

**Predictors of psychological well-being, academic self-efficacy and resilience in university students, and their impact on academic motivation.**

Lidija Trpcevska

*Thesis submitted in partial fulfilment of the requirements for the degree of  
Doctor of Psychology (Clinical)*

College of Health and Biomedicine

Victoria University

2017

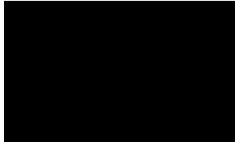
### Abstract

Compared to the general population, higher education students report elevated levels of psychological distress, with symptoms of and criteria for serious mental illness also being higher. Tertiary education marks a time in life of high levels of change and stress. Despite these difficulties, many students continue to succeed in their studies. One factor that has been shown to contribute to, and predict academic success is motivation. The current study aims to explore factors which contribute to psychological well-being, academic self-efficacy and resilience in students and their impact on motivation. Victoria University students ( $N=163$ ) completed a survey of demographic questions and a variety of measures including locus of control, spirituality, perceived stress, academic self-efficacy, psychological well-being, resilience and motivation. Regression analyses using the bootstrapped method were conducted to explore relationships. Psychological well-being, academic self-efficacy and resilience jointly predicted motivation. Individually, however, academic self-efficacy, depression and resilience each contributed to extrinsic motivation; depression, academic self-efficacy, resilience and stress each predicted amotivation; while only academic self-efficacy was a significant predictor of intrinsic motivation. Lower scores on perception of stress were predicted by an internal locus of control and higher levels of spirituality, while higher levels of perceived stress were predictive of lower levels of psychological well-being. Perception of stress was a significant mediator between locus of control and psychological well-being, as well as spirituality and psychological well-being. Depression also mediated the relationship between perception of stress and amotivation. Measurement issues and implications of the findings are discussed.

**Doctor of Psychology Declaration**

I, Lidija Trpcevska, declare that the Doctor of Psychology (Clinical) thesis entitled Predictors of psychological well-being, academic self-efficacy and resilience in Victoria University students, and their impact on academic motivation is no more than 40,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

Signature:



Date: 16.01.2017

### **Acknowledgements**

There are many people who have helped with the completion of this thesis. For their continuous support I would like to make the following acknowledgements:

Firstly, my supervisor Dr. Warwick Hosking. Thank you for your patience. Thank you for your effort in guiding and shaping this thesis into what it is.

Secondly, I would like to thank my friends, family, partner and supporters along the way. Thank you for your patience; for allowing me to be a poor and distracted friend many times with much weight on my shoulders. Some of you were there as a sounding board for me to talk about this thesis; and as life savers, some of you were there to allow me to escape for some time and not talk about anything thesis related. But you were all my very own cheerleaders. Thank you for your friendship. I look forward to some more 'present' time in my relationship with each and every one of you. Thank you to my parents for all your support; and the security and confidence which you instilled in me that kept me going. Thank you for all your efforts without question or expectations in return.

Finally, Sara. Where do I begin? Thank you does not even begin to convey the gratitude I feel for your unwavering support, understanding and friendship throughout this journey we have shared. The often difficult, yet mostly enjoyable journey would not have been what it was without you. While I can close this chapter of my life, I am grateful to know that I have made a lifelong friend in you. And for that; this long journey will always have been worth it. I look forward to what the future holds and our future lists.

## Table of Contents

<b>Abstract</b> .....	i
<b>Student Declaration</b> .....	ii
<b>Acknowledgements</b> .....	iii
<b>Table of Contents</b> .....	iv
<b>List of Tables</b> .....	vii
<b>List of Figures</b> .....	ix
<b>Chapter One: Overview and Background Information</b> .....	1
<b>Chapter Two: Literature Review</b> .....	8
Motivation .....	8
Intrinsic and Extrinsic Motivation .....	11
Psychological Well-being .....	16
Academic Self-efficacy .....	25
Resilience .....	29
Locus of Control .....	37
Cognitive Appraisal and Re-appraisal .....	41
Spirituality .....	44
The Present Study .....	54

<b>Chapter Three: Method</b> .....	57
Participants .....	57
Brief History of Victoria University Population .....	58
Materials .....	60
Procedure .....	75
Data Analysis .....	76
<b>Chapter Four: Results</b> .....	78
Descriptive Statistics .....	79
Exploratory Analyses .....	82
Testing the Proposed Model .....	90
<i>Component One</i> .....	94
<i>Component Two</i> .....	104
<i>Component Three</i> .....	108
<i>Component Four</i> .....	112
Summary of Findings .....	117
<b>Chapter Five: Discussion</b> .....	120
Exploratory Findings .....	123
Findings Pertaining to the Proposed Model .....	128
<i>Component One</i> .....	128

<i>Component Two</i> .....	132
<i>Component Three</i> .....	139
<i>Component Four</i> .....	142
Limitations .....	143
Future Directions and Implications.....	146
Summary and Conclusion .....	151
<b>References</b> .....	155
<b>Appendices</b> .....	209
Appendix A: Demographic Questionnaire.....	209
Appendix B: The Depression, Anxiety, Stress Scale- 21 items.....	213
Appendix C: Brief Resilience Scale.....	217
Appendix D: Spiritual Well Being Scale .....	219
Appendix E: Perceived Stress Scale .....	222
Appendix F: Academic Self-efficacy Scale .....	224
Appendix G: Academic Motivation Scale .....	226
Appendix H: Locus of Control Scale .....	229

**List of Tables**

Table 1. Comparisons of Melbourne’s western region to Victoria and Australia in 2011 ...	59
Table 2. Current Stressors Experienced by Participants.....	81
Table 3. Reasons for Not Accessing Student Support Services .....	81
Table 4. Scores in Each Range of the Subscales of the Depression, Anxiety, Stress Scale- 21 items Version .....	82
Table 5. Correlations Between Age and Outcome Variables .....	82
Table 6. Descriptive Statistics for Outcome Variables by Gender.....	83
Table 7. Descriptive Statistics for Outcome Variables by Financial Security .....	84
Table 8. Descriptive Statistics for Outcome Variables by Current Engagement with Student Support Services .....	85
Table 9. Descriptive Data for Outcome Variables by Working on Current Assessments....	86
Table 10. Descriptive Data for Outcome Variables by Students Currently Studying for Exams .....	88
Table 11. Descriptive Data for Outcome Variables by Self-reported Progress.....	89
Table 12. Descriptive Data for Outcome Variables by Level of Study.....	90
Table 13. Descriptive Data and Correlations of all Scales and Subscales .....	92

Table 14. Summary of Multiple Regression Analysis Pertaining to Predictors of Perceived  
Stress..... 96

Table 15. Summary of Multiple Regression Analysis Pertaining to Predictors of Academic  
Motivation..... 106

### List of Figures

Figure 1. Proposed model and relationships of the variables .....	57
Figure 2. Mediation model .....	78
Figure 3. Component one of the proposed model .....	94
Figure 4. Perceived stress as a mediator between existential well-being and depression ..	100
Figure 5. Perceived stress as a mediator between existential well-being and anxiety .....	101
Figure 6. Perceived stress as a mediator between existential well-being and stress .....	102
Figure 7. Perceived stress as a mediator between existential well-being and resilience....	104
Figure 8. Component two of the proposed model .....	105
Figure 9. Component three of the proposed model .....	109
Figure 10. Academic self-efficacy as a mediator between locus of control and amotivaiton .....	111
Figure 11. Component four of the proposed model.....	112
Figure 12. Depression as a mediator between perceived stress and amotivation.....	117
Figure 13. Significant mediated relationships. ....	120

## **Chapter One: Overview**

Tertiary education marks a time of change in life when levels of stress are typically high. Entering higher education generally comes at a time in an individual's life when they are experiencing and attempting to understand naturally occurring developmental changes and shifts (Royal College of Psychiatrists, 2003). There can be high levels of academic pressure to perform, reduced levels of academic support compared to secondary school, social isolation during the transition period and potential long term financial debt (Hartley, 2011). University students generally also face increasing independence and may need to deal with separation from family and friends. Stress has repeatedly been shown to negatively impact academic performance in college students (Hartley, 2011) while also contributing to other conditions such as disturbed sleep and eating patterns (Dusselier, Dunn, Wang, Shelley & Whalen, 2005; Misra & McKean, 2000); anxiety and depression (Dixon, Rumford, Heppner & Lips, 1992; Grote, Bledsoe, Larkin, Lemay, & Brown, 2007; Segrin, 1999; Vaez, & Laflamme, 2008); and other somatic problems (Adams, Wharton, Quilter & Hirsch, 2008). Students facing financial difficulties are also more likely to have an increase in mental health problems or symptoms (Roberts, Golding, Towell & Weinreb, 1999). Andrews and Chong (2011) found that heightened levels of stress, anxiety and depression coincided with increasing stress in Australian university students. Heightened stress levels of students in higher education has also been a predictor of suicidal ideation and feelings of hopelessness (Dixon et al., 1992), which is a defining feature of depressive disorders (American Psychiatric Association, 2013). Increases in headaches, sleep disturbances, the common cold and other ailments experienced by college students, impact

on their education, days missed and productivity. Given such worrying findings, Deckro et al. (2002) argue that stress management of students is important.

The latest National Survey of Mental Health and Well-being (Slade et al., 2009) reported the 16-24 year old age bracket to be at highest risk of developing mental and emotional problems, at 26.4%. A similar proportion (25%) of 25-34 year olds experienced a mental health disorder in a twelve month period. These age groups represent the highest proportion of tertiary students (Slade et al., 2009), indicating a particular vulnerability for tertiary students to develop mental illness or experience psychological distress. In 2013, 73% of Australian tertiary enrolled students were under the age of 25 (Australian Government Department of Education and Training, 2014).

Stallman (2008) surveyed students attending an Australian university health service, finding a much higher rate of anxiety and mood problems in the university sample, compared to the general Australian population. Compared to the general population prevalence (36%), 53% of the students surveyed reported elevated levels of distress. Criteria for serious mental illness were met by 26.6% of the student population, compared to only 12% of the general population. Stallman concluded that in comparison to national trends, simply being a student may constitute a risk factor for mental health problems. British university students also rated higher on psychological ill health measures compared to the general population (Roberts, Golding, Towell & Weinreb, 1999; Stewart-Brown et al., 2000). The Royal College of Psychiatrists (2003) in London undertook an analysis and review of the mental health of students in higher education, reviewing the nature, prevalence and causes of mental health problems of tertiary students. This review was

partly spurred by evidence of an increase in student numbers attending student health services as well as an increase in the severity of mental health problems. They considered students with mental health problems as a disadvantaged population, with the potential to disturb study and learning, amongst other things. They found a higher rate of mental health symptoms of students in higher education when compared to age matched controls. They also reported females to be at a higher risk of mental health problems, compared to males (Royal College of Psychiatrists, 2003). Cooke, Bewick, Barkham, Bradley & Audin (2006) also found female students in the United Kingdom to score high on levels of depression and anxiety compared to their male counterparts. Their study of 4,699 first year university students' psychological well-being showed that first year university students experienced difficulties in line with heightened levels of anxiety. The tension that first year university students reported was higher than their reported levels of stress prior to beginning university. At four different stages across the first year of university, Cooke et al. (2006) measured subjective well-being symptoms (anxiety, depression and physical problems), life functioning and risk. They found significant overall differences across all four time intervals, with all general scores also significantly higher for females compared to males. Scores were highest at interval three, which was the end of the first semester. Levels of stress however, did not decrease to pre-university levels.

Cooke et al. (2006) also explored support service usage of first year university students and found that while approximately one third of students deemed to be in the highest bracket of vulnerability accessed university counselling services, an alarming two thirds did not access any counselling services internal or external to the university. An

Australian study of international students reported similar findings (Rosenthal, Russell & Thomson, 2006) from which a sample of 979 international students, 27.6% reported that they thought they needed help from the university's counselling service during the current academic year. Of those students, only 19.8% visited the counselling service, translating to 5.8% of the total surveyed population having accessed the university counselling service in that academic semester. Only 3.7% of respondents reported using a service off campus as a reason for not accessing the university's counselling service (Rosenthal, Russell & Thomson, 2006).

A particular concern of these reports is that the number of students undertaking higher education studies is increasing (Gibney, 2013; Kirby, 2007; National Center for Education Statistics, n.d Padron, 2006). This also holds true in Australian higher education (OECD, 2012a). The Australian Government has committed to widening participation in Australian higher education (Gale & Parker, 2013). In 2012, 50% of Australia's young people (age range not specified) were expected to complete university education. This is above the Organisation for Economic Co-operation and Development (OECD) average of 39% and places Australia in fifth rank of 28 OECD countries (OECD, 2012a). In 2009, the Australian Government announced that by the year 2025, 40% of 25-34 year olds should attain an undergraduate degree. At the time of announcement, only 32% of 25-34 year olds held an undergraduate degree. To achieve the 40% target, an additional 25,000 students are required to enrol in a higher education course each year between 2009 and 2021. Between 2004 and 2011 there was an increase in the number of commencing undergraduate students each year, with the biggest increase of 15,363 seen in 2009. The total increase in all

undergraduate students from 2006 to 2011 was approximately 26% (Gale & Parker, 2013). Also by 2020, the Australian government committed to having 20% of undergraduate students from low socioeconomic backgrounds. In 2011, the percentage of students from a low socioeconomic background enrolled in a course of study sat at 15.8% (Australian Bureau of Statistic, 2013). If higher education students are continuing to exceed their age-matched counterparts in rates and severity of mental illness symptoms and problems, then it is imperative to consider the mental health of higher education students and contemplate a preventative or strength based approach to student mental health, particularly as the number of higher education students is steadily increasing.

Cooke et al. (2006) anticipate that academic pressure will only increase for students in higher education. They postulate that increasing enrolments in higher education will result in higher education being more common, therefore the strain to obtain an advanced degree will place greater demands on students than ever before. This is particularly relevant for Australian higher education students, with the Australian government's target of 40% of 25-34 year olds obtaining a higher education certification. With increasing numbers, and increasing burdens experienced, it is important to keep up with increasing demands and ensure that institutions are better equipped to handle increasing numbers but also create an environment which minimizes the impact and stress of higher education on students. With increasing research and interest in the well-being of students, there is still little research on **the well-being of** Australian university students, compared to other countries such as the United States (Abdel-Khalek & Lester, 2010; Hayes, 1997; McMahan, Ryu & Choi, 2014; O'Connor, Vizcaino & Benavides, 2015; Wang, Heppner, Wang & Zhu, 2015) and the

United Kingdom (Cooke, Bewick, Barkham & Audin, 2006; Duckett, Sixsmith & Kagan, 2008; Grant, 2002; Roberts et al., 1999; Topham & Moller, 2011).

Given the risks and vulnerabilities of tertiary students, it is important to consider which protective factors serve to promote student resilience and their ability to maintain well-being and complete their studies. By definition, the term resilience implies rising to challenges; surviving and continuing to function and flourish in the face of adversity. One can therefore wonder what it is about some university students who face many difficulties, compounded by higher rates of mental illness, which enables them to continue to study and achieve at this demanding and competitive higher education level. The current study intends to identify protective factors in university students' resilience and well-being which contribute to their academic motivation, and to propose a preliminary, tentative model of how these factors relate to one another. Factors that will be considered in the present study include academic motivation as the focal outcome variable, as it is known as an important precursor to overall academic achievement (Hustinx, Kuyper, van der Werf, & Dijkstra, 2009; Linnenbrink & Pintrich, 2002). As it has been demonstrated, the university experience is a time of challenge and heightened risk for students to experience low levels of mental health and increased symptoms of mental illness. Therefore, psychological well-being and resilience will be explored as predictors of academic motivation. Of the various factors that have been identified to protect and promote resilience and psychological well-being, the current study will explore the cognitive factors of academic self-efficacy and stress appraisal, stemming from locus of control and spirituality.

The following review of the literature will first outline the outcome variable under consideration: motivation, which will be followed by a review of the other aforementioned variables and how they contribute towards motivation. Motivation is important as it directs and sustains behaviour towards identified goals. Motivation influences the amount of effort exerted on a particular task or towards reaching a goal, and is related to psychological well-being, perseverance and cognitive processing. In an academic context, motivation has also been linked to course completion (Gibson & Graff, 1992; Hart, 2012) and academic performance (Bembenutty & White, 2013; Linnenbrinck & Pintrich, 2002).

This study will explore the pathway from locus of control to academic motivation. It will consider the impact of locus of control and spirituality on the appraisal of stress and academic self-efficacy. The direct impact of academic self-efficacy on academic motivation and also as a mediator between academic motivation and locus of control will be considered. The contribution of stress appraisal on psychological well-being and resilience will also be explored and how they in turn impact on academic motivation.

## **Chapter Two: Literature Review**

### **Motivation**

Geldard and Geldard (2010) suggest that motivation is important as it is a means for achieving success and self satisfaction. In educational settings, motivation has been referred to as achievement motivation (Busato, Prins, Elshout & Hamaker, 2000), a factor which is repeatedly linked to completion of studies and is also known as academic motivation (Areepattamannil, Freeman, & Klinger, 2011; Kaufman, Agars & Lopez-Wagner, 2008;

Linnenbrink & Pintrich, 2002; Ning & Downing, 2010; Vallerand et al., 1992). The fact that academic motivation is considered specifically in an academic context highlights the development of this concept and is an important step in further understanding motivation, particularly in students. Linnenbrink and Pintrich (2002) discuss motivation as an academic enabler and identify motivation, according to social cognitive models, as dynamic and contextual rather than a stable individual trait.

Motivation relates to important factors in preparing students for college, the workforce and lifelong learning (Lai, 2011). Examples of such factors linked to motivation include critical thinking, analysing arguments (Paul, 1992), judging and evaluating (Case, 2005), problem solving, and deductive and inductive reasoning (Willingham, 2007). Scales and Leffert (1999) also reported a link between achievement motivation and mental health, communication and fewer problem behaviours.

As a predictor of academic success, motivation has been predictive of higher grades in school, increased high school competencies, increased college enrolment and higher scores in literacy and numeracy (Scales and Leffert, 1999). Ning and Downing (2010) found student motivation to be the strongest predictor of academic performance in the first 15 months of undergraduate study. They also postulated that academic motivation was related to the use of cognitive and meta-cognitive strategies such as concentration, goal setting, self testing and anxiety management in order to monitor and regulate learning and academic performance. Kusrkar, Ten Cate, Van Asperen and Croiset (2011) analysed motivation in medical education, looking at various studies and literature with motivation as a dependent variable and independent variable. Their meta-analysis indicated motivation

was a significant precursor to well-being, academic success, persistence, learning and continuation in studies. Busato, Prins, Elshout and Hamaker (2000) studied 409 first year psychology undergraduate students and found that achievement motivation was a predictor of academic success, which they defined as study points awarded at the end of each academic year as well as scores on first examinations. In addition to this they found that the greatest predictor of academic success in subsequent years of undergraduate study was performance in first exams of undergraduate studies. Motivation has also been associated with student persistence in a study by Dodge, Mitchell and Mensch (2009), who explored student retention in athletic training programs. Compared to pre-college experiences, family background, personal attributes, academic integration, clinical integration and social integration, they found motivation to be the strongest predictor of student persistence. They concluded that students with high motivation are better equipped, or at least more likely, to positively deal with obstacles, while lower motivated students are less likely to complete their degrees. Therefore, understanding motivation and factors which may increase motivation is important in order to potentially create an environment conducive to academic success.

