsibilities, such as work and childcare needs (i.e., institutional support variable). A factor analysis supported the two-factor model of SLE in the present sample. The internal reliability of the social support factor and institutional support factor in the current sample was .74.

student status. NTS is a common term used for describing students coming from historically underrepresented backgrounds (Ogren, 2003). However, its definition has been inconsistent within existing literature (Chung, Turnbull, & Chur-Hansen, 2014; M. L. Johnson & Nussbaum, 2012; K. A. Kim, 2002). Objective standards tend to fluctuate across geographical and cultural contexts, or go out-of-date rapidly with on-going changes in widening participation

strategies (Schuetze & Slowey, 2002). This study adopted a self-definition approach consistent with K. A. Kim *et al*. (2010). In the survey, students were asked whether they considered themselves to be a NTS. Those who identified themselves as NTS were also asked to nominate reasons for their decision.

demographics. Questionnaire items included: age, sex, Aboriginal and Torres Strait Islander background, completion of a previous degree, admission pathway (e.g., tertiary admission rank or alternative admission route), significant adverse life events (see Table 1), marital status, number of children, source of income, hours of employment, home postcode, part time/ full time study, gap year between secondary school and university, disability, educational level of father and mother, and language spoken at home. Students' residential postcode was recoded into socioeconomic status and rural background variables, based on guidelines published by the Australian Bureau of Statistics (2013b).

Categorization of DCM mental health states

Categorization of students into DCM mental health states was done using approaches adapted from previous studies (Keyes *et al*., 2012; Low, 2011). In terms of the mental health dimension, participants were classified using standard coding algorithm of MHC-SF (e.g., high mental health = at least 1 symptom of emotional well-being and at least 6 symptoms of positive functioning 'almost every day' or 'every day' during the past month) (Keyes *et al*., 2012; Low, 2011). There was no standard method to operationalize the mental distress dimension in existing literature (i.e., Patient Health Questionnaire (PHQ) (Keyes *et al*., 2012) and Center for Epidemiologic Studies Depression Scale (CES-D) (Low, 2011)). We adopted a cut-off at 25 for K-10, which has been used in two Australian population surveys, in order to distinguish between

High and Low distress (Beyond Blue, 2013; Department of Human Services, 2002). A K-10 score of 25 or above has been shown to represent levels of distress consistent with a diagnosis of a moderate severity mental disorder (Australian Bureau of Statistics, 2012). Categorization of mental health and distress states were then combined to form DCM states in an approach illustrated in Table 2.

Table 2

Criteria used to Categorize Students into DCM Mental Health States

	DCM States	MHC-SF	K-10
CMH	Flourishing and not distressed	High Mental Health	Low (<25)
	Flourishing and distressed	High Mental Health	High (≥25)
Not CMH	Moderate mental health and not distressed	Moderate Mental Health	Low (<25)
	Moderate mental health and distressed	Moderate Mental Health	High (≥25)
	Languishing and not distressed	Low Mental Health	Low (<25)
	Languishing and distressed	Low Mental Health	High (≥25)

Procedure

A power analysis showed that 352 participants would be sufficient to detect a medium effect (r = .3) if any resilience x distress interaction occurred. School of Psychology administrative staff circulated invitation emails to students enrolled in first year Psychology. This invitation email detailed important information about the project, requested students' participation, assured that the information provided would be kept confidential, and indicated the closing date of survey participation (Dillman *et al*., 2009). Students received 0.5% course credit upon completion of the survey. This study was approved by the University of XX Human Research Ethics Committee.

Data Analysis

All survey data were analyzed using the Statistical Package for the Social Sciences (SPSS), version 20. DCM mental health states were categorized based on the rules in Table 2 and summarized using frequencies and cross-tabulations. The demographic characteristics of students who identified themselves as TS were then compared to those who identified themselves as NTS using logistic regression. Qualitative responses regarding reasons why students identified themselves as NTS were grouped under headings (e.g., living arrangements, barriers towards study). To determine the association between CMH and demographic/ psychosocial predictor variables, the six mental health states were recoded into two groups, consistent with the approach of Keyes and Simoes (2012) (i.e., CMH versus not CMH, see Table 2). Logistic regression was used to identify associations between variables. To find the most parsimonious multivariable linear model with CMH as the outcome, logistic univariate regression models were first used to identify covariates that had P value <.1. These covariates were then entered in a multivariable logistic regression model using backwards stepwise elimination with $p<.05$ required for retention. In order to investigate whether NTS status affected the association between CMH and three psychosocial variables, interaction models were used in logistic regression.

Results

Characteristics of students who perceived themselves as 'non-traditional'

Out of the total 442 respondents, 25.6% identified themselves as NTS (*n*=113). Compared to TS, NTS were significantly more likely to: Be male (OR=1.92; 95% CI= 1.22-

3.022; *p*=.005), older in age (OR=1.43; 95% CI=1.30-1.57; *p*<.0001), have a previous degree (OR=8.42; 95% CI=1.30-1.47, *p*<.0001), study part-time (OR=5.44; 95% CI=2.68-11.059; *p*<.0001), be an international student (OR=4.62; 95% CI=2.46-8.67; *p*<.0001), speak at least one language other than English at home (OR=2.45; 95% CI=1.56-3.87; *p*<.0001), have a longer gap between secondary school and university (OR=1.37; 95% CI=1.24-1.50; *p*<.0001), have been admitted to university through pathways other than those directly graduating from secondary school (e.g., vocational training, university preparatory course) (OR=8.71, 95% CI=5.39-14.07; *p*<.0001), rely on government financial support as a primary source of income (OR=2.68, 95% CI=1.43-5.012; *p*=.002), work longer hours (OR=1.028; 95% CI: 1.007, 1.048; *p*=.007), be married (OR=8.72; 95% CI=3.72-20.45; *p*<.0001), and have children (OR=10.67; 95%CI=3.01-37.80; *p*<.0001).

The reasons that students used to identify themselves as 'non-traditional' were as follows: age (58.4%, *n*=66), cultural background (43.4%, *n*=50), admission pathway (42.5%, *n*=48), geographic origin (30.1%, *n*=34), being employed (25.7%, *n*=29), household income (20.4%, *n*=23), being a parent (18.6%, *n*=21), and mode of study (14.2%, *n*=16). Seventeen students nominated other reasons (15.9%, *n*=17), including richer life experience, reason for study (e.g., for self-improvement rather than occupational reasons), perceived barriers to study, and living with parents/ grandparents.

Mental health states

Descriptive analysis was conducted to explore the prevalence of each DCM state and associated K-10 score. The findings are shown in Table 3.

Table 3

Prevalence of DCM states and K-10 score (N=442)

		n	%	K-10		
				M (SD)	95% CI	
					Lower	Upper
CMH	Flourishing and not distressed	135	30.54	16.63 (3.33)	16.06	17.20
	Flourishing and distressed	17	3.85	27.35 (2.45)	26.09	28.61
	Moderate mental health and not distressed	151	34.16	19.17 (3.01)	18.68	19.65
Not CMH	Moderate mental health and distressed	112	25.34	29.47 (3.88)	28.75	30.20
	Languishing and not distressed	6	1.36	20.17 (4.54)	15.41	24.93
	Languishing and distressed	21	4.75	34.05 (5.02)	31.76	36.33

Note. M= mean; *SD* = standard deviation; CI = confidence interval

Prevalence of CMH among TS and NTS

There was no significant association found between CMH and whether students considered themselves 'non-traditional' (OR=0.82; 95% CI=0.5-1.31; p=.41). There was also no significant association between CMH and reasons in which students classified themselves as being 'non-traditional'.

Predictors of CMH

socio-demographic. Socio-demographic variables from univariate regression models with p<.1 are shown in Table 4. Only two variables remained significant after controlling for the effect of all variables in the multivariable model. Students were significantly more likely to report CMH if they were older. For every one year increase in age, the odds of CMH increased by 4% (OR=1.04; 95% CI=1.01-1.08; p=.021). If students reported any adverse event in the past 2 years (see Table 1), the odds of CMH decreased by a factor of 0.59 (OR = 0.59; 95% CI=0.39-0.90; p= .015).

Table 4

Socio-demographic predictors of CMH from univariate regression models (N=442)

	B	***SE***	***Wald***	***df***	***p***	***OR***	**95% CI**	
							Lower	**Upper**
Full-time work (≥35 per week)	1.033	.62	2.83	1	.093	2.81	0.84	9.37
Previous degree	0.86	.48	3.17	1	.075	2.37	0.92	6.10
Married or de facto	0.83	.39	3.40	1	.065	2.067	0.96	4.47
Number of children	0.61	.24	6.39	1	.011	1.84	1.15	2.95
Age	0.038	.017	4.88	1	.027	1.039	1.00	1.07
Female	-0.43	.22	3.77	1	.052	0.65	0.42	1.00
Adverse event	-0.50	.21	5.44	1	.020	0.61	0.40	0.92
Disability	-0.92	.46	4.02	1	.045	0.16	0.98	6.13

Note. OR = odds ratio; CI = confidence interval for *OR*

psychosocial. As shown in Table 5, all three psychosocial variables (i.e., resilience, social support and institutional support) predicted CMH to significance at p<.1 in univariate models. Only resilience and social support remained significant predictors of CMH in the multivariable model, controlling for the effect of all variables in the model. For every one unit increase in resilience, the odds of CMH increased by 23% (OR = 1.23; 95% CI= 1.17-1.29; p<.0001). For every one unit increase in social support, the odds of CMH rose by 17% (OR = 1.17; 95% CI=1.08-1.25; p<.0001).

Table 5

Psychosocial predictors of CMH from univariate regression models (N=442)

	B	***SE***	***Wald***	***df***	***p***	***OR***	**95% CI**	
							Lower	**Upper**
Resilience	0.22	.025	77.96	1	<.0001	1.24	1.19	1.31
Social support	0.20	.035	32.31	1	<.0001	1.22	1.14	1.31
Institutional support	0.29	.053	30.42	1	<.0001	1.34	1.21	1.48

Note. OR = odds ratio; CI = confidence interval for *OR*

Further analysis was conducted to explore the association between types of social support and CMH. Three social support variables (i.e., support by students, teaching staff or administrators) were entered into a multivariable logistic regression model using backwards stepwise elimination with $p<.05$ required for retention. Perceived support from other students and administrators remained significant predictors of CMH, controlling for the effect of other variables in the model. For every one unit increase in student support, the odds of reporting CMH increased by 30% (OR = 1.30; 95% CI=1.11-1.54; p=.001). Moreover, for every one unit increase in administrator support, the odds of CMH rose by 36% (OR = 1.36; 95% CI=1.15-1.61; $p<.0001$).

Impact of self-perceived 'non-traditional' status on relationship between resilience, social support, institutional support and CMH

All of the three interaction P values (i.e., Psychosocial variable * NTS status) were non-significant (Resilience*NTS: p=.39; Social support * non-traditional: p=.084, Institutional support*non-traditional: p=.060).

Discussion

Despite previous research suggesting that NTS are exposed to more stressors, this study shows that NTS have comparable likelihood in reporting CMH as TS (Gilardi & Guglielmetti, 2011; Jenkins *et al*., 2013; Verger *et al*., 2009). One way of interpreting this finding, is that potential stress-protection mechanisms and resilience in the 'non-traditional' group may have buffered against the effect of heightened stressors. As suggested by Eppler and Harju (1997), NTS bring with them skills and experiences accumulated from their pre-university contexts,

which may contribute to their equivalence in achieving CMH compared to their 'traditional' counterparts. However, a detailed comparison of resilience levels between TS and NTS is beyond the scope of this study and would warrant greater attention in future research. Another perspective for viewing this finding is that, the use of self-definition in the present study, as opposed to researcher-defined measures, may have contributed to the seemingly discordant finding between the current and previous studies. For instance, our finding shows that students do not always use 'official' categories of NTS when defining themselves. Around 16% of students perceived themselves as being 'non-traditional' for reasons which are not typically adopted by higher education policy makers or researchers. In some cases, the notion of 'non-traditional' was associated with positive qualities such as richer life experience and the pursuit of self-enhancement. Nevertheless, whilst being Indigenous is often seen as a criterion for NTS within the Australian context (Centre for the Study of Higher Education, 2008), none of the Indigenous students in our sample (n=4) identified this as a reason for which they classified themselves as NTS. These findings suggest that students' own perception about whether they are NTS may differ from the criteria used by their universities. It is possible that given the use of the label 'non-traditional' gives the impression of deviations from more desirable norms and are often associated with being disadvantaged (Smit, 2012), some students who are commonly considered as NTS may not personally identify with this label. This finding therefore calls for reconsideration of the use of the term NTS in the public domain and the assumptions about disadvantage among students coming from historically underrepresented backgrounds. In particular, future research should continue to explore whether the default method of classifying students into 'non-traditional' category (i.e., based on the presence of demographic

characteristics indicating poorer educational outcome or being minority), either in research or practice, contributes to the marginalizing of students.

The prevalence of CMH in the present sample (30.5%) was considerably lower than the prevalence data reported in two American studies (49.7-60.5%) (Keyes *et al*., 2012; Low, 2011). Importantly, the estimate reported in the present study would have been even lower if a more sensitive measure of mental illness consistent with previous studies had been used, rather than a measure of non-illness specific psychological distress. The K-10 (instrument used in current study) at a 25 point cut-off has a lower sensitivity (0.41) (G. Andrews & Slade, 2001) than either PHQ at a 16 point cut-off (0.77-0.80) (Keyes *et al*., 2012) or CES-D (0.95) (Low, 2011; Radloff, 1977) in detecting adults with a mental illness consistent with the DSM-IV criteria. It is therefore possible that our study may have categorized a higher proportion of students who actually meet the DSM criteria for a mental illness into the low distress group compared to the two other studies using tools with higher sensitivity. This finding regarding low prevalence of CMH within the current sample, together with the observation that nearly half of the participants (43.9%) experienced at least one significant adverse event within two years prior to beginning their studies, indicate a substantial need in improving the mental health of Australian students. It is evident from the findings that the experience of adverse events may hinder the likelihood of CMH and it is therefore a major cause for concern (McNally, 2010).

Our finding regarding the prevalence of CMH has implications in future campus-based mental health promotion initiatives. First, the absence of distress does not automatically signify mental health, it is therefore important for research and campus-based mental health assessments to include measures of positive emotions and psychosocial functioning. Second, mental health promotion interventions can go beyond lowering or preventing distress to enhancing positive

emotions and functioning. It has been suggested that mental health interventions by default, which aim at treating mental illness or reducing its risk factors, may not be adequate in equipping individuals with the resources they need to achieve a sustainable state of well-being (Keyes & Lopez, 2002). Therefore, mental health promotion focused on the development of psychological strengths directly linked to CMH is required (Keyes & Lopez, 2002).

This study found that psychological predictors including resilience and perceived social support (especially in terms of relationships with peers and administrative staff) contribute significantly to CMH. These factors are also equally important for CMH among TS and NTS, suggesting that the development of resilient skills and strong social support networks could be a promising universal mental health promotion strategy. Building resilience has been a topic of considerable research in the last decade (Cornum, Matthews, & Seligman, 2011; Gillham *et al*., 2007; Shochet *et al*., 2001; Spence, Sheffield, & Donovan, 2003). A few resilience building programs have been trialed among university students and were shown to be effective in enhancing levels of resilience as measured by CD-RISC in pre- and post-test studies (Gerson & Fernandez, 2013; Peng *et al*., 2014). Nevertheless, due to the small number of studies and the lack of randomized controlled trials, more research is needed to confirm that these programs would be a worthwhile investment for higher education institutions.

Interestingly, the association between CMH and support from teaching staff became non-significant after taking into account the effect of other variables in the regression model, including perceived support from other students and administrative staff. Given the current study was conducted in an early stage of the students' course, it is possible that the students had only had minimal exposure to their teachers and therefore their perceived supportiveness may

have limited influence on students' well-being. Future studies using a longitudinal design will be required to explore the relationship between teachers' support and CMH in greater detail.

The potential connection between students' well-being and their relationship with administrative staff has not been explicitly explored in previous studies. However, administrative staff play an important role in providing students with informational support, and the contact between administrative staff and students often increases during high-stress times, such as transition to university (Oldfield & Baron, 2000). This may explain the significant relationship between the perceived supportiveness of administrative staff and the likelihood of reporting CMH among the current sample (i.e., commencing university students). This finding suggests the importance for higher education policy makers and educators to recognize the contribution administrative staff can make towards students' well-being, as well as the provision of resources and training to facilitate positive interactions between administrative staff and students. It would be useful for future studies to explore the extent to which perceived support from administrative staff may influence students' well-being, beyond early stages of university transition. Furthermore, given this study did not differentiate between student services administrators (e.g., scholarship officer, disability support officer) who are routinely involved in the planning and implementation of supportive strategies, and administrative staff whose primary role is to provide technical or informational support, future research is required to delineate if support provided by different types of administrators would have the same impact on students' well-being.

Limitations

A number of limitations can be identified within the present study. First, this sample was drawn from a single institution and therefore the results cannot be generalized to all university students. Future studies using a larger, multiple institutional sample would be able to complement the present findings. Second, the cross-sectional study design limited our ability to draw causal relationships between resilience, social support and CMH. Future studies with prospective designs could overcome this problem. Third, the nature of the study precluded the possibility of identifying differences in characteristics between those who responded to the survey and those who did not. The extent to which non-response bias has influenced findings is therefore unclear. Nevertheless, the high response rate (76.4%) should compensate for this limitation.

Conclusions

Despite aforementioned constraints, this study provides preliminary insights on CMH and its predictors among a group of university students in Australia. The current study suggests that CMH is an exception rather than the norm within the current sample, and that resilience and social support significantly predict CMH for both self-perceived TS and NTS. While previous studies indicate higher distress in NTS, the present findings suggest comparable likelihood for TS and NTS in the reporting of CMH. All in all, these findings indicate a need for higher education institutions to invest in mental health initiatives which strengthen students' resilience and on-campus social support as they may enhance the likelihood of CMH in students from different backgrounds. Future studies are needed to explore strengths and resilience among self-identified NTS which potentially protects them from the negative impact of stressors commonly associated with being 'non-traditional'. Moreover, in order to assess wider benefits of improving

students' resilience and social support, it may also be helpful for future studies to explore if CMH, resilience and social support predict enhancement in traditional measures of university success, including grade point averages and retention rates.

Chapter 6: Study Three

Statement of authorship

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Name of Principal Author (Candidate)	Ethel Chung		
Contribution to the Paper	Collected, analysed and interpreted data, wrote manuscript and acted as corresponding author.		
Overall percentage (%)	85%		
Certification:	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.		
Signature		Date	10/6/2016

Co-Author Contributions

By signing the Statement of Authorship, each author certifies that:

vii. the candidate's stated contribution to the publication is accurate (as detailed above);

viii. permission is granted for the candidate in include the publication in the thesis; and

ix. the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

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Abstract

Resilience is related to students' well-being and academic success. While challenges associated with students who are from historically underrepresented backgrounds (that is, 'non-traditional students') have been frequently reported, their resilience has received lesser attention. The primary purpose of this study was to compare levels of resilience between 'traditional' and 'non-traditional' students. First year students participated in an online mental health survey which included a standardised measure of resilience, demographics questions, and an item exploring students' own perception of being 'non-traditional'. The results showed that students who considered themselves to be 'non-traditional' in life aspects including age, employment, and parenting responsibility had significantly higher resilience compared to self-identified 'traditional students'. Whereas resilience levels of students who deemed themselves to be 'non-traditional' in other domains (for example, household income, cultural background) did not differ significantly from 'traditional' students. The findings show that life experiences commonly affiliated with being a mature-aged student, including work and being a carer, may contribute to higher resilience. Implications in relation to practice and future research were discussed.

Keywords. Resilience, non-traditional students, diversity, higher education

In the last two decades, the higher education sector in many industrialised countries has experienced progress in transforming from elite to mass access (Altbach *et al*., 2009). Various equity initiatives have continued to improve the participation of 'non-traditional students' with social, economic and cultural characteristics historically underrepresented within elite higher education systems (Bradley *et al*., 2008; Cahalan, 2013; OFFA and HEFCE, 2014). For instance, there has been a growing number of enrolments from working adults and students from low income households in Australian universities (Australian Bureau of Statistics, 2013a; Department of Education and Training, 2015a). Similar trends in student characteristics have been observed in other parts of the world (National Center For Education Statistics, 2012; Statistics Canada, 2010).