Busato et al. (2000) also found that achievement motivation of psychology university students was associated with academic success. This trend dates back to when Harris (1940) reported motivation to be one of the essential criteria for academic achievement, along with intelligence. Areepattamannil, Freeman and Klinger (2011) found that motivation, specifically intrinsic motivation, was a positive predictor of academic achievement in Indian adolescent students in Canada and India. Extrinsic motivation,

however, appeared to negatively predict academic achievement for the Indian students in Canada. This is in line with the general consensus on extrinsic motivation, suggesting that extrinsically motivated individuals are less self-determined (Froiland, Oros, Smith & Hirschert, 2012; Readdy, Raabe & Harding, 2014; Richer & Vallerand, 1995; Smith, Deemer, Thoman, Zazworsky, 2014; Vansteenkiste, Lens & Deci, 2006).

While high levels of motivation have been reported to predict success and various positive outcomes; likewise, low academic motivation can have negative implications and has been reported to result in low academic performance (Domene, Socholotiuk & Woitowicz, 2011; Fortier, Vallerand & Guay, 1995), and psychological maladjustment (Domene et al., 2011; Miquelon, Vallerand, Grouzet & Cardinal, 2005), which has been replicated across various cultures (Caldwell & Obasi, 2010; Liem, Martin, Porter & Colmar, 2012; Smith, Cech, Metz, Huntoon & Moyer, 2014; Wagner, 2012), and heightened levels of procrastination (Domene et al., 2011). This has been replicated cross culturally, including Latino students in the United States of America as well as Indian students in Canada and India (Alfaro, Umana-Taylor, Gonzales-Backen, Bamaca & Zeiders, 2009; Areepattamannil et al., 2011). Anderson and Keith (1997) argued that low academic motivation may be a severe detriment in some careers. An incomplete degree is an example of potential detriment, particularly in professional careers which may require formal qualifications.

### **Intrinsic and extrinsic motivation**

Earlier theoretical approaches toward motivation were firmly based on Skinner's (1976) theory of behaviour, focusing primarily on extrinsic motivation; that is, external reinforcers such as rewards or consequences guiding behaviour. However, it is now widely accepted that motivation in any one individual can consist of extrinsic or intrinsic motivation, or both (Stipek, 1996), and amotivation which is the lack of motivation as described in self-determination theory (Deci & Ryan, 2002; Ryan & Deci, 2000b), one of the most widely utilised theories of motivation.

At its core, self-determination theory rests on three basic psychological needs, including sense of autonomy, competence and relatedness which cultivate various forms and levels of motivation (Ryan, 2009). For example if an individual's environment is favourable and encourages or allows for an individual to feel autonomous, competent and connected to others, then the more optimum form of motivation is able to be utilised whereby individuals are then able to perform or interact with their environments from an intrinsically motivated standpoint. Self-determination theory proposes that poorer well-being and decreased levels of motivation will result if the three basic psychological needs are unable to be supported, expressed or nurtured (Ryan, 2009).

Motivation, intrinsic and extrinsic, is goal oriented. Intrinsic motivation refers to motivation from within an individual, which is rooted in the sheer pleasure of participating in an activity and personal fulfilment, while extrinsic motivation stems from factors outside of the individual, generally seeking an external reward. Ryan and Deci (2000a) propose that intrinsic goals are positively correlated with psychological well-being due to satisfaction of

three basic psychological needs through individual choice and control in the initiation, maintenance and regulation of behaviour. Intrinsic motivation has been linked to positive academic performance (Anderson & Keith, 1997; Deci, Vallerand, Pelletier & Ryan, 1991; Kaufman et al., 2008; Ning & Downing, 2010; Schunk, 2005), a greater sense of satisfaction of academic work (Vallerand, Blais, Briere & Pelletier, 1989), higher academic achievement (Soenens & Vansteenkiste, 2005), greater levels of perceived academic competence (Fortier, et al., 1995), and higher quality learning (Grolnick & Ryan, 1987). In contrast, extrinsic motivation has been shown to be related to a limited coping ability and increased anxiety (Deci & Ryan, 2000).

Type of motivation is thought to correspond with the continuum of self-determination, such that amotivation is in line with low levels of self-determination, extrinsic motivation corresponds with relatively higher levels of self-determination, and intrinsic motivation corresponds with the highest level of self-determination. As higher levels of self-determination have been linked to positive psychological functioning (Deci & Ryan, 1985), Vallerand et al. (1993) expected to find that intrinsic motivation would be closely aligned to positive psychological well-being, which would weaken further down the motivation continuum as with the self-determination continuum. This has been highlighted in the contexts of relationships, sports, leisure and ageing, and also in an educational context (Vallerand et al., 1993). Vallerand, Blais, Briere & Pelletier (1989) reported more negative academic outcomes were correlated with amotivation, while higher up on the continuum, extrinsic motivation was related to positive academic outcomes such as effort and persistence, with intrinsic motivation holding the most positive education outcomes. In

a study of 217 junior college students, they found intrinsic motivation to be positively related to effort, psychological adjustment, quality of conceptual learning, persistence in studies, satisfaction with academic life and positive emotions experienced in the classroom.

Using the Academic Motivation Scale, Vecchione, Alessandri and Marsicano (2014) found that academic motivation predicted positive educational outcomes such as grades, attendance and behaviour in students aged 9-22 years. For university students, they found that intrinsic motivation significantly predicted higher grades among females, but not males. They posited that gender difference was explained by known gender related differences in autonomy, which self-determination theory posits is beneficial in predicting adaptive outcomes. Vecchione, Alessandri and Marsicano drew on prior research in which female students rated themselves higher on autonomy compared to male students, and felt that their autonomous behaviour was encouraged. On the other hand, they found external regulation to significantly predict higher grades in males, but not females, in line with Ryan's (2009) finding that males hold control orientations stronger than females and are therefore more likely to manage their behaviour based on external rewards. Interaction of gender with intrinsic motivation and external regulation also predicted grades. Alfaro, Umana-Taylor, Gonzales-Backen, Bamaca and Zeiders (2009) also found academic motivation to contribute to positive academic outcomes in Latino adolescents. Their four year longitudinal study found that higher levels of motivation were significantly related to higher academic scores for both males and females. Unlike other studies which replicated this finding longitudinally, Alfaro et al. did not find motivation to predict academic

outcomes over time. They suggested that motivation impacted on academic success indirectly through earlier academic successes.

Kaufman, Agars and Lopez-Wagner (2008) studied personality factors and motivation as predictors of grades in a sample of undergraduate university students in the United States with a mix of race and ethnic backgrounds, and found motivation, both intrinsic and extrinsic, to significantly predict grades. Church, Elliot and Gable (2011) also reported a link between classroom success and intrinsic motivation. As previously discussed, intrinsic motivation relates to motivation due to perceived importance or interest and enjoyment stemming from within the individual rather than by external rewards or recognition. Students who are intrinsically motivated are more likely to engage in tasks willingly and work to improve their skills, increasing their capabilities (Wigfield, Guthrie, Tonks & Perencevich, 2004). This type of self-determined motivation has been linked to educational outcomes and academic success from early elementary school through to college (Alfaro et al., 2009). Students with higher self-determined motivation for doing school related work were more likely to complete schooling, achieve, show evidence of conceptual understanding, and be well adjusted compared to those with low self-determined motivation (Connell & Wellborn, 1991; Daoust, Vallerand & Blais, 1988). This is not to say that students are not also motivated extrinsically, for example, by the desire to achieve good grades. While this is useful, research suggests intrinsic motivation, which is related to internalised and intrinsic goals, is more instrumental in positive outcomes and well-being.

With motivation being a stronger predictor of achievement than ability, it is evident that motivation is an important attribute to foster in individuals, particularly students.

Gottfried (1990) found that the relationship was bi-directional, in that motivation predicted achievement, but also that achievement predicted motivation, and perhaps strengthened future motivation levels in young elementary students. In her longitudinal study, following children from ages seven through to nine, she found that motivation was positively related to achievement, intelligence and sense of competence, while being inversely related to academic anxiety.

Moving beyond a simplistic behavioural understanding of motivation, which is primarily based on consequences and rewards; more recent views of motivation focus on cognitions as the primary influence of behaviour. Individuals are able to consider whether they are able to perform or execute a particular task, whether they want to take part in a particular task and what is required of them to succeed in a particular task (Broussard & Garrison, 2004). Considering these three questions that individuals may ponder, it is evident that various factors and attributes come into play; for example, locus of control, self-efficacy and cognitive appraisals. These may all be factors contributing to academic motivation. As stated by Ryan and Deci (2000b), without a sense of internal control or autonomy, just feeling competent or confident in a task or behaviour is not sufficient to enhance intrinsic motivation. Bandura (1993) argued that self-efficacy, which can be understood as perceived competence, influences motivation in determining the goals individuals set, the time and effort they use in striving and persevering towards their goals, and their resilience to failures.

Given that motivation is so important for academic success, it is equally important to examine factors which promote motivation. The current study will explore some of those

factors such as psychological well-being, resilience, academic self-efficacy, locus of control, perceived stress and spirituality. These factors are discussed in the below sections.

Firstly, the factors which contribute towards levels of academic motivation will be discussed (psychological well-being, resilience and academic self-efficacy), followed by locus of control, perceived stress and spirituality, which are proposed to influence the aforementioned factors of resilience, psychological well-being and academic self-efficacy.

### **Psychological well-being**

The terms mental health and psychological well-being are ambiguous with varied measures and definitions (Akin, 2008; Bennett, 2005; Gartoulla, Bell, Worsley & Davis, 2015; Kinderman, Shwannauer, Pontin & Tai, 2011; Rose, Ahuja & Jones, 2006; Ryff & Keyes, 1995; Thatcher & Milner, 2014; Veit & Ware, 1983). Wilkinson and Walford (1998) suggest that care needs to be taken when researching mental health and psychological well-being, and recommend not using the terms interchangeably. Akin (2008) concurs with this, describing the wide use of terms interchangeably as a primary reason for the non-unified understanding of psychological well-being. Akin cites various terms such as happiness, mood, affect, subjective well-being, quality of life, satisfaction with life, mental health, emotional health and well-being all being used interchangeably with psychological well-being. Through evolving definitions and understandings, there has been a shift from the earlier measurements of psychological dysfunction and distress in understanding well-being and mental health, towards positive psychology highlighting positive functioning and protective factors of individuals as important measures of mental health and psychological well-being.

Positive psychology has advanced understanding by acknowledging that a mentally or psychologically healthy person is not an individual who merely presents with an absence of negative psychological symptoms such as anxiety or depression. Rather, it recognises that mental health or psychological well-being also encompasses protective factors and positive functioning such as high levels of resilience (Andrews & Chong, 2011; Cvetkovski, Reavley & Jorm, 2012; Stallman, 2010), high levels of social connections (Cacioppo, Capitanio & Cacioppo, 2014; Roffey, 2015; Sarkar & Fletcher, 2014; Spencer & Patrick, 2009), increased levels of hope (Lapierre, Dube, Bouffard & Alain, 2007) and spirituality (Burris, Brechting, Salsman & Carlson, 2009; Salmoirago-Blotcher et al., 2012). Protective factors and positive functioning need to be considered and have important treatment implications, which are useful in de-stigmatising mental illness, however, it is equally important to consider psychological distress when considering an individual's mental health or psychological well-being. In other words, the absence of psychopathology is crucial in considering an individual's overall mental health and psychological well-being. For example, it could be questioned whether a psychotic patient who reports high levels of subjective well-being and other protective factors, such as family and social support, and high levels of intelligence, can be deemed psychologically well. To answer in the negative would not imply that the psychotic patient is unable to best utilise their protective factors and therefore enhance their functioning, but rather that it is important to assess any psychological distress in order to best assist and formulate the best possible care. This is where positive psychology could have a significant role in optimising individual strengths and protective factors, and hence improve functioning and increase subjective well-being.

While psychological well-being is considered as the presence of protective factors beyond the mere absence of psychological ill health symptoms, psychological distress is generally considered as the presence of psychological symptoms indicative of poor mental health. These symptoms are experienced above a certain threshold to be considered as psychological distress. Symptoms of depression and anxiety in response to stress with a limited perceived ability to cope with the stress are characteristic of psychological distress (Deasy, Coughlan, Pironom, Jourdan & McNamara, 2014). Psychological distress has been linked to increases in symptoms of anxiety, depression, substance use and personality disorders (Verger, et al. 2009).

The current study takes this into consideration and utilises this approach in measuring levels of psychological symptoms of depression, anxiety and stress to better understand levels of psychological distress in university students. An American study of college students revealed that of the top six health-related problems which affect academic performance, five were psychological (Stallman, 2008). Due to the high prevalence and severity of psychological distress also found in Australian university students (Andrews & Chong, 2011; Bhullar, Hine & Phillips, 2014; Cvetkovski et al., 2012), it is important to measure psychological distress in order to contribute towards a well-rounded understanding of student well-being. While the importance and impact of protective factors are not downplayed, it is important to consider whether these protective factors do in fact buffer individuals against psychological distress. The current study explores the absence of psychological distress in the form of symptoms of depression, anxiety and stress as

indicators of mental health and well-being, also taking into account aspects of positive functioning and well-being such as resilience and academic self-efficacy.

In order to better understand psychological well-being and distress, Antaramian (2015) encouraged the use of a dual factor mental health model, taking into consideration both psychopathology and psychological well-being to determine overall mental health. The dual factor model of mental health challenges the idea that psychological well-being and psychological distress are opposing constructs of the one mental health continuum. Rather, the dual factor model suggests that psychological well-being and psychological distress are two separate and distinct constructs which are highly correlated (Keyes, 2005).

Antaramian (2015) used the model to assess whether college students differed in mental health profiles and academic success. She explored both psychological symptoms and psychological well-being in order to better understand college student performance. Subjective well-being was operationalised as a combination of positive and negative affect (emotional components of subjective well-being) and life satisfaction (cognitive components of subjective well-being). Psychological distress was operationalised as internalising symptoms (depression) and externalising symptoms (aggression). Educational outcomes were measured by a student engagement survey which included subscales of academic engagement, peer engagement, faculty engagement, intellectual engagement, and beyond class engagement of social connectedness and a feeling of connection to the wider university community. A self-reported GPA score was also considered.

Based on reported levels of psychological symptoms (high and low) and levels of subjective well-being (high and low), Antaramian (2015) found that participants fit into four distinct groups on the dual factor model of mental health. The first group, termed *well-adjusted* comprised students indicating low levels of psychological symptoms and high levels of subjective well-being. As expected in the single continuum of mental health research, another group termed *distressed* was comprised of high levels of psychological symptoms and low levels of subjective well-being. It is the two additional groups that strengthen the position of the dual factor model. The group who displayed high levels of psychological symptoms and high levels of subjective well-being was termed *ambivalent*. The formation of the ambivalent group highlights that psychological distress or negative psychological symptoms alone do not necessarily indicate an incapacity for life satisfaction and subjective well-being; in other words, negative psychological symptoms *can* co-occur with protective factors and positive well-being. Finally, the *at-risk* group showed low levels of psychological symptoms teamed with low levels of subjective well-being, which strengthens the argument that the mere absence of psychopathology does not necessarily equate to good mental health. In relation to academic success, she concluded that the absence of psychopathology or negative psychological symptoms in addition to the presence of protective and positive functioning factors were significant in promoting academic success.

Antamarian (2015) also reported on previous studies of dual factor models of mental health, in which the four groups differed on a range of outcomes including, but not limited to, motivation, academic achievement, student engagement, self-efficacy, locus of

control, perceived social support and physical health. She highlighted that these findings relate to childhood and adolescence with limited research of this dual factor model in higher education students, hence her focus on college students.

Antamarian's (2015) findings guide the present study in terms of the connection between psychological well-being and motivation. As psychological well-being has been linked to academic achievement (Murray-Harvery, 2010), this study proposes that mediating that relationship is academic motivation. Antamarian also highlighted self-efficacy and locus of control, similarly to the present study which proposes that they are linked to psychological well-being and academic motivation.

While the dual factor model has been utilised in better understanding the multi-dimensional nature of mental health in adults, Wilkinson and Walford (1998) argued that research into adolescent mental health and psychological well-being was still largely guided by the single factor approach which treats psychological well-being and psychological distress as opposites on a single continuum. In a sample of 273 adolescents aged 16-19 years, Wilkinson and Walford found that psychological health in adolescents was indeed best understood as the combination of the two distinct factors of distress and well-being. Contributing to the distress factor were the scales measuring negative affect, anxiety and depression, whereas the well-being factor was comprised of scales measuring positive affect, happiness and satisfaction with life. Interestingly, the scale measuring depression loaded on both factors of distress and well-being and did not discriminate very highly between the two. Veit and Ware (1983) also outlined the importance of measuring both psychological distress along with psychological well-being in order to gain a better

sense of an individual's overall mental health. They argued that while measuring symptoms of anxiety and depression was useful due to these conditions and symptoms being the more prevalent symptoms of psychological distress, it may be flawed in that few people report these symptoms. Therefore, they suggested that the measurement of psychological well-being was just as important to gain a clearer picture of mental health. They brought attention to the Mental Health Inventory (Veit & Ware, 1983), which is a multi-factorial measurement of well-being rather than an instrument which derives a single score of mental health. They found that the Mental Health Inventory yielded two distinct but correlated factors of psychological distress and psychological well-being. Psychological distress was further branched into anxiety, depression, and loss of behavioural and emotional control, while psychological well-being was comprised of general positive affect and emotional ties. The current study takes this suggestion into account and considers psychological distress symptoms such as symptoms of depression, anxiety and stress, as well as balancing that with the exploration or inclusion of positive well-being through resilience and self-efficacy, hence exploring both positive and negative aspects of mental health and well-being.

Bhullar, Hine and Phillips (2014) looked at profiles of psychological well-being in 278 Australian university students. As a measure of psychological well-being, they used the Psychological Well-Being Scale (Ryff & Keyes, 1989), which consists of six different dimensions including autonomy, personal growth, self-acceptance, positive relations with others, environmental mastery and purpose in life. To measure psychological distress they used the Depression, Anxiety and Stress Scale-21 items (Lovibond & Lovibond, 1995). They found higher levels of psychological well-being predicted lower levels of depression,

and also that lower levels of psychological well-being predicted higher levels of depression, potentially indicating a cyclical relationship between the two. An interesting finding, however, was the importance of autonomy or sense of control. They reported findings which indicated autonomy acted as a protective factor against depression. They found no gender differences, in contrast to Piccinelli and Wilkinson (2000) who found females to be more at risk of depression than males. Piccinelli and Wilkinson suggested that childhood environment and adverse experiences increased risk of depression and anxiety disorders at earlier ages and that social roles and cultural norms played a role in females' risk of depression. These findings have also been replicated in an Australian university sample, where Stallman (2010) found female university students reported higher levels of psychological distress than their male counterparts. Females consistently scored higher in moderate, high and very high levels of psychological distress; and lower than male students in the low category of psychological distress. This trend is also evident in the general Australian population (Australian Bureau of Statistics, 2008). Chow (2010) also found male students reported higher levels of psychological well-being than female students in Canada. Boughton and Street (2007) however, indicated that while gender differences related to depression have been reported, this finding has not been consistently found in university samples.

Hankin and Abramson (2001) state gender differences in the prevalence of depression begin to occur during adolescence. Cicchetti and Toth (1998) also reported an emergence of a difference in depression between males and females beginning between the ages of 11 and 13 years. Gender differences, particularly in self-reported levels of

depression have repeatedly been found whereby males report lower levels of depression than females. It is important, however to keep in mind the self-report bias relating to gender, with the response bias hypothesis suggesting that males tend to under-report levels of depression, compared to females (Sigmon, et al., 2005).

Stallman (2010) reported that psychological distress was also associated with lower levels of academic achievement; a finding corroborated by Verger et al. (2009). Predictors of psychological distress that she highlighted included financial stress, being a full time student, being female, studying an undergraduate degree beyond the first year and being aged between 18 and 34 years.

Factors linked to psychological well-being and distress among American undergraduate psychology students showed that optimism was the main predictor of positive psychological well-being and decreased levels of psychological distress, followed by health as a value. This indicates that the more an individual values their health, the more likely they are to engage in health promoting behaviours and the less likely they are to engage in health compromising behaviours. Neither religiosity nor spirituality predicted psychological well-being, but were related to psychological distress, with religiousness related to less psychological distress and spirituality related to higher levels of psychological distress. The authors attempted to explain this by suggesting that spirituality may be a coping mechanism students employ when they are experiencing heightened levels of distress; however, they acknowledged that this interpretation is contradicted by the inverse relationship between religiosity and psychological distress, as religion has also been

used as a coping mechanism in times of distress (Burriss et al., 2009). Spirituality will be considered in more detail at a later stage.

### **Academic self-efficacy**

Another factor potentially influencing motivation is self-efficacy. Self-efficacy refers to the confidence and belief that an individual has about their ability to achieve in a certain area or at a certain task (Bandura, 1982). Self-efficacy is a cognitive judgement of capabilities based on mastery criteria (Bong & Clark, 1999), in which individuals' beliefs of their own self-efficacy play an influential role in choice of behaviours; that is, what an individual will pursue, the effort afforded in their pursuit and the length of time they will persevere when faced with setbacks and challenges. Self-efficacy influences the way people feel, think, behave and motivate themselves (Bandura, 1982). It is the belief in the power to influence personal outcomes rather than possessing actual power or ability that defines self-efficacy. Recently, the concept of self-efficacy has been drawn upon for changing health risk behaviours, with many interventions including the promotion or enhancement of self-efficacy. Enhancing self-efficacy beliefs results in the successful change and maintenance of many health behaviours, including exercise, diet, stress management, safe sex, smoking cessation, overcoming alcohol abuse, compliance with treatment and prevention regimes, and also disease detection behaviours such as breast self-examinations (Sniehotta, Scholz & Schwarzer, 2005). Extending from health behaviours, self-efficacy has also shown to be an important factor in motivation and achievement, resulting in educational success (Schunk, 1991). These findings are promising due to cross sectional, longitudinal and experimental designs which have been used (Multon, Brown & Lent,

1991; Schunk, 1991; Zimmerman, 1995), and which consistently report effort and academic motivation to be cultivated from self-efficacy.

Self-efficacy is generally domain specific, for example academic self-efficacy, social self-efficacy, emotional self-efficacy and physical self-efficacy (Bong & Clark, 1999). Keeping this in mind in terms of academic self-efficacy, studies have found that self-efficacy, academic performance and persistence to be positively related, and to account for additional variance beyond aptitude (Gore, 2006) and intelligence (Wagner & Szamoskozi, 2012). In a study of seventh and eighth graders, Ning and Downing (2010) found that a classroom emphasis on mastery predicted student motivation. This was in contrast to classrooms who promoted competition and ability, which was predictive of procrastination. Multon, Brown and Lent (1991) suggested that self-efficacy not only directly affects academic performance, but also has mediating effects. In their review of self-efficacy versus self-concept in academic motivation research, Bong and Clark (1999) point out previous work in self-efficacy enhancing student achievement. As self-efficacy is a cognitive self-perception and belief about ability, it may be possible that the effect of self-efficacy on student achievement is mediated by academic motivation.

Self-efficacy has also been found to be important in distinguishing resilient individuals from non-resilient individuals (Hamill, 2003). McMillan and Reed (1994) studied resilience in at-risk students, and factors that contributed to their academic success. They suggested that resilience is understood through four interacting factors including individual attributes, positive use of time, family and school. Of the individual attributes, they found that among resilient students, a strong sense of self-efficacy and locus of control

was important. McMillan and Reed (1994) suggest that confidence in achieving goals is an essence of resilient students who also have realistic goals and a sense of optimism for the future. This feeling of confidence is a cornerstone of self-efficacy.

Bandura (1993) highlighted four main processes through which beliefs or perceptions of self-efficacy influence how people feel, think, motivate themselves and behave. The four main processes are cognitive, motivational, affective and selection processes. Within the various cognitive processes, Bandura highlighted ability, social comparison, framing of feedback and perceived controllability. Considering all of these concepts is beyond the scope of the current study, however, perceived controllability will be highlighted in more detail. In the context of the current study, and that of Bandura's previous work, perceived controllability is conceptualised as locus of control, a construct first identified by Rotter (1966). This concerns an individual's view that their environment or reactions to their environment are controllable. Controllability relates to the belief in being able to make changes to oneself through effort and various resources as well as the belief in creating change and making the most of environmental opportunities to exercise personal control. This will be discussed in further detail later.

Affective processes are influenced by an individual's beliefs or self-efficacy to handle stressors, and hence minimise the impact of stressors on their emotional states, mainly levels of anxiety, stress and depression. People with higher self-efficacy beliefs tend to believe they are able to cope with adversity and stressors, and are more confident in the management of disturbing or negative thoughts, which in turn manages states of depression and anxiety (Bandura, 1993).

Selection processes entail individuals choosing to participate in various aspects of their environment. These choices, or selection processes are influenced by self-efficacy in that an individual's beliefs about their ability or confidence to undertake certain tasks inform choices they make, and potentially determine the course of their lives. This is relevant in the context of the present study in terms of students making choices about careers, but also in the more immediate future, decisions about which course to undertake, and which unit to select (Bandura, 1993).

Bandura (1993) also highlighted the fundamental role of self-efficacy in motivation. Bandura posited that motivation in humans is largely generated through thoughts, which are instrumental in the motivational process. The three cognitive motivators through which self-efficacy beliefs function are: causal attributions, outcome expectancies and goal setting. He suggested that individuals set goals based on their beliefs about what they can do. Self-efficacy beliefs also regulate the amount of effort and perseverance exerted in the attainment of the goals.

An individual's level of aspirations, perseverance, adaptability and flexibility can be affected by their perceived self-efficacy. According to self-determination theory (Deci & Ryan, 1985), when individuals feel that they are accomplishing and overcoming challenges, and that they have choice and a sense of connection to others, they in turn feel more personal agency and choice, and hence intrinsic motivation. Other studies have shown that students with higher levels of self-efficacy related to their studies, expressed more self-determined motivation and persevered more (Vallerand & Bissonnette, 1992; Vallerand et al., 1992). As beliefs about self-efficacy are thought to regulate human

functioning and emotional well-being through cognitive, motivational and affective processes, individuals with high self-efficacy are more likely to persevere and deny negative beliefs about their abilities and themselves compared to those with lower levels of self-efficacy (Ozer & Bandura, 1990), and hence experience increased levels of psychological well-being.

Of the factors discussed in this section, perceived controllability, as conceptualised as locus of control, is proposed to be one of the stronger and more direct influences on self-efficacy, and is a focus of the current study. The nature and influences of locus of control are discussed in a later section.

### **Resilience**

The term resilience has gained much attention in recent years, ranging from mainstream popular culture (Cherry, 2013; Ellis, 2015; Killian, 2015; *This Emotional Life*, n.d; Ward, 2014) to psychological and scientific research (Atkinson, Martin & Rankin, 2009; Davidson, 2000; Olsson, Bond, Burns, Vella-Brodrick & Sawyer, 2003). While the term resilience is gaining increasing momentum and popularity, it still remains largely fragmented without a strong theoretical base, unified measurement (Bonanno, Romero & Klein, 2015; Luthar, Cicchetti & Becker, 2000) or definition (Davydov, Stewart, Ritchie & Chaudieu, 2010). Resilience, or the importance of resilience in mental health, is crucial as it highlights positive and protective factors which serve to enhance and promote positive mental health (Davydov, Stewart, Ritchie & Chaudieu, 2010) and can serve as an intervention focus in psychological treatment. Lightsey (2006), states that operationalised

resilience should conform to scientific and statistical measures such as exhibiting reliability and internal consistency, but also measure unique characteristics and constructs, while predicting positive and negative outcomes, protect against stressors, and not be associated with unrelated constructs.

As there has been little uniformity in the study and measurement of resilience in relation to mental health, it might be useful to highlight some of the more general ways in which resilience has been conceptualised. Firstly, resilience has been popular in a harm reduction, or recovery approach to mental health (Netuveli, Wiggins, Montgomery, Hildon & Blane, 2008; Tugade & Fredrickson, 2004). This approach assumes that once a negatively perceived stressor has been experienced, resilience allows for quick recovery to pre-stressor levels of functioning in terms of mental health. The second approach of protection assumes that some level of resilience exists within individuals that they are able to use in order to protect or ward off any negative effects of adverse situations (Patel & Goodman, 2007). This is analogous to what may be more frequently considered as protective factors. The final approach is that of promotion. This approach assumes additional resources have been utilised or developed within the individual in order to foster resilience and mental health (Patel & Goodman, 2007). Any new skills or tools acquired in the promotion approach are then able to be employed in future through harm reduction and protection. It may be through the second and third approaches, that clinicians and researchers can focus their efforts in intervention. In addition to individual factors, each approach considers external factors beyond the individual, such as social support (Davydov et al., 2010).

Some researchers view resilience as a trait that is either present or not (Genet & Siemer, 2011; Waugh, Thompson & Gotlib, 2011) while others have described it as a process through adjustment of negative and challenging events and circumstances (Cefai, 2007; Connor & Davidson, 2003; Friborg, Hjemdal, Rosenvinge & Martinussen, 2003; Theron, 2013; Theron & Theron, 2014; Wagnild & Young, 1993). This may lend to the lack of unity in its definition and the inconsistency in research. The present study will align with the view that resilience is process driven, influenced by other factors which are also process-oriented such as stress appraisal, or perceived stress and spirituality. Davydov, Stewart, Ritchie and Chaudieu (2010) encourage the study of resilience at the individual level to be considered at, or balanced with, the artificial level, which they describe as internal and external contributions received from society. Sameroff and Rosenblum (2006) add weight to this proposition suggesting that social context may provide better indicators of resilience than individual characteristics. This may be useful in the context of the current study as it explores resilience in university students at one particular Australian university, that is, participants naturally belonging to one larger group.

Looking at predictors of academic resilience, Borman and Rachuba (2001) examined five different models which included individual characteristics, effective schools, school resources, peer group composition and supportive school communities. The individual characteristics model explored personal characteristics including self-esteem, control and self-efficacy. The effective schools model considered the development of school missions, strong leadership and fostering attachment and a sense of belonging to the school. Their third model of school resources addressed factors such as student-to-teacher

ratios and school funding. The peer group composition model analysed the impact of the social and peer group; and finally, the supportive school community model examined safety, active involvement and participation of students with teachers and within the school environment. The two models that they found contributed most to resilience were the supportive school community and individual characteristics models. Of the supportive school community model, the factor that contributed most was the student-teacher relationship. Of the individual characteristics model, self-efficacy, locus of control and academic engagement contributed most to resilience. Lightsey (2006) suggested that resilience could be defined as global self-efficacy, therefore making the concept measurable, proposing that self-efficacy enables an individual to cope with difficulties and stressors through an awareness of their own strengths and resources. While this clearly outlines the mechanism of self-efficacy in overcoming adversities, self-efficacy may be a separate construct which contributes to resilience as proposed in the model of the current study.

Yet another understanding of resilience was introduced by Martin and Marsh (2008). They coined the term *buoyancy* as the coping of every day hassles and stressors, describing it as *everyday resilience*. They distinguished buoyancy from resilience in a number of ways. Firstly, they argued that the two constructs differ in simple definition. While by definition, resilience relates to major hardships, whether acute or chronic, buoyancy relates to difficulties associated with obstacles, tension and tribulations in the course of daily living.

Resilience and buoyancy were also distinguished based on samples studied. Due to the very nature of the definition, studies on resilience utilise samples experiencing acute or chronic difficulties. In the field of academics, Martin and Marsh (2008) identified numerous resilience studies with students experiencing learning difficulties, chronic under achievers, and students from various ethnic backgrounds facing adverse situations such as poverty and gang violence; thereby failing to address the daily positive and negative fluctuations of life and people who are facing challenges, yet not so acute or chronic to consider them resilient. Therefore, studying buoyancy may potentially allow for the study of students in general as opposed to a select few who have experienced or are experiencing severe adversity. This may include circumstances such as students facing poor performance, poor grades, and fluctuations in motivation and engagement.

While the outcome of experiencing adverse situations or circumstances may lead to clinical presentations such as anxiety and depression, the outcome of every day struggles may be more likely to present as low level stress and confidence. This has direct implications for treatment which Martin and Marsh (2008) suggest differ between resilience and buoyancy based interventions. They outlined that interventions to enhance buoyancy are based on the *broaden and build* theory of positive emotions, through which treatment provides a positive focus in which an individual's strengths and adaptive protective factors serve as a basis on which to address maladaptive aspects or burdens. Through this, they argued that psychological growth may ensue.

In relation to studies and outcomes for students, Martin and March (2008) posit that enhancing buoyancy may in turn impact positively on academic environment, interests and

attitudes, and positive motivation and engagement. However, they fail to delineate resilience treatment. While they suggest that resilience and buoyancy are distinct concepts, they continue to discuss the idea that buoyancy may be a critical component of resilience. They acknowledge that students who are considered resilient, may also be buoyant, with a hierarchical categorisation of resilience above buoyancy. Thus, they suggest that promoting and developing an individual's level of buoyancy to smaller hassles may be an important and beneficial first step as a means of enhancing resilience to deal with more adverse situations. If this is the case, it is possible that resilience and buoyancy may not be distinct in terms of treatment.

Martin and Marsh's (2008) distinction between resilience and buoyancy may imply the student experience is not considered adverse or severe enough to warrant more intensive treatment, and therefore may be missing the more subtle nuances of student hardship and adversity. As numerous findings (Bernhardsdottir & Vilhjalmsón, 2013; Nerdrum, Rustoen & Ronnestad, 2006; Stallman, 2010) continue to show, students, particularly higher education students, experience levels of distress that are higher than the normal population. This has also been documented cross culturally (Adlaf, Gliksman, Demers & Newton-Taylor, 2001; Calloway, Kelly & Ward-Smith, 2012; Rudd, 2004). Many students, including Australian higher education students, report levels of anxiety and depression in the clinical range (Andrews & Chong, 2011; Cvetkovski et al., 2012; Stallman, 2010). This suggests that the negative experiences and circumstances of higher education students may potentially be more than just a daily up and down, and may ring true for a larger student sample than just a small portion that experience severe enough

adversity or an acute stressor to warrant the term resilience over buoyancy. Dixon, Rumford, Heppner and Lips (1992) explored various sources of stress which predicted hopelessness and suicide ideation in a college population, expressing concern about the growing suicide rate for 15-24 year olds. They reported the suicide rate tripled between 1950 and 1980, taking suicide from the fifth leading cause of death in that age group, to the third leading cause of death. By 1989, they showed that suicide rates for 15-24 year olds had risen again to be the second highest cause of death. In 2013, Australia recorded 21.9% of all deaths in males ages 15-19 to be due to suicide with 28.7% of 20-24 year old deaths to be due to suicide. In the same year, the percentage of deaths by suicide in females aged 15-19 was 32.6% and 25.2% in 20-24 year olds (Australian Bureau of Statistics, 2015). Intentional self-harm was ranked the 14<sup>th</sup> highest leading cause of death in Australia, and worryingly, it was ranked first in terms of years of potential life lost. Years of potential life lost relates to premature mortality and the impact of premature death, as a result of affecting a younger demographic (Australian Bureau of Statistics, 2015). Dixon et al. (1992) also cited other work which highlights the suicide rate among college students to be 50% higher than for the same aged non student population.

Gallagher (1987) also reported an increasing number of hospitalisations for students due to psychological problems. Bernard and Bernard (1982) suggested that there may be particular college stressors or environmental factors that increase the likelihood of suicide in college students. It cannot be ignored that the higher education student population continues to be at higher risk than the general population of clinical range mental health problems; hence their daily experience may be considered adverse, whether acute or

chronic. Resilience may therefore be a useful construct in understanding the student experience from difficulties faced through to obstacles overcome.

Hartley (2011) suggested that resilience is fundamental in students facing the strain of higher education. As noted earlier, stressful situations can negatively impact students, not just physically and psychologically, but also academically. Many students, however, continue to thrive and succeed in their quest for a higher education. Tinto (1975) theorised that academic persistence, which can be thought of or understood as academic resilience is closely tied to students' motivation to attend class and study. In a study of 605 undergraduate students in the United States, Hartley examined the relationship between resilience, mental health and academic persistence, to conclude that resilience positively contributed to grade point average scores (Hartley, 2011). Baker and Hawkins (2006) illustrated an apparent relationship between resilience and positive educational outcomes. Perhaps it is motivation that mediates that relationship, as motivation has also been documented to be related to positive educational variables such as analysing arguments, reasoning, judging, evaluating and problem solving (Bailin, Case, Coombs & Daniels, 1999; Halonen, 1995; Paul, 1992).

Davydov et al. (2010) outlined factors which are related to resilience, some of which promote and protect mental health. Factors included cognitive flexibility, such as reappraisal; meaning, including religion and spirituality; and capacity to turn traumatic helplessness to learned helpfulness, which has also been defined as motivation (Charney, 2004). Reappraisal and meaning will be further explored in proceeding sections, following

a discussion of control. Specifically, it will be proposed that spirituality and reappraisal, or perceived stress contribute to resilience which, in turn, impacts motivation.

### **Locus of control**

The way in which stressful situations are perceived influences the coping mechanisms used. If a situation is thought to be changeable, problem focused strategies tend to be employed, whereas situations which are perceived as determined and fixed, tend to evoke emotion focused behaviours (Folkman & Lazarus, 1980). This may be linked to an individual's locus of control. Academic stressors have been rated as more controllable than stressors involving relationships with others (Hampel & Petermann, 2006), with problem focused strategies more likely to be used for academic stressors. Therefore, students may be utilising problem focused strategies for a situation they may perceive as changeable or within their control, and hence exercising an internal locus of control. This may be one explanation as to why students continue to succeed, despite adversity and challenges. Locus of control is thought to influence appraisal of stress; and has its roots in social learning theory (Rotter, 1966). It may be that locus of control is a precursor to psychological well-being and motivation, through cognitive appraisals and self-efficacy. Rotter proposed that when individuals believe outcomes achieved are a result of their own behaviour, those behaviours are reinforced. He asserted that "the individual who has a strong belief that he can control his own destiny is likely to a) be more alert to those aspects of the environment which provide useful information for his future behaviour, b) take steps to improve his environmental conditions, c) place greater value on skill or achievement reinforcements and

be generally more concerned with his ability, particularly his failures, and d) be resistive to subtle attempts to influence him” (Rotter, 1966, p. 25).