There has been a longstanding interest in how socio-demographic factors may influence university experience and success (Bowl, 2001; Leathwood & O'Connell, 2003; Munro, 2011). Research which report on students' own reflection of their university experiences suggest that being 'non-traditional' has its challenges (Christie *et al*., 2008; Collier & Morgan, 2008). For instance, mature-age students and students who were first in their family to participate in higher education reported difficulties in mastering the dominant cultural codes and practices in the university, which 'traditional students' may have readily obtained through previous educational experience or cultural ideologies/ resources passed down by parents who have been university educated (Bowl, 2001; Collier & Morgan, 2008; Munro, 2011). In addition, international statistics have routinely suggested the association between widening participation and rising rates of attrition (Centre for the Study of Higher Education, 2008; Crawford, 2014; National Audit Office, 2007), which implies that non-traditional students are more susceptible to dropping out. Although it is acknowledged that research focusing on challenges encountered by non-

traditional students has informed strategies to identify and assist students who are struggling, a deficit focus in research often overlooks students' strengths and ability to adapt (Shushok & Hulme, 2006; Smit, 2012).

The resilience of 'non-traditional students'

Although research that explicitly explores and acknowledges strengths in non-traditional students is scarce, it has been implied in the literature that many non-traditional students are highly resilient and have fulfilled their potential despite reported challenges. For example, mature-aged (over 25) students and those who delayed entry into university for at least one year have been found to outperform their 'traditional student' counterparts (Cantwell *et al*., 2001; Martin *et al*., 2013; Schofield & Dismore, 2010). Moreover, a longitudinal study conducted in Australia found that students from a household with low socioeconomic status are no less likely than their high socioeconomic peers to complete their courses successfully (Marks, 2007). A meta-analysis showed that students' university adjustment is largely unrelated to demographic factors including age, ethnic minority status, and socio-economic status, suggesting that many 'non-traditional students' adapt well to the rigor of university studies (Credé & Niehorster, 2012).

Resilience can be defined as the "personal qualities that enable one to thrive in the face of adversity" (Connor & Davidson, 2003, p. 76). The Resiliency Model outlines the dynamic process in which one acquires the intrapersonal qualities that lead to adaptive responses towards stress and adversity (G. E. Richardson, 2002). It is suggests that the biopsychospiritual homeostasis within individuals, which refers to a state of well-being, can be interrupted by adversity (G. E. Richardson, 2002). While the interruption of this comfortable balance could

potentially lead to maladjustments, it also represents a vital path through which individuals can acquire skills to cope with future adversities, through the engagement in a successful cognitive reintegration/ recovery process (Connor & Davidson, 2003; G. E. Richardson, 2002). Consequently, resilience is not a static construct, but one that can be strengthened over time depending on a person's experience in successfully adapting to adversity (G. E. Richardson, 2002). In other words, highly resilient individuals are those who have demonstrated a good track record in overcoming stressful conditions. Compared to their more traditional counterparts, non-traditional students within an elite higher education system are considered the minority who must overcome personal, societal and institutional barriers of participation in order to access, and eventually succeed, in universities (Brewer, 2010; Webber, 2014). This suggests that non-traditional students may be a particularly resilient group, although this premise has not been tested empirically (Keith *et al*., 2006; Murray & Klinger, 2012).

Definitional problems of the term 'non-traditional student'

While 'non-traditional students' is a commonly used term, writers have commented on the complexity in its operationalisation and how this may hinder understanding of students' experience (Chung *et al*., 2014; Schuetze & Slowey, 2002). The majority of research defines non-traditional students based on researcher-imposed demographic criteria (for example, age, work/ marital status), however, there has been a lack of agreement in terms of the type of students being described as 'non-traditional' (Chung *et al*., 2014; Schuetze & Slowey, 2002). Other limitations associated with this definitional approach include: the standard criteria for being a non-traditional students quickly becoming out-dated with rapid expansion of the higher education sector around the world, and the difficulty in categorising non-traditional students

when the student presents with overlapping characteristics which are typically deemed 'traditional' and 'non-traditional' (K. A. Kim *et al*., 2010). Consequently, it is reasonable to question if variability in definitions of non-traditional students influences research conclusions being drawn about this student group.

Aims of study

The primary aim of this study is to compare levels of resilience among traditional and non-traditional students to explore the relative psychological strength of non-traditional students. We hypothesise that non-traditional students will report higher resilience compared to their traditional student counterparts due to their pre-university life experience. Resilience represents an important strength to consider in understanding university success as it relates to students' ability to adapt and grow in response to adversity faced at university and generally in life (Stallman, 2011). Studies have found that resilience is associated with academic achievement as measured by university Grade Point Averages, and indicators of retention, such as sense of belonging (Allan *et al*., 2013; Hartley, 2011, 2013). A shift in research emphasis from deficits to strengths may provide insights into ways to capitalise on students' assets in nurturing success (Shushok & Hulme, 2006).

The secondary aim of this study was to conduct analyses using different defining criteria of non-traditional students within the literature and assess if findings regarding students' resilience level vary across definitions of non-traditional students. Variables including age, work hours and gap year are arguably the more controversial defining criteria of non-traditional students with changeable cut-off points (Chung *et al*., 2014).This study will explore the extent to which inconsistent definitions of non-traditional students may impact on the reliability of

research conclusions, thereby contributing to the wider discussion regarding this methodological problem in student diversity research.

Method

Participants

The data were drawn from an online mental health survey conducted among a sample of 442 students (316 female, 126 male) first year undergraduate Psychology students at a major publicly funded university (response rate = 76.4%), which is a member of the official coalition of research intensive universities in Australia (Group of Eight Australia, 2015). The survey aimed to collect information regarding a number of mental health indicators of students at the beginning of the first semester of 2013 (March). Our sampling frame included students from 13 degree programs in addition to Bachelor of Psychology. The age of the participants ranged from 17 to 58, with an average age of 20.7 years.

Measures

resilience. We adopted the Connor-Davidson Resilience Scale (Campbell-Sills & Stein, 2007CD-RISC 10) as a measure of resilience. Respondents answered the questionnaire by rating how well the ten statements describe them using a 5-point Likert scale (0=not true at all, 4=true nearly all the time), with higher scores indicating stronger ability in coping with adversity. The items address resilient skills such as adapting to changes, and seeing humorous side of problems. CD-RISC 10 has displayed good psychometrics properties in university student populations (Hartley, 2012). A study including 131 undergraduates from a US college found a mean

resilience score of 27.2 (Campbell-Sills & Stein, 2007). The Cronbach's alpha of the CD-RISC 10 was 0.88 within the current sample.

student status. We identified non-traditional students based on students' own self-perception of being 'non-traditional'. A similar self-categorisation approach has been used by K. A. Kim *et al*. (2010). Students were first asked whether they consider themselves as 'non-traditional', regardless of how this term has been typically defined (that is, students with different social or educational characteristics relative to the majority of students on campus). Secondly, self-perceived non-traditional students were asked to identify the respective characteristics which they considered as 'non-traditional', including age, cultural background, geographical background, household income, role as a parent, role as an employee, mode of study, university entry pathway, and/or other reasons.

demographics. Questionnaire items included: age, sex, Indigenous Australian background, completion of a previous degree, admission pathway (for example, standard Australian Tertiary Admission Rank or alternative admission route), significant adverse life events in the past two years (that is, a forced-choice question "Have you experienced any events during the last two years that have impacted negatively on your life and studies?", followed by an optional item to provide extra information about the event), marital status, number of children, source of income, hours of employment, home postcode, part time/ full time study, gap year (that is, the period before university and after secondary school education), disability, educational level of father and mother, and language spoken at home. Students' residential postcode was converted into a proxy of socioeconomic status, based on the Socio-Economic

Indexes for Areas - Index of Education and Occupation published by the Australian Bureau of Statistics (DEEWR, 2009).

Procedure

The School of Psychology at the University of Adelaide circulated invitation emails to students enrolled in all first year psychology subjects. This email included information about the purposes of the study, participants' rights, and a web address for the online questionnaire. All participants received 0.5% course credit after completing the survey. This study was approved by the University of Adelaide Human Research Ethics Committee.

Data Analysis

All survey data were entered into a database using the Statistical Package for the Social Sciences (SPSS), version 20. Prior to the main analysis, the demographic characteristics of students who identified themselves as traditional students were then compared to those who identified themselves as 'non-traditional' using logistic regression. Qualitative responses regarding reasons why students identified themselves as 'non-traditional' were collated and sorted into categories (e.g., reason for study, life experience). The main analysis was conducted using linear regression to compare mean resilience scores between self-perceived traditional and non-traditional students. First, we compared levels of resilience between self-perceived traditional students and non-traditional students. Second, we compared levels of resilience between different groups of non-traditional students (stratified based on subjective reasons in which students used to identify themselves as being 'non-traditional') and traditional students.

Third, we explored associations between resilience and 'non-traditional' status criteria created based on age, working and gap year by different cut-off points used in previous literature.

Results

Out of the total 442 respondents, 25.6% identified themselves as non-traditional students (n=113). Those who identified themselves as 'non-traditional' were significantly different from those who considered themselves as 'traditional' on a number of demographic measures. They were more likely to be male, older, hold a previous degree, study part-time, be an international student, speak a language other than English, have longer gap year, have more children, be reliant on government financial aid, work longer hours, and admit to university via pathways alternative to the standard pathway (that is, Australian Tertiary Admission Rank).

The most common reason that students used to identify themselves as 'non-traditional' was age (58.4%, n=66). Other reasons included cultural background (43.4%, n=50), admission pathway (42.5%, n=48), geographic origin (30.1%, n=34), being employed (25.7%, n=29), household income (20.4%, n=23), being a parent (18.6%, n=21), and mode of study (14.2%, n=16). Seventeen students nominated other reasons (15.9%, n=17), including richer life experience and reason for study (e.g., for self-improvement rather than occupational reasons).

Resilience between self-perceived 'traditional' and 'non-traditional' students

Consistent with the hypothesis that non-traditional students have developed higher resilience, resilience scores in students who self-identified as 'non-traditional' were 1.76 units higher than those who considered themselves as 'traditional' (95% CI=0.35-3.17, p=.014). Further, students who identified themselves as 'non-traditional' due to age, being a parent and

being employed had significantly higher resilience compared with those who considered themselves 'traditional' (see Table 1). For instance, students who reported to be 'non-traditional' due to work reasons had mean resilience scores 3.67 units higher than 'traditional' students (95% CI= 1.15-6.18, p=.0043).

Table 1
Results of univariate regression comparing resilience between those who perceived themselves as 'traditional' versus different groups of self-perceived 'non-traditional' students (N=442)

Reasons endorsed by students for being 'non-traditional'	*n* (% of sample)	*B*	95% CI		*β*	*t*	*p*
			Lower	Upper			
Working	29 (6.56)	3.67	1.15	6.18	0.13	2.86	0.0043**
Being a parent	21 (4.75)	3.33	0.43	6.23	0.10	2.25	0.024*
Age	66 (14.93)	2.65	0.92	4.39	0.14	2.99	0.0027**
Cultural background	50 (11.31)	0.41	1.54	2.37	-0.00026	0.41	0.68
Family income	23 (5.20)	1.90	0.88	4.69	0.051	1.34	0.18
Geographical background	34 (7.69)	0.45	1.87	2.78	-0.00020	0.38	0.70
Mode of study	16 (3.62)	2.43	0.86	5.71	0.058	1.45	0.15
Tertiary entry pathway	48 (10.86)	1.34	0.64	3.32	0.047	1.33	0.18
Others	17 (3.85)	2.76	0.36	5.88	0.072	1.73	0.083

Note. *B* = regression coefficient; CI = confidence interval for *B*; *β* = standardised coefficient, *t* = ratio of *B* to standard error, **p*<.05. ***p*<.01.

Resilience between traditional students and non-traditional students when using researcher-imposed demographic criteria of being 'non-traditional'

The result suggests that findings about resilience level in traditional students and non-traditional students can be altered by the way 'non-traditional' is defined in some (for example, work hours and gap year cut-offs) but not all of the demographic criteria chosen for the analysis.

As shown in Table 2, students who were defined as 'non-traditional' due to working full-time (that is, at least 35 hours of work per week) had significantly higher resilience compared to others who worked part-time or did not work. However, when non-traditional students were defined as those who worked at least 1 hour or 9 hours a week (including both part- and full-time employment), there was no significant difference between traditional students and non-traditional students. As for the gap year cut-offs, when defining non-traditional students as those who had at least 1 year gap between high school and university, there was no significant association between resilience and 'non-traditional' status. However, non-traditional students were found to score significantly higher when they were defined as those who had at least 2 years away before commencing university. As for the age cut-offs, no significant difference in students' resilience level was found when different age cut-off points were used to operationalise non-traditional students.

Table 2
Associations between resilience score and different theoretical non-traditional status cut-offs (N=442)

	≥ cut off *n (% of sample)*	*B*	95% CI Lower	Upper	*β*	*t*	*p*
Some work vs >0 hours work	167	.89	-.39	2.17	0.065	1.37	.17
≥9 hours work vs <9 hours	184	.88	-.38	2.13	0.065	1.38	.17
≥35 hours work vs <35 hours	11	4.36	.39	8.32	0.10	2.16	.031*
Gap year ≥1 year vs <1 year	149	1.29	-.037	2.62	0.093	1.92	.057
Gap year ≥2 year vs <2 year	107	1.72	.26	3.17	0.11	2.33	.020*
Age ≥20 vs <20	160	1.48	.19	2.76	0.11	2.27	.024*
Age ≥25 vs <25	50	4.10	2.18	6.02	0.20	4.20	<.0001**
Age ≥30 vs <30	30	3.69	1.25	6.14	2.97	0.14	.003**

Note. *B* = regression coefficient; CI = confidence interval for *B*; *β* = standardised coefficient, *t* = standardised ratio of *B* to standard error, *p<.05. **p<.01.

Discussion

Despite longstanding and voluminous research regarding difficulties encountered by non-traditional students, it is plausible that non-traditional students who get to universities have developed higher resilience due to previous triumph over barriers to accessing and succeeding in university. The current study compared levels of resilience between self-perceived traditional students and non-traditional students and the findings lend support to this hypothesis. Students who considered themselves to be 'non-traditional' in some aspects of life reported higher resilience than students who perceived their circumstances to be more traditional. Furthermore, findings also suggest that students' resilience level is changed when cut-off points in criteria such as work hours and gap years are altered, thus emphasising a major methodological weakness in using researcher-imposed demographic criteria in defining non-traditional students.

In considering these results, however, several limitations should be kept in mind. First, the study was conducted with first year psychology students in an elite, research-intensive institution. Future replications of the study may consider involving students from various disciplines, year levels, types of institutions, including vocational, regional or technical colleges, to ensure a more representative student sample. Second, the data were obtained solely from an online survey, which may be susceptible to self-reporting bias. For instance, participants may endorse socially desirable questionnaire items which do not reflect actual responses towards adversity. Future study of resilience should include behavioural or third party measures of resilience alongside self-report measures, in order to explore broader perspectives of human resilience (Connor & Davidson, 2003). Third, the cross-sectional study design limited our ability to draw causal relationships between resilience and reasons in which students identified as being

'non-traditional'. While it is possible that experiences in relation to work, being a carer and being older propel the development of resilience, it is also probable that students who return to university while having established life commitments represent a self-selected group of resilient individuals. Future studies using a prospective method may provide additional insight on the relationship between resilience and 'non-traditional' student status.

The major finding of this study is that, those who perceived themselves to be 'non-traditional', particularly in terms of age, roles as a parent and role as an employee, have reported higher resilience. Although no previous study has explored the connection between resilience (as measured by CD-RISC) and age within a university student sample, this finding is consistent with research on suggesting that mature students possess significantly more developed skills in related constructs of resilience, including emotional regulation and problem solving skills (Eppler & Harju, 1997; Eppler *et al*., 2000). On the other hand, students who identified themselves as 'non-traditional' due to reasons other than age, work status and parenting role, have comparable, but not higher level of resilience than self-perceived traditional students as expected. Interpretation of this finding should take into account alternative explanations. For instance, CD-RISC was designed to capture a generalised snapshot of resilient characteristics (Connor & Davidson, 2003). Hence, it may not be sensitive enough in detecting positive coping of adversity in relation to more specific life domains (for example, acculturation, social isolation). Future study may consider exploring relationships between diversity in students' background and life aspects in which students manifest higher resilience, and how they may contribute to students' university experience and adjustment.

We have shown that variations in the definition of non-traditional students can lead to different research results and conclusions. Besides, the descriptive data regarding students' own

definition of non-traditional students provides further support to our argument that the concept of 'non-traditional' is fluid depending on the historical and socio-cultural contexts in which the term is used. For example, while women have historically been considered 'non-traditional' participants of higher education, more male respondents in our study considered themselves as being 'non-traditional' compared to their female counterparts (Chung *et al*., 2014). This observation is likely to be related to the higher female representation in Psychology subjects, and more broadly, the greater number of female students who now participate in higher education within Australia (Department of Education and Training, 2015a; Willyard, 2011). These findings demonstrate the limitations associated with researcher-imposed method in operationalising non-traditional students. It is important for researchers and policy makers to ensure clear descriptions regarding how the concept of 'non-traditional' is defined. Furthermore, more nuanced methods in operationalising non-traditional students which take into account a broad range of student characteristics, as opposed to narrow criteria such as age, need to be developed to aid the investigation of supportive measures that may facilitate students' university participation and success. Students' own subjective self-definition could be a way to overcome some difficulties associated with researcher-imposed definitions. Social identity theory suggests that people organise their external environment by categorising people with similar characteristics together (for example, behaviour, ethnicity, life experience or appearance) (Tajfel, 1981). Asking students to identify if they consider themselves as 'non-traditional' takes into account students' own attachment to a social category, thus providing a student-centred measure of diversity which is more sensitive to the context of widening participation in which the research takes place. While this study represents a preliminary effort in utilising self-perceptions as 'non-traditional' in classifying students who may have special life circumstances, future

research may consider replicating this definitional approach in order to gain further insight into its utility and merits, compared to the researcher-imposed method of categorisation.

The findings may have implications on future directions of research and practice. First, while the majority of research concerning 'non-traditional students' were focused on their challenges, our findings showed that their often richer pre-university life experience may contribute to higher resilience towards stress. Future research may continue to explore skills and knowledge which students bring with them, in order to encourage a more balanced understanding about the increasing diverse university students. Second, our finding suggests that experiences related to being an older student with various life responsibilities (for example, working or being a carer) may be especially relevant in resilience building. Interestingly, previous research has found non-significant relationships between age and resilience within large general community samples (Connor & Davidson, 2003; Gucciardi, Jackson, Coulter, & Mallett, 2011; Liu, Fairweather-Schmidt, Burns, & Roberts, 2014). It is therefore worthwhile for future research to explore if experiences pertinent to work and carer responsibilities have a unique contribution to resilience, above and beyond the general acquisition of life experience as one ages. Furthermore, our finding potentially indicates the value of taking 'gap year', which refers to the deferral of university enrolment in order to engage in developmental activities (for instance, volunteering, working, or travelling), for 'traditional-aged' students. However, research findings on the connections between university deferral and students' outcomes, ranging from personal growth to successful degree completion, have been inconclusive (James *et al*., 2010; Martin, 2010; Martin *et al*., 2013; Parker, Thoemmes, Duineveld, & Salmela-Aro, 2015). Therefore, more research is required to explore the relationships between enrichment of life experience, resilience and academic outcomes.

In conclusion, this article presented the findings of a quantitative study exploring resilience among diverse groups of students in higher education. It contributes to the body of evidence regarding the strengths of non-traditional students, an important area which is often ignored in research. The current results raise concerns about the inconsistent definition of non-traditional students within the existing literature, and proposed a self-perception approach in identifying non-traditional students as opposed to the traditional researcher-imposed approach. Ultimately, research within the increasingly diverse higher education sector should move away from a deficit framework with more recognition being given to student's strengths, skills and valuable prior experiences.

Chapter 7: Study Four

Statement of authorship

Title of Paper	The role of resilience, complete mental health, social and institutional support, motivation, and socio-demographic backgrounds in predicting first-year academic achievement – A prospective cohort study
Publication Status	☐ Published ☐ Accepted for Publication ☑ Submitted for Publication ☐ Unpublished and Unsubmitted w ork w ritten in manuscript style
Publication Details	

Principal Author

Name of Principal Author (Candidate)	Ethel Chung		
Contribution to the Paper	Collected, analysed and interpreted data, wrote manuscript and acted as corresponding author.		
Overall percentage (%)	85%		
Certification:	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.		
Signature		Date	10/6/2016

Co-Author Contributions

By signing the Statement of Authorship, each author certifies that:

x. the candidate's stated contribution to the publication is accurate (as detailed above);

xi. permission is granted for the candidate in include the publication in the thesis; and

xii. the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

Name of Co-Author	Deborah Turnbull		
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Abstract

This study explored if resilience and complete mental health (i.e., CMH, a state of holistic mental health incorporating low distress, high positive emotions and psychosocial functioning) predict prospective first-year GPA, while controlling for the effect of known predictors of achievement. Participants (182 female and 79 male students) completed a baseline survey. Prospective GPA was obtained directly from the Faculty's database. The overall findings suggest minimal influence of resilience and CMH on GPA. However, resilience appears to be an important factor to consider when promoting achievement in students who perceive low support from their learning environment.

Keywords: resilience, complete mental health, academic achievement

Students' performance in higher education is related to a broad array of factors, including cognitive (e.g., intelligence, past academic achievement), social (e.g., demographic background, social support), affective/ motivational (e.g., conscientiousness, self-efficacy, motivation, self-regulation), and metacognitive (e.g., study habits, approach to learning) (Credé & Kuncel, 2008; Credé, Roch, & Kieszczynka, 2010; McAbee & Oswald, 2013; Perera & DiGiacomo, 2013; M. Richardson, Abraham, & Bond, 2012; Vedel, 2014; Voyer & Voyer, 2014). Previous efforts in understanding university achievement have largely focused on factors of individual differences, including cognitive abilities and personality traits, which are presumably difficult, if at all possible, for students and their education providers to change (Dollinger, Matyja, & Huber, 2008). Research has since shown that apart from being bright and conscientious, there are skills, attitudes or habits that students can cultivate in order to achieve their full potential. This is particularly important in the era of widening participation as universities are increasingly required to enrol and support students with diverse educational backgrounds and personal characteristics, for both equity and economic reasons. The present study therefore explores the relationship between two malleable psychological factors (namely, resilience and complete mental health) and academic success in university students.

Resilience is a relatively new concept in the investigation of scholastic outcomes. It represents a strength-based approach which characterises the Positive Psychology movement (Seligman, 2003). Research suggests multiple pathways to resilience, and hence there is little consensus around an operational definition of this concept (Herrman *et al*., 2011). This study defines resilience according to the Resiliency Model proposed by Richardson (2002) – the ability or process that enables a person to cope successfully with adverse or stressful life events, and to gain skills in coping with future adversity. Transition to university can be a stressful event,

which is commonly associated with increased academic pressure, reduced academic support compared to secondary school, social isolation during the transition, and financial difficulties (Bouteyre, Maurel, & Bernaud, 2007; Reavley & Jorm, 2010). Resilience towards stressors in the university environment may assist students to learn and function at a higher level, to sustain motivation and focus when faced with difficult tasks, and to cope with difficult emotions that can impair performance (Claxton, 2002). Most of the existing literature supports the positive association between resilience and tertiary academic achievement as measured by Grade Point Average (GPA) (Allan, McKenna, & Dominey, 2013; Hartley, 2011, 2013). However, a more recent study including 116 undergraduates showed that resilience does not have a significant direct association with GPA (Johnson, Taasoobshirazi, Kestler, & Cordova, 2014).

High levels of psychological distress have been found to associate with significant interpersonal and academic difficulties, including poorer exam performance, absenteeism and higher drop-out rates, and reduced capacity to work or study (Hunt & Eisenberg, 2010; Reavley & Jorm, 2010; Stallman, 2010). Research regarding psychopathology and academic performance is voluminous and longstanding. However, there is a distinct lack of research that incorporates a more holistic concept of mental health which is consistent with the definition by The World Health Organisation (2014, p. 1): "a state of well-being in which the individual realises his or her own abilities, can cope with the normal stresses of life, can work productively, and is able to make a contribution to his or her community". Consistent with this definition, the Dual-continua model (DCM) conceptualises mental health (i.e., positive emotion and psychosocial functioning) and mental illness/ distress as two distinct dimensions, and classifies individuals into those with high and low distress, and those with flourishing, moderate and languishing mental health. CMH represents an optimal state in which individuals have low

mental distress and flourishing mental health (i.e., happy and functioning well) (Keyes, 2005). Research shows that CMH is associated with some indicators of academic performance in university students, including fewer days out of role (Keyes *et al*., 2012).

While previous research is valuable in informing the development of student support strategies, some questions regarding the relationships between mental health, resilience and academic achievement are yet to be addressed. First, there is no existing study on the connection between CMH and academic achievement. Second, while previous studies have established bivariate models between resilience and academic achievement, relatively little is known about how resilience predicts achievement, taking into account known predictors of achievement in multivariable models. For instance, it is unclear if mental health and the ability to deal with set-backs explain students' GPA in addition to achievement motivation, and socio-economic advantages. Third, most previous studies have operationalised academic outcome as students' self-reported GPA, which may be subjected to recall bias (Hartley, 2011, 2013; Johnson *et al*., 2014). Fourth, most of the previous studies have measured all variables at a single point in time and therefore causal inference between resilience and academic performance cannot be established (Hartley, 2011, 2013; Johnson *et al*., 2014). For instance, it is possible that university GPA has caused students to perceive themselves to be more or less resilient (Hartley, 2011). Fifth, to our best knowledge, there is no research on how resilience and mental health would operate differently on academic achievement among students with characteristics associated with being 'non-traditional' (i.e., students with social, economical, or educational backgrounds which are historically underrepresented in students of higher education). 'Non-traditional students' are often required to manage additional obstacles and stressors at university, compared to their 'traditional' counterparts (Gilardi & Guglielmetti, 2011; Jenkins, Belanger,

Connally, Boals, & Durõn, 2013; Verger *et al*., 2009). It is therefore possible that mental health and the ability to cope with stress are more central to their achievement. Furthermore, students who perceive low support from their learning environment may represent another group who may particularly benefit from higher resilience and mental health. Alongside support from friends and family, campus-based social support was found to be a protective factor for positive academic outcomes during stressful university transition (Gloria & Robinson Kurpius, 2001; Rayle, Robinson Kurpius, & Arredondo, 2006). We therefore expect that students who perceive lower level of support from peers, teachers, administrators and the broader institution may require higher stress coping ability and well-being in order to perform well academically.

The present study aims to test two hypotheses: (1) resilience and mental health predict first year university achievement, after taking into account the effect of known predictors of achievement (e.g., past academic performance, motivation, social support, demographic factors), and (2) resilience and mental health operate differently on academic achievement for students with different demographic backgrounds and social and institutional support profiles. To reduce recall bias, we obtained GPA data directly from the Faculty's database with students' consent, rather than relying on the self-report method. A prospective cohort method was utilised to produce stronger evidence for causality by measuring predictor variables before outcome variables (Mann, 2003).

Method

Participants

Participants were 182 female and 79 male students (Age: $M = 21.05$, $SD = 6.38$) enrolled in first year Psychology courses at a major publicly funded Australian university, representing students from 13 degree programs in addition to Bachelor of Psychology. The participants completed a web-based mental health survey at the beginning of 2013 (time 1) and consented for their academic results to be accessed by the researchers in 2014 (time 2), through the Faculty's database. Participants in the current study constituted 59.05% of the sample who completed the baseline survey at time 1, and 45.16% of the full sample of first year Psychology students. Participants did not appear to be significantly different from non-participants in terms of sex, age and previous academic achievement.

Measures

time 1 – baseline questionnaire.

***psychological distress*.** The Kessler Psychological Distress Scale (Kessler *et al*., 2002) includes 10 items concerning how frequently distress symptoms were experienced during the past 4 weeks, on a scale from 'none of the time' (score 1) to 'all of the time' (score 5). The K-10 has demonstrated high internal reliability (Cronbach's alpha = .93) and high convergent validity (r = .9, 95% CI: .89 - .91) with a clinical diagnosis of mood and anxiety disorder (Kessler *et al*., 2002). The Cronbach alpha in the current sample was .88.

***subjective well-being*.** The Mental Health Continuum – Short Form (Keyes *et al*., 2012; MHC-SF) includes 14 questions concerning the experience of positive emotions and psychosocial functioning in the past 4 weeks. It has demonstrated moderate test-retest reliability (Cronbach's alpha = 0.68, $p < 0.001$) and high convergent validity with similar measures in an

American adult sample (Keyes, 2002). The internal reliability of the MHC-SF in the current sample was 0.92.

complete mental health. The scores of MHC-SF and K-10 were combined to form the category of CMH (i.e., high mental health and low distress) based on approaches adapted from Keyes *et al*. (2012) and Low (2011). Participants were classified as having 'high mental health' on the MHC-SF if they experienced at least 1 symptom of emotional well-being and at least 6 symptoms of positive functioning 'almost every day' or 'every day' during the past month (Keyes *et al*., 2012; Low, 2011). Low distress was defined by a K-10 score less than 25 (Beyond Blue, 2013; Department of Human Services, 2002). Participants with scores of MHC-SF and K-10 which did not meet the category of CMH were classified as the non-CMH (i.e., reference) group.

resilience. The Connor-Davidson Resilience Scale (Campbell-Sills & Stein, 2007; CD-RISC 10) is a 10-item questionnaire which measures the ability to cope with adversity (Campbell-Sills & Stein, 2007). Each item is rated on a 5-point scale, with higher scores indicating greater resilience. CD-RISC 10 has demonstrated good psychometrics properties within university student samples (Hartley, 2012). The Cronbach's alpha of the CD-RISC 10 in the current sample was 0.88.

social support and institutional support. The subscale 'Supportive Learning Environment' (SLE) of the Australasian Survey of Student Engagement (ACER, 2010; AUSSE) represents a measure of students' sense of inclusion within their universities. The SEQ was adapted from the North American Survey of Student Engagement (NSSE) for use amongst students in Australia and New Zealand (ACER, 2010; Coates, 2010). The SLE contains six items, the first three relate to support by peers, teachers and administrators (i.e., social support

variable), whereas the remaining items relate to the support provided by the institution with regard to learning, coping with non-academic responsibilities, and fulfilling social needs (i.e., institutional support variable). A factor analysis supported the two-factor model of SLE in the present sample. The internal reliability of the social support factor and institutional support factor in the current sample was 0.74.

motivation. The needs for achievement subscale (nAch) of the Needs Assessment Questionnaire (Heckert *et al*., 2000; NAQ) measures the desire to excel and improve on past performance. Each of the 5 items is rated on a 5-point Likert scale (A = strongly disagree to E = strongly agree). The nAch has demonstrated good psychometric properties in studies involving university students (Heckert *et al*., 2000). Cronbach's alpha of nAch in the present sample was .89.

demographic factors. Demographic questions included: age, sex, Aboriginal and Torres Strait Islander background, completion of a previous degree, admission pathway (e.g., tertiary admission rank or alternative admission route), significant adverse life events in the past two years, marital status, number of children, source of income, hours of paid employment, home postcode, part time/ full time study, gap year between secondary school and university, disability, educational level of father and mother, and number of languages spoken at home. Significant life events were assessed using the question "Have you experienced any events during the last two years that have impacted negatively on your life and studies?", followed by an optional item to provide extra information about the event. Students' residential postcode was converted into information about socioeconomic status and rural background based on guidelines published by the Australian Bureau of Statistics (Australian Bureau of Statistics, 2013; DEEWR, 2009). Apart from standard demographic information, we included a subjective measurement of

student diversity consistent with Kim, Sax, Lee, & Hagedorn (2010). Students were asked whether they considered themselves to be a 'non-traditional student'. Those who identified themselves as being 'non-traditional' were also asked to nominate reasons for their decision.

time 2 – Academic achievement data.

grade point average (GPA). GPA is the average of the grades obtained in all completed courses, weighted by the credit points of each course. We used cumulative GPA of two semesters which has a range between zero and 14.

enrolment. We determined students' enrolment in at least one course within the same university at time 2, excluding those who departed due to completion of their program (Gabb, Milne, & Cao, 2006).

previous academic achievement. The Australian Tertiary Admission Rank (ATAR) is a percentile scale between 0 and 99.95 with intervals of 0.05 which measures a student's performance in the final year of high school relative to all other students in a particular year (The South Australian Tertiary Admissions, 2012).

Procedure

School of Psychology administrative staff circulated invitation emails to students enrolled in first year Psychology, in 2013. This invitation detailed important information about the baseline mental health survey, requested students' participation, and assured that the information provided would be kept confidential (Dillman, Smyth, & Christian, 2009). At the beginning of the on-line survey, students were asked to indicate whether they would provide consent for the researcher to access their enrolment status, GPA, and ATAR at time 2. Students' consent was

implied by the provision of their unique student identification number. After participants completed the 2013 academic year, these identifiers were forwarded to a university Faculty administrator to retrieve the relevant information. Students received 0.5% course credit upon completion of the baseline survey, regardless of their willingness to participate in the follow-up study. This study was approved by the University of Adelaide Human Research Ethics Committee.

Statistical analysis

All survey responses were entered into an electronic database. Data analysis was conducted using Statistical Analysis System (SAS) v9.3 (SAS Institute, 2006). Prior to the main analysis, descriptive statistics and bivariate correlations of all variables were conducted. To answer the first research question, a two-step approach was used. We first used univariate regression to measure the association between psychosocial, demographic, previous achievement variables, and academic outcome variables, without controlling for the effect of any other variable. Following this, in order to find the most parsimonious, efficient multivariable linear regression model for each academic outcome variables separately, included initially were covariates that had a p-value<.1 on the univariate regression models. Backwards step-wise elimination was performed until all covariates in the multivariable model had a p-value<.1.

For the second research question, interaction terms were created for resilience and CMH (i.e., resilience*demographic variables, CMH*demographic variables, resilience*social support, CMH*social support, resilience*institutional support, and CMH*institutional support). Linear regression models were used to assess if the interaction terms contributed significantly to the variance of GPA. Post-hoc analysis was conducted for significant interaction effects.

Missing data

Minimal missing values were found for some demographic questions within the baseline survey. Furthermore, missing data for GPAs resulted when students did not complete or enrol in each semester. As to the enrolment variable, one study aboard student returned to his/her country of origin in 2014 and therefore we recorded this as a missing value. As a general rule, if one or more values of a variable were missing, we excluded the case only if the missing value was required for specific analysis.

Results

A preliminary analysis of the survey data was undertaken by calculating the descriptive statistics and correlations for psychosocial predictor variables and academic performance predictor and outcome variables (see Table 1). As the preliminary analysis revealed a low number of non-enrolments (n=20), this outcome variable was dropped from further consideration in multivariable models due to lack of power.

Table 1

Univariate correlations and descriptive statistics of psychosocial, academic, and selected demographic[1] variables (N=261)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Resilience	-	.48**	.38**	-.60**	.65**	.26**	.18**	.11	.36**	.24**	-.020	-.14*	.13*	.11	.005	-.001
2. CMH		-	.32**	-.54**	.72**	.32**	.19**	.17**	.14*	.076	.075	-.14*	.009	.044	.027	-.006
3. Motivation			-	-.31**	.40**	.27**	.29**	-.16*	.13	.062	.040	.020	.029	-.061	-.001	-.018
4. Distress				-	-.65**	-.31**	-.18**	-.16*	.013	.003	-.059	.22**	-.023	-.023	.008	-.005
5. Subjective well-being					-	.39**	.26**	.17*	.039	-.009	.060	-.14*	-.024	.054	-.001	-.021
6. Social support						-	.52**	.14*	.11	.090	.004	-.014	.018	-.001	-.041	-.042
7. Institutional support							-	.066	-.049	-.068	.047	.009	.084	-.017	.022	.028
8. Total GPA								-	.36**	.24**	.18**	-.19**	-.059	-.17*	-.18**	-.26**
9. ATAR									-	.13	.026	-.053	-.29**	-.036	-.16**	-.15*
10. Enrolled in 2014										-	.19**	.033	-.079	.057	-.029	-.12
11. Completed high school											-	-.17**	-.37**	-.053	-.22**	-.12
12. Adverse events												-	.11	-.14*	.006	.015
13. Self-perceived NTS													-	.056	.038	-.053
14. Low SES														-	.17*	.13
15. First in family															-	.73**
16. Father had no tertiary education																-
Mean (SD)	36.51 (6.96)		20.05 (3.60)	21.66 (7.066)	56.98 (13.20)	13.95 (3.56)	8.20 (2.11)	9.83 (2.76)	80.016 (16.15)							
Frequency (%)		84 (32.20)								240 (91.95)	241 (92.30)	120 (46.0)	73 (28.0)	43 (16.5)	81 (31.0)	106 (40.6)
Missing		-								1 (.0039)				40 (15.3)	7 (2.7)	17 (6.5)

Notes. [1]Due to the large number of demographic variables analysed, only demographic variables directly related to the subsequent discussion of findings are presented here.
*p<.05. **p<.01.

Univariate and multivariable regression

A number of demographic and psychosocial factors, as well as previous achievement (i.e., ATAR) were found to have a significant association with first year GPA. Between resilience and CMH, only CMH predicted GPA in the univariate model (Estimate=1.002, 95% CI=.24, 1.76, p=.009). After performing backwards step-wise elimination until all covariates in the multivariable model had a P value<.1, six variables remained in the final model. These variables included: motivation, ATAR, adverse event, father had not received post-secondary education, low SES (based on home postcode while in high school), and incomplete high school education. As shown in Table 2, five of these variables made a unique statistically significant contribution to GPA, controlling for the effect of other covariates in the model. The strongest predictor of GPA was secondary school completion. Students who had completed school achieved a mean GPA 8.3 points higher than those who had not completed school and thus entered through alternative pathways. Conversely, the strongest negative predictor of GPA was experiencing an adverse event in the past two years. Students who reported an adverse event had a mean GPA 0.98 points lower than students who did not report an adverse event. Overall, results indicated that resilience and CMH did not predict first year GPA after taking into account known predictors of achievement.

Table 2
Multivariable regression summary for variables predicting first year GPA

	B	95% CI	*β*	*t*	*p*
Completed school	8.30	3.78, 12.81	0.23	3.63	.0002**
Motivation	0.23	0.13, .33	0.28	4.60	<0.0001**
ATAR	0.06	.034, .085	0.31	4.60	<0.0001**
Adverse event	-0.98	-1.71, -.26	-0.18	-2.68	0.008**
Father had no tertiary education	-0.83	-1.56, -.10	-0.15	-2.25	0.026*
Low SES	-0.82	-1.76, .11	-0.11	-1.73	0.085

Notes. B = regression coefficient; CI = confidence interval for B; β = standardised coefficient, t = ratio of B to standard error, *p<.05. **p<.01.

Linear regression of GPA versus interaction terms

We explored whether resilience and CMH operate differently on GPA for students coming from different demographic backgrounds, and who reported different perceived levels of social and institutional support. Interaction terms were created between resilience, CMH, and 15 demographic variables, selected a priori due to theoretical importance and/ or from results for research question one. These included: sex, age, previous degree, international students, spoke a language other than English, school completion, low SES, rurality, father had no tertiary education, mother had no tertiary education, first in family to participate in university, work hours, disability, adverse events, and self-perception as a 'non-traditional student', as well as social and institutional support.

All demographic interaction models were insignificant except for Father education*CMH (interaction p-value=0.0389). This interaction was not considered significant after adjusting for multiple comparisons. Our results thus indicate that resilience and CMH do not operate differently on GPA for students coming from different demographic backgrounds.

We explored if the relationships between GPA and the two variables of interest (i.e., resilience and CMH) changed for students with different levels of social and institutional support. A statistically significant interaction effect between resilience and institution support on GPA was found (interaction p-value=.0033). In other words, the strength of association between GPA and resilience depended on the magnitude of the institution support score and our hypothesis is partially supported.

For post-hoc comparisons, scores of institutional support and resilience were initially converted to binary variables (cut-off=mean) and mean GPA values were given for each combination of institutional support and resilience (0 is less than mean and 1 is greater than or equal to mean). The highest mean GPA occurred for high institutional support and high resilience (see Table 3). Further analysis showed that the higher the institutional score, the greater the mean difference in GPA between those with low and high resilience. For students with a relatively high institutional support score (i.e., one standard deviation above mean), those with low resilience (i.e., one standard deviation below mean) had a mean GPA score 4.7 units lower than those with a high resilience score (i.e., one standard deviation above mean) (95% CI: -7.9, -1.6). As this 95% CI did not contain 0 this comparison was statistically significant. For those students with an average (i.e., mean) institutional support score, the estimate was -3.8 (95% CI: -6.3, -1.3) and for those students with a low institutional support score (i.e., one standard deviation below mean) the estimate was -2.8 (95% CI: -4.7, -0.9). In other words, for students with low institutional support, an increase in one unit of resilience increased their GPA less than for students with high institutional support, where an increase in one unit of resilience increased the GPA by a greater amount. As a result, students who reported lower institutional support may require a higher level of resilience in achieving the same level of GPA.

Table 3
Least Squares Means of GPA versus resilience interaction with institutional support

Resilience	Institutional support	Mean GPA	Standard Error	95% CI
0	0	9.80	0.34	9.15, 10.46
0	1	9.07	0.43	8.23, 9.92
1	0	9.79	0.36	9.081, 10.51
1	1	10.31	0.33	9.67, 10.95

Notes. CI = confidence interval for Mean GPA.