As they are the most influential instigators of events, individuals with an internal locus of control also believe that they can be active in the solution of their own problems and manage adversities. An internal locus of control enables an individual to feel a sense of being in control and able to choose from a selection of available options with outcomes being somewhat dependent on the choices they make. That is, locus of control may influence appraisal of stress in that higher internal locus of control is possibly related to an appraisal of situations as less stressful. Au (2015) found locus of control has been linked to stress, with an internal locus of control related to lower perceived stress in students. Therefore, individuals with a more prominent internal locus of control may be more resilient and report more positive aspects of psychological well-being. Reported benefits of an internal locus of control include lower levels of depression and anxiety, better physical health, increased initiative, better ability to deal with stress and lower levels of trauma by victimization (Thompson, 2002). An internal locus of control has also been linked to positive health habits, compliance and fewer illnesses (Wallerstein, 1992) and resilience (Werner & Smith, 1992). Bernardi (1997) also highlighted a meta-analysis in which locus of control was related to satisfaction, commitment, involvement, motivation, performance, less emotional distress, fewer psychical symptoms, less role stress and less withdrawal. It may be that perceived stress acts as a mediator between variables such as locus of control and motivation, or locus of control and psychological well-being. These mediated relationships will form part of the focus of the current study. It has been proposed that a

decreased sense of internal control, in contrast, might contribute to lower levels of motivation and an increase in depressed and anxious states (Peterson & Seligman, 1984).

Bernardi (1997) studied the links between locus of control, perceived stress and job performance of juniors at two accounting firms. Employees were asked to consider the stress they experienced in college and general life. He found that the higher the level of internal locus of control, the more likely an individual was to perceive stress as a precursor to higher achievements. Control orientation has also been shown to be a primary factor in predicting motivation and academic achievement (Gifford, Briceno-Perriott & Mianzo, 2006). Peng, Lee, Wang & Walberg (1992) examined 17,000 students from low income families, and found academic success was predicted by an internal locus of control. Johnson and Sarason (1978) also found college students with higher scores on an internal locus of control tended to experience fewer stressful events and report fewer illnesses, compared to students with a more prominent external locus of control. Adolescents with a higher sense of internal control have also been found to experience higher levels of motivation and effort in their academic studies (Luthar & Zigler, 1992).

Building on Rotter's (1966) findings of locus of control, Krampen (1988) built control orientation into his model of personality, termed the action-theoretical model of personality. Krampen attempted to link personality variables to situational variables, by considering both stable personality variables that are carried through various situations as well as looking at contextual factors that may shape personality variables. With this model in mind, some have argued that locus of control and academic achievement are mediated by motivation (Finn & Rock, 1997). When an individual feels more in control of their own

behaviour, and in turn their successes and failures, they may exhibit higher levels of motivation (Eccles & Wigfield, 2002). Feeling in control of their own behaviours and outcomes of behaviours and actions, individuals may in turn have more confidence in their ability to perform a certain behaviour or task, that is, exhibit an increase in perceived self-efficacy.

The association between locus of control and self-efficacy is particularly prominent in the literature of healthy lifestyle behaviours (Acikgoz Cepni & Kitis, 2016; Marr & Wilcox, 2015; Richards & Nelson, 2012), in which an internal locus of control has shown to have a positive effect on behaviours through self-efficacy. The association between locus of control and self-efficacy in an academic setting shows a similar pattern. Tella (2011) reported a negative relationship between locus of control and self-efficacy in a sample of 500 Nigerian secondary school students, and that together, locus of control and self-efficacy predicted academic achievement. In Turkish university students, Yesilyurt (2014) also found locus of control to predict academic self-efficacy, while Sagone and Caroli (2014) also reported the same trend in a sample of 267 Italian university students, with an internal locus of control and self-efficacy being positively related. Arazzini Stewart and De George-Walker (2014) however found no association between locus of control and self-efficacy, although their sample size of 79 university students was much smaller.

Pintrich and De Groot (1990) also suggested that self-efficacy was related to motivation in that individuals with higher levels of self-efficacy possess higher levels of motivation and also tended to produce more favourable outcomes on chosen tasks. Pintrich and De Groot also point out that individual views of self-efficacy are a better predictor of

achievement than ability. If motivation is highly influenced by cognitions, as outlined in more recent literature, it may be that cognitive reappraisals and stress appraisal are important mediators between locus of control and motivation.

### **Cognitive appraisal and reappraisal**

Finding a sense of meaning, purpose or connection, involves a challenge of underlying beliefs. Reivich and Schatte (2002) suggest cognitive techniques are utilised to create a sense of meaning and connection; particularly by challenging underlying beliefs. It is how we understand those beliefs that shape our feelings and behaviours in particular situations. This cognitive restructuring is, in essence, a form of reappraisal during particularly stressful events whereby the perception of threat is able to be challenged. This important function contributes to, and offers a way of understanding events affecting an individual's life as well as their perception of control of events and situations. Positive cognitive reappraisals have been found to predict better academic performance on three examinations by female university students (Kuiper, Martin & Olinger, 1993). The present study suggests that relationship may be mediated by academic motivation, psychological well-being and resilience.

The feeling of lost hope or hopelessness implies a negative outlook of future expectations. Many researchers, following on from Beck's (1983) work on cognitions, have identified hopelessness as a cognitive schema which responds to environmental strain. While there is much work that has followed Beck's cognitive theory to support the idea of hopelessness as a key determinant in mental illness, less work has focused on the precursor

to feelings of hopelessness, and individual factors that may contribute to hopelessness. The impact of stressful events is largely influenced by how stressful an individual perceives a situation to be, rather than the situation itself (Lazarus, 1966). Lazarus (1966) maintains that it is the emotional response mediated by the cognitive appraisal rather than the event itself that is the cause of the stress.

As in the resilience literature, stress has largely been studied in relation to major traumatic events (Bonanno, Galeo, Bucciarelli & Vlahov, 2007; Carek, Norman & Barton, 2010; Riolli, Savicki & Spain, 2010), and less so in relation to daily stresses and stressors. Some research, however, indicates that the cumulative effect of daily hassles can contribute more to depression than major traumatic events (Kanner, Coyne, Schaefer, & Lazarus, 1981). Dixon et al. (1992) argued that while major traumatic events can have a significant negative psychological impact on individuals, so too can daily disruptions and disappointments. They examined the role of different sources of stress as predictors of hopelessness and suicidal thoughts in college students and found that daily hassles, such as troublesome neighbours, too much noise and misplacing or losing things significantly contributed to feelings of hopelessness and suicidal ideation, beyond what negative life events accounted for. Their data also showed the greatest correlation between negative life events and daily hassles, indicating that there may be a relationship whereby one influences the other and vice versa.

The notion of daily hassles as prominent sources of stress as opposed to significant negative life events was the impetus for Cohen, Kamarck and Mermelstein's (1983) development of the global measurement of perceived stress. Their measure of perceived

stress utilises an individual's own perception of stress, as opposed to earlier research which utilised objective measures of stress, which Cohen et al. claim to downplay the interaction between the individual and their environment. Their global measure of perceived stress, emphasises the cognitive appraisal of situations deemed as threatening in addition to a belief of capacity or incapacity to handle the situation, compared to previous research which implied stress if participants were exposed to certain events predetermined by the researchers as stressful, such as unemployment, bereavement and high levels of population density. Cohen et al.'s scale instead measures the perception of an uncontrollable, unpredictable and overloading life, which serve as three central factors of stress. This supports the earlier work of Lazarus (1966) who suggested that stress occurs only if a particular situation is perceived as threatening and the individual believes that they will be unable to cope with the situation. This may have an effect on an individual's level of motivation, as individuals may experience lower levels of motivation to initiate behaviours in situations that are perceived as stressful, in order to avoid that stress.

According to a transactional model of coping (Lazarus, 1966), problem solving strategies (emotion and problem focused) are enlisted in order to manage problems, thereby reducing stress. Frydenberg (2008) discussed three potential routes in stress management. Firstly, positive emotions give rise to a revision of goals and problem focused coping through finding meaning to a situation. Secondly, an individual may focus on the distress rather than the event at the centre of the distress with both positive and negative emotions evident, and an eventual search for meaning or a positive in the situation. The final route results in positive emotions due to coping processes leading to goal directed behaviour.

These non-specific and non-clarified coping processes which appear to be at least in part linked to looking for and finding meaning (in essence, reappraising a stressful situation once meaning has been attained or clarified), highlights the possibility of spirituality as a protective or predictive factor in the positive appraisal of stressful events, such that higher levels of spirituality may contribute to lower levels of perceived stress. This possibility is discussed in the following section.

### **Spirituality**

While there appears to be consensus on the definition of religiosity, which involves an organised belief system (Muller & Dennis, 2007), feelings and practices which are shared by a group within a cultural context (Hay, Reich & Utsch, 2006) incorporating beliefs, rituals and practices of an institutional nature (Oman & Thoresen, 2002); the definition of spirituality has not been as consistently agreed upon (Zinnbauer, 1997). As far back as Jung (1933, cited in Hackney & Sanders, 2003) religion was viewed as a means through which meaning and stability was achieved, contributing to positive psychological well-being. Spirituality is not necessarily attached to any religion but is considered a belief system that influences daily behaviour (Underwood, 2006). Religion or religiosity is about the degree to which individuals accept and practice beliefs and rituals, whereas spirituality refers to a connection and relationship to divinity and is more intimate and private. Ellison and Fan (2008) studied daily spiritual experiences and psychological well-being in adults, finding a positive relationship between the two, above and beyond religious practices. Daily spiritual experiences refer to ordinary and routine thoughts and feelings unique to individuals and not connected to any organised religion. Daily spiritual experiences have

been associated with positive mental health outcomes (Ellison & Fan, 2008), including among college students (Ciarrocchi & Deneke, 2004).

Some studies use the terms religiosity and spirituality interchangeably (Underwood, 2006), while others view religiosity and spirituality as two distinct and separate concepts (Joshani, 2012; McIntosh, Poulin, Silver & Holman, 2011; Seeman, Dubin, & Seeman, 2003; Sessanna, Finnell, Underhill, Chang & Peng, 2011). Some authors have attempted to separate spirituality from religion (Miller & Thoresen, 2003) while increasingly others acknowledge an overlap between the two concepts (Thoresen & Harris, 2002). Walker and Dixon (2002) iterate the important caveat that individuals who align themselves with a religion may feel a sense of spirituality, and individuals who consider themselves to be spiritual may also express their spirituality through religion; with considerable overlap between the two concepts and experiences. Underwood (2006) encourages using the combined religiosity/spirituality term as it highlights the multidimensionality of a construct which is still in its formative stages in terms of instrument development as well as agreed upon terms and constructs. While the present study acknowledges religiosity and spirituality as two potentially distinct experiences, it cannot dismiss the overlapping of personal experiences. It recognises one can be religious without being spiritual, with the reverse also holding true, while also acknowledging the traverse nature of religiosity and spirituality in which spirituality can be grounded in an individual's religiosity as can religiosity be grounded in an individual's spirituality. The current study however, will use the term spirituality as it remains unattached to religion, rather focusing on a personal belief system, with individuals free to choose whether to attach it to religious beliefs or not. This

is in line with the broader hypothesised model of the current study which explores other factors at the individual level.

Numerous studies (McCullough, Hoyt, Larson, Koenig & Thoresen, 2000; Powell, Shahabi & Thoresen, 2003; Strawbridge, Cohen, Shema & Kaplan, 1997) highlight the significance in better understanding religiousness and spirituality, particularly in relation to physical and psychological health, as spirituality and religiousness have been associated with lower rates of mortality and morbidity, and higher positive functioning. Relationships have been established between religiosity and spirituality with psychological well-being (Mela et al., 2008; Yi et al., 2006), resilience (Peres, Moreira-Almeida, Nasello, & Koenig, 2007) adjustment to adversity (Greenway, Phelan, Turnbull, & Milne, 2007; Szaflarski et al., 2006), and academic achievement (Adams, n.d; Kang & Romo, 2011; Regnerus, 2003). Dailey and Stewart (2007) reported an increase in spirituality to be associated with lower levels of depression, stress and anxiety.

Hackney and Sanders (2003) reviewed 35 studies looking at the link between religiosity and mental health, as an attempt to understand and clarify the mixed findings in the association between religiosity and psychological well-being. In their meta-analysis, they excluded any studies which explored spirituality as they considered them to be different constructs, even if they are related. They found inconsistent reports of the association between religiosity and mental health, but on the whole, they found more literature to support a positive association between religiosity and mental health. They purported that some of the inconsistency may be due to the unclear and inconsistent operationalisation of both religiosity and mental health. Despite this, and when taking into

account all varying definitions and measures of mental health and religiosity, they found that a positive relationship between religiosity and mental health was present. They found that when studies measured religiosity through institutional affiliation or practice, that they consistently reported weakest relationships with mental health, including negative relationships. Institutional affiliation and practice were the only circumstances with which religiosity was negatively associated with mental health. The greatest association between religiosity and mental health was in studies of religiosity measured through personal devotion. This finding supports the stance by the present study to explore spirituality through individual meaning rather than religion. Hackney and Sanders suggested that self-determination theory was useful in explaining the link between spirituality and mental health, with personal devotion being the more internalised form of behaviour, likened to intrinsic motivation which is often associated with higher scores on measures of well-being. While Hackney and Sanders excluded any studies that explored spirituality, it seems as though their findings of religiosity in terms of personal devotion rather than institutional affiliation or practice, are in line with the elements of spirituality that overlap with religiosity.

Religiosity and spirituality have been examined in relation to coping, resilience, and psychological well-being (Newton & McIntosh, 2010; Pargament, Smith, Koenig & Perez, 1998; Walker, 2010), with studies reporting the high use of religious coping, ranging from 60-90% (Aldwin, 2007) in clinical and hospital settings (Cotton et al., 2006; Ironson, Stuetzie & Fletcher, 2006; Mela et al., 2008). Psychiatrist, Viktor Frankl, once an inmate in a concentration camp, recounts the importance of holding onto a sense of meaning and

purpose in life, as he recalls when other inmates no longer could hold onto that sense of meaning, they lost the will to live, and often died.

“In spite of all the enforced physical and mental primitiveness, of the life in a concentration camp, it was possible for spiritual life to deepen. Sensitive people who were used to a rich intellectual life may have suffered much pain (they were often of a delicate constitution), but the damage to their inner selves was less. They were able to retreat from their terrible surroundings to a life of inner riches and spiritual freedom” (Frankl, 1962, p. 35, cited in Aldwin, 2007, p. 226).

This sense of purpose and meaningful life has been linked to resilience (Feder, Nestler, Westphal & Charney, 2010). In light of all the research into spirituality and religion, spirituality has emerged as a source of resilience (Kim & Esquivel, 2011). Kim and Esquivel (2011) reported spirituality having a range of positive effects on adolescents, including healthy development, improved coping ability, mental health, psychological well-being and academic learning. It is important to note, however, that adverse effects of religiosity are also apparent in that the opposite effect has been documented such as feeling abandoned and punished by deity (Pargament, Koenig, Tarakeshwar & Hahn, 2001).

There are various avenues through which some psychologists believe that spirituality and religion may increase resilience: by assisting the development of positive and healthy relationships, by increasing the likelihood of social support, particularly through religious practices, by influencing behaviour and shaping personal values and through providing the chance for personal growth and development. This is not to say that these things are not possible through other means and channels, but it is suggested that

spirituality is one potential avenue through which resilience and psychological well-being may be fostered (Kim & Esquivel, 2011), by providing a positive outlook and facilitating resilience through discovering meaning in difficult and adverse experiences. Van Dyke and Elias (2007) concluded the possibility that the relationship between adolescent spirituality and positive outcomes was mediated by meaning and life purpose. This may be through a cognitive appraisal of stressful situations and also a sense of self-efficacy or confidence in one's abilities to overcome adversities. Seybold and Hill (2001) suggested that among some of the mechanisms through which religiosity had a positive impact on psychological well-being was locus of control beliefs. In a review of spirituality related to various aspects of well-being, including psychological, Ellison and Smith (1991) discussed prior research which indicated that spirituality can mediate levels of depression in response to life events. The current study proposes an additional variable in this mix with spiritual well-being and depression being mediated by cognitive reappraisals of stress.

A study by Cotton, Larkin, Hoopes, Cromer & Rosenthal (2005) examined whether religion or spirituality were associated with depression among adolescents. They explored spiritual well-being, comprising religious well-being and existential well-being and concluded that higher depression scores were associated with lower levels of existential well-being and higher importance of religion. The connection between existential well-being and lower levels of depression suggest that the meaning making aspect of religion and spirituality is the key factor in reducing depression in adolescents. These findings have been replicated with adolescents experiencing anxiety, whereby greater spiritual and existential well-being were predictive of lower levels of anxiety, whereas

religious well-being was not (Davis, Kerr & Kurpius, 2003). Kim and Esquivel (2011) put forward that the association between higher importance of religion and higher levels of depression may be due to people experiencing depression turning to religion as a coping strategy. Other studies (Hill & Pargament, 2003; Pargament et al., 1998) have found that religion may actually increase negative consequences such as fear of God or isolation from cultural groups.

Spirituality has also been linked to positive experiences of physical health such as coping with pain and substance abuse (Piedmont, 2004). Walker (2010) supports these findings in which she studied African American college students to examine the relationship between spirituality, religiosity, subjective well-being and psychological well-being. Walker's study conceptualized psychological well-being as comprising self-acceptance, environmental mastery, positive relations with others, personal growth, life purpose and autonomy. Happiness and life satisfaction, on the other hand, contributed to subjective well-being. She found spirituality, but not religiosity, to be a positive predictor of both subjective and psychological well-being, although spirituality and religiosity were determined to be significantly related. It is therefore important and worthwhile to examine why spirituality is linked with positive outcomes in students and how it may fit in with motivation.

Of the limited studies that have attempted to understand spirituality in students of higher education (Kuo, Arnold & Rodriguez-Rubio, 2014; Muller & Dennis, 2007; Walker, 2010; Walker & Dixon, 2002 ), many have focused on religion specifically or implied spirituality through religious involvement (Ahrold & Meston, 2010; Joshanloo, 2012; Kang

& Romo, 2011; Walker & Dixon, 2002). While Kang and Romo (2011) explored the role of religious involvement on depression, risky behaviour and academic performance, they acknowledged that not exploring spirituality, or what they termed personal spirituality, as a separate entity to religion is limiting. Recent research has pulled apart spirituality from religiosity (Hill & Pargament, 2003; Miller & Thoresen, 2003), however, research in the area of spirituality in university students remains scarce. While interest in the well-being of students is increasing, few studies have evaluated interventions in reducing psychological distress or increasing academic performance.