Discussion

The present study examined if (1) resilience and mental health predict first year university achievement in a multivariable regression model with known predictors of achievement, and (2) resilience and mental health operate differently on academic achievement for students with different demographic backgrounds and social and institutional support profiles. Our first hypothesis was not supported by the findings. The relationship between resilience and GPA has been inconclusive in previous studies (Hartley, 2011, 2013; Johnson *et al*., 2014). Consistent with Johnson *et al*. (2014), the current findings showed that resilience did not significantly predict first year GPA in a univariate model. This suggests that being resilient alone may not automatically lead to higher GPA. Alternatively, the discrepancy of findings in the literature may be related to the year level of participants. Studies which found significant relationships between resilience and GPA have included students who were in the latter part of their studies. For instance, participants involved in Hartley (2011) and Hartley (2013) had on average completed 71 and 64 out of the minimum 120 credits points required for a 4-year Bachelor degree in the United States (USNEI, 2008). In comparison, the majority (i.e., 66%) of participants involved in Johnson *et al*. (2014) were completing the first half of their degrees, and the present study sample was comprised entirely of first year students. Beiter *et al*. (2015) found

that third and fourth year college students tended to report higher level of stress compared to their first year counterparts. There is a possibility that the effect of resilience on achievement strengthens as students approach the latter phases of their studies, where the difficulty of course materials and the pressure to graduate generally increase. Interestingly, this prediction does not appear to be substantiated by the findings of Allan *et al*. (2013), in which a significant association between resilience and first year GPA was found. It should be noted however, that given the connection between athletic performance and some components of resilience (Galli & Gonzalez, 2014), this association may be affected by the sampling frame, that of a sports education faculty. The current findings indicate a need for future studies to adopt a longitudinal approach in order to identify potential changes in relationships between resilience and academic outcomes as students progress at university.

In contrast to our prediction, the association between GPA and CMH found in the univariate model became non-significant in the multivariable model, suggesting that the effect of CMH on GPA is confounded by other factors in the regression model. While resilience and CMH did not appear to predict GPA in the multivariable model, significant correlations were found between these factors and motivation (r=.38, .32) – the only malleable factor which uniquely contributed to first year GPA. Resilience and CMH can be conceptualised as factors related to one's self-regulatory process. Theorectically, students who are highly motivated to succeed and improve on past performance tend to be resilient and stay optimistic when faced with challenges and setbacks, and less likely to engage in unhelpful behaviours that sabotage their chances of success (Alderman, 2013; Martin, 2002). Theoretical propositions, together with the present findings suggested that resilience, CMH and motivation are related concepts. While detailed exploration of the interconnectedness of these variables is out of the scope of the

present investigation, future study may employ structural equation modelling to explore indirect relationships between resilience, CMH, and achievement, through motivation. Such findings may be important for the development of student support strategies, as interventions which teach self-regulatory skills have shown to result in greater gains in academic achievement and retention compared to other types of interventions (e.g., orientation or first-year experience programs) (Robbins, Oh, Le, & Button, 2009).

Consistent with findings from meta-analyses regarding the relationship between motivational constructs and GPA, our findings suggest that achievement motivation is more predictive of first year GPA compared to high school achievement (i.e., ATAR), a current benchmark which universities adopt to select prospective students (M. Richardson *et al*., 2012; Robbins *et al*., 2004). As the effect of previous achievement can be partly explained by non-intellectual factors, it has been speculated that ATAR may be a reflection of characteristics which more directly influence grades in university (Robbins *et al*., 2004). There has been a growing debate regarding the use of previous academic achievement as a student selection criterion due to its inadequacy in predicting academic performance in higher education, particularly among 'non-traditional students' (Komarraju, Ramsey, & Rinella, 2013). This study provided additional evidence in favour of including non-intellectual factors, such as motivation, in the student selection process.

The majority of factors which significantly predicted first year GPA in the multivariable model were non-malleable and with socioeconomic underpinnings (e.g., school completion, father's education and past achievement). This seemingly reinforces the pessimistic view that, despite the continued effort to enrol more students from a lower SES background, their chances of succeeding are lower than their more privileged peers. However, it is important to

acknowledge that we only measured academic achievement within the first year of university, therefore, it is unclear whether the effect of SES on achievement changes as students progress. Studies which explored the effect of socioeconomic disadvantage and achievement found that the influence of SES declined steadily across educational transitions (Delaney, Harmon, & Redmond, 2011; Thiele, Singleton, Pope, & Stanistreet, 2014). Therefore, it is important for future studies to follow-up students longitudinally in order to capture any potential changes in saliency of predictors of achievement across time. In addition, one possible limitation in our attempt to explore the association between demographic factors and achievement is that the sample sizes of students from some demographics were low (e.g., students who did not complete school = 20). However, this does not appear to be a cause for concern regarding the interpretation of the present finding, judging by reasonable ranges of confidence intervals.

Another significant predictor of achievement was the absence of an adverse event in the past two years. This result is consistent with previous findings regarding relationships between academic underperformance and life stresses of various severity, ranging from general distress (Reavley & Jorm, 2010), childhood trauma (Duncan, 2000), to unremitting posttraumatic stress (Bachrach & Read, 2012). The current finding adds that the exposure to adverse events has a unique contribution to lower GPA after adjusting for the effect of psychosocial and demographic factors. Adverse events have been widely reported within our sample (46%), and similarly in other studies involving university students, which warrants attention from university mental health services, educators and policy makers (Boals, Southard-Dobbs, & Blumenthal, 2014; Smyth, Hockemeyer, Heron, Wonderlich, & Pennebaker, 2008).

Our second hypothesis was partially supported by the findings. While the relationship between CMH and GPA was not dependent on either social or institutional support, consistent

with our prediction, there was a significant interaction effect between resilience and institutional support on GPA. Specifically, students who perceived less support from their university towards their learning, and the fulfilment of non-academic responsibilities and social needs, required significantly higher levels of resilience to achieve the same level of GPA compared to their peers who reported higher perceived institutional support. Although there is a lack of research regarding the relationship between institutional support and the types and amount of obstacles faced by students, it is possible that students with lower institutional support are faced with greater structural barriers in their studies and hence the ability to cope with setbacks becomes more crucial for their achievement, compared to students who are faced with fewer barriers. While our study found that resilience does not significantly predict GPA in the whole of our sample, it significantly predicts GPA in those who reported lower institutional support. Therefore, initiatives aiming at increasing resilience is likely to assist students who feel unsupported by their universities in achieving their full academic potential. However, it is important to acknowledge the non-significant correlation between institutional support and GPA, indicating that students with lower institutional support are not necessarily at a disadvantage on their achievement. As such, while strategies to boost resilience may be helpful for students who perceived low institutional support in general, those who feel unsupported and struggling academically are arguably the group who may receive the most benefits from such an approach. In addition, we would be cautious in recommending resilience intervention as a stand-alone supportive strategy, as low institutional support may indicate the presence of systemic barriers which would require the attention of teachers and university administrators.

Although resilience predicted GPA differently for students who had varied level of institutional support, a similar finding was not evident for campus-based social support. A

possible explanation would be that the ability to cope with stress and setbacks is more relevant for achievement in the scenerio of inadequate institutional support, as the type of assistance students receive from their university may be unique in nature. In contrast, the effect of low campus-based social support (e.g., from peers and teachers) on achievement may be more readily compensated by social support received elsewhere (e.g., friends and family), which have been shown to protect against academic stress (Wilks, 2008; Wilks & Spivey, 2010). While this hypothesis could not be tested with the current data, future studies could investigate the potential protective ability of campus-based social support versus other forms of social support, towards academic achievement.

Contrary to our expectations, resilience and CMH did not predict GPA differently for students who were considered 'traditional' or 'non-traditional students', either using a subjective or more objective method of catergorisation (e.g., the categorisation of low SES based on published methods). One way to interpret this finding is that, in the era of widening participation in higher education, many university students nowadays can be considered as 'non-traditional' (Bell, 2012). While our sample was collected from a research-intensive university often referred to as a 'sandstone' institution, a significant minority of the participants regarded themselves as 'non-traditional' (28%), and about 32% were first in their family to participate in tertiary education (i.e., neither of the parents had received post-secondary education) (Group of Eight Australia, 2015). It is conceivable that demographic factors become less meaningful proxy measures of difficulties stemming from disadvantage above and beyond what is considered as 'normal', the more education systems have undergone massification (Kim *et al*., 2010). This explanation is consistent with our finding regarding the significant interaction between resilience and perceived institutional support on GPA, as it is plausible that institutional support represents

a measure that more directly captures difficulties one encounters while navigating within the university system. This finding highlights the importance for future student diversity research to not only include standard demographic variables, but also measures of institutional support. Furthermore, while the value of subjective measures of student diversity has been acknowledged in previous literature, this study did not find a significant association between such a measure and academic performance (Kim *et al*., 2010; Nakashima & Yanagisawa, 2015). Future studies are required to explore subjective measures of diversity in predicting student outcomes.

A number of methodological limitations can be identified in this study. First, the current study involved a small sample from a single university. Future studies using a large, multi-institutional sample may be able to obtain more generalisable findings. Second, due to the limited number of students who did not enrol at time 2, analysis regarding the retention outcome was not permitted. Third, the 'opt-in' nature of the study may introduce systematic differences between responders and non-responders. For instance, students who elect to disclose their academic results may be more confident about their ability. However, as non-responders were not found to differ from responders in terms sex, age and previous achievement, the potential influence of this limitation on the findings may be negligible. Fourth, GPA represents only one of many methods in which academic achievement can be operationalised. More diverse learning outcome indicators should be included in future studies in order to further shed light on the relationship between resilience, CMH and learning within the higher education setting. Some possible alternative measures include: learners' satisfaction, cognitive learning outcomes (e.g., problem-solving, analytical and writing skills, and confidence tackling unfamiliar problems), affective learning outcomes (e.g., self-concepts, goal-setting, and values development), and intention to drop-out (Duque, 2013). Despite these limitations, this study represents the first

prospective cohort study comparing the effect of resilience and CMH on first year GPA with known predictors of achievement. Furthermore, although the number of students who did not enrol at time 2 was low in the current sample (n=20), they were significantly more likely to have lower GPA (r=.24). The prospective nature of the study enables the inclusion of data from students who have dropped out, which is not possible with a cross-section method of data collection.

In conclusion, the present findings suggested that school completion, motivation, previous academic achievement (ATAR), experience of adverse events in the past two years, and father's education significantly predicted first year GPA. Contrary to our predictions, resilience and CMH did not significantly associate with GPA, after taking into account the effect of known predictors of achievement. However, the significant interaction effect between resilience and institutional support on GPA indicates that students with lower institutional support may particularly benefit from increased resilience. Resilience training, together with multilevel student support, are likely to assist students who perceive lower institutional support to fulfil their academic potential. Future longitudinal studies using a large, multi-institutional sample are required to explore the relationship between resilience, CMH and student outcomes, as well as to consider potential indirect pathways through which resilience and CMH may influence academic achievement.

Chapter 8: General Conclusion

This thesis contributes to knowledge regarding resilience, CMH and academic achievement, among 'traditional' and 'non-traditional' university students. A systematic review of the definitions of the term 'non-traditional' student within the literature and one prospective cohort study were conducted to produce four papers. Overall, results suggested that students who identified themselves as being 'non-traditional' did not significantly differ from those who identified themselves as 'traditional', in terms of their first year GPA and likelihood in reporting CMH. However, students who perceived themselves as being 'non-traditional' reported a significantly higher level of resilience. Furthermore, factors such as resilience and adverse life events were found to play a significant role in the mental health and academic achievement of university students and should be an important part of strategies designed to promote student outcomes. Before a discussion of study limitations, contribution to knowledge and practical implications, a brief summary of each study is provided.

8.1 Summary and synthesis of findings

The primary purpose of the first stage of this research project (Study One) was to systematically review working definitions of the term 'non-traditional student' in mental health research conducted within the higher education context. It highlighted that definitions of 'non-traditional' were not always provided in research, can be ambiguous and highly inconsistent among studies.

The next three studies were part of a prospective cohort study which involved a baseline resilience and mental health survey (Study Two and Three), and a follow-up study (Study Four)

regarding students' academic outcomes, one year after the baseline survey was conducted. The purpose of Study Two was to explore the prevalence and predictors of CMH among self-perceived traditional and non-traditional students. The findings showed that overall, 30.5% of participants reported CMH. Students who perceived themselves to be 'non-traditional' in at least one life area did not have a lower likelihood of CMH compared to their traditional peers. Among the 'non-traditional' sociodemographic variables (as identified in Study One) under study, only age significantly contributed to CMH, specifically, in a positive direction. Furthermore, resilience, campus-based social support and adverse life events experienced in the past two years significantly associated with CMH in both traditional and non-traditional students, making these promising aspects to consider when developing mental health promotion program on campus.

Given a number of previous studies indicating that non-traditional students may experience greater risks for mental distress (Bayram & Bilgel, 2008; Chow, 2007; Eisenberg *et al*., 2007), it seems intriguing that 'non-traditional' students were found to report similar odds of CMH in Study Two. It is possible that 'non-traditional' students bring with them strengths which buffer against negative effects of stressors they may experience. The main aim of Study Three was therefore to compare levels of resilience between self-perceived traditional and non-traditional students. It was found that students who identified themselves as being 'non-traditional', in terms of employment, role as a parent, and age, reported significantly higher resilience compared to students who perceived themselves to be 'traditional' student.

In light of the findings of Study One, a secondary aim of Study Three was to explore whether the use of inconsistent working definitions of 'non-traditional' students in research

would result in different findings. The findings suggest that the way in which 'non-traditional student' is operationalised in research can significantly influence the subsequent conclusion.

Armed with the knowledge about CMH and resilience, the purpose of the final study (i.e., Study Four) was to explore if these constructs predict first year GPA. Resilience was not found to significantly predict prospective first-year GPA. The effect of CMH on GPA was confounded by covariates included in the regression model (e.g., motivation). While resilience did not appear to predict GPA significantly in the overall sample, a significant interaction effect between resilience and institutional support on GPA was found. Specifically, students who perceive lower institutional support may require a higher level of resilience to achieve the same GPA compared to others.

8.2 **Methodological limitations**

A number of limitations and potential problems can be identified. Most of these issues have already been outlined in the four papers. For example, the present survey utilised a small sample drawn from a single public, elite research university in Australia, which may not be representative of Australian universities more generally (Group of Eight Australia, 2015).. Furthermore, the use of the GPA as the only measure of academic achievement in Study Four may have restricted the scope of findings. Students' academic outcomes can be measured by various methods (e.g., learners' satisfaction, cognitive and affective learning outcomes, intention to drop-out (Duque, 2013)). The inclusion of a broader range of academic outcome indicators could potentially generate more insight into how the predictor variables (i.e., resilience and CMH) may influence learning.

In addition to the limitations described in individual papers, some overarching methodological issues warrant further discussion. For instance, questions remain regarding the benefits of using a self-definition approach in operationalising 'non-traditional' students, beyond the default approach (i.e., researcher-imposed method). On one hand, consistent with observations made by K. A. Kim *et al*. (2010), the use of students' own self-perception to categorise non-traditional students in research overcomes a number of practical difficulties typically associated with the researcher-imposed method (e.g., the lack of a consistent definition, overlap between traditional and non-traditional student criteria). On the other hand, similar to researcher-imposed criteria of 'non-traditional student', students' own perception about who is 'non-traditional' may vary according to a complex host of factors (e.g., psychological, cultural, temporal, and institutional). For instance, in Study Two, more male participants reported being 'non-traditional'. This is possibly related to the fact that currently, more women participate in higher education within Australia (Department of Education and Training, 2015c), and particularly in psychology subjects (Cynkar, 2007). The way students categorise 'non-traditional' may differ, for instance, when the context of research is set in traditionally male-dominant disciplines (e.g., science, technology, engineering, and mathematics) (Department of Education and Training, 2015b).

Furthermore, this study based the categorisation of mental health categories of the DCM on mental distress rather than mental illness. That is, students classified as having low distress (i.e., a prerequisite of CMH) not only include students without a mental illness, but also those with a low level of transient distress related to situational demands. Previous studies suggest that mental distress, not just diagnosable mental illness, can have a detrimental impact on student outcomes (Stallman, 2008, 2010). This adjustment is therefore based on a practical

consideration about mental health within university student populations. However, comparison with previous research findings (e.g., Keyes *et al*., 2012; Low, 2011) regarding the prevalence of CMH should take into account methodological differences, as discussed in Study Two. Moreover, this study relied on self-report screening instruments to categorise CMH in a theoretical manner, which may not necessarily correspond with students' actual experience. Future research may incorporate additional indicators of psychological and physical functioning to increase accuracy of classification, such as including a clinical psychologist to check the validity of the classification system used.

8.3 **Contribution to knowledge**

Despite the aforementioned limitations of this work, it has a number of methodological strengths and has made some important contributions to knowledge.

8.3.1 Study One

As mentioned in Section 2.1.1., the definition of the term 'non-traditional' student has been a source of ongoing debate among researchers (e.g., Devlin, 2011; Kenny *et al*., 2007; Rubin *et al*., 2014; Spiegler & Bednarek, 2013). Study One sheds light on the criteria in defining 'non-traditional students' which have been utilised in the research. The novelty of the findings lies in the use of a more rigorous methodology (i.e., systematic review) compared to past reviews of this kind (e.g., K. A. Kim, 2002). Study One has also resulted in the first published data extraction and evaluation tool for systematic reviews aiming at clarifying meanings of a concept. Furthermore, the findings from Study One highlight limitations of existing methods in defining

'non-traditional' students, which may stimulate discussion towards a more consistent and meaningful way of classifying this student group.

8.3.2 Study Two

As discussed in Sections 2.1.2 and 2.1.3, research involving university students from an underrepresented background has primarily focused on negative aspects of mental health (e.g., mental distress), as well as 'deficits' which may predispose negative academic outcomes (e.g., the lack of cultural capital and financial resources). Studies Two and Three attempted to address these gaps by (1) improving the understanding of students' mental health, based on a more holistic paradigm that incorporates both emotional and functioning well-being, in addition to psychological distress, and (2) exploring a potential strength which may relate to the 'non-traditional' student experience (i.e., resilience). Study Two was the first Australian study on the prevalence of CMH in a university student sample. It suggested a lower prevalence of CMH in the current sample (i.e., students of a public, elite research university) compared to estimates reported in previous studies conducted in the United States (Keyes *et al*., 2012; Low, 2011). This finding indicates a need for future studies to confirm if Australian students truly lag behind their North American counterparts in terms of mental health. Furthermore, Study Two represented the first attempt in exploring how students define the term 'non-traditional student'. As discussed earlier, students' perceptions about the concept of 'non-traditional' may be useful as an alternative method in classifying 'non-traditional' students within the research context. On the other hand, knowledge about how students perceive the concept of 'non-traditional' may have implications for the development of outreach programs and strategies for attracting historically underrepresented students to universities. Research in health promotion has revealed

that messages tailored to suit individuals' characteristics make them more personally relevant to the audiences, and therefore, more effective in influencing behaviours compared to those which are not tailored (Miller *et al*., 2005). Likewise, it is possible that messages aiming to attract underrepresented students to universities which incorporate students' own perceptions of being 'non-traditional' may be more effective. This finding therefore suggests that continued exploration of students' own definition of 'non-traditional' is needed. Lastly, this study represents the first attempt to explore predictors of CMH. Specifically, resilience and campus-based social support significantly predict CMH and therefore appear to be a promising focus for future mental health initiatives for university students.

8.3.3 Study Three

As non-traditional students are generally required to overcome additional barriers in order to access higher education, it has been speculated that non-traditional students who eventually arrive on campus are more resilient (e.g., Eppler & Harju, 1997). Study Three represented the first attempt, to our knowledge, to test this hypothesis empirically. Students who perceived themselves to be non-traditional reported higher levels of resilience, particularly among those who were deemed non-traditional due to age, work experience and parenting experience. This finding indicates that being 'non-traditional' associates with more developed skills which predict mental health, and yet these qualities have not been well-understood in the literature. It therefore points to the importance of research exploring how pre-university life experience in students may facilitate their university adjustment, in order to encourage a more balanced approach to student support. That is, moving away from a focus on the identification and remedy of deficits, but also harnessing strengths. Another contribution of Study Three is

that it empirically showed that variations in how the concept of 'non-traditional student' is operationalised in research can alter conclusions drawn about this student group. For instance, operationalising 'non-traditional' students as those who had a one year versus two year gap between university and high school resulted in significantly different findings in resilience score. This finding echoes those of Study One, and highlights the importance of the approach used to classification of 'non-traditional' students in research.

8.3.4 Study Four

As discussed in Section 2.1.4, the way in which resilience and CMH may contribute to first year academic success has not been fully understood. Study Four represented the first study to investigate the relationship between CMH and GPA. While the relationship between resilience and GPA has been investigated by other studies (e.g., Bitsika *et al*., 2010; Hartley, 2012; Peng *et al*., 2012), Study Four contributed to knowledge by addressing this research question in a more methodologically rigorous manner. First, it incorporated a wide range of demographic and socio-psychological covariates, which have been shown to relate to academic performance, within multivariable regression models. Second, Study Four represented one of the few studies which has utilised a prospective cohort design (rather than a cross-sectional design) in exploring issues regarding university students' resilience (i.e., except Allen *et al*. (2008)). Third, Study Four utilised official GPA data from a university database as a measure of academic achievement, which reduces the threat to recall bias commonly associated with the use of students' own self-report GPA (Hartley, 2011, 2013; Johnson *et al*., 2014).

Another contribution of Study Four was that it provided insight into how the relationship between resilience and GPA may vary between students with different demographic and social support profiles, which has not been explored in previous research. The finding suggests that resilience plays a more significant role in enhancing academic achievement among students who perceived their institutions as being less supportive, compared to students who perceived their institutions to be more supportive.

8.4 **Practical implications**

8.4.1 Supporting first year students' mental health outcomes

The findings have a number of implications for the provision of mental health support within a higher education setting. While CMH was not shown to directly predict GPA in this research, the enhancement of students' mental health (i.e., not just an absence of psychological distress but rather, a holistic state of well-being) is an important issue on its own (MacKean, 2011; WHO, 2005). As indicated in Section 2.2, a competence-enhancement approach to campus mental health promotion has a number of benefits relevant to the current higher education context (e.g., low help-seeking behaviours among students, increasing demands for one-on-one therapy, increasing student diversity and complexity of mental health problems). The findings show that a focus on enhancing students' resilience and campus-based social support may be a promising mental health promotion strategy. In addition to the enhancement of resilience and social support on campus, the findings also indicate that there may be benefits for early-identification of students who experience a significant adverse event.

8.4.1.1 Promotion of resilience

Resilience has been shown to be particularly important for those who perceived lower institutional support (i.e., level of assistance towards their learning and meeting of non-academic needs, such as child care and employment). While potential systemic barriers precipitating low perceived institutional support should be addressed by the university first and foremost, this finding shows that the development of resilience could also be useful in promoting academic achievement for students who felt less supported by their institution. As indicated in Study Two, several programs aiming at resilience development have been shown to be effective in enhancing resilience among university students and these may be adopted by universities (Gerson & Fernandez, 2013; Peng *et al*., 2014). However, while these interventions predominantly focus on teaching psychological skills (e.g., recognising negative thinking styles and replacing them with a more positive one), it would be worthwhile to explore additional ways of promoting resilience within the university environment. For instance, Study Three suggested associations between some 'non-traditional' characteristics (e.g., being older, employed and/ or a parent) and resilience. It is possible that engagement in developmental activities prior to commencement of university, potentially in the form of a 'gap year', may be useful in increasing resilience among school-leavers. Future studies adopting a more rigorous design (e.g., cohort studies) will be required to inform if being older, working and parenting cause students to be more resilient. Furthermore, whether interventions designed to mimic life events naturally occurring among 'non-traditional' students (e.g., mentoring/ caring for a younger student instead of actually becoming a parent) may have the same impact on students' resilience.

8.4.1.2 Promotion of social support on campus

Campus-based social support (i.e., relationship with peers, teaching staff and administrative staff) is related to the well-being of both traditional and non-traditional students and should be included in initiatives designed to promote mental health on campus. In particular, Study Two showed that perceived support from peers and administrative staff significantly predicted students' well-being. Previous research has identified a number of approaches in which peer-support can be improved within the university context (e.g., mentoring, support groups) (Lamothe *et al*., 1995; Larose *et al*., 2009). However, strategies to enhance support by administrative staff do not appear to be a focus in the literature. A possible first step in translating this finding into practice is perhaps for higher education policy makers and educators to recognise the contribution administrative staff can make towards students' well-being, as well as to provide resources and training in order to assist administrative staff to engage with students in a supportive manner. International campus mental health guidelines appear to acknowledge the importance of a supportive learning environment, however, specific strategies in how this can be achieved seem to be lacking (American College Health Association, 2015; MacKean, 2011; Patterson & Kline, 2008). As a result, future research is required to shed light on practical strategies in terms of how best administrative staff can support students' mental health and how systemic factors could influence their implementation (e.g., staff workload and casualising of university administrative positions). Pilot programs are also required to test the effectiveness of these strategies.

8.4.1.3 Identifying and supporting students who experience a significant adverse event

A considerable proportion of students reported at least one significant adverse event in the past two years (46%). The experience of adverse events was also the only predictor variable to show a dual-effect on CMH and academic achievement. Consequently, there is a need for universities to adequately support students who experience a significant adverse event. Identifications of commencing students coping with an adverse event, through voluntary screening tests, may be useful for tailoring supportive resources for this population (Smyth, Hockemeyer, Heron, Wonderlich, & Pennebaker, 2008).

8.4.2 Challenging 'deficit thinking' about 'non-traditional' students

As discussed in Sections 1.4 and 2.2.2, 'deficit thinking' towards non-traditional students can be frequently found within discourses regarding widening participation. The present findings challenge this stereotype and show that being 'non-traditional' did not necessarily predict poorer outcomes. In particular, students who perceived themselves to be 'non-traditional' did not report lower likelihood of CMH nor achieve less academically. Furthermore, among all sociodemographic indicators which have been used to operationalise 'non-traditional' students in previous studies (as reported in Study One), none negatively associated with CMH. In fact, older age predicted CMH in a positive direction. Most of the sociodemographic indices did not significantly predict prospective GPA, except high school completion and father's education. Moreover, students who perceived themselves to belong to some 'non-traditional' student categories (e.g., being older, working, being a parent) reported significantly higher resilience compared to their peers. These findings suggest that the majority of students who can

be categorised as being 'non-traditional', either using a self-perception method or researcher-imposed method, fare equally well or even better than their 'traditional' peers both psychologically and academically.

'Deficit thinking' may alienate non-traditional students and lower aspiration to participate in higher education (Shields *et al*., 2005; Valencia, 1997). It may also influence students' academic achievement as research has shown that students' achievement is associated with an expectation that they can do well (Quimby & O'Brien, 2006; Rubie-Davies, Peterson, Irving, Widdowson, & Dixon, 2010). It has been suggested that expectations can translate into behaviours that facilitate achievement (Rubie-Davies *et al*., 2010). For instance, when students have a strong belief that they can achieve a particular goal, they are more likely to plan actions towards achieving the goal so success will be attained (Rubie-Davies *et al*., 2010). Previous studies show that students from non-traditional backgrounds appeared to be more likely to report lower self-esteem, and feeling anxious about not being sufficiently prepared for university (Christie *et al*., 2008; Christie, 2009; Collier & Morgan, 2008; Leathwood & O'Connell, 2003; Munro, 2011). Where appropriate (i.e., alongside sensitivity and recognition towards their unique experiences and challenges, and not mitigating the higher education system's responsibility to provide support), these students should be provided with the message that many of their predecessors have achieved and adjusted well, despite possible challenges facing them. Ultimately, a culture within the higher education system that encourages a more balanced understanding and representation of 'non-traditional' students may facilitate students' fulfilment of their potential.

8.5 **Future research**

The present research has generated some important findings and it would be useful to seek replication with larger samples which are more representative of Australian university students. In particular, inclusion of students from different types of universities, such as technological, newly-established, non-metropolitan universities, may allow comparison of predictors of positive psychological and academic outcomes within different institutional contexts.

Furthermore, while the first year in university is crucial for students' long-term academic outcome, the inclusion of latter year level students in longitudinal studies may shed light on potential variations regarding predictors of outcomes as students progress in their studies. Moreover, future studies may include indicators of academic outcomes beyond GPA. Measures including learners' satisfaction, cognitive and affective learning outcomes, intention to drop-out, as well as career development and progress could potentially generate more insight into how the predictor variables (i.e., resilience and CMH) may influence learning and graduate outcomes. These studies may assist in determining if interventions to boost resilience and mental health enhance students' outcomes and therefore, the extent to which they are a worthwhile investment for higher education institutions.

Future studies regarding diverse university students may consider obtaining information about students' own perception about being 'non-traditional', in addition to a broad range of demographic information, in order to overcome some challenges associated with the use of a researcher-imposed approach in classifying 'non-traditional' students. Further effort is required to compare the utility and merits between a student-centred and research-imposed method of categorisation.

Regarding the classification of CMH, future research may incorporate additional indicators of psychological and physical functioning to increase accuracy of classification, such as including a clinical psychologist to check the validity of classification system used.

8.6 **Conclusion**

This research explored levels of resilience, CMH, and academic achievement among 'traditional' and 'non-traditional' university students. Despite previous reports about psychosocial and academic challenges faced by non-traditional students, this research indicates that by and large, non-traditional students are more resilient, and reported similar levels of mental health and prospective first year GPA, compared to their 'traditional' counterparts. Concerns about widening participation, specifically how this may lead to declined educational standards due to enrolling students who are unprepared for the rigour of university education have been commonly found in academic and political discourses. However, this single-institution study suggested a more optimistic view.

This research may help advocate for a more balanced representation of non-traditional students within research and the higher education system. This may have implications in the promotion of more equitable university participation, sense of belonging and academic achievement among students from diverse backgrounds.

References

ACER. (2010). Doing more for learning: Enhancing engagement and outcomes. Camberwell, Victoria: Australian Council for Educational Research.

Adebayo, D. O. (2006). Workload, social support, and work-school conflict among Nigerian nontraditional students. *Journal of Career Development, 33*(2), 125-141.

Adebayo, D. O., Sunmola, A. M., & Udegbe, I. B. (2008). Subjective wellbeing, work-school conflict and proactive coping among Nigerian non-traditional students. *Career Development International, 13*(5), 440-455.

Allan, J. F., McKenna, J., & Dominey, S. (2013). Degrees of resilience: Profiling psychological resilience and prospective academic achievement in university inductees. *British Journal of Guidance & Counselling, 42*(1), 9-25.

Allen, J., Robbins, S. B., Casillas, A., & Oh, I. S. (2008). Third-year college retention and transfer: Effects of academic performance, motivation, and social connectedness. *Research in Higher Education, 49*(7), 647-664.

Altbach, P., Reisberg, L., & Rumbley, L. (2009). Trends in global higher education: Tracking an academic revolution *UNESCO 2009 World Conference on Higher Education*. Paris: United Nations Educational, Scientific and Cultural Organization (UNESCO).

American College Health Association. (2015). Healthy campus 2020 - Ecological model. Retrieved from https://www.acha.org/HealthyCampus/HealthyCampus/Ecological_Model.aspx

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders : DSM-IV-TR* Arlington: American Psychiatric Association.

Anderson, G. E. (1972). *College schedule of recent experience.* North Dakota State University, North Dakota.

Andrews, A., Baines, J., Braithwaite, A., Esser, C., Hinton, L., McLeod, H., & Renner, P. (2011). Best practice guidelines for the provision of counselling services in the post-secondary education sectors of Australia and New Zealand (updated September 2010).

Andrews, G., & Slade, T. (2001). Interpreting scores on the Kessler Psychological Distress Scale (K10). *Australian and New Zealand Journal of Public Health, 25*(6), 494-497.

Arbuckle, J., & Gale, D. (1996). A comparison of the psychosocial developmental levels of traditional freshman and nonfreshman students: Are they really different? *NACADA Journal, 16*(1), 21-27.

Arulampalam, W., Naylor, R., & Smith, J. (2004). Factors affecting the probability of first year medical student dropout in the UK: A logistic analysis for the intake cohorts of 1980–92. *Medical Education, 38*(5), 492-503.

Australian Bureau of Statistics. (2007). National survey of mental health and wellbeing: Summary of results. Canberra: Australian Bureau of Statistics.

Australian Bureau of Statistics. (2012). Information Paper: Use of the Kessler Psychological Distress Scale in ABS Health Surveys, Australia, 2007-08. Canberra: Australian Bureau of Statistics. Retrieved from http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4817.0.55.001Chapter92007-08

Australian Bureau of Statistics. (2013a). Hitting the books: Characteristics of higher education students. Canberra: Australian Bureau of Statistics. Retrieved from

http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Main+Features20July+2013#p6
Australian Bureau of Statistics. (2013b). Australian Statistical Geography Standard (ASGS): Volume 5 - Remoteness Structure, July 2011 Retrieved from http://www.abs.gov.au/ausstats/abs@.nsf/mf/1270.0.55.005?OpenDocument
Australian Council for Educational Research. (2013). University numbers growing fast, Indigenous even faster. Retrieved 29 October, 2013, from http://www.acer.edu.au/enews/2012/09/university-numbers-growing-fast-indigenous-even-faster
Australian Government. (2009). Transforming Australia's higher education system: Australian Government.
Australian Universities. (2014). Course entry requirements. Retrieved 24 September 2015, from http://australianuniversities.co/atar-course-entry-requirements.html
Backels, S., & Meashey, L. E. (1997). Anxiety, depression and the 4.0: Brief therapy with high-achieving, nontraditional female students. *Journal of College Student Psychotherapy, 12*(1), 45-56.
Baldwin, M. A. (2008). Concept analysis as a method of inquiry. *Nurse researcher, 15*(2), 49-58.
Baum, S., Ma, J., & Payea, K. (2013). Education pays 2013. *The College Board*.
Bayram, N., & Bilgel, N. (2008). The prevalence and socio-demographic correlations of depression, anxiety and stress among a group of university students. *Social Psychiatry and Psychiatric Epidemiology, 43*(8), 667-672.
Bean, J. P., & Metzner, B. S. (1985). A conceptual model of nontraditional undergraduate student attrition. *Review of Educational Research, 55*(4), 485-540.
Bell, J. A. (2003). Statistics anxiety: The nontraditional student. *Education, 124*(1), 157-162.
Bell, S. (2012). Nontraditional students are the new majority. In *Library Journal*. Retrieved October 23 2013, from http://lj.libraryjournal.com/
Bennett, S., Evans, T., & Riedle, J. (2007). Comparing academic motivation and accomplishments among traditional, nontraditional, and distance education college students. *Psi Chi Journal of Undergraduate Research, 12*(4), 154-161.
Benton, S. A., Robertson, J. M., Tseng, W. C., Newton, F. B., & Benton, S. L. (2003). Changes in counseling center client problems across 13 years. *Professional Psychology: Research and Practice, 34*(1), 66-72.
Beyond Blue. (2013). National mental health survey of doctors and medical students. Melbourne: Beyond Blue.
Birch, E., & Miller, P. W. (2007). The characteristics of 'gap-year' students and their tertiary academic outcomes. *Economic Record, 83*(262), 329-344.
Bishop, J. B. (2010). The counseling center: An undervalued resource in recruitment, retention, and risk management. *Journal of College Student Psychotherapy, 24*(4), 248-260.
Bitner, J. (1994). A comparison of math anxiety in traditional and nontraditional developmental college students. *Research and Teaching in Developmental Education, 10*(2), 35-43.
Bitsika, V., Sharpley, C. F., & Peters, K. (2010). How is resilience associated with anxiety and depression? Analysis of factor score interactions within a homogeneous sample. *German Journal of Psychiatry, 13*(1), 9-16.
Booth-Kewley, S., Larson, G. E., & Miyoshi, D. K. (2007). Social desirability effects on computerized and paper-and-pencil questionnaires. *Computers in Human Behavior, 23*(1), 463-477.

Bouteyre, E., Maurel, M., & Bernaud, J. L. (2007). Daily hassles and depressive symptoms among first year psychology students in France: The role of coping and social support. *Stress and Health, 23*(2), 93-99.

Bowl, M. (2001). Experiencing the barriers: Non-traditional students entering higher education. *Research papers in Education, 16*(2), 141-160.

Boyd, V., Hattauer, E., Brandel, I. W., Buckles, N., Davidshofer, C., Deakin, S., . . . Steel, C. M. (2003). Accreditation standards for university and college counseling centers. *Journal of Counseling & Development, 81*(2), 168-177.

Bradley, D., Noonan, P., Nugent, H., & Scales, B. (2008). Review of Australian higher education - Final report. Canberra: The Australian Government Department of Education, Employment and Workplace Relations.

Brannan, D., Biswas-Diener, R., Mohr, C. D., Mortazavi, S., & Stein, N. (2013). Friends and family: A cross-cultural investigation of social support and subjective well-being among college students. *Journal of Positive Psychology, 8*(1), 65-75.

Brewer, G. (2010). Resilience and motivation in Higher Education: A case study. *Psychology of Education Review, 34*(1), 55-60.

Brost, J., & Payne, K. (2011). First-generation issues: Learning outcomes of the dismissal testimonial for academically dismissed students in the arts & sciences. *New Directions for Teaching and Learning*(127), 69-79.

Bye, D., Pushkar, D., & Conway, M. (2007). Motivation, interest, and positive affect in traditional and nontraditional undergraduate students. *Adult Education Quarterly, 57*(2), 141-158.

Byrd, D. R., & McKinney, K. J. (2012). Individual, interpersonal, and institutional level factors associated with the mental health of college students. *Journal of American College Health, 60*(3), 185-193.

Cahalan, M. (2013). Widening participation in higher education in the United States of America. Leicester: Pell Institute for the Study of Opportunity in Higher Education.

Campbell-Sills, L., Cohan, S. L., & Stein, M. B. (2006). Relationship of resilience to personality, coping, and psychiatric symptoms in young adults. *Behaviour Research and Therapy, 44*(4), 585-599.

Campbell-Sills, L., & Stein, M. B. (2007). Psychometric analysis and refinement of the Connor–Davidson Resilience Scale (CD-RISC): Validation of a 10-item measure of resilience. *Journal of Traumatic Stress, 20*(6), 1019-1028.

Cantwell, R. H., Archer, J., & Bourke, S. (2001). A comparison of the academic experiences and achievement of university students entering by traditional and non-traditional means. *Assessment and Evaluation in Higher Education, 26*(3), 221-234.

Carli, V., Mandelli, L., Zaninotto, L., Roy, A., Recchia, L., Stoppia, L., . . . Serretti, A. (2011). A protective genetic variant for adverse environments? The role of childhood traumas and serotonin transporter gene on resilience and depressive severity in a high-risk population. *European Psychiatry, 26*(8), 471-478.

Carney-Crompton, S., & Tan, J. (2002). Support systems, psychological functioning, and academic performance of nontraditional female students. *Adult Education Quarterly, 52*(2), 140-154.

Cassidy, T., & Giles, M. (2009). Achievement motivation, problem-solving style, and performance in higher education. *The Irish Journal of Psychology, 30*(3-4), 211-222.

Centre for the Study of Higher Education. (2008). Participation and equity: A review of the participation in higher education of people from low socioeconomic backgrounds and Indigenous people (U. Australia, Trans.). Melbourne: University of Melbourne.
Chang, H. (2007). Psychological distress and help-seeking among Taiwanese college students: Role of gender and student status. *British Journal of Guidance & Counselling, 35*(3), 347-355.
Chartrand, J. M. (1990). A causal analysis to predict the personal and academic adjustment of nontraditional students. *Journal of Counseling Psychology, 37*(1), 65-73.
Chartrand, J. M. (1992). An empirical test of a model of nontraditional student adjustment. *Journal of Counseling Psychology, 39*(2), 193-202.
Chow, H. (2007). Psychological well-being and scholastic achievement among university students in a Canadian Prairie city. *Social Psychology of Education, 10*(4), 483-493.
Chow, H. (2010). Factors contributing to the subjective well-being of undergraduate students in a Canadian Prairie city. *Prairie Forum, 35*(1), 103-117.
Choy, S. (2002). Nontraditional undergraduates. Washington DC: National Center for Education Statistics.
Christensson, A., Vaez, M., Dickman, P. W., & Runeson, B. (2011). Self-reported depression in first-year nursing students in relation to socio-demographic and educational factors: A nationwide cross-sectional study in Sweden. *Social Psychiatry and Psychiatric Epidemiology, 46*(4), 299-310.
Christie, H., Tett, L., Cree, V. E., Hounsell, J., & McCune, V. (2008). 'A real rollercoaster of confidence and emotions': Learning to be a university student. *Studies in Higher Education, 33*(5), 567-581.
Christie, H. (2009). Emotional journeys: Young people and transitions to university. *British Journal of Sociology of Education, 30*(2), 123-136.
Chung, E., Turnbull, D., & Chur-Hansen, A. (2014). Who are 'non-traditional students'? A systematic review of published definitions in research on mental health of tertiary students. *Educational Research and Review, 9*(22), 1224-1238.
Coates, H., & Krause, K. L. (2005). Investigating ten years of equity policy in Australian higher education. *Journal of Higher Education Policy and Management, 27*(1), 35-46.
Coates, H. (2010). Development of the Australasian survey of student engagement (AUSSE). *Higher Education, 60*(1), 1-17.
Collier, P. J., & Morgan, D. L. (2008). "Is that paper really due today?": Differences in first-generation and traditional college students' understandings of faculty expectations. *Higher Education, 55*(4), 425-446.
Collins, M. E., & Mowbray, C. T. (2005). Higher education and psychiatric disabilities: National survey of campus disability services. *American Journal of Orthopsychiatry, 75*(2), 304-315.
Connor, K. M., & Davidson, J. R. T. (2003). Development of a new Resilience scale: The Connor-Davidson Resilience scale (CD-RISC). *Depression and Anxiety, 18*(2), 76-82.
Cornum, R., Matthews, M. D., & Seligman, M. E. (2011). Comprehensive soldier fitness: Building resilience in a challenging institutional context. *American Psychologist, 66*(1), 4.
Couper, M. P. (2001). Web survey design and administration. *Public Opin Q, 65*(2), 230-253.
Covarrubias, R., Romero, A., & Trivelli, M. (2015). Family achievement guilt and mental well-being of college students. *Journal of Child and Family Studies, 24*(7), 2031-2037.