Religiosity and spirituality provide five major functions through which they can act as coping mechanisms, including comfort in fears and anxieties of potential adversities being allayed; intimacy as a means of fostering social connectedness; search for meaning which is said to offer a foundation in understanding and interpretation; providing a sense of control when adversities push individuals beyond their comfort; and, finally, in helping individuals make life transformations through experiencing new sources of significance (Pargament, Koenig & Perez, 2000). These may all contribute significantly towards academic motivation and achievement. How these factors may contribute to well-being of higher education students, and hence motivation have not been examined in any detail to date. Johnson (2008) reviewed academic performance and found that 16 of 19 studies supported the notion of religiosity having a beneficial impact on academic results. This finding is supported by Park (2001) who also found religion to be associated with better academic performance.

Kuo, Arnold and Rodriguez-Rubio (2014) surveyed 301 Canadian undergraduate students to determine any links between coping, spirituality and psychological distress in a culturally diverse sample. They reported a negative correlation between intrinsic spirituality and psychological distress. Intrinsic spirituality tends to be differentiated from extrinsic spirituality and conceptualised as beliefs and values which are not guided by instruments and social expectations related to religion, compared to the instrumental, ritualistic and indoctrinated motivations of religion and extrinsic spirituality. Intrinsic spirituality also increased the use of collective coping and reduced avoidance coping strategies. They also found different coping styles to interact with psychological distress, in that engagement coping reduced psychological distress while avoidance coping increased levels of psychological distress.

Abdel-Khalek and Lester (2010) explored religiosity, subjective well-being which incorporates happiness, life satisfaction, love of life, physical and mental health; and psychopathology in terms of anxiety and depression among college students in Kuwait and the United States of America. They found that students who reported higher levels of religiosity also reported higher levels of well-being. Abdel- Khalek and Lester also reported on various prior studies which indicate a positive correlation between religiosity and subjective well-being, physical and emotional health with a negative correlation between psychopathology and religiosity in subjects in Kuwait, Saudi Arabia and Algeria. This highlights the cross cultural relevance and applicability of religiosity as a potential buffer for psychopathology in students.

Genia (2001) tested the Spiritual Well Being Scale in a sample of United States college students. She found that the scale was significantly related to depression, however, when the two constructs of religious well-being and existential well-being were considered separately, only existential well-being was related to lower levels of depression, and also higher levels of self-esteem. This may be due to the fact that spirituality may be more internalised and in line with personal beliefs, whereas while the same may be true for religiosity, it has also been shown to be linked to feelings of punishment by God, or may be used as a means to exclude people socially as religion is also often tied to a sense of belonging to a group. Religious well-being was only significantly related to intrinsic faith, fundamentalism and worship attendance. The scale was not found to be related to social desirability.

The current thesis posits that in order for meaning to be discovered following adversity and life purpose to be illuminated and refined, a cognitive process may be underlying. Whether spirituality is a choice or an innate and biological process is unclear; however, the meanings attached and discoveries made are potentially through a cognitive process. Therefore in order to turn an adverse situation into a positive outlook or life learning, or a chance for personal growth and development, the adverse or difficult experience must be appraised as positive in some shape or form. Therefore, it is suggested that the cognitive appraisal of stress mediates the relationship between spirituality and resilience and psychological well-being, respectively.

**The present study**

University students report higher rates of psychological distress than their age matched non-student peers. It is therefore important to explore further the factors which promote resilience, psychological well-being and motivation in students; in an attempt to understand and enhance protective factors of students in general. While other studies have investigated Australian university students, they have largely focused on students who have presented to counselling and health services at their institution (Rosenthal, Russell & Thomson, 2006; Stallman & Shochet, 2009; Vivekananda, Telley & Trethowan, 2011). If most people with mental illness (62%) do not present for assistance (Andrews, Hall, Teesson & Henderson, 1999), a representative sample of whole university populations is needed, particularly those not presenting to university support services for assistance. Other studies have attempted to identify at risk student cohorts (Pearson & Naug, 2013; Scalise, Besterfield-Sacre, Shuman & Wolfe, 2000), whereas this study will aim to explore the precursors to protective factors of students' resilience and psychological well-being and how they in turn determine academic motivation. This may better inform interventions and prevention strategies.

Goodwin (2007) suggests that mediating and moderating relationships of coping and resilience are insufficiently examined. While it is beyond the scope of the present study, Goodwin urges the importance of developing and testing explanatory models that are sensitive to culture. Furthermore, research focusing on personality traits gives little attention to social and environmental impacts on coping and resilience. A transactionist model links sociocultural and psychological processes to stress and coping, recognising that

variables can influence each other bidirectionally, operating as transactions, able to mutually change and influence each other (Lazarus, 1966; Lazarus & Cohen, 1977). This implies that individuals are able to influence their success and well-being using internal and external protective factors and qualities to promote positive outcomes. Cultural demands such as poverty, racism and fewer economic opportunities can impact on situational demands of individuals. Cultural and situational demands can in turn influence the way in which individuals perceive stressful situations. This study assumes situational demands as the demands of studying at a tertiary level. Aldwin (2007) suggests studying individuals who are experiencing a similar stressor. University students are an example of such a group, ensuring consistency across respondents in terms of stressors, such as the pressure to complete assessments.

This study aims to extend the understanding of resilience and psychological well-being, and their relationship to academic motivation, among Victoria University students. The predictors of academic motivation in Victoria University students will be examined. The relationships among spirituality, perceived stress, locus of control and academic self-efficacy will also be explored, and how they relate to academic motivation, resilience and psychological well-being. This study aims to bring together constructs which have previously been studied in isolation, in order to provide an integrated picture of how these variables may interact with each other and influence academic motivation (see Figure 1).

Specifically, it is predicted that higher levels of spirituality will result in lower levels of perceived stress. Perceived stress is expected to be inversely related to

psychological well-being; with higher levels of perceived stress predicting poorer psychological well-being (as indicated by heightened scores on measures of depression, anxiety and stress), while lower levels of perceived stress will predict positive psychological well-being. It is also expected that locus of control will impact on perceived stress as a global measure. Students with an internal locus of control will perceive their environments to be less stressful, while students with an external locus of control will appraise their environments as more stressful. Bridging spirituality and locus of control with psychological well-being and resilience, perceived stress is expected to act as a mediator between locus of control and psychological well-being and resilience; and between spirituality and psychological well-being and resilience, respectively.

An internal locus of control is anticipated to predict higher levels of academic self-efficacy, while academic self-efficacy mediates the relationship between locus of control and motivation. Academic self-efficacy, resilience and psychological well-being are also expected to predict motivation (higher intrinsic and extrinsic motivation, and lower amotivation). Connecting perceived stress and motivation, psychological well-being and resilience are expected to mediate the relationship between the two.

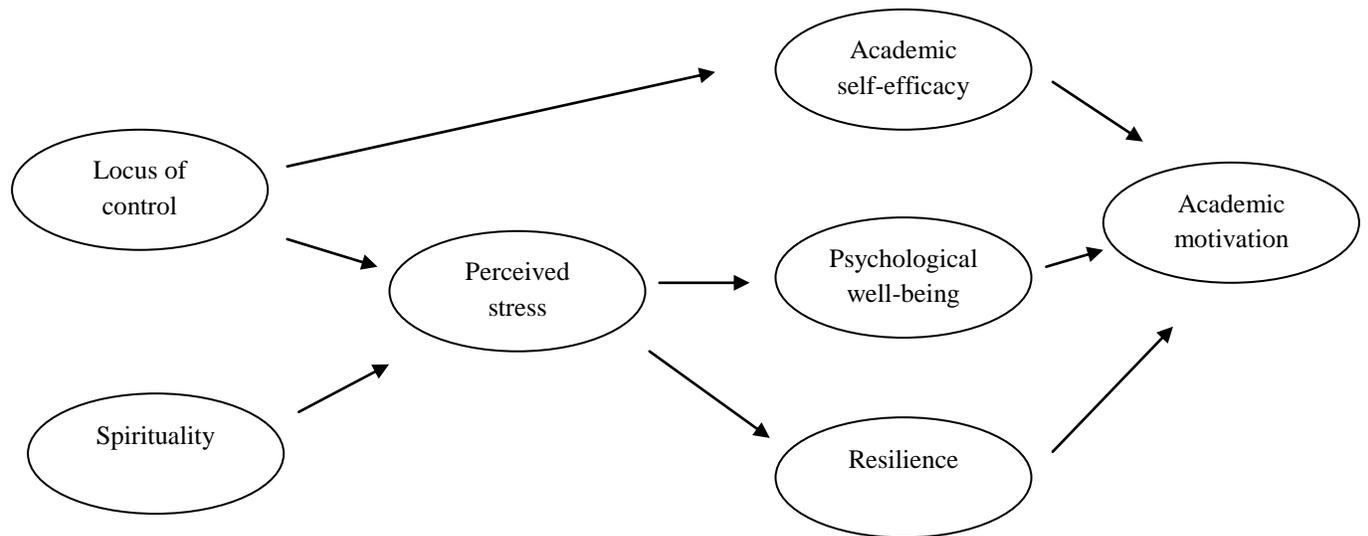


Figure 1. Proposed model and relationships of variables. Psychological well-being is a multiple construct comprised of depression, anxiety and stress. Academic motivation is a multiple construct comprised of intrinsic motivation, extrinsic motivation and amotivation.

## Method

### Participants

Three hundred and twenty one Victoria University students responded to advertisements requesting participants for the current study, which took the form of an online survey. Of the 321 respondents, 31 (9.7%) accessed the survey link and agreed to participate in the study, however did not answer any questions; 120 (37.4%) started the survey, yet did not complete the entire survey; 7 (2.2%) completed the survey, however with some missing data. One hundred and sixty three students (50.8%) completed the

survey without any missing data, which comprised the final number of participants used for analysis. Participants consisted of 43 (26.4%) males and 120 (73.6%) females with a mean age of 27.2 years ( $SD = 9.1$ ). Further participant descriptive data will be discussed in the proceeding results section. Although it is standard practice to use all data and not just complete cases, in this instance it was decided to utilise only complete cases as out of the 120 survey respondents who started but did not complete the survey, 67 respondents completed only the demographic questions section, while the other 53 did not complete the first scale, and therefore only had data for half of one scale. It was thus decided to only analyse the complete cases, as seven completed cases with missing data was deemed a small number and therefore excluded.

### **Brief History of Victoria University Population**

Victoria University was established in 1915 when it was set up as a technical school to primarily service western Melbourne. Since then it has undergone some transformations, including name changes and a shift in education delivery to include higher education as well as trades education. Victoria University remains one of only five education providers in Australia offering both TAFE and higher education courses (Victoria University, 2016a). Victoria University prides itself on providing access to tertiary education to students of a low socioeconomic background (Victoria University, 2014). Melbourne's western suburbs have been identified as areas of disadvantage (DCPD Spatial Analysis and Research Branch, 2009). The Australian Bureau of Statistics developed a measure of advantage and disadvantage termed the Socio-Economic Indexes for Areas (SEIFA), which considers factors such as employment, income, housing costs, education and skills, health and

geographic isolation. Based on these factors, the greatest disadvantage by area have been identified to be in the western Melbourne areas of Hobsons Bay, Brimbank and Maribyrnong; the north around Broadmeadows and in Dandenong of the south east (DCPD Spatial Analysis and Research Branch, 2009). As evidenced in the most recent available national census data, compared to Australia and Victoria, more residents of western Melbourne are born overseas and speak a language other than English at home. They also tend to have lower levels of education and income, while having higher levels of unemployment (Australian Bureau of Statistics, 2011). Table 1 shows further differences between the western region of Melbourne compared to Victoria and Australia. According to the most recent Victoria University Annual Report for the study year of 2015 (Victoria University, 2016b), 17160 (40%) of all enrolled students listed the western region of Melbourne as their place of residence, with more than half (52.1%) of enrolled students reporting to speaking a language other than English at home. Victoria University identifies this as an additional barrier to access to educational opportunities (Victoria University, 2014). Students of Victoria University are assumed to have additional barriers to education due to their socio-demographic characteristics, however continue to achieve academically. Due to this disadvantage of the Victoria University student population, it was deemed a suitable cohort to study in terms of resilience, psychological well-being and academic motivation.

Table 1

*Comparisos of Melbourne's western region to Victoria and Australia in 2011*

Measures	Australia (%)	Victoria (%)	Western Melbourne (%)
Born overseas	30.2	31.4	42.3
Speak language other than English at home	18.2	23.1	38.5
Occupation			
Labourer	9.4	9.0	10.7
Professional	21.3	22.3	17.7
Trades and technicians	14.2	13.9	14.4
Education			
Postgraduate	3.6	3.9	3.4
Undergraduate	13.5	14.7	12.6
Certificate	18.1	16.4	15.8
Average salary (\$)	51923.0	50276.0	48877.0
Unemployment rates	5.6	5.4	6.8
Access to internet at home	73.9	74.3	73.4

## Materials

Participants were asked to complete seven self-report measures in addition to a demographic questionnaire in an online survey. The full versions of all scales and demographic questionnaire can be found in the Appendices.

**Demographic questionnaire.** The demographic questionnaire consisted of 26 items measuring individual characteristics such as age, gender, religious orientation, level of study, area of study, academic college participants belong to, employment status, financial security and current stressors. Financial security was broken down into three categories: secure (able to pay for what I want), adequate (able to pay for what I need but not much else) and insecure (struggling to pay for necessities). The list of current stressors able to be selected were whether they were currently studying for exams, had current assessments or

were experiencing any other stressors. If participants identified as having other stressors, they were asked to state which other stressors they experienced. No identifying information was requested or recorded. With the exception of age, where participants were asked to numerically enter how old they were, all questions provided a drop down menu from which pre-determined response options could be chosen. For example, in asking which academic college they belonged to, all the academic colleges were listed, and participants were able to select the appropriate response. Where an option of *other* was possible, participants were provided with a text box and given the option to provide any further information related to that question. If a participant missed a question on any given page, they were prompted to return and answer it before continuing on with the survey; however, they were also able to continue without answering that question if they wished. A copy of the demographic questionnaire can be found in Appendix A.

**Psychological well-being.** The Depression, Anxiety, Stress Scale- 21(DASS-21) was administered as a measure of psychological well-being on the dimensions of depression, anxiety and stress. The DASS-21 is a short form of the original 42 item Depression Anxiety Stress Scale (Lovibond & Lovibond, 1995). The DASS-21 measures self-reported levels of depression, anxiety and stress in the normal, mild, moderate, severe and extremely severe ranges. The depression subscale measures elements including, but not limited to, hopelessness, anhedonia, and low positive affect, and corresponds to diagnosable mood disorders. The anxiety subscale measures features such as autonomic arousal and situational anxiety, and corresponds to diagnosable panic disorder. Finally, the stress subscale measures indicators such as irritability, agitation, tension, impatience and

negative affect, corresponding to diagnosable generalised anxiety disorder (Gloster et al., 2008). The DASS-21 was chosen for this study as the items and dimensions correspond to the highest prevalence mental health disorders, of which the study sample was generally more likely to experience. The ability to obtain scores for each subscale and isolate depression, anxiety and stress scores was another reason for the use of the DASS-21 as the measure of psychological well-being over other measures.

Respondents were required to rate 21 statements on a 4-point Likert type scale corresponding to the degree to which each statement applied to them over the past week. Response options were 0 = *Did not apply to me at all*, 1 = *Applied to me to some degree, or some of the time*, 2 = *Applied to me to a considerable degree, or a good part of time*, and 3 = *Applied to me very much, or most of the time*. Example items of the DASS-21 include: “I found it difficult to work up the initiative to do things”, “I felt scared without any good reason”, and “I found it hard to wind down”, representing examples of the depression, anxiety and stress subscales, respectively.

All subscales comprise seven items each. Items in each subscale are summed to derive a total score for that subscale, with higher scores reflecting higher levels of each of the constructs. There are no reverse-scored items. The range of scores for the depression subscale are as follows: normal (0-4); mild (5-6); moderate (7-10); severe (11-13); and extremely severe (14+). The range of scores for the anxiety subscale are as follows: normal (0-3); mild (4-5); moderate (6-7); severe (8-9); and extremely severe (10+). Finally, the range of scores for the stress subscale are as follows: normal (0-7); mild (8-9); moderate (10-12); severe (13-16); and extremely severe (17+).

The internal consistencies reported in previous literature for the DASS-21 scales with Cronbach's alpha are .88 for depression, .82 for anxiety and .90 for stress (Henry & Crawford, 2005). In the current study, the Cronbach alpha coefficient was .90 for depression, .82 for anxiety and .84 for stress, suggesting very good internal consistency reliability for each subscale. The mean inter-item correlation in the current study for the DASS-21 was .58 for the items measuring depression, .40 for the items measuring anxiety and .42 for the items measuring stress, suggesting a moderate relationship between items. Henry and Crawford (2005) also reported good convergent and discriminant validity for the DASS-21, just as with the full version of the DASS. They tested the validity of the DASS-21 in a non-clinical sample of adults in the UK, finding it adequately measured all three constructs of depression, anxiety and stress, by comparing it to two other validated measures of depression and anxiety- the Hospital, Anxiety and Depression Scale (Zigmond & Snaith, 1983), and the Personal Disturbance Scale (Bedford & Foulds, 1978). Although previous research has established reliability and validity of the full length DASS, the DASS-21 was chosen for time efficiency. Lovibond and Lovibond (1995) suggest that doubling the DASS-21 scores is equivalent to the full DASS scores. A copy of the DASS-21 can be found in Appendix B.

**Resilience.** The Brief Resilience Scale (BRS) (Smith et al., 2008) is a 6-item self-report measure designed to assess an individual's ability to recover from stress. Respondents were asked to provide responses to questions such as: "I tend to bounce back quickly after hard times" and "I tend to take a long time to get over set-backs in my life". Respondents were asked to indicate the extent to which they agreed with each of the

statements using a 5-point Likert type scale with anchors of 1 = *strongly disagree*, 2 = *disagree*, 3 = *neutral*, 4 = *agree*, and 5 = *strongly agree*. Three items are positively worded (1, 3, 5), while the other half (2, 4, 6) are negatively worded. The mean of all six items is derived for one total score of resilience, although items two, four and six are reverse scored. Higher scores indicate higher levels of resilience. The BRS has been reported to have good internal consistency with Cronbach's alpha ranging from .80 to .91 in four samples, two of which included undergraduate students. Test-retest reliability also showed high correlations with .69 at one month and .62 at three month follow up. It has also shown good convergent and predictive validity in that it has been significantly positively correlated with optimism, purpose in life, coping, positive reframing, social support, positive affect and other resilience scales. It has also been significantly negatively correlated with anxiety, depression, behavioural disengagement and negative affect (Smith et al., 2008), perceived stress, self-efficacy and self-regulation (Macovei, 2015). Using principal components analysis, Amat, Subhan, Jaafar, Mahmud, and Johari (2014), also found the BRS to be a valid measure of resilience in Malaysian college students. In the current study, the Cronbach alpha coefficient was .88, suggesting very good internal consistency reliability for this scale. The mean inter-item correlation in the current study for the BRS was .54, suggesting a strong relationship between items.