Crawford, C. (2014). Socio-economic differences in university outcomes in the UK: Drop-out, degree completion and degree class (Economic & Social Research Council ed.). Warwick: University of Warwick and Institute for Fiscal Studies.
Credé, M., & Kuncel, N. R. (2008). Study habits, skills, and attitudes: The third pillar supporting collegiate academic performance. *Perspectives on Psychological Science, 3*(6), 425-453.
Credé, M., Roch, S. G., & Kieszczynka, U. M. (2010). Class attendance in college: A meta-analytic review of the relationship of class attendance with grades and student characteristics. *Review of Educational Research, 80*(2), 272-295.
Credé, M., & Niehorster, S. (2012). Adjustment to college as measured by the student adaptation to college questionnaire: A quantitative review of its structure and relationships with correlates and consequences. *Educational Psychology Review, 24*(1), 133-165.
Curtis, D. D. (2014). The 'gap year' in Australia: Incidence, participant characteristics and outcomes. *Australian Economic Review, 47*(1), 107-114.
Cynkar, A. (2007, June). The changing gender composition of psychology. Retrieved 17 March, 2015, from http://www.apa.org/monitor/jun07/changing.aspx
Davis, J. (2012). School enrollment and work status: 2011 *American Community Survey Briefs*: U.S. Census Bureau. Retrieved from http://www.census.gov/prod/2013pubs/acsbr11-14.pdf
Davoren, M. P., Fitzgerald, E., Shiely, F., & Perry, I. J. (2013). Positive mental health and well-being among a third level student population. *PLoS ONE, 8*(8).
de Liaño, B. G. G., León, O. G., & Pascual-Ezama, D. (2012). Research participation improves student's exam performance. *Spanish Journal of Psychology, 15*(2), 544-550.
DEEWR. (2009). Measuring the socio-economic status of higher education students: Discussion paper. Canberra.
DeGregoria, B. (1987). Counseling the nontraditional Italian-American student. *Community Review, 8*(1), 38-41.
Dennis, J. M., Phinney, J. S., & Chuateco, L. I. (2005). The role of motivation, parental support, and peer support in the academic success of ethnic minority first-generation college students. *Journal of College Student Development, 46*(3), 223-236.
Department of Education. (2013). Finance 2012: Financial reports of higher education providers. Canberra: Australian Government Department of Education.
Department of Education and Training. (2010). Selected higher education statistics - 2009 student data. Retrieved 8 April, 2015, from https://education.gov.au/selected-higher-education-statistics-2009-student-data
Department of Education and Training. (2013). Selected higher education statistics – 2013 student data. Canberra: Australian Govenment Department of Education and Training. Retrieved from https://www.education.gov.au/selected-higher-education-statistics-2013-student-data
Department of Education and Training. (2015a). Selected higher education statistics - 2014 student data. 1. Retrieved 8 April, 2015, from https://education.gov.au/student-data
Department of Education and Training. (2015b). 2014 Appendix 2 – Equity groups. Retrieved 23 Sept, 2015, 2015, from http://docs.education.gov.au/node/38145
Department of Education and Training. (2015c). Summary of the 2014 full year higher education student statistics. Retrieved 23 Sept, 2015, 2015, from https://education.gov.au/student-data

Department of Education and Training. (2015d). 2014 Appendix 4 – Attrition, success and retention. 2. Retrieved 8 April, 2015, from http://docs.education.gov.au/node/38149
Department of Human Services. (2002). Victorian Population Health Survey 2001. Melbourne: Victorian Government Department of Human Services.
Department of Industry and Science. (2012). Statistics publications: Summary of the 2012 full year higher education student statistics. Canberra. Retrieved from http://www.innovation.gov.au/HigherEducation/HigherEducationStatistics/StatisticsPublications/Pages/default.aspx
Devlin, M. (1996). Older and wiser?: A comparison of the learning and study strategies of mature age and younger teacher education students. *Higher Education Research and Development, 15*(1), 51-60.
Devlin, M. (2010). *Non-traditional university student achievement: Theory, policy and practice in Australia*. Paper presented at the 13th Pacific Rim First Year in Higher Education Conference 2010, Adelaide, Australia. www.fyhe.com.au/past_papers/.../pdf/Marcia_Devlin_keynote_4.pdf
Devlin, M. (2011). Bridging socio-cultural incongruity: conceptualising the success of students from low socio-economic status backgrounds in Australian higher education. *Studies in Higher Education*, 1-11.
Dill, P. L., & Henley, T. B. (1998). Stressors of college: A comparison of traditional and nontraditional students. *Journal of Psychology: Interdisciplinary and Applied, 132*(1), 25-32.
Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). *Internet, mail, and mixed-mode surveys*. New Jersey: John Wiley & Sons, Inc.
Dumais, S. A., & Ward, A. (2010). Cultural capital and first-generation college success. *Poetics, 38*(3), 245-265.
Duque, L. C. (2013). A framework for analysing higher education performance: students' satisfaction, perceived learning outcomes, and dropout intentions. *Total Quality Management and Business Excellence, 25*(1-2), 1-21.
Dyrbye, L. N., Power, D. V., Stanford Massie, F., Eacker, A., Harper, W., Thomas, M. R., . . . Shanafelt, T. D. (2010). Factors associated with resilience to and recovery from burnout: A prospective, multi-institutional study of US medical students. *Medical Education, 44*(10), 1016-1026.
Earvolino-Ramirez, M. (2007). Resilience: a concept analysis. *Nursing forum, 42*(2), 73-82.
Eisenberg, D., Gollust, S. E., Golberstein, E., & Hefner, J. L. (2007). Prevalence and correlates of depression, anxiety, and suicidality among university students. *American Journal of Orthopsychiatry, 77*(4), 534-542.
Eisenberg, D., Hunt, J., Speer, N., & Zivin, K. (2011). Mental health service utilization among college students in the United States. *Journal of Nervous and Mental Disease, 199*(5), 301-308.
Eisenberg, D., & Chung, H. (2012). Adequacy of depression treatment among college students in the United States. *General Hospital Psychiatry, 34*(3), 213-220.
Elliott, J. C. (1990). Affect and Mathematics achievement of nontraditional college students. *Journal for Research in Mathematics Education, 21*(2), 160-165.
Engstrom, C., & Tinto, V. (2008). Access without support is not opportunity. *Change, 40*(1), 46-50.

Eppler, M. A., & Harju, B. L. (1997). Achievement motivation goals in relation to academic performance in traditional and nontraditional college students. *Research in Higher Education, 38*(5), 557-573.

Eppler, M. A., Carsen-Plentl, C., & Harju, B. L. (2000). Achievement goals, failure attributions, and academic performance in nontraditional and traditional college students. *Journal of Social Behavior and Personality, 15*(3), 353-372.

Everly, J. S., Poff, D. W., Lamport, N., Hamant, C., & *et al*. (1994). Perceived stressors and coping strategies of occupational therapy students. *American Journal of Occupational Therapy, 48*(11), 1022-1028.

Fink, J. E. (2014). Flourishing: Exploring predictors of mental health within the college environment. *Journal of American College Health, 62*(6), 380-388.

Fortune, A. E. (1987). Multiple roles, stress and well-being among MSW students. *Journal of Social Work Education, 23*(3), 81-90.

Fourie, P., & Follér, M. L. (2012). AIDS hyper-epidemics and social resilience: Theorising the political. *Contemporary Politics, 18*(2), 254-268.

Frank, J. R., Mungroo, R., Ahmad, Y., Wang, M., De Rossi, S., & Horsley, T. (2010). Toward a definition of competency-based education in medicine: A systematic review of published definitions. *Medical Teacher, 32*(8), 631-637.

Friedman, B. A., & Mandel, R. G. (2011). Motivation predictors of college student academic performance and retention. *Journal of College Student Retention: Research, Theory and Practice, 13*(1), 1-15.

Furukawa, T. A., Kessler, R. C., Slade, T., & Andrews, G. (2003). The performance of the K6 and K10 screening scales for psychological distress in the Australian National Survey of Mental Health and Well-Being. *Psychological Medicine, 33*(2), 357-362.

Gabb, R., Milne, L., & Cao, Z. (2006). Understanding attrition and improving transition - A review of recent literature. Melbourne. Retrieved from http://tls.vu.edu.au/portal/site/research/resources/Understanding%20attrition.pdf.

Gallagher, R. P. (2011). National Survey of Counseling Center Directors: American College Counseling Association.

Galli, N., & Gonzalez, S. P. (2014). Psychological resilience in sport: A review of the literature and implications for research and practice. *International Journal of Sport and Exercise Psychology*.

Gerson, M. W., & Fernandez, N. (2013). PATH: A program to build resilience and thriving in undergraduates. *Journal of Applied Social Psychology, 43*(11), 2169-2184.

Giancola, J. K., Grawitch, M. J., & Borchert, D. (2009). Dealing with the stress of college: A model for adult students. *Adult Education Quarterly: A Journal of Research and Theory, 59*(3), 246-263.

Gilardi, S., & Guglielmetti, C. (2011). University life of non-traditional students: Engagement styles and impact on attrition. *Journal of Higher Education, 82*(1), 33-53.

Gilbody, S., Richards, D., Brealey, S., & Hewitt, C. (2007). Screening for depression in medical settings with the Patient Health Questionnaire (PHQ): a diagnostic meta-analysis. *Journal of General Internal Medicine, 22*(11), 1596-1602.

Gillham, J. E., Reivich, K. J., Freres, D. R., Chaplin, T. M., Shatté, A. J., Samuels, B., . . . Gallop, R. (2007). School-based prevention of depressive symptoms: A randomized controlled study of the effectiveness and specificity of the Penn Resiliency Program. *Journal of Consulting and Clinical Psychology, 75*(1), 9.

Gilmour, H. (2014). Positive mental health and mental illness. [Article]. *Health Reports, 25*(9), 3-9.
Gooch, M., Butler, J. R. A., Cullen-Unsworth, L. C., Rigano, D., & Manning, C. (2012). Community-derived indicator domains for social resilience to water quality decline in a Great Barrier Reef catchment, Australia. *Society and Natural Resources, 25*(5), 421-439.
Göritz, A. S. (2006). Incentives in web studies: Methodological issues and a review. *International Journal of Internet Science, 1*(1), 58-70.
Grafton, E., Gillespie, B., & Henderson, S. (2010). Resilience: The power within. *Oncology Nursing Forum, 37*(6), 698-705.
Grayson, J. P. (1997). Academic achievement of first-generation students in a Canadian University. *Research in Higher Education, 38*(6), 659-676.
Grayson, J. P. (2011). Cultural capital and academic achievement of first generation domestic and international students in Canadian universities. *British Educational Research Journal, 37*(4), 605-630.
Greenland, A. (1993). It's time to get rid of nontraditional students (the label, not the people)! *Contemporary Education, 64*(3), 183-186.
Group of Eight Australia. (2015). *Go8 indicators*. Retrieved 20/02/2015, from https://go8.edu.au/page/go8-indicators
Gucciardi, D. F., Jackson, B., Coulter, T. J., & Mallett, C. J. (2011). The Connor-Davidson Resilience Scale (CD-RISC): Dimensionality and age-related measurement invariance with Australian cricketers. *Psychology of Sport and Exercise, 12*(4), 423-433.
Gülaçti, F. (2010). *The effect of perceived social support on subjective well-being*.
Hahs-Vaughn, D. (2004). The impact of parents' education level on college students: An analysis using the beginning postsecondary students longitudinal study 1990-92/94. *Journal of College Student Development, 45*(5), 483-500.
Hansen, D. G. (1999). Key factors that differentiate nontraditional from traditional students. In Y. M. Jenkins (Ed.), *Using Smart Source Parsing Diversity in college settings: Directives for helping professionals* (pp. 191-199). New York: Taylor & Frances/Routledge.
Hartley, M. T. (2010). Increasing resilience: Strategies for reducing dropout rates for college students with psychiatric disabilities. *American Journal of Psychiatric Rehabilitation, 13*(4), 295-315.
Hartley, M. T. (2011). Examining the relationships between resilience, mental health, and academic persistence in undergraduate college students. *Journal of American College Health, 59*(7), 596-604.
Hartley, M. T. (2012). Assessing and promoting resilience: An additional tool to address the increasing number of college students with psychological problems. *Journal of College Counseling, 15*(1), 37-51.
Hartley, M. T. (2013). Investigating the relationship of resilience to academic persistence in college students With mental health issues. *Rehabilitation Counseling Bulletin, 56*(4), 240-250.
Harvey, J., & Delfabbro, P. H. (2004). Psychological resilience in disadvantaged youth: A critical overview. *Australian Psychologist, 39*(1), 3-13.
Heckert, T. M., Cuneio, G., Hannah, A. P., Adams, P. J., Droste, H. E., Mueller, M. A., . . . Roberts, L. L. (2000). Creation of a New Needs Assessment Questionnaire. *Journal of Social Behavior & Personality, 15*, 121-136.

Hemby, V. K. (1997). Effects of keyboarding skill on self-reported computer anxiety among traditional versus nontraditional college students. *Delta Pi Epsilon Journal, 39*(1), 24-38.
Hemby, V. K. (1998). Self-directedness in nontraditional college students: A behavioral factor in computer anxiety? *Computers in Human Behavior, 14*(2), 303-319.
Hemingway, P., & Brereton, N. (2009). What is a systematic review. *What is*.
Herrman, H., Stewart, D. E., Diaz-Granados, N., Berger, E. L., Jackson, B., & Yuen, T. (2011). What is resilience? *Canadian Journal of Psychiatry, 56*(5), 258-265.
Higher Education Funding Council for England. (2013). Trends in young participation in higher education: HEFCE.
Hollis-Sawyer, L. (2011). A Math-related decrement stereotype threat reaction among older nontraditional college learners. *Educational Gerontology, 37*(4), 292-306.
Holmes, T. H., & Rahe, R. H. (1967). The social readjustment rating scale. *Journal of Psychosomatic Research, 11*(2), 213-218.
Home, A. M. (1997). Learning the hard way: role strain, stress, role demands, and support in multiple-role women students. *Journal of Social Work Education, 33*(2), 335-346.
Hooper, J. O., & Traupmann, J. A. (1983). Older women, the student role and mental health. *Educational Gerontology, 9*(2-3), 233-242.
Horn, L. (1996). Nontraditional undergraduates, trends in enrollment from 1986 to 1992 and persistence and attainment among 1989-90 beginning postsecondary students. Washington, DC: U.S. Department of Education, NCES.
Hudson, R., Towey, J., & Shinar, O. (2008). Depression and racial/ethnic variations within a diverse nontraditional college sample. *College Student Journal, 42*(1), 103-114.
Hughes, R. (1983). The Non-Traditional Student in Higher Education: A Synthesis of the Literature. *NASPA Journal, 20*(3), 51-64.
Huurre, T., Junkkari, H., & Aro, H. (2006). Long-term psychosocial effects of parental divorce: A follow-up study from adolescence to adulthood. *European Archives of Psychiatry and Clinical Neuroscience, 256*(4), 256-263.
Ishitani, T. T. (2006). Studying attrition and degree completion behavior among first-generation college students in the United States. *Journal of Higher Education, 77*(5), 861-885.
James, R., Baldwin, G., Coates, H., Krause, K., & McInnis, r. (2004). Analysis of equity groups in higher education. *Canberra, Commonwealth of Australia*.
James, R., Krause, K. L., & Jennings, C. (2010). The first year experience in Australian universities: Findings from 1994 to 2009. Melbourne: The University of Melbourne.
Jenkins, S. R., Belanger, A., Connally, M. L., Boals, A., & Durõn, K. M. (2013). First-generation undergraduate students' social support, depression, and life satisfaction. *Journal of College Counseling, 16*(2), 129-142.
Joanna Briggs Institute. (2011). Joanna Briggs Institute reviewers' manual. Adelaide: The University of Adelaide.
Johnson, M. L., & Nussbaum, E. (2012). Achievement goals and coping strategies: Identifying the traditional/nontraditional students who use them. *Journal of College Student Development, 53*(1), 41-54.
Johnson, M. L., Taasoobshirazi, G., Kestler, J. L., & Cordova, J. R. (2015). Models and messengers of resilience: a theoretical model of college students' resilience, regulatory strategy use, and academic achievement. *Educational Psychology, 35*(7).

Joshanloo, M., Wissing, M. P., Khumalo, I. P., & Lamers, S. M. A. (2013). Measurement invariance of the Mental Health Continuum-Short Form (MHC-SF) across three cultural groups. *Personality and Individual Differences, 55*(7), 755-759.

Jury, M., Smeding, A., Court, M., & Darnon, C. (2015). When first-generation students succeed at university: On the link between social class, academic performance, and performance-avoidance goals. *Contemporary Educational Psychology, 41*(0), 25-36.

Kanner, A. D., Coyne, J. C., Schaefer, C., & Lazarus, R. S. (1981). Comparison of two modes of stress measurement: Daily hassles and uplifts versus major life events. *Journal of behavioral medicine, 4*(1), 1-39.

Keith, P. M., Byerly, C., Floerchinger, H., Pence, E., & Thornberg, E. (2006). Deficit and resilience perspectives on performance and campus comfort of adult students. *College Student Journal, 40*(3), 546-556.

Keith, P. M. (2007). Barriers and nontraditional students' use of academic and social services. *College Student Journal, 41*(4), 1123-1127.

Kenny, A., McLennan, J., Nankervis, K., Kidd, T., Connell, S., & Buykx, P. (2007). Strengthening mature age students' access into undergraduate nurse education. Melbourne: La Trobe University.

Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S. L. T., . . . Zaslavsky, A. M. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine, 32*(6), 959-976.

Kessler, R. C., Angermeyer, M., Anthony, J. C., De Graaf, R., Demyttenaere, K., Gasquet, I., . . . Üstün, T. B. (2007). Lifetime prevalence and age-of-onset distributions of mental disorders in the World Health Organization's world mental health survey initiative. *World Psychiatry, 6*(3), 168-176.

Keyes, C. L. M. (2002). The Mental Health Continuum: From Languishing to Flourishing in Life. *Journal of Health and Social Behavior, 43*(2), 207-222.

Keyes, C. L. M., & Lopez, S. J. (2002). Toward a science of mental health. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of Positive Psychology*. USA: Oxford University Press.

Keyes, C. L. M., & Haidt, J. (2003). Introduction: Human flourishing - the study of that which makes life worthwhile. In C. L. M. Keyes & J. Haidt (Eds.), *Flourishing: Positive Psychology and the life well-lived*. Washington: American Psychological Association.

Keyes, C. L. M. (2004). The nexus of cardiovascular disease and depression revisited: The complete mental health perspective and the moderating role of age and gender. *Aging and Mental Health, 8*(3), 266-274.

Keyes, C. L. M. (2005). Mental illness and/or mental health? Investigating axioms of the Complete State Model of Health. *Journal of Consulting and Clinical Psychology, 73*(3), 539-548.

Keyes, C. L. M. (2006). Mental health in adolescence: Is America's youth flourishing? *American Journal of Orthopsychiatry, 76*(3), 395-402.

Keyes, C. L. M. (2007). Promoting and protecting mental health as Flourishing: A complementary strategy for improving national mental health. *American Psychologist, 62*(2), 95-108.

Keyes, C. L. M., Wissing, M., Potgieter, J. P., Temane, M., Kruger, A., & van Rooy, S. (2008). Evaluation of the mental health continuum-short form (MHC-SF) in Setswana-speaking South Africans. *Clinical Psychology and Psychotherapy, 15*(3), 181-192.

Keyes, C. L. M. (2009). The black-white paradox in health: Flourishing in the face of social inequality and discrimination. *Journal of Personality, 77*(6), 1677-1706.
Keyes, C. L. M., & Simoes, E. J. (2012). To flourish or not: Positive mental health and all-cause mortality. *American Journal of Public Health, 102*(11), 2164-2172.
Keyes, C. L. M., Eisenberg, D., Perry, G. S., Dube, S. R., Kroenke, K., & Dhingra, S. S. (2012). The relationship of level of positive mental health with current mental disorders in predicting suicidal behavior and academic impairment in college students. *Journal of American College Health, 60*(2), 126-133.
Keyes, C. L. M. (2013). Promoting and protecting positive mental health: Early and often throughout the lifespan. In C. L. M. Keyes (Ed.), *Mental well-being: International contributions to the study of positive mental health*. Dordrecht: Springer.
Kim, K. A. (2002). ERIC Review: Exploring the Meaning of 'Nontraditional' at the Community College. *Community College Review, 30*(1), 74.
Kim, K. A., Sax, L. J., Lee, J. J., & Hagedorn, L. S. (2010). Redefining nontraditional students: Exploring the self-perceptions of community college students. *Community College Journal of Research and Practice, 34*(5), 402-422.
Kim, Y. K., & Sax, L. J. (2009). Student-faculty interaction in research universities: Differences by student gender, race, social class, and first-generation status. *Research in Higher Education, 50*(5), 437-459.
Kirby, P. G., Biever, J. L., Martinez, I. G., & Gómez, J. P. (2004). Adults returning to school: The impact on family and work. *Journal of Psychology: Interdisciplinary and Applied, 138*(1), 65-76.
Kitzrow, M. A. (2003). The mental health needs of today's college students: Challenges and recommendations. *Journal of Student Affairs Research and Practice, 41*(1), 167-181.
Klinkman, M. S. (1997). Competing demands in psychosocial care: A model for the identification and treatment of depressive disorders in primary care. *General Hospital Psychiatry, 19*(2), 98-111.
Koshy, P. (2014). Student equity performance in Australian higher education: 2007 to 2012. Perth: National Centre for Student Equity in Higher Education (NCSEHE), Curtin University.
Kristjánsson, K. (2012). Positive Psychology and Positive Education: Old wine in new bottles? *Educational Psychologist, 47*(2), 86-105.
Lamers, S. M., Westerhof, G. J., Bohlmeijer, E. T., Ten Klooster, P. M., & Keyes, C. L. (2011). Evaluating the psychometric properties of the Mental Health Continuum-Short Form (MHC-SF). *Journal of Clinical Psychology, 67*(1), 99-110.
Lamers, S. M. A., Glas, C. A. W., Westerhof, G. J., & Bohlmeijer, E. T. (2012). Longitudinal evaluation of the Mental Health Continuum-Short Form (MHC-SF): Measurement invariance across demographics, physical illness, and mental illness. *European Journal of Psychological Assessment, 28*(4), 290-296.
Lamothe, D., Currie, F., Alisat, S., Sullivan, T., Pratt, M., Pancer, S. M., & Hunsberger, B. (1995). Impact of a social support intervention on the transition to University. *Canadian Journal of Community Mental Health, 14*(2), 167-180.
Lange, F., & Topel, R. (2006) The Social Value of Education and Human Capital. *Vol. 1. Handbook of the Economics of Education* (pp. 459-509).

Larose, S., Cyrenne, D., Garceau, O., Harvey, M., Guay, F., & Deschênes, C. (2009). Personal and social support factors involved in students' decision to participate in formal academic mentoring. *Journal of Vocational Behavior, 74*(1), 108-116.

Leahy, C. M., Peterson, R. F., Wilson, I. G., Newbury, J. W., Tonkin, A. L., & Turnbull, D. (2010). Distress levels and self-reported treatment rates for medicine, law, psychology and mechanical engineering tertiary students: cross-sectional study. *Australian & New Zealand Journal of Psychiatry, 44*(7), 608-615.

Leathwood, C., & O'Connell, P. (2003). 'It's a struggle': The construction of the 'new student' in higher education. *Journal of Education Policy, 18*(6), 597-615.

Lee, D., Michelson, S. T., Elizabeth, A., Odes, O. E., & Locke, B. (2009). The effects of college counseling services on academic performance and retention. *Journal of College Student Development, 50*(3), 306-319.

Lim, Y. J. (2014). Psychometric characteristics of the Korean Mental Health Continuum-Short Form in an adolescent sample. *Journal of Psychoeducational Assessment, 32*(4), 356-364.

Linden, A. N., Lau-Barraco, C., & Hollis, B. F. (2014). Associations between psychological distress and alcohol outcomes as mediated by time perspective orientation among college students. *Mental Health and Substance Use: Dual Diagnosis, 7*(2), 134-143.

Linnenbrink, E. A., & Pintrich, P. R. (2002). Achievement goal theory and affect: An asymmetrical bidirectional model. *Educational Psychologist, 37*(2), 69-78.

Liu, D. Y., Fairweather-Schmidt, A. K., Burns, R., & Roberts, R. (2014). The Connor-Davidson Resilience Scale: Establishing invariance between gender across the lifespan in a large community based study. *Journal of Psychopathology and Behavioral Assessment, Advance online publication*.

Low, K. G. (2011). Flourishing, substance use, and engagement in students entering college: A preliminary study. *Journal of American College Health, 59*(6), 555-561.

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development, 71*(3), 543-562.

Luzeckyj, A., Scutter, S., King, S., & Brinkworth, R. (2011). The significance of being first: A consideration of cultural capital in relation to "first in family" student's choices of university and program. A Practice Report.

Macari, D. P., Maples, M. F., & D'Andrea, L. (2006). A comparative study of Psychosocial development in nontraditional and traditional college students. *Journal of College Student Retention: Research, Theory & Practice, 7*(3), 283-302.

MacKean, G. (2011). Mental health and well-being in postsecondary education settings - A literature and environmental scan to support planning and action in Canada. Ontario: Canadian Association of College and University Student Services.

Mandleco, B. L., & Peery, J. C. (2000). An organizational framework for conceptualizing resilience in children. *Journal of child and adolescent psychiatric nursing, 13*(3), 99-111.

Mann, C. J. (2003). Observational research methods. Research design II: cohort, cross sectional, and case-control studies. *Emergency Medicine Journal, 20*(1), 54-60.

Marks, G. (2007). Completing university: characteristics and outcomes of completing and non completing students. In *LSAY Research Reports - Longitudinal surveys of Australian youth research report*. Retrieved 8 April 2015, from http://research.acer.edu.au/lsay_research/55

Martin, A. J. (2010). Should students have a gap year? Motivation and performance factors relevant to time out after completing school. *Journal of Educational Psychology, 102*(3), 561.

Martin, A. J., Wilson, R., Liem, G. A. D., & Ginns, P. (2013). Academic momentum at university/college: Exploring the roles of prior learning, life experience, and ongoing performance in academic achievement across time. *The Journal of Higher Education, 84*(5), 640-674.

Martinez, J. A., Sher, K. J., Krull, J. L., & Wood, P. K. (2009). Blue-collar scholars?: Mediators and moderators of university attrition in first-generation college students. *Journal of College Student Development, 50*(1), 87-103.

Masten, A. S., Cutuli, J. J., Herbers, J. E., & Reed, M. J. (2009). Resilience in development. In S. J. Lopez & C. R. Snyder (Eds.), *The Oxford Handbook of Positive Psychology* (pp. 117-132). New York: Oxford University Press.

Mattanah, J. F., Brooks, L. J., Ayers, J. F., Quimby, J. L., Brand, B. L., & McNary, S. W. (2010). A social support intervention to ease the college transition: Exploring main effects and moderators. *Journal of College Student Development, 51*(1), 93-108.

McAbee, S. T., & Oswald, F. L. (2013). The criterion-related validity of personality measures for predicting GPA: A meta-analytic validity competition. *Psychological assessment, 25*(2), 532.

McKay, J., & Devlin, M. (2014). 'Uni has a different language … to the real world': demystifying academic culture and discourse for students from low socioeconomic backgrounds. *Higher Education Research and Development, 33*(5), 949-961.

McNally, R. J. (2010). Can we salvage the concept of psychological trauma? *Psychologist, 23*(5), 386-389.

Meirik, O. (2008). Cohort and case-control studies. *Geneva: World Health Organization*.

Mello, R. (2004). Teaching at the border of despair and hope: supporting the education of non-traditional working class student teachers. *Westminster Studies in Education, 27*(2), 263-285.

Menks, F. A., & Tupper, L. C. (1987). Role conflict in occupational therapy student parents. *The American Journal of Occupational Therapy, 41*(1), 21-27.

Metzner, B. S., & Bean, J. P. (1987). The estimation of a conceptual model of nontraditional undergraduate student attrition. *Research in Higher Education, 27*(1), 15-38.

Meuleman, A. M., Garrett, R., Wrench, A., & King, S. (2014). 'Some people might say I'm thriving but...' : non-traditional students' experiences of university. *International Journal of Inclusive Education, 19*(5), 503-517.

Miller, M. T., Pope, M. L., & Steinmann, T. D. (2005). A profile of contemporary community college student involvement, technology use, and reliance on selected college life skills. *College Student Journal, 39*(3), 596.

Morris, E. A., Brooks, P. R., & May, J. L. (2003). The relationship between achievement goal orientation and coping style: traditional vs. nontraditional college students. *College Student Journal, 37*(1).

Munro, L. (2011). 'Go boldly, dream large!':The challenges confronting non-traditional students at university. *Australian Journal of Education, 55*(2), 115-131.

Murray, N. L., & Klinger, C. M. (2012). Dimensions of conflict: reflections on the higher education experience from an access education perspective. *International Journal of Lifelong Education, 31*(2), 117-133.

Myers, J. E., & Mobley, A. (2004). Wellness of undergraduates: Comparisons of traditional and nontraditional students. *Journal of College Counseling, 7*(1), 40-49.
Nakashima, K. i., & Yanagisawa, K. (2015). Subjective socioeconomic status and departmental identity interact to reduce depressive tendencies and negative affective responding for female undergraduates. *Japanese Psychological Research, 57*(2), 113-125.
National Audit Office. (2007). Staying the course: The retention of students in higher education. London: National Audit Office.
National Center For Education Statistics. (2012). Advance release of selected 2012 digest tables. Retrieved 23 October, 2013, from http://nces.ed.gov/programs/digest/2012menu_tables.asp
Norris, D. R. (2011). Interactions that trigger self-labeling: The case of older undergraduates. *Symbolic Interaction, 34*(2), 173-197.
Norton, J. (2010). Retention and personal development: Assessing the role of universities in assisting students to navigate psychological demands of higher education. *Journal of the Australian and New Zealand Student Services Association*(35), 55-70.
OFFA and HEFCE. (2014). National strategy for access and student success in higher education. London: Higher Education Funding Council for England (HEFCE) and the Office for Fair Access (OFFA). Retrieved from https://www.gov.uk/government/publications/national-strategy-for-access-and-student-success
Ogren, C. A. (2003). Rethinking the" nontraditional" student from a historical perspective: State normal schools in the late nineteenth and early twentieth centuries. *The Journal of Higher Education, 74*(6), 640-664.
Oh, H., Rizo, C., Enkin, M., & Jadad, A. (2005). What is eHealth: A systematic review of published definitions: Gunther Eysenbach; Centre for Global eHealth Innovation, Toronto, Canada. Retrieved from http://www.jmir.org/2005/1/e1/>
Oldfield, B. M., & Baron, S. (2000). Student perceptions of service quality in a UK university business and management faculty. *Quality Assurance in education, 8*(2), 85-95.
Padilla-Walker, L. M., Thompson, R. A., Zamboanga, B. L., & Schmersal, L. A. (2005). Extra credit as incentive for voluntary research participation. *Teaching of Psychology, 32*(3), 150-153.
Parker, P. D., Thoemmes, F., Duineveld, J. J., & Salmela-Aro, K. (2015). I wish I had (not) taken a gap-year? The psychological and attainment outcomes of different post-school pathways. *Developmental Psychology, 51*(3), 323-333.
Pascarella, E. T., & Chapman, D. W. (1983). Validation of a theoretical model of college withdrawal: Interaction effects in a multi-institutional sample. *Research in Higher Education, 19*(1), 25-48.
Patterson, P., & Kline, T. (2008). Report on post-secondary institutions as healthy settings. The pivotal role of student services. Victoria, B.C., Canada: Health and Learning Knowledge Centre.
Paunonen, S. V., & Ashton, M. C. (2001). Big five predictors of academic achievement. *Journal of Research in Personality, 35*(1), 78-90.
Peng, L., Zhang, J., Li, M., Li, P., Zhang, Y., Zuo, X., . . . Xu, Y. (2012). Negative life events and mental health of Chinese medical students: The effect of resilience, personality and social support. *Psychiatry Research, 196*(1), 138-141.

Peng, L., Li, M., Zuo, X., Miao, Y., Chen, L., Yu, Y., . . . Wang, T. (2014). Application of the Pennsylvania resilience training program on medical students. *Personality and Individual Differences, 61-62*, 47-51.

Perera, H. N., & DiGiacomo, M. (2013). The relationship of trait emotional intelligence with academic performance: A meta-analytic review. *Learning and Individual Differences, 28*(0), 20-33.

Pierceall, E. A., & Keim, M. C. (2007). Stress and coping strategies among community college students. *Community College Journal of Research and Practice, 31*(9), 703-712.

Pitman, T., Koshy, P., & Phillimore, J. (2014). Does accelerating access to higher education lower its quality? The Australian experience. *Higher Education Research & Development*, 1-15.

Query, J. L., Parry, D., & Flint, L. J. (1992). The relationship among social support, communication competence, and cognitive depression for nontraditional students. *Journal of Applied Communication Research, 20*(1), 78-94.

Quimby, J. L., & O'Brien, K. M. (2006). Predictors of well-being among nontraditional female students with children. *Journal of Counseling & Development, 84*(4), 451-460.

Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*(3), 385-401.

Read, B., Archer, L., & Leathwood, C. (2003). Challenging cultures? Student conceptions of 'belonging' and 'isolation' at a post-1992 university. *Studies in Higher Education, 28*(3), 261-277.

Reavley, N. J., & Jorm, A. F. (2010). Prevention and early intervention to improve mental health in higher education students: A review. *Early Intervention in Psychiatry, 4*(2), 132-142.

Richardson, G. E. (2002). The metatheory of resilience and resiliency. *Journal of Clinical Psychology, 58*(3), 307-321.

Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: a systematic review and meta-analysis. *Psychological bulletin, 138*(2), 353-387.

Rieger, E. (2014). *Abnormal psychology: Leading researcher perspectives*: McGraw-Hill Education Australia.

Robbins, B. D., & Friedman, H. (2011). Resiliency as a virtue: Contributions from humanistic and positive psychology. In *Continuity versus Creative Response to Challenge: The Primacy of Resilience and Resourcefulness in Life and Therapy* (pp. 93-104).

Robbins, S. B., Lauver, K., Le, H., Davis, D., Langley, R., & Carlstrom, A. (2004). Do psychosocial and study skill factors predict college outcomes? A meta-analysis. *Psychological bulletin, 130*(2), 261-288.

Roberts, R., Golding, J., Towell, T., & Weinreb, I. (1999). The effects of economic circumstances on British students' mental and physical health. *Journal of American College Health, 48*(3), 103-109.

Roberts, R., Golding, J., Towell, T., Reid, S., Woodford, S., Vetere, A., & Weinreb, I. (2000). Mental and physical health in students: The role of economic circumstances. *British Journal of Health Psychology, 5*(3), 289-297.

Rubie-Davies, C. M., Peterson, E., Irving, E., Widdowson, D., & Dixon, R. (2010). Expectations of achievement student, teacher and parent perceptions. *Research in Education*(83), 36-53.

Rubin, M., Denson, N., Kilpatrick, S., Matthews, K. E., Stehlik, T., & Zyngier, D. (2014). "I am working-class": Subjective self-definition as a missing measure of social class and socioeconomic status in higher education research. *Educational Researcher*.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68.

Saïas, T., Du Roscoät, E., Véron, L., Guignard, R., Richard, J. B., Legleye, S., . . . Beck, F. (2014). Psychological distress in French college students: Demographic, economic and social stressors. Results from the 2010 National Health Barometer. *BMC Public Health, 14*(1).

San Miguel Bauman, S., Wang, N., DeLeon, C. W., Kafentzis, J., Zavala-Lopez, M., & Lindsey, M. S. (2004). Nontraditional students' service needs and social support resources: A pilot study. *Journal of College Counseling, 7*(1), 13-17.

Sax, L. J., Gilmartin, S. K., & Bryant, A. N. (2003). Assessing response rates and nonresponse bias in web and paper surveys. *Research in Higher Education, 44*(4), 409-432.

Schofield, C., & Dismore, H. (2010). Predictors of retention and achievement of higher education students within a further education context. *Journal of Further & Higher Education, 34*(2), 207-221.

School of Psychology. (2015). Course information, semester one 2015. Adelaide: The University of Adelaide.

Schuetze, H. G., & Slowey, M. (2002). Participation and exclusion: A comparative analysis of non-traditional students and lifelong learners in higher education. *Higher Education, 44*(3-4), 309-327.

Scott, L. M., & Lewis, C. W. (2012). Nontraditional college students: Assumptions, perceptions, and directions for a meaningful academic experience. *International Journal of Interdisciplinary Social Sciences, 6*(4), 1-10.

Seligman, M. E., & Csikszentmihalyi, M. (2000). Positive Psychology. An introduction. *The American psychologist, 55*(1), 5-14.

Seligman, M. E., Steen, T. A., Park, N., & Peterson, C. (2005). Positive Psychology Progress: Empirical Validation of Interventions. *American Psychologist, 60*(5), 410-421.

Seligman, M. E., Ernst, R. M., Gillham, J., Reivich, K., & Linkins, M. (2009). Positive Education: Positive Psychology and classroom interventions. *Oxford Review of Education, 35*(3), 293-311.

Sharp, E. C., Pelletier, L. G., & Lévesque, C. (2006). The double-edged sword of rewards for participation in psychology experiments. *Canadian Journal of Behavioural Science, 38*(3), 269-277.

Shields, C. M., Bishop, R., & Mazawi, A. E. (2005). *Pathologizing practices: The impact of deficit thinking on education* (Vol. 268). New York: Peter Lang.

Shochet, I. M., Dadds, M. R., Holland, D., Whitefield, K., Harnett, P. H., & Osgarby, S. M. (2001). The efficacy of a universal school-based program to prevent adolescent depression. *Journal of clinical child psychology, 30*(3), 303-315.

Shushok, F., & Hulme, E. (2006). What's right with you: Helping students find and use their personal strengths. *About Campus, 11*(4), 2-8.

Siedlecki, K. L., Salthouse, T. A., Oishi, S., & Jeswani, S. (2013). The relationship between social support and subjective well-being across age. *Social Indicators Research*, 1-16.

Siegel, R. (Ed.). (2014). *Positive Psychology: Harnessing the power of happiness, mindfulness, and personal strength*. Boston: Harvard Health Publications.

Smit, R. (2012). Towards a clearer understanding of student disadvantage in higher education: Problematising deficit thinking. *Higher Education Research and Development, 31*(3), 369-380.

Smith, J. S. (2006). Exploring the challenges for nontraditional male students transitioning into a nursing program. *Journal of Nursing Education, 45*(7), 263-270.

Smyth, J. M., Hockemeyer, J. R., Heron, K. E., Wonderlich, S. A., & Pennebaker, J. W. (2008). Prevalence, type, disclosure, and severity of adverse life events in college students. *Journal of American College Health, 57*(1), 69-76.

Snowden, C., & Lewis, S. (2015). Mixed messages: public communication about higher education and non-traditional students in Australia. *Higher Education, Advance online publication*.

Snyder, T. D., & Dillow, S. A. (2012). Digest of education statistics 2011. Washington, DC: National Center for Education Statistics.

Sokratous, S., Merkouris, A., Middleton, N., & Karanikola, M. (2014). The prevalence and socio-demographic correlates of depressive symptoms among Cypriot university students: A cross-sectional descriptive co-relational study. *BMC Psychiatry, 14*(1).

Solomon, D. J. (2001). Conducting web-based surveys. *Practical Assessment, Research and Evaluation, 7*(19).

South Australian Tertiary Admissions Centre. (2012). University entry requirements. Retrieved 23 August, 2012, from http://www.satac.edu.au/

Southwick, S. M., Litz, B. T., Charney, D. S., & Friedman, M. J. (2011). *Resilience and mental health*. New York: Cambridge University Press.

Spence, S. H., Sheffield, J. K., & Donovan, C. L. (2003). Preventing adolescent depression: an evaluation of the problem solving for life program. *Journal of Consulting and Clinical Psychology, 71*(1), 3.

Spiegler, T., & Bednarek, A. (2013). First-generation students: what we ask, what we know and what it means: an international review of the state of research. *International Studies in Sociology of Education, 23*(4), 318-337.

Stallman, H. M. (2008). Prevalence of psychological distress in university students: Implications for service delivery. *Australian Family Physician, 37*(8), 673-677.

Stallman, H. M., & Shochet, I. (2009). Prevalence of mental health problems in Australian university health services. *Australian Psychologist, 44*(2), 122-127.

Stallman, H. M. (2010). Psychological distress in university students: A comparison with general population data. *Australian Psychologist, 45*(4), 249-257.