As outlined in the introduction, the construct of resilience has had many definitional and measurement issues. The BRS was chosen over other resilience scales for a variety of reasons. Firstly, Smith et al., (2008) used two samples of undergraduate students, when testing their scale, which is directly comparable to the sample of the current study. Smith et

al. argue that the BRS is the only resilience scale to measure the concept of resilience as it relates to the true sense of the definition, that is, the ability to *bounce back and recover from stress*. Other scales measuring resilience explore personality characteristics related to resilience such as optimism, adaptability, and coping ability or style. Ahern, Kiehl, Sole and Byers (2006) reviewed six resilience scales, and found the Resilience Scale (Wagnild & Young, 1993) to be the ideal measure of resilience in a range of age groups, including adolescents; however it did not include university students. Ahern et al. (2006) also noted disadvantages to this scale such as issues around wording of items and no reverse scored items. The other five scales reviewed, two of which were tested with samples of undergraduate students, lacked reliability. Only one of the six scales was a single factor one-dimensional scale, which the BRS is also. Compared to the Resilience Scale, the BRS offers additional advantages, such as fewer items for quicker administration, which was an important consideration of this study due to the inclusion of several other measures; utilising negatively worded and reverse scored items, as well as being a single dimension to reflect the definition of resilience, rather than measure traits of resilience. A copy of the BRS can be found in Appendix C.

**Spirituality.** The Spiritual Well Being Scale (SWBS) by Paloutzian and Ellison (1982) is a 20-item self-report scale designed to measure subjective well-being in terms of a combination of religiosity and existentialism as an overall spiritual quality of life. It is composed of two subscales- Religious Well Being and Existential Well Being, containing 10 items each, which have been shown to be separate constructs through differential patterns of correlations. Factor analyses also support the SWBS as a two dimensional structure (Genia, 2001).

Respondents were asked to indicate the extent to which they agreed with the 20 statements describing their personal experiences. Answers were recorded on a 6-point Likert type scale ranging from 1 (*strongly agree*) to 6 (*strongly disagree*), with higher scores representing higher levels of spiritual well-being. Half of the items assessed religious well-being and contained the word God while the other 10 statements held no religious connotations and assessed life satisfaction and direction as components of existential well-being. Three separate scores were able to be obtained from the scale: religious well-being, existential well-being and an overall spiritual well-being. The SWBS is not based on any specific religious or ideological orientation.

Religious well-being, operationalised as a satisfying relationship to God, was measured from the sum of all odd numbered items. Scores for each item were calculated based on their level of agreement with each statement. The positively worded items (3, 7, 11, 15, 17, 19) were reverse scored. Examples of items measuring religious well-being include: “My relation with God contributes to my sense of well-being” and “I don't find much satisfaction in private prayer with God”. Scores ranging from 10 to 20 indicated a subjectively unsatisfactory relationship with God. A moderate sense of personal relationship with God was reflected by scores between 21 and 49. Scoring between 50 and 60 indicated a positive view of one's relationship with God.

Existential well-being, operationalised as a sense of life satisfaction and purpose was tallied from scores on all even numbered items using the values of level of agreement with each item. The positively worded items (4, 8, 10, 14, 20) were reverse scored. Examples of items measuring existential well-being are: “I don't know who I am, where I

came from, or where I'm going”, as a negatively worded item and “I believe there is some real purpose for my life”, as a positively worded item. Scoring between 10 and 20 indicated a subjective lack of clarity about individual life purpose and a low satisfaction with life. A moderate sense of purpose and life satisfaction was reflected by scores between 21 and 49. A clear sense of purpose and high life satisfaction scored in the range of 50 and 60.

To obtain an overall spiritual well-being score, all items needed to be summed. The positively worded items (3, 4, 7, 8, 10, 11, 14, 15, 17, 19, 20) were reverse scored and received a score of 6 for *strongly agree*, 5 for *moderately agree*, 4 for *agree*, 3 for *disagree*, 2 for *moderately disagree* and 1 for *strongly disagree*. The negatively worded items (1, 2, 5, 6, 9, 12, 13, 16, 18) received 1 for *strongly agree*, 2 for *moderately agree*, 3 for *agree*, 4 for *disagree*, 5 for *moderately disagree* and 6 for *strongly disagree*. Low spiritual well-being was reflected by scores ranging from 20 to 40. Moderate spiritual well-being was determined by scores between 41 and 99 and scores between 100 and 120 indicated high spiritual well-being.

The SWBS has shown good test-retest reliability with reliability coefficients ranging from .73 to .99 for the two subscales and overall scale. Good internal consistency was also reported with high alpha coefficients from .78 to .86 for existential well-being, .82 to .94 for religious well-being and .89 to .94 for spiritual well-being (Bufford, Paloutzian, & Ellison, 1991). In the current study, the Cronbach alpha coefficient was .91 for existential well-being, .93 for religious well-being and .87 for spiritual well-being, suggesting very good internal consistency reliability for this scale. The mean inter-item

correlation in the current study for items measuring existential well-being was .50, and .57 for items measuring religious well-being, suggesting a strong relationship between items.

Good validity was also evident through the high SWBS scores being a good indicator of well-being and also low scores being related to lower levels of well-being (Paloutzian & Ellison, 1982). The two subscales and overall score are also positively correlated with physical health, emotional adjustment, positive self-concept and sense of life purpose while being negatively correlated to ill health, emotion maladjustment and lack of purpose in life (Bufford et al., 1991). The SWBS has also been documented to be unrelated to social desirability across various faiths (Genia, 2001).

Despite increasing attention, there are still many inconsistencies in how spirituality is conceptualised and measured. The SWBS is the most widely used measure of general spirituality (Moberg, 2010). This scale also allows for researchers to examine religious well-being and existential well-being separately. Spirituality may or may not be embedded in religion, hence the SWBS takes into account both spiritual connections to a God (religious well-being) and spiritual connections to a higher power and life purpose (existential well-being), which was a reason the scales was selected for the current study. Various reviews on scales and measurements of spirituality have delineated a difference between measures of spirituality versus measures of spiritual well-being. However, when considering those reviews more closely, it appears that the domains measured by the scales measuring spirituality versus spiritual well-being are similar, and the same in some instances. For example, Monod et al. (2011) distinguished between spirituality and spiritual well-being in a review of 35 different measures pertaining to spirituality. Only 16 scales

had items measuring a current spiritual state, including the SWBS with 8 of the 20 items measuring a current spiritual state. The domains measured by the SWBS include identity, purpose/meaning, life satisfaction and well-being. All of those domains were also listed amongst various scales measuring spirituality (Monod et al., 2011). Of the 35 scales reviewed by Monod et al., only eight used university student samples, and of those, the SWBS was amongst those with fewer items which was an important consideration for the current study.

Permission to use the SWBS was granted by the developers with the stipulation that the current research findings be reported back to the scale authors. A copy of the SWBS can be found in Appendix D.

**Cognitive appraisal of stress.** The Perceived Stress Scale, 10 item version, was used to measure the cognitive appraisal of stress, or perceived stress. Developed by Cohen, et al. (1983), the Perceived Stress Scale (PSS) is a global measure of perceived stress. It measures the degree to which an individual perceives events in their life as uncontrollable, unpredictable and overloading. The PSS was shortened to 10 items from the initial 14 to create the PSS 10 item version (PSS-10) (Cohen and Williamson, 1988). In the present study, the PSS-10 was used to measure the cognitive appraisal of stress in general as opposed to measuring perceptions of stress in relation to specified events. As the current study was not limited by exploring a particular stressful situation, but rather studying a general university population, the non-specific nature of the PSS-10 was the choice for measuring the cognitive appraisal of stress. The PSS-10 is a short self-report measure comprised of 10 items measured on a 5-point Likert type scale with anchors of 0=*Never*,

1=*Almost Never*, 2=*Sometimes*, 3=*Fairly Often*, and 4=*Very Often*. Six of the items are positively worded. Respondents were asked to comment on the frequency of particular thoughts and feelings during the last month. The positive items (4, 5, 7, 8) were reverse scored after which all items were summed to receive an overall score of perceived stress. Possible scores range from 0 - 40 with higher scores indicating higher levels of perceived stress. Examples of items include: “In the last month, how often have you felt confident about your ability to handle your personal problems?” and “In the last month, how often have you been upset because of something that happened unexpectedly?”

Cohen et al. (1983) tested the PSS on two college student samples and a smoking cessation sample in order to determine the reliability and validity of the scale. They determined the coefficient alpha reliability for the PSS to be .84, .85 and .86, respectively for each of the three samples, indicating high reliability with a test-retest reliability correlation of .85 in the college student samples. Evidence of concurrent and predictive validity was also demonstrated with PSS scores being related to and predictive of life event stressors, depressive, physical and social anxiety symptomatology.

A meta-analysis of the PSS, including the 10 item version and a four item version, showed that the psychometric properties of the 10 item version to be superior to that of the original PSS (Lee, 2012). Roberti, Harrington and Storch (2006) also concluded that the PSS-10 was a valid and reliable instrument for measuring stress in college students, with a Cronbach’s alpha reliability of .89. In the current study, the Cronbach alpha coefficient was .90, suggesting very good internal consistency for this scale. Pallant (2013) recommends that for scales with few items (less than 10), that mean inter-item correlations are also

reported. The mean inter-item correlation in the current study for the PSS-10 was .46, suggesting a moderate relationship between items. A copy of the PSS-10 can be found in Appendix E

**Academic self-efficacy.** Developed by Owen and Froman (1988), the College Academic Self Efficacy Scale (CASES) is a 33 item self-report measure designed to determine the level of confidence students feel they have in their ability to perform certain academic behaviours such as participating in classroom discussions and achieving good grades. The CASES was selected for this study as it explores feelings of academic self-efficacy as a whole, rather than identifying specific areas of academic self-efficacy such as confidence in specific subjects or areas of study. Example items from the CASES include: “Understanding most ideas presented in class” and “Attending class regularly”. Respondents were required to assess their confidence on a 5-point Likert type scale from A (*very little confidence*) to E (*quite a lot of confidence*). Points two through to four were not labeled. Responses were converted to numerical values for analysis ranging from A=5 to E=1. An academic self-efficacy score is determined by calculating the mean of all items. Participants scoring above the mean were deemed as having high academic self-efficacy, and those scoring below the mean were regarded as having low academic self-efficacy. The CASES has been reported to demonstrate good test-retest reliability over an eight week period with an alpha coefficient of .85. Internal consistency was high on both occasions with alpha coefficients at .90 and .92 at weeks one and eight, respectively (Owen & Froman, 1988). In the current study, the Cronbach alpha coefficient was .93, suggesting very good internal consistency for this scale. Owen and Froman also reported the CASES

to be a good predictor of frequency and enjoyment of each of the 33 items, which is in line with self-efficacy theory, implying a valid measure of academic self-efficacy. They asked one sample of students to rate the enjoyment and frequency of each item, followed by a second sample of 122 students who were asked to rate the level of difficulty in performing each of the tasks as listed in the 33 items. Results showed that the tasks that were rated as more enjoyable were also rated as less difficult than the less enjoyable tasks, which researchers concluded is in line with Bandura's (1982) work on self-efficacy (Owen & Froman, 1988). A copy of the CASES can be found in Appendix F.

**Academic motivation.** The Academic Motivation Scale (AMS) by Vallerand, et al. (1992) is a 28-item self-report measure designed to assess intrinsic and extrinsic motivation for participating in an individual's studies, as well as academic amotivation. The 28 items create three factors of motivation (intrinsic, extrinsic and amotivation), comprising several subscales each. Respondents were asked to indicate the extent to which they agreed with each statement about why they attended university. Responses on the 7-point scale ranged from 1 (*does not correspond at all*), to 7 (*corresponds exactly*). Example items include: "Because I experience pleasure and satisfaction while learning new things", "For the pleasure I experience while surpassing myself in my studies", "Because with only a high-school qualification I would not find a high-paying job later on" and "Honestly, I don't know; I really feel that I am wasting my time in school", representing intrinsic motivation, extrinsic motivation and amotivation respectively.

The primary reason for choosing the AMS over other academic motivation scales, was that it considers the underlying basis of motivation, that is, is the reason *why*

individuals engage in any behaviour or activity, rather than asking about behaviours performed, which is the basis of other academic motivation scales such as the Academic Intrinsic Motivation measure (Shia, 1998), or the Motivation and Engagement Scale – University/College (Martin, 2007) which measures motivation and engagement, based on 11 factors grouped into four categories of positive and negative thoughts and behaviours measuring self-belief, valuing and learning focus (positive motivation); persistence, task management and planning (positive engagement); anxiety, failure avoidance and uncertain control (negative motivation); and self-sabotage and disengagement (negative engagement).

The AMS was translated into the English language from the original French version (Echelle de Motivation en Education; Vallerand et al, 1989), and was specifically designed for college and university student populations. In the current study, an adjustment of wording was made, replacing *college* for *university*, to better relate to an Australian university sample.

The internal consistency, measured by alpha coefficients, was similarly high to the original French scale, ranging from .83 to .86 for all factors, with the exception of the identification factor at .62. Test-retest reliability over one month was also high with correlations ranging from .70 to .83. In the current study, the Cronbach alpha coefficient was .91, suggesting very good internal consistency reliability for this scale. Discriminant validity was also established for this scale. The original French scale confirmed via confirmatory factor analysis, the structure of the scale to match the seven subscales. Correlations among the seven subscales and other psychological constructs related to study such as academic satisfaction and being distracted in class also yielded positive results and

significant relationships. Vallerand et al. (1992) were able to replicate these findings in the translated English scale. It was also reported that the original scale was able to predict drop out behaviour in high school students (Vallerand et al., 1992). Stover, de la Iglesia, Boubeta and Liporace (2012) also reported a seven factor model in an Argentine Spanish translation of the scale. A copy of the AMS can be found in Appendix G.

**Locus of control.** The Rotter Internal-External Locus of Control Scale, developed by Rotter (1966) measured internal versus external control of reinforcement. The scale consisted of 29 items in a forced choice format. Each item comprised two alternative statements which participants were asked to choose between based on which they most strongly believed to be true. Example items of the scale include: “a. Many of the unhappy things in people's lives are partly due to bad luck” (external locus of control) or “b. People's misfortunes result from the mistakes they make” (internal locus of control); and “a. I have often found that what is going to happen will happen” (external locus of control) or “b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action” (internal locus of control). It was indicated to participants that the scale was a measure of personal belief with no correct or incorrect answers. Of the 29 items, six were filler items (1, 8, 14, 19, 24, 27) with the intention of providing ambiguity regarding the purpose of the measure and were not included in the final scoring. The final score was derived from the number of external responses chosen by participants. Lower scores indicated an internal locus of control, while a higher score indicated an external locus of control. Scores range from zero (internal) to 23 (external), with a theoretical median of 11.5. Internal consistency estimates for the scale were reported to range between .65 and

.79, with test-retest reliability estimates ranging between .49 and .83. Low correlations were also observed between the scale and the Marlowe-Crowne Social Desirability Scale (-.41 and -.12), indicating a measure that is not sensitive to social desirability (Rotter, 1966). The highest correlation with the Marlowe-Crowne Social Desirability Scale (-.41) was measured in a sample of federal prisoners early on in their admission completed with a battery of other tests related to their sentence, and therefore the high correlation was explained by Rotter (1966) as an indication of the prisoner's attempt to answer in a socially desirable way. A copy of the Rotter Internal-External Locus of Control Scale can be found in Appendix H.

### **Procedure**

The present research was approved by the Victoria University Human Research Ethics Committee. No elements of the procedure were carried out until approval was granted by the ethics committee.

Participants were invited to participate in the study through various means. Advertisements for the study seeking student participation were initially sent via the university's internal email system whereby all Victoria University students are sent weekly emails with an electronic newsletter containing university wide information and events. The invitation was also posted on the university's official Facebook page, a university affiliated Facebook page, which is a social platform used by students to share information and communicate, with only students posting to the page; and Twitter. The advertisements were brief including the title of the project: "The predictors of psychological well-being and resilience in Victoria University students, and their impact on academic motivation", and

explicitly stated that it was anonymous, with participation (or non-participation) having no bearing on academic standing. Participants were informed that participation was not expected to take more than 20 minutes to complete the survey, and that they could discontinue at any point. The advertisements had a web-link to the online survey, which students were able to directly access. Participants were directed to an *Information to Participants* page which clearly outlined the nature of the research, the aims and any potential risks to participants. Participants were required to agree to check a box indicating their consent before proceeding to the survey. The electronic surveys were completed on the Qualtrics website after which all information was downloaded into the software package Statistical Packages for the Social Sciences, version 23 for statistical analysis.

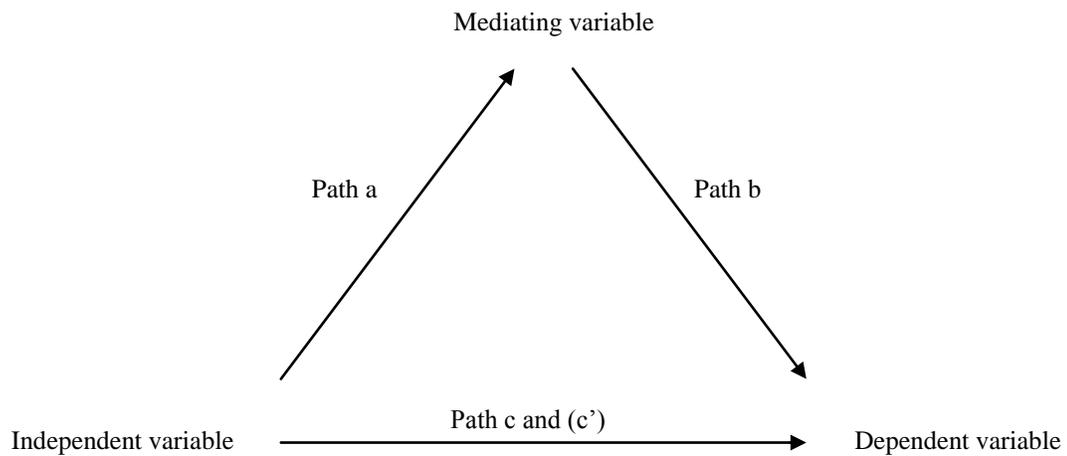
### **Data Analysis**

While it was initially proposed that data would be analysed using the preferred method of structural equation modeling, the relatively small sample did not allow for this. Data collection was active for 18 months from March 2014, to September 2015, and time constraints did not allow for continued data collection to increase the sample size to the general consensus of a minimum of 200 participants for structural equation modeling (Boomsma & Hoogland, 2001; Hoogland & Boomsma 1998; Weston & Gore, 2006). It was decided to instead conduct regression analyses, acknowledging that while several separate regression analyses may increase the Type I error rate, conducting a structural equation model with the limited sample size may lead to lower power.

Data analysis was conducted in three phases in order to investigate the relationships of the proposed model as presented in Figure 1. Firstly, exploratory analyses were conducted through a series of t-tests and analyses of variance to explore any group differences on outcome variables. The outcome variables considered were academic motivation, academic self-efficacy, psychological well-being, resilience and perceived stress. Following on from this, a series of regression analyses were conducted in order to test all directional hypotheses of the variables as indicated in Figure 1. Finally, multiple regression analyses using the bootstrapping method were conducted in order to ascertain whether predicted mediation relationships were evident.