Stallman, H. M. (2011). Embedding resilience within the tertiary curriculum: A feasibility study. *Higher Education Research and Development, 30*(2), 121-133.

Stallman, H. M. (2012). University counselling services in Australia and New Zealand: Activities, changes, and challenges. *Australian Psychologist, 47*(4), 249-253.

Statistics Canada. (2010, 13-12-2010). Trends in the age composition of college and university students and graduates. In *Education Matters: Insights on Education, Learning and Training in Canada*. Retrieved 19-01-2015, from http://www.statcan.gc.ca/pub/81-004-x/2010005/article/11386-eng.htm

Stebleton, M. J., Soria, K. M., & Huesman, R. L. (2014). First-generation students' sense of belonging, mental health, and use of counseling services at public research universities. *Journal of College Counseling, 17*(1), 6-20.

Stewart-Brown, S., Evans, J., Patterson, J., Petersen, S., Doll, H., Balding, J., & Regis, D. (2000). The health of students in institutes of higher education: an important and neglected public health problem? *Journal of Public Health, 22*(4), 492-499.
Storrie, K., Ahern, K., & Tuckett, A. (2010). A systematic review: Students with mental health problems—A growing problem. *International Journal of Nursing Practice, 16*(1), 1-6.
Stuber, J. M. (2011). Integrated, marginal, and resilient: Race, class, and the diverse experiences of white first-generation college students. *International Journal of Qualitative Studies in Education, 24*(1), 117-136.
Sweet, S., & Moen, P. (2007). Integrating educational careers in work and family. *Community, Work and Family, 10*(2), 231-250.
Sy, S. R., Fong, K., Carter, R., Boehme, J., & Alpert, A. (2011). Parent support and stress among first-generation and continuing-generation female students during the transition to college. *Journal of College Student Retention: Research, Theory and Practice, 13*(3), 383-398.
Tajfel, H. (1981). *Human groups and social categories: Studies in social psychology*: CUP Archive.
Terenzini, P. T., Cabrera, A. F., & Bernal, E. M. (2001). Swimming against the tide: The poor in American higher education *College Board Research Report No. 2001-1.* New York: The College Board.
Tinto, V. (1993). *Leaving college* (2 ed.). Chicago and London: The University of Chicago Press.
Titus, M. A. (2006). Understanding college degree completion of students with low socioeconomic status: The influence of the institutional financial context. *Research in Higher Education, 47*(4), 371-398.
Toland, J., & Carrigan, D. (2011). Educational psychology and resilience: New concept, new opportunities. *School Psychology International, 32*(1), 95-106.
Topham, P., & Moller, N. (2011). New students' psychological well-being and its relation to first year academic performance in a UK university. *Counselling and Psychotherapy Research, 11*(3), 196-203.
Tosevski, D. L., Milovancevic, M. P., & Gajic, S. D. (2010). Personality and psychopathology of university students. *Current Opinion in Psychiatry, 23*(1), 48-52.
Turner, A. L., & Berry, T. R. (2000). Counseling center contributions to student retention and graduation: A longitudinal assessment. *Journal of College Student Development, 41*(6), 627-636.
Turner, A. P., Hammond, C. L., Gilchrist, M., & Barlow, J. H. (2007). Coventry University students' experience of mental health problems. *Counselling Psychology Quarterly, 20*(3), 247-252.
Turner, S. E. (2009). Common across the Atlantic: The underrepresentation of low-income students in higher education in the US and the UK. *Social mobility and education: academic papers presented at a high level summit sponsored by the Carnegie Corporation of New York and the Sutton Trust*, 137-174.
Tusaie, K., & Dyer, J. (2004). Resilience: a historical review of the construct. *Holistic nursing practice, 18*(1), 3-8; quiz 9.
Valencia, R. (1997). *The evolution of deficit thinking*. London: Falmer.
van Rhijn, T. M., & Lero, D. S. (2014). The influence of self-efficacy beliefs for student parents attending university. *International Journal of Lifelong Education, 33*(4), 541-555.

van Stolk, C., Tiessen, J., Clift, J., & Levitt, R. (2007). Student retention in higher education courses: International comparison. Cambridge: National Audit Office, RAND Corporation.
Van Zyl, L. E., & Rothmann, S. (2012). Flourishing of students in a tertiary education institution in South Africa. *Journal of Psychology in Africa, 22*(4), 593-599.
Vedel, A. (2014). The big five and tertiary academic performance: A systematic review and meta-analysis. *Personality and Individual Differences, 71*, 66-76.
Venning, A., Eliott, J., Kettler, L., & Wilson, A. (Eds.). (2013). *Complete Mental Health in South Australian youth: Measurement, prevalence, and promotion*. Netherlands: Springer Publications.
Verger, P., Combes, J. B., Kovess-Masfety, V., Choquet, M., Guagliardo, V., Rouillon, F., & Peretti-Wattel, P. (2009). Psychological distress in first year university students: Socioeconomic and academic stressors, mastery and social support in young men and women. *Social Psychiatry and Psychiatric Epidemiology, 44*(8), 643-650.
Vignoles, A. F., & Powdthavee, N. (2009). The socioeconomic gap in university dropouts. *B.E. Journal of Economic Analysis and Policy, 9*(1).
Villella, E. F., & Hu, M. (1991). A factor analysis of variables affecting the retention decision of nontraditional college students. *NASPA Journal, 28*(4), 334-341.
Vivekananda, K., Telley, A., & Trethowan, S. (2011). A five year study on psychological distress within a university counselling population. *Journal of the Australian and New Zealand Student Services Association*(37), 39-57.
Voyer, D., & Voyer, S. D. (2014). Gender differences in scholastic achievement: A meta-analysis.
Vuong, M., Brown-Welty, S., & Tracz, S. (2010). The effects of self-efficacy on academic success of first-generation college sophomore students. *Journal of College Student Development, 51*(1), 50-64.
Waller, R., Bovill, H., & Pitt, B. (2011). Parents, partners and peers: Bearing the hidden costs of lifelong learning. *International Journal of Lifelong Education, 30*(4), 509-526.
Waltman, P. A. (1997). Comparison of traditional and non-traditional baccalaureate nursing students on selected components of Meichenbaum and Butler's model of test anxiety. *Journal of Nursing Education, 36*(4), 171-179.
Webber, L. (2014). Accessing HE for non-traditional students: 'Outside of my position'. *Research in Post-Compulsory Education, 19*(1), 91-106.
Wells, W., Cavanaugh, M., Bouffard, J., & Nobles, M. (2012). Non-response bias with a web-based survey of college students: Differences from a classroom survey About carrying concealed handguns. *Journal of Quantitative Criminology, 28*(3), 455-476.
Westerhof, G. J., & Keyes, C. L. M. (2010). Mental illness and mental health: The two continua model across the lifespan. *Journal of Adult Development, 17*(2), 110-119.
Westrick, P. A., Le, H., Robbins, S. B., Radunzel, J. M., & Schmidt, F. L. (2015). College performance and retention: A meta-analysis of the predictive validities of ACT® scores, high school grades, and SES. *Educational Assessment, 20*(1), 23-45.
WHO. (2005). Promoting mental health: concepts, emerging evidence, practice: World Health Organization, Department of Mental Health and Substance Abuse in collaboration with the Victorian Health Promotion Foundation and The University of Melbourne.
WHO. (2014). *Mental health: strengthening our response (Fact sheet, No. 220)*. Geneva: World Health Organization Retrieved from http://www.who.int/mediacentre/factsheets/fs220/en/

Wilhelm, K. A. (2002). The student and junior doctor in distress. *The Medical journal of Australia, 177 Suppl*, S5-8.
Wilks, S. E., & Spivey, C. A. (2010). Resilience in undergraduate social work students: Social support and adjustment to academic stress. *Social Work Education, 29*(3), 276-288.
Willyard, C. (2011, January 2011). *Men: A growing minority?* Retrieved 17 March, 2015, from http://www.apa.org/gradpsych/2011/01/cover-men.aspx
Windle, G. (2011). What is resilience? A review and concept analysis. *Reviews in Clinical Gerontology, 21*(2), 152-169.
Wittkampf, K. A., Naeije, L., Schene, A. H., Huyser, J., & van Weert, H. C. (2007). Diagnostic accuracy of the mood module of the Patient Health Questionnaire: a systematic review. *General Hospital Psychiatry, 29*(5), 388-395.
Wlodzimirow, K. A., Eslami, S., Abu-Hanna, A., Nieuwoudt, M., & Chamuleau, R. A. F. M. (2012). Systematic review: Acute liver failure - One disease, more than 40 definitions. *Alimentary Pharmacology and Therapeutics, 35*(11), 1245-1256.
Wynaden, D., Wichmann, H., & Murray, S. (2013). A synopsis of the mental health concerns of university students: Results of a text-based online survey from one Australian university. *Higher Education Research and Development, 32*(5), 846-860.
Yarbrough, D. W., & Schaffer, J. L. (1990). A comparison of school-related anxiety experienced by nontraditional versus traditional students. *College Student Journal, 24*(1), 81-90.
Yu, X., & Zhang, J. (2007). Factor analysis And psychometric evaluation of the Connor-Davidson Resilience Scale (CD-RISC) with Chinese people. *Social Behavior and Personality: an international journal, 35*(1), 19-30.

Appendix 1

Consent form

CONSENT FORM

1. I have read the attached Information Sheet and agree to take part in the research project "Resilience, mental health, academic persistence and achievement in university students" (Ethics Approval Number: H-2012-156).

2. I have had the project, so far as it affects me, fully explained to my satisfaction by the researcher. My consent is given freely.

3. Although I understand the purpose of the research project it has also been explained that involvement may not be of any benefit to me.

4. I have been informed that, while information gained during the study may be published, I will not be identified and my personal results will not be divulged.

5. I understand that I am free to withdraw from the project at any time and that this will not affect my study at the University now or in the future.

6. I am aware that I should keep a copy of this Consent Form*, when completed, and the Information Sheet.
(**You can print this consent form using your internet browser's print options*)

◯ I CONSENT TO THE ABOVE TERMS

Appendix 2

Questionnaire

	Questions	Response options
For the 10 distress related questions, participants were asked to indicate how often they experienced each symptom in the past month.		
1.	How often did you feel tired out for no good reason?	None of the time A little of the time Some of the time Most of the time All of the time
2.	How often did you feel nervous?	
3.	How often did you feel so nervous that nothing could	
4.	How often did you feel hopeless?	
5.	How often did you feel restless or fidgety?	
6.	How often did you feel so restless you could not sit still?	
7.	How often did you feel depressed?	
8.	How often did you feel that everything was an effort?	
9.	How often did you feel so sad that nothing could cheer you up?	
10.	How often did you feel worthless?	
For the 14 questions relating to subjective well-being, participants were asked to indicate how often they encountered these positive experiences in the past month.		
11.	How often did you feel happy?	Never Maybe once or twice About once a week Two or three times a week Almost every day Every day
12.	How often did you feel interested in life?	
13.	How often did you feel satisfied?	
14.	How often did you feel that you had something important to contribute to society?	
15.	How often did you feel that you belonged to a community (like a social group, your school, or your neighbourhood)?	
16.	How often did you feel that our society is becoming a better place for people like you?	
17.	How often did you feel that people are basically good?	
18.	How often did you feel that the way our society works made sense to you?	
19.	How often did you feel that you liked most	

	Questions	Response options
	parts of your personality?	
20.	How often did you feel good at managing the responsibilities of your daily life?	
21.	How often did you feel that you had warm and trusting relationships with others?	
22.	How often did you feel that you had experiences that challenged you to grow and become a better person?	
23.	How often did you feel confident to think or express your own ideas and opinions?	
24.	How often did you feel that your life has a sense of direction or meaning to it?	
For the 5 questions regarding motivation, participants were asked to indicate which answer best described their agreement or disagreement with each statement generally.		
25.	I try to perform my best in my studies.	Strongly disagree
26.	I am a hard worker.	Disagree
27.	It is important to me to do the best job possible.	Neither agree nor disagree
28.	I push myself to be "all that I can be".	Agree
29.	I try very hard to improve on my past performance in my studies.	Strongly agree
For the 10 resilience related questions, participants were asked to indicate the extent to which they agreed with each statement as they applied to them over the last month.		
	These items are protected by copyright restrictions.	
For the 3 questions regarding campus-based social support, participants were asked to rate the quality of their relationship with various people on a scale from 1 to 7.		
40.	On a scale from 1 to 7, how would you rate the quality of your relationships with other students at your institution?	7 – Friendly, supportive, sense of belonging 1 – Unfriendly, unsupportive, sense of alienation
41.	On a scale from 1 to 7, how would you rate the quality of your relationships with teaching staff at your institution?	7 – Available, helpful, sympathetic 1 – Unavailable, unhelpful,

	Questions	Response options
		unsympathetic
42.	On a scale from 1 to 7, how would you rate the quality of your relationships with administrative personnel and services at your institution?	7 – Helpful, considerate, flexible 1 – Unhelpful, inconsiderate, rigid
For the 3 questions regarding institutional support, participants were asked to rate the extent to which their institution emphasise certain areas.		
43.	Providing the support you need to help you succeed academically.	Very little
44.	Helping you cope with your non-academic responsibilities (e.g., work, family, etc.)	Some Quite a bit
45.	Providing the support you need to socialise	Very much
Demographic questions (with options available)		
46.	Are you:	Male Female
47.	How old are you in years since your last birthday?	Free response
48.	Where has your study been mainly based in the current academic year?	On one or more campuses Mix of external/ distance and on-campus External/ distance
49.	Since starting at university, have you been enrolled mainly part time or full time?	Part time Full time
50.	Which program area are you enrolled in? Mark as many boxes as apply.	Agriculture Architecture, Landscape, Urban Design Arts Business, Economics & Finance Computer Science

	Questions	Response options
		Dentistry & Oral Health
		Development Studies
		Education
		Engineering
		Environmental Policy and Management
		Health Sciences
		Innovation & Entrepreneurship
		International Studies
		Law
		Mathematical Sciences
		Media
		Medicine
		Music
		Nursing
		Psychology
		Science
		Social Sciences
51.	How would you describe yourself?	Australian citizen
		Australian permanent resident (Please specify duration in Australia: ___ Year ___Month)
		International student (Please specify duration in Australia: ___ Year ___Month)

	Questions	Response options
52.	Do you speak a language other than English at home?	No, English only Yes (Please specify language spoken at home: _____)
53.	Did you finish secondary school?	No Yes (Please specify year of completion: _____)
54.	Which of the following best describe your university admission pathway?	Alternative Entry Schemes (AES) Australian Tertiary Admission Rank (ATAR)/ Tertiary Entrance Rank (TER) (Please specify your ATAR/ TER: _____) Educational Access Schemes (EAS) Alternative Entry Schemes (AES) Foundation studies program (FSP) International Baccalaureate (Please specify your IB point: _____) Special Tertiary Admissions Test (STAT) TAFE/ VET qualification University preparation program (UPP) Other pathway (please specify: _____) Not sure
55.	What is the highest level of education completed by your mother?	No school or only primary school Some or all of secondary school

	Questions	Response options
		Vocational certificate or diploma
		Undergraduate university degree or diploma
		Post-graduate university degree or diploma
		Not sure
56.	What is the highest level of education completed by your father?	No school or only primary school
		Some or all of secondary school
		Vocational certificate or diploma
		Undergraduate university degree or diploma
		Post-graduate university degree or diploma
		Not sure
57.	What is your home postcode?	Free response
58.	What is your main source of income?	Family resources (parents, relatives, spouse, etc.)
		My own resources (income from work, other income, etc.)
		Aid which need <u>not</u> be repaid (grants, scholarships, other funding, etc.)
		Aid which <u>must</u> be repaid (loans, etc.)
		Other (Please specify: _____)
59.	About how many hours do you spend in a typical seven-day week working for pay?	Free response

	Questions	Response options
60.	Do you consider yourself to have a disability or impairment?	No Yes
61.	Which of the following best describes your marital status?	Never married Widowed Divorced Separated but not divorced De Facto Married
62.	How many dependent children do you have?	Free response
63.	Do you consider yourself to be of Aboriginal or Torres Strait Islander origin?	No Yes, Aboriginal Chapter 9: Yes, Torres Strait Islander
64.	Would you say your health is:	Excellent? Good? Fair? Poor?
65.	Have you experienced any events during the last two years that have impacted negatively on your life and studies?	No Yes (If you wish, please specify the events: _____)
66.	The term 'Non-traditional students' has been used to refer to students with different social or educational characteristics compared to the majority of students on campus, These characteristics may include (but not limited to): age, cultural background, geographical background, household income, life roles other than being a student (e.g., being a parent or an	No Yes (Why do you consider yourself as a 'Non-traditional student'? _____)

Questions	Response options
employee), mode of student, and university entry pathway. Regardless of the definition above, do you consider yourself as a 'Non-traditional student'?	

Appendix 3

Invitation email

Dear (Student)

We would like to invite you to complete a web-based survey as part of a PhD study to gain a better understanding of the relationship between mental health and university experiences among first year Psychology students. If you are enrolled in a year 1 Psychology course at the University of Adelaide, and are 17 years old or above, we would like to hear from you.

It is critical to the study's success that we hear from as many students as possible. We would be most grateful if you would take the time to participate in the survey between 12th March and 17th May.

The survey will take between 10 to 15 minutes and must be completed in a single sitting. Participants will receive half an hour worth of course credits (i.e. 0.5 credits) for a year 1 Psychology course. If you wish to participate in this survey, please register via the Psychology Research Participation website at http://adelaide-psychology.sona-systems.com/Default.aspx?ReturnUrl=/.

To find out more about the study, please download your copy of the participant's information sheet and ethics approval details attached with this email. If you require further information, please email Ethel Chung (Ethel.Chung@adelaide.edu.au) or phone (08) 8303 3136.

Thank you in advance for your valued contribution to this study.

Best wishes,

Ethel Chung

MPsych(Clin) PhD Candidate

University of Adelaide, School of Psychology

Appendix 4

Information sheet

Resilience, mental health, academic persistence and achievement in university students

If you are a Psychology I student and are 17 years of age or above, you are invited to participate in this study which explores the relationship between resilience, mental health and academic outcomes.

Background of this study

This study is conducted by Ms Ethel Chung (MPsych (Clin)/ PhD candidate), under the supervision of Prof Deborah Turnbull (School of Psychology) and Prof Anna Chur-Hansen (Discipline of Psychiatry). We are interested in understanding how psychological resilience predicts mental health and academic outcomes in commencing university students.

It is well recognised that the transition to university can be stressful. Distress experienced in this period can have negative impact on many aspects of a student's life. It is important to gain a better understanding on how distress can be reduced; therefore we would like to ask you to fill in an online survey regarding this matter.

Participants' role

Participation involves completing a 10 – 15 minute online survey, via the Research Central website of the School of Psychology. You can choose to do the survey any time at your convenience between 12th March and 17th May. The survey must be completed in a single sitting.

Participation in this study involves answering each question in the survey in turn and you receive half an hour worth of course credits (i.e. 0.5 credits) for a year 1 Psychology course. If you would like to participate, please log onto

http://adelaide-psychology.sona-systems.com/Default.aspx?ReturnUrl=/. Make sure that you make a booking for the study so that course credit can be assigned to you.

Confidentiality and your right to withdraw

Your responses will be treated as strictly confidential. You will not be identified in any way in the reporting of study results. Participation is voluntary – if you change your mind once you have started, you can simply withdraw from the study at any time without penalty.

You will be asked to affirm informed consent using an online consent form at the beginning of the survey.

What happens after I complete the survey?

Course credits will be assigned to you within 12 hours. After the closing date of the survey, a one-page summary regarding the aims, procedures, and practical applications of the study will be emailed to those who wishes to receive it.

You may also opt-in for the researcher to follow-up with your academic results as you progress in university.

If you agree to be followed-up with your academic results, information regarding your Tertiary Entrance Rank (TER), University Grade Point Average (GPA) and enrolment status will be collected from the university database at the beginning of Semester 1, 2014. You will not be directly contacted by the researcher.

If you would like to take part in the follow-up, simply register your interest within the survey. Again, participation is voluntary – if you change your mind, you can withdraw from being followed-up at any time without penalty. Your personal details will be treated as strictly confidential, and will not be linked to your survey responses in any way.

Ethics consideration

It is unlikely that any benefits or risks would be associated to the participation in the study. Should any personal issues arise following your participation in the survey that you would like to talk to someone, you can contact the University Counselling Services at (08) 8313 5663.

If you require further information about the study, please email the researcher (ethel.chung@adelaide.edu.au) or phone (08) 8313 3136.

This study has received ethics approval from The University of Adelaide, Human Research Ethics Committee. If you would like to speak to someone not directly involved in the study about your rights

as a volunteered participant, or about the conduct of the study, please refer to the contacts and independent complaints procedure sheet (click here).