As recommended for small samples, nonparametric bootstrapping analyses tested the mediational models (Preacher & Hayes, 2004; Preacher, Rucker, & Hayes, 2007), using the bootstrapping macro- SPSS Process Plug In (Hayes, 2016). All bootstrapped analyses were conducted with 5000 bootstrap re-samples (Preacher & Hayes, 2008). In these analyses, mediation is significant if the 95% Bias Corrected and accelerated confidence intervals for the indirect effect do not include zero (Preacher & Hayes, 2004; Preacher et al., 2007). Using the bootstrapped method for mediation analyses, several conditions need to be satisfied in order to mediation to be concluded. Figure 2 shows an example of a mediation model. Firstly, a simple regression is conducted in order to test the relationship between the independent variable and dependent variable which needs to be statistically significant (path c). Second, the independent variable is required to significantly predict the mediating variable (path a). The mediating variable is also required to significantly predict the dependent variable (path b). If these conditions are met,

mediation can then be tested in which the independent variable is expected to predict the dependent variable through the mediator and therefore the direct relationship between the independent and dependent variable is lessened or no longer significant (path c').



*Figure 2.* Mediation model.

In all data analyses, all assumption testing was carried out. Any violations of assumptions are discussed and explained at the relevant stage of analysis in the proceeding section.

## Results

This section begins by outlining descriptive statistics of both participant characteristics and scale measures, including mean scores, standard deviations and

correlations. Exploratory analyses via independent samples t-tests and one-way analyses of variance (ANOVAs) explore group differences in relation to the variables of psychological well-being, motivation, resilience and academic self-efficacy. In all instances, psychological well-being consists of the three subscales of depression, anxiety and stress; while motivation is considered on the three subscales of intrinsic motivation, extrinsic motivation and amotivation. Grouping variables include gender, age, financial security, engagement with student support services, academic stressors (including working on current assessments and currently studying for exams), perceived progress in studies, and level of study which includes TAFE, undergraduate, postgraduate by coursework and postgraduate by research.

Following the exploratory analyses, a series of regression analyses identify unique relationships between the variables assessed. Finally, possible mediated relationships are explored through multiple regressions using the bootstrapping method. In all instances, assumptions of statistical testing were evaluated. Unless specifically noted in individual analyses, all assumptions were met; therefore, analyses were conducted as planned.

## **Descriptive Statistics**

### **Participant summary.**

Participants consisted of 43 (26.4%) males and 120 (73.6%) females with a mean age of 27.18 years ( $SD = 9.11$ ). The majority of students (84.7%) were enrolled full time, compared with 15.3% studying part time. The sample consisted of students from all academic colleges within Victoria University, including 38.7% from the College of Arts,

19% from the College of Education, 18.4% from the College of Health and Biomedicine, 7.4% from the College of Business, 7.4% from the College of Sport and Exercise Science, 5.5% from the College of Engineering and Science and 3.7% from the College of Law and Justice. The majority of participants were undergraduate students (83.4%), with the rest comprising TAFE (3.1%) and postgraduate (6.7% by research and 6.7% by coursework) students. Almost the entire sample was comprised of local domestic students with only one participant (0.6%) identifying as an international student. The religious orientations reported were none (55.2%), Other Christian (7.3%), Catholic (14.7%), other (10.6%), Orthodox (6.7%) and Muslim (4.9%).

Participants were asked to indicate any current stressors they were experiencing (see Table 2). At the time of data collection, after current assessments and assignments, financial hardship was the stressor faced by most participants. In terms of participants' current financial standing, 13.5% of participants reported that they were struggling to pay for necessities, while 52.8% felt that they were able to pay for necessities without much more, and 33.7% felt secure and able to pay for what they liked.

Table 2  
*Current Stressors Experienced by Participants*

Stressors	<i>n</i>	%
Current assessments	106	65.00
Financial	89	54.60
Employment	70	42.90
Family	69	42.30
Studying for exams	49	30.10
Relationship	46	28.20
Physical health	46	28.20
Other	27	16.60

Of the participants surveyed, 56.4% reported to have felt the need for assistance from student support services, although participants were not requested to provide the type of support. Only 35% of participants had accessed some form of student support services, and 11.7% were currently engaged with student support services. Of those who had not accessed student support services, the primary reason provided was due to not being aware of what support was available. Table 3 shows further reasons. Despite the stressors experienced and low frequency of access to student support services, 43.6% of participants reported to be progressing better than expected in relation to their studies, 31.9% reported to be progressing at about the same level as anticipated, while 24.5% reported performing not as well as they had anticipated.

In terms of psychological symptoms, as measures of psychological well-being, participants received an overall score for depression symptoms ( $M = 6.12$ ,  $SD = 5.38$ ), anxiety symptoms ( $M = 4.90$ ,  $SD = 4.27$ ) and stress symptoms ( $M = 7.65$ ,  $SD = 4.54$ ). Just under half of the participants scored within the normal range for symptoms of depression and anxiety, while just over half of the participants scored within the normal range on the

Table 3

*Reasons for Not Accessing Student Support Services*

Reasons	<i>n</i>	%
I didn't know what was available	42	25.80
I went to a service off campus	23	14.10
I didn't know how to make an appointment	22	13.50
I didn't know it was free	21	12.90
I thought it might influence my academic results	10	6.10

Table 4

*Scores in Each Range of the Subscales of the Depression, Anxiety, Stress Scale- 21 Item Version*

Range	Scores	Depression			Scores	Anxiety			Scores	Stress		
		<i>M</i>	<i>SD</i>	%		<i>M</i>	<i>SD</i>	%		<i>M</i>	<i>SD</i>	%
Normal	0-4	1.88	1.43	47.20	0-3	1.51	1.20	45.40	0-7	4.02	2.05	51.50
Mild	5-6	5.42	0.50	14.70	4-5	4.50	0.51	20.90	8-9	8.43	0.51	14.10
Moderate	7-10	8.17	0.99	19.00	6-7	6.39	0.50	11.00	10-12	10.79	0.82	17.80
Severe	11-13	11.56	0.88	5.50	8-9	8.31	0.48	8.00	13-16	14.40	1.19	12.30
Extremely Severe	14+	17.10	2.64	12.90	10+	13.30	2.60	14.10	17+	17.67	0.82	3.70

stress subscale. Participants were categorised (normal, mild, moderate, severe, extremely severe) based on their overall score for each subscale. Table 4 shows further breakdowns and range of scores for psychological symptoms.

### **Exploratory Analyses**

Exploratory analyses were conducted to compare different groups of participants on various outcome variables. Preliminary assumption testing (normality, homogeneity of variance) was conducted with no serious violations detected. Firstly, correlation analyses were conducted with age of participants to assess whether it was associated with psychological well-being, motivation, resilience or academic self-efficacy. The only significant correlations observed were between age and academic self-efficacy and intrinsic motivation. See Table 5 for further results.

In addition, independent samples t-tests were conducted to investigate gender differences in psychological well-being. Each subscale of psychological well-being (depression, anxiety and stress) was used as a dependent variable. No significant difference in scores for males and females were evident for any of the psychological well-being variables.

Table 5  
*Correlations Between Age and Outcome Variables*

	M	SD	Depression	Anxiety	Stress	Academic Self-efficacy	Resilience	Amotivation	Extrinsic Motivation	Intrinsic Motivation
Age	27.18	9.11	-.03	-.15	-.03	.20**	.15	-.03	-.15	.20**

Note. SES = socioeconomic status, SSS = current student support engagement, CA = current assessments, CE = current exams, AP = academic progress.

\*\*  $p < .05$ . \*  $p < .01$ .

Additional t-tests indicated no gender differences on all three measures of motivation. Similarly, no gender differences were found in levels of resilience and academic self-efficacy. Table 6 provides further details of scores on all outcome measures by gender.

One-way ANOVAs were also conducted to explore any financial security differences on levels of psychological well-being, motivation, resilience and academic self-efficacy. To reiterate, financial security levels were divided into three groups (insecure- struggling to pay for necessities; adequate - able to pay for necessities but not

Table 6  
*Descriptive Statistics for Outcome Variables by Gender*

Outcome	Males (n = 42)		Females (n = 120)	
	M	SD	M	SD
Depression	6.90	5.62	5.84	5.29
Anxiety	4.07	3.67	5.19	4.44
Stress	6.81	5.05	7.94	4.34
Intrinsic motivation	57.05	17.87	59.08	18.20
Extrinsic motivation	62.86	14.49	63.98	13.24
Amotivation	7.48	4.86	7.02	4.73
Resilience	2.91	0.92	3.15	0.84
Academic self-efficacy	3.66	0.78	3.67	0.74

much else; secure- able to pay for what I want). Table 7 provides descriptive data for the variables considered. The only outcome variables that yielded a significant result were the stress subscale of psychological well-being,  $F(2, 159) = 3.35, p = .038, \eta^2 = .05$ , and academic self-efficacy,  $F(2, 159) = 3.78, p = .025, \eta^2 = .04$ . In both instances, the differences experienced were between students struggling to pay for necessities and students identifying as secure and able to pay for what they want. Effect sizes, as measured by eta-squared, revealed a small to moderate effect for stress ( $\eta^2 = .04$ ) and academic self-efficacy ( $\eta^2 = .05$ ). Post-hoc comparisons using the Hochberg's GT2 test for the academic self-efficacy scores indicated that students in the financially secure group reported significantly higher levels of academic self-efficacy than the financially struggling group. On measures of stress, post-hoc tests indicated that students who were financially secure reported significantly lower levels of stress than those who were financially insecure.

Table 7

*Descriptive Statistics for Outcome Variables by Financial Security*

Outcome	Insecure ( $n = 22$ )		Adequate ( $n = 85$ )		Secure ( $n = 55$ )	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Depression	8.09	5.28	6.28	5.26	5.07	5.43
Anxiety	5.90	5.48	5.27	4.30	3.93	3.52
Stress	9.50 <sub>a</sub>	4.39	7.82	4.69	6.64 <sub>a</sub>	4.16
Amotivation	7.73	5.73	7.01	4.12	7.09	5.30
Extrinsic motivation	59.18	19.01	64.29	12.27	64.55	12.73
Intrinsic motivation	56.32	20.62	58.71	15.89	59.22	20.35
Resilience	3.26	1.02	2.95	0.82	3.23	0.85
Academic self-efficacy	3.36 <sub>a</sub>	0.70	3.63	0.76	3.85 <sub>a</sub>	0.71

*Note.* Means sharing subscripts within the same row are significantly different from each other.

Further exploratory analyses were conducted to investigate whether psychological well-being, motivation, resilience, and academic self-efficacy varied as a function of current engagement versus non-engagement with student support services. The relevant means and standard deviations are shown in Table 8. An independent-samples t-test indicated that scores of depression were significantly higher for students currently engaged with student support services than for those who were not,  $t(160) = 2.29, p = .023$ , Cohen's  $d = 0.51$ . Scores on anxiety were also higher for students currently engaged with student support services, compared to students not engaged with student support services,  $t(160) = 2.79, p = .006$ , Cohen's  $d = 0.64$ . Students engaged with student support services also scored higher on levels of stress than students not currently engaged with student support services,  $t(160) = 3.01, p = .003$ , Cohen's  $d = 0.72$ .

Levels of amotivation were higher among students not currently engaged with student support services, compared to students currently engaged with student support

Table 8

*Descriptive Statistics for Outcome Variables by Current Engagement with Student Services Support*

Outcome	Engaged with SSS (n = 19)		Not engaged with SSS (n = 143)	
	M	SD	M	SD
Depression	8.74 <sub>a</sub>	6.41	5.77 <sub>a</sub>	5.15
Anxiety	7.42 <sub>a</sub>	4.85	4.57 <sub>a</sub>	4.09
Stress	10.53 <sub>a</sub>	4.68	7.27 <sub>a</sub>	4.40
Intrinsic motivation	57.16	13.21	58.74	18.66
Extrinsic motivation	62.79	11.54	63.80	13.81
Amotivation	5.84 <sub>a</sub>	2.27	7.31 <sub>a</sub>	4.97
Resilience	2.52 <sub>a</sub>	0.69	3.17 <sub>a</sub>	0.86
Academic self-efficacy	3.42	0.76	3.70	0.74

*Note.* Means sharing subscripts within the same row are significantly different from each other.

services,  $t(45) = -2.20, p = .033$  (heterogeneous variance). Despite reaching statistical significance, the difference in mean scores was small (Cohen's  $d = 0.38$ ). Resilience scores were also higher for students who were not engaged with student support services at the time of participation in the study compared to students who were engaged with student support services,  $t(160) = -3.15, p = .002$ , with a moderate effect size (Cohen's  $d = 0.83$ ). No significant differences were found in levels of intrinsic motivation, extrinsic motivation, or academic self-efficacy.

Exploratory analyses were conducted to investigate whether working on current assessments or not yielded differences in the measures of psychological well-being, motivation, resilience and academic self-efficacy. Table 9 shows descriptive results of these self-efficacy and intrinsic motivation. In relation to academic self-efficacy, results indicated that those not currently working on assessments experienced higher levels of academic

Table 9

*Descriptive Data for Outcome Variables by Working on Current Assessments*

Outcome	Current assessments (n = 105)		No current assessments (n = 57)	
	M	SD	M	SD
Depression	6.32	5.39	5.74	5.37
Anxiety	5.17	4.40	4.40	4.01
Stress	7.85	4.69	7.28	4.28
Intrinsic motivation	55.49 <sub>a</sub>	18.91	64.21 <sub>a</sub>	15.01
Extrinsic motivation	62.50	13.92	65.88	12.63
Amotivation	7.48	5.21	6.51	3.75
Resilience	3.05	0.84	3.17	0.91
Academic self-efficacy	3.55 <sub>a</sub>	0.72	3.88 <sub>a</sub>	0.75

Note. Means sharing subscripts within the same row are significantly different from each other.

analyses. Independent samples t-tests indicated significant differences in academic self-efficacy than those currently working on assessments,  $t(160) = -2.76, p = .007$ , with a moderate effect size (Cohen's  $d = 0.45$ ). Students who were currently working on assessments also reported lower levels of intrinsic motivation compared to those not currently working on assessments,  $t(138) = -3.22, p = .002$ , with Cohen's  $d = 0.51$  indicating a moderate effect size (heterogeneous variance).

Additional exploratory analyses were conducted to investigate whether currently studying for exams yielded differences in the measures of psychological well-being, motivation, resilience and academic self-efficacy. See Table 10 for descriptive results of these analyses. Independent samples t-tests indicated significant differences on all measures of psychological well-being and academic self-efficacy. Results indicated that those who were not studying for exams experienced higher levels of academic self-efficacy than students studying for exams,  $t(160) = -2.55, p = .012$ , with a moderate effect size (Cohen's  $d = 0.43$ ), while students who were studying for exams reported higher levels of depression, compared to students not studying for exams,  $t(71) = 2.34, p = .022$ , with a small effect size (Cohen's  $d = 0.42$ ) (heterogeneous variance). Levels of reported anxiety were also higher for students studying for exams compared to students not studying for exams,  $t(74) = 3.06, p = .003$ , with Cohen's  $d = 0.55$ , indicating a moderate effect size (heterogeneous variance). Finally, levels of reported stress were also higher for students studying for exams compared

Table 10

*Descriptive Data for Outcome Variables by Students Currently Studying for Exams*

Outcome	Current exams (n = 49)		No current exams (n = 113)	
	M	SD	M	SD
Depression	7.78 <sub>a</sub>	6.38	5.40 <sub>a</sub>	4.73
Anxiety	6.57 <sub>a</sub>	4.88	4.18 <sub>a</sub>	3.78
Stress	9.06 <sub>a</sub>	5.59	7.04 <sub>a</sub>	3.88
Intrinsic motivation	57.73	18.58	58.91	17.93
Extrinsic motivation	61.47	16.54	64.65	11.96
Amotivation	8.18	6.05	6.68	4.02
Resilience	3.11	0.86	3.08	0.87
Academic self-efficacy	3.45 <sub>a</sub>	0.78	3.77 <sub>a</sub>	0.71

Note. Means sharing subscripts within the same row are significantly different from each other.

to students not studying for exams,  $t(68) = 2.31$ ,  $p = .024$ , with Cohen's  $d = 0.42$ , indicating a small effect size (heterogeneous variance).

One-way ANOVAs were also conducted to explore the impact of self-reported academic progress on the outcome measures of psychological well-being, motivation, resilience and academic self-efficacy. Self-reported academic progress was divided into three groups (better than anticipated; about the same as anticipated; not as well as anticipated). Table 11 shows the relevant means and standard deviations. The variables which varied significantly as a function of self-reported academic progress were depression,  $F(2, 159) = 4.95$ ,  $p = .008$ ; stress,  $F(2, 159) = 3.85$ ,  $p = .023$ ; and amotivation,  $F(2, 159) = 4.45$ ,  $p = .013$ . Effect sizes were moderate for depression ( $\eta^2 = .06$ ), small for stress ( $\eta^2 = .02$ ), and moderate for amotivation ( $\eta^2 = .05$ ). Post hoc comparisons using the Hochberg's GT2 test for scores on depression indicated that students performing not as well as anticipated reported higher levels of depression than those performing about the

Table 11

*Descriptive Data for Outcome Variables by Self-reported Progress*

Outcome	Better than anticipated (n = 71)		About the same as anticipated (n = 52)		Not as well as anticipated (n = 40)	
	M	SD	M	SD	M	SD
Depression	5.94	5.60	4.75 <sub>a</sub>	4.59	8.20 <sub>a</sub>	5.41
Anxiety	5.14	4.77	4.15	3.49	5.45	4.25
Stress	7.91	4.55	6.35 <sub>a</sub>	4.32	8.88 <sub>a</sub>	4.50
Intrinsic motivation	61.83	17.72	57.00	17.37	54.85	19.05
Extrinsic motivation	64.34	14.06	63.37	14.76	62.95	10.96
Amotivation	5.97 <sub>a</sub>	3.88	7.56	4.84	8.62 <sub>a</sub>	5.57
Resilience	3.16	0.85	3.16	0.86	2.86	0.88
Academic self-efficacy	3.79	0.67	3.65	0.88	3.48	0.66

Note. Means sharing subscripts within the same row are significantly different from each other.

same as expected. Students performing not as well as anticipated reported lower levels of stress than those performing about the same as expected, while students performing not as well as anticipated reported higher levels of amotivation than those performing better than expected.

Further exploratory analyses were conducted to investigate whether level of study yielded differences in the measures of psychological well-being, motivation, resilience and academic self-efficacy. One-way ANOVAs were conducted to explore the impact of level of study on the outcome measures. Level of study was divided into four groups (TAFE; undergraduate; postgraduate by research; postgraduate by coursework). See Table 12 for descriptive results of these analyses. The variables which yielded a significant result were

Table 12

*Descriptive Data for Outcome Variables by Level of Study*

Outcome	TAFE ( <i>n</i> = 5)		Undergraduate ( <i>n</i> = 136)		Postgraduate by research ( <i>n</i> = 11)		Postgraduate by coursework ( <i>n</i> = 11)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Depression	5.80	3.27	6.49	5.57	4.10	4.86	3.55	2.77
Anxiety	4.60	2.97	5.21	4.39	4.30	3.89	1.82	2.09
Stress	10.60	3.78	7.82	4.68	6.70	2.98	5.00	3.13
Intrinsic motivation	59.80	20.66	58.40	17.23	72.50 <sub>a</sub>	10.56	47.27 <sub>a</sub>	25.43
Extrinsic motivation	58.20	16.63	64.11	13.88	64.20	11.84	60.45	9.09
Amotivation	4.40	0.55	7.35	4.94	6.90	4.86	6.00	2.72
Resilience	3.40	1.22	2.99	0.85	3.70	0.92	3.53	0.51
Academic self-efficacy	3.86	0.55	3.61	0.75	4.13	0.85	3.93	0.60

Note: Means sharing subscripts within the same row are significantly different from each other.

resilience,  $F(3, 158) = 3.48, p = .017$ ; and intrinsic motivation  $F(3, 158) = 3.59, p = .015$ .

Upon further examination of post hoc comparisons using the Hochberg's TG2 test,

however, levels of resilience did not significantly differ between any levels of study.

Intrinsic motivation, however, differed between students enrolled in a postgraduate by research course who reported higher levels of intrinsic motivation than postgraduate by coursework students, with a moderate effect size ( $\eta^2 = .06$ ).

### Testing the Proposed Model

The following sections consider the proposed model (see Figure 1 on p. 58). Due to the small sample size which did not allow for the preferred statistical technique of structural equation modeling, the proceeding analyses instead isolate four sections of the proposed model and explore them through a series of regression and mediation analyses.

Table 13 shows the correlations among the variables, and their respective means and standard deviations. All variables held correlations below .70, with the exception of

spiritual well-being and religious well-being ( $r = .80$ ). Correlations that are particularly noteworthy include the relationships and associations proposed in the overall model of the present study. Locus of control was expected to predict academic self-efficacy and perceived stress. Correlation analyses showed a significant association between the two sets of variables with locus of control being significantly correlated with academic self-efficacy ( $r = -.21$ ) and perceived stress ( $r = .18$ ). Analyses will also explore spirituality's contribution to perceived stress. Perceived stress was significantly related to existential well-being ( $r = -.59$ ) and spiritual well-being ( $r = .32$ ). Perceived stress occupies a central role in the hypothesised model, serving as an outcome, predictor and mediation variable. Accordingly, perceived stress was significantly associated with most variables, with the exception of religious well-being, extrinsic motivation and amotivation. In relation to motivation, intrinsic motivation and amotivation shared significant correlations with the hypothesised predictors of depression and academic self-efficacy, but not resilience, stress and anxiety which were also hypothesised predictors. Interestingly, the only variables that all three levels of motivation had significant correlations with were locus of control and existential well-being. Locus of control was significantly related to all variables except spiritual well-being and religious well-being. The overall spiritual well-being score is derived from a combination of religiosity (religious well-being scale) and existentialism (existential well-being scale), with each subscale able to be utilised in isolation, therefore it was decided to utilise the two subscales of religious well-being and existential well-being separately rather than the overall spiritual well-being score. Religious well-being and existential well-being were not correlated ( $r = -.02$ ) which indicated that they were not measuring the same construct.

Table 13

*Descriptive Data and Correlations of all Scales and Subscales*

	<i>M</i>	<i>SD</i>	IM	EM	AM	LOC	ASE	PS	EWB	SWB	RWB	RES	DEP	ANX	STR
IM	58.56	18.08	1.00	.59**	-.37	-.14***	.49*	-.19***	.21***	.05	-.09	.11	-.14***	.01	-.05
EM	63.69	13.53		1.00	-.33	-.07**	.27	-.03	.18***	.04	-.06	-.02	-.18	-.04	-.06
AM	7.14	4.76			1.00	.20**	-.35*	.19	-.32*	-.18***	.02	-.03	.32*	.09	.05
LOC	12.01	4.35				1.00	-.21**	.18**	-.26*	-.14	.03	-.24**	.20*	.19*	.21*
ASE	3.67	0.75					1.00	-.37	.41*	.17**	-.09	.31	-.32	-.21	-.23
PS	20.10	7.14						1.00	-.59*	.32***	.05	-.52*	.62*	.54*	.65*
EWB	41.98	9.88							1.00	.59***	-.02	.48*	-.72*	-.41*	-.50*
SWB	67.54	16.36								1.00	.80***	.36***	-.49***	-.26***	-.30***
RWB	25.54	13.24									1.00	.09	-.07	-.02	-.01
RES	3.09	0.87										1.00	-.45*	-.31*	-.33*
DEP	6.12	5.38											1.00	.60*	.66*
ANX	4.90	4.27												1.00	.74*
STR	7.65	4.54													1.00

*Note.* IM = intrinsic motivation total, EM = extrinsic motivation total, AM = amotivation, LOC = locus of control, ASE = academic self-efficacy, PS = perceived stress, SWB = spiritual well-being, EWB = existential well-being, RWB = religious well-being, RES = resilience, DEP = depression, ANX = anxiety, STR = stress

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

With the exclusion of spiritual well-being, all assumptions were met, including normality, linearity, homoscedasticity and independence of residuals. Early analyses also show that religious well-being was not a significant predictor of perceived stress and was therefore also excluded from further analyses, leaving existential well-being as the primary measure of spirituality.

In the first section of the proposed model, identified as component one, perceived stress is a key feature. Analyses explore the proposed predictors of perceived stress (locus of control and spirituality), and perceived stress as a predictor of psychological well-being and resilience. Perceived stress is also proposed to mediate the relationships between locus of control and psychological well-being; spirituality and psychological well-being; locus of control and resilience, and spirituality and resilience. Moving through the model, component two explores the proposed predictors of academic motivation which include psychological well-being, academic self-efficacy and resilience. Component three evaluates locus of control as a possible predictor of academic self-efficacy, which in turn is explored as a mediator of the association between locus of control and motivation. Finally, component four considers mediated relationships with psychological well-being and resilience acting as mediators between perceived stress and academic motivation.

As recommended for small samples, nonparametric bootstrapping analyses were used (Preacher & Hayes, 2004; Preacher et al., 2007) to test the mediational models. All mediation analyses were based on 5000 bootstrapped samples. In these analyses, mediation is significant if the 95% bias corrected and accelerated confidence intervals for the indirect effect do not include zero (Preacher & Hayes, 2004; Preacher et al., 2007). Preliminary

analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity and homoscedasticity. The only violation detected pertained to homoscedasticity in the residuals of amotivation. The heteroscedasticity of the amotivation residuals was minimal; therefore a more stringent alpha level of .01 was used in lieu of transforming the data (Tabachnick & Fidell, 2013).

**Component One**

The following analyses will consider the predictors of perceived stress, perceived stress as a predictor, and perceived stress as a mediator as shown in Figure 3.

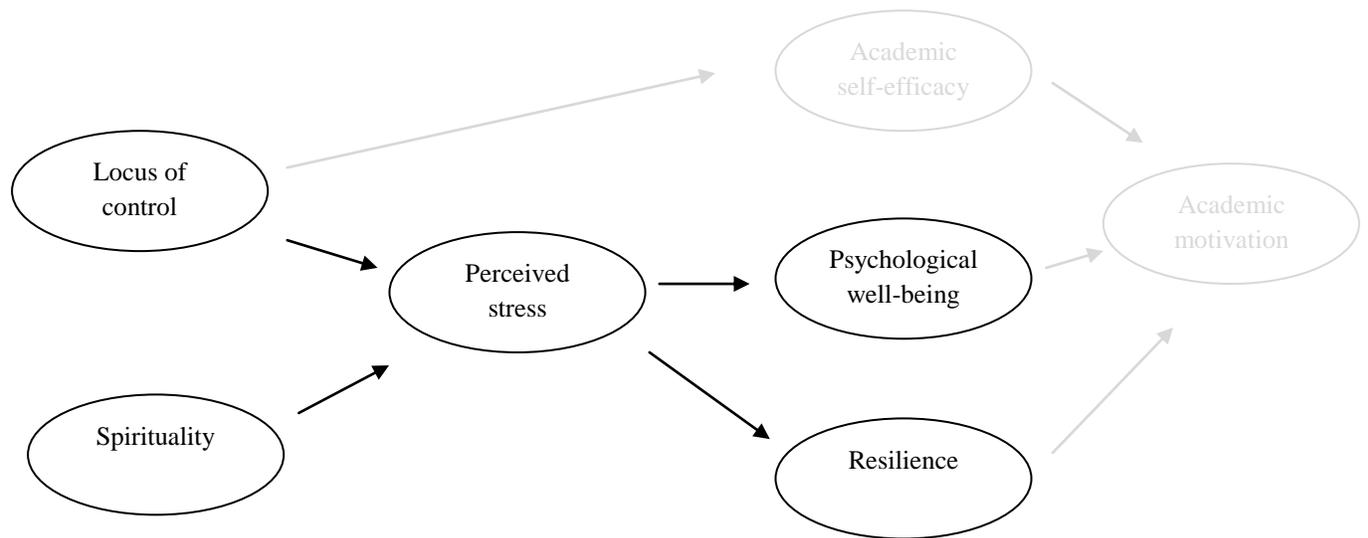


Figure 3. Component one of the proposed model. Psychological well-being is a multiple construct comprised of depression, anxiety and stress.

**Predictors of perceived stress.**

Spirituality and locus of control were expected to contribute to levels of perceived stress. To clarify, *perceived stress* refers to the cognitive appraisal of stress, as distinct from the stress subscale of psychological well-being measure (i.e., the DASS), which corresponds closely with Generalised Anxiety Disorder (Lovibond & Lovibond, 1995). It was expected that higher levels of spirituality and an internal locus of control (as indicated by lower scores on the locus of control measure) would be associated with lower levels of perceived stress, while an external locus of control (as indicated by higher scores on the locus of control measure) was expected to be associated with higher levels of perceived stress. Spirituality was explored in terms of existential well-being, religious well-being and spiritual well-being

Multiple regression analysis was used to assess the contribution and predictive power of locus of control and religious and existential well-being towards levels of perceived stress. Table 14 shows the results of this analysis. The overall model explained 35.50% of the variance, which was statistically significant,  $F(3, 156) = 28.56, p < .001$ . An inspection of individual predictors revealed that existential well-being was the only statistically significant predictor of perceived stress, and was a negative predictor. Thus, a higher level of spirituality in the form of existential well-being was associated with lower levels of perceived stress. Locus of control and religious well-being were not significant predictors.

Table 14

*Summary of Multiple Regression Analysis Pertaining to Predictors of Perceived Stress*

	Beta	<i>p</i>	95% CI
Constant		.000	[31.23, 42.52]
Existential well-being	-.59	.000	[-0.52, -0.33]
Religious well-being	.03	.602	[-0.05, 0.09]
Locus of control	.03	.679	[-0.17, 0.26]

*Note.* Beta = standardised coefficient

### **Perceived stress as a predictor variable.**

#### ***Predictor of psychological well-being.***

Perceived stress was predicted to contribute towards levels of psychological well-being on all three measures of depression, anxiety and stress. All three correlations (as shown earlier in Table 13) were significant at the  $p < .001$  level, with perceived stress being correlated highest with stress ( $r = .65$ ), followed by depression ( $r = .62$ ) and anxiety ( $r = .54$ ).

#### ***Predictor of resilience.***

Perceived stress was predicted to be associated with levels of resilience. As indicated earlier in Table 13, correlation analyses showed a positive relationship between perceived stress and resilience ( $r = .52, p < .001$ ).

**Mediation analyses with perceived stress.**

Analyses were conducted to explore the role of perceived stress as a mediator between spirituality (as measured by existential well-being) and all three measures of psychological well-being and resilience. Religious well-being was not a significant predictor of perceived stress in the regression model reported earlier, therefore, it was determined that existential well-being would be used as the sole measure of spirituality. It was initially predicted that perceived stress would also mediate the associations between locus of control and psychological wellbeing, and between locus of control and resilience; however, the regression model reported earlier (see Table 14) indicated that locus of control was *not* a significant predictor of perceived stress when existential wellbeing was included as a predictor. It was therefore deemed inappropriate to proceed with analyses examining perceived stress as a mediator of associations between locus of control and other variables.

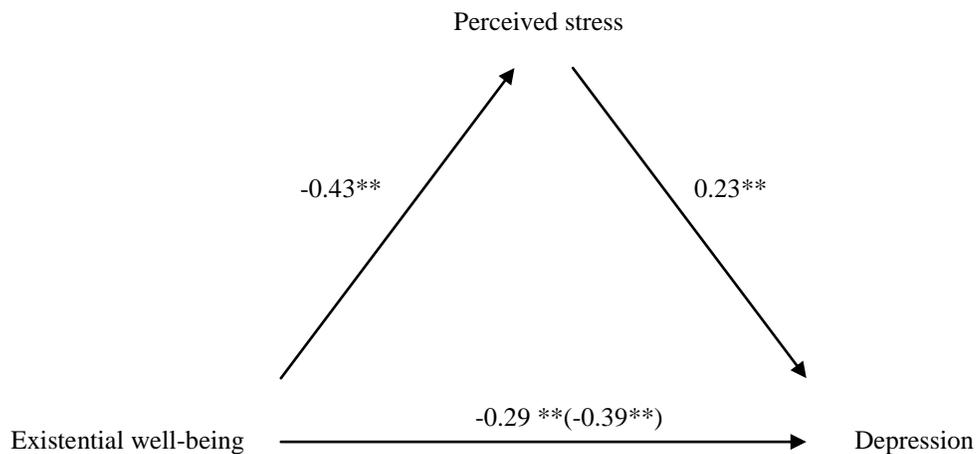
***Perceived stress as a mediator between spirituality and psychological well-being.******Analyses relating to the depression subscale of psychological well-being.***

Multiple regression analyses were conducted to assess the mediation of perceived stress between existential well-being and depression. First, it was found that existential well-being was significantly associated with depression,  $b = -0.39$ ,  $t(160) = -13.12$ ,  $p < .001$ , thus satisfying the first condition of mediation. Existential well-being was also significantly associated with perceived stress,  $b = -0.43$ ,  $t(160) = -9.34$ ,  $p < .001$ , thus satisfying the second condition of mediation and confirming the findings from the regression analysis reported earlier (see Table 14). Lastly, results indicated that the

mediator, perceived stress, was significantly associated with depression,  $b = 0.23$ ,  $t(159) = 4.72$ ,  $p < .001$ . As all conditions were met, mediation was tested using the bootstrapping method with bias-corrected confidence estimates (MacKinnon, Lockwood & Williams, 2004; Preacher & Hayes, 2004). Results of the mediation analysis confirmed the mediation role of perceived stress in the relationship between existential well-being and depression,  $b = -0.10$ , 95% CI [-0.15, 0.06]. In addition, results indicated that the direct effect of existential well-being on depression became weaker,  $b = -0.29$ ,  $t(159) = -8.44$ ,  $p < .001$ , when controlling for perceived stress, thus suggesting partial mediation. This was confirmed by a Sobel test ( $z = -4.19$ ,  $p < .001$ ,  $\kappa^2 = .21$ ). These results indicate that higher levels of existential well-being are associated with lower levels of depression, and this is partly due to higher existential well-being predicting lower levels of perceived stress, which in turn predict less depression. Figure 4 show the results of the mediation analysis.

*Analyses relating to the anxiety subscale of psychological well-being.*

Multiple regression analyses were conducted to assess the mediation of perceived stress between spirituality and anxiety. First, it was found that existential well-being was significantly associated with anxiety,  $b = -0.18$ ,  $t(160) = -5.60$ ,  $p < .001$ , thus satisfying the first condition. As previously established, existential well-being significantly predicted perceived stress, thus satisfying the second condition of mediation. Lastly, results indicated that the mediator, perceived stress, was significantly associated with anxiety,  $b = 0.28$ ,  $t(159) = 5.67$ ,  $p < .001$ . As all conditions were met, mediation was tested using the bootstrapping method with bias-corrected confidence estimates (MacKinnon et al., 2004; Preacher & Hayes, 2004). Results of



*Figure 4.* Perceived stress as a mediator between existential well-being and depression. Path coefficients are unstandardised regression weights.

\* $p < .05$ . \*\* $p < .01$ .

the mediation analysis confirmed the mediating role of perceived stress in the relationship between existential well-being and anxiety,  $b = -0.12$ , 95% CI [-0.18, -0.07]. In addition, results indicated that the direct effect of existential well-being on anxiety became non-significant,  $b = -0.06$ ,  $t(159) = -1.56$ ,  $p = .120$ , when controlling for perceived stress, thus suggesting full mediation. This was confirmed by a Sobel test ( $z = -4.82$ ,  $p < .001$ ,  $\kappa^2 = .25$ ). These results indicate that higher levels of existential well-being are associated with lower levels of anxiety, and this is partly due to higher existential well-being predicting lower levels of perceived stress, which in turn predict less anxiety. Figure 5 show the results of the mediation analysis.

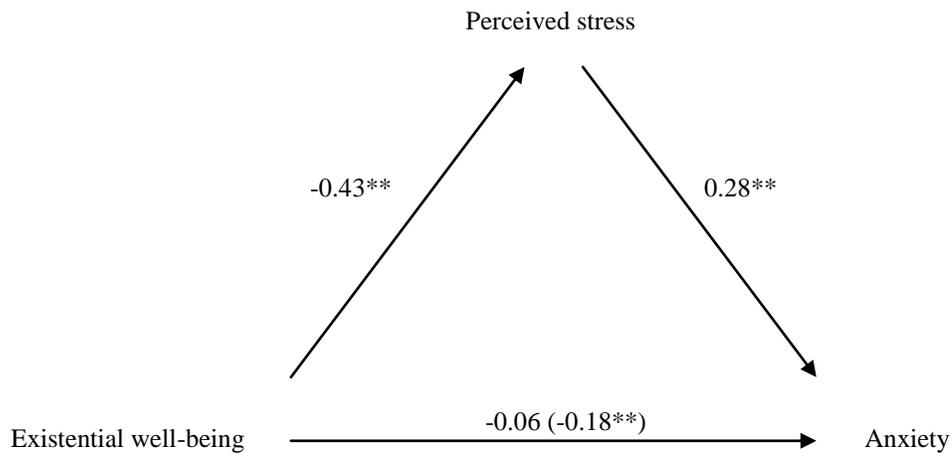


Figure 5. Perceived stress as a mediator between existential well-being and anxiety. Path coefficients are unstandardised regression weights.

\*\* $p < .01$ .

*Analyses relating to the stress subscale of psychological well-being.*

Multiple regression analyses were conducted to assess the mediation of perceived stress between spirituality and stress. First, it was found that existential well-being was significantly associated with stress,  $b = -0.23$ ,  $t(160) = -7.26$ ,  $p < .001$ , thus satisfying the first condition of mediation. Again, as previously established, existential well-being was significantly associated with perceived stress, thus satisfying the second condition of mediation. Lastly, results indicated that the mediator, perceived stress, was significantly associated with stress,  $b = 0.34$ ,  $t(159) = 7.31$ ,  $p < .001$ . As all conditions were met, mediation was tested using the bootstrapping method with bias-corrected confidence estimates (MacKinnon et al., 2004; Preacher & Hayes, 2004). Results of the mediation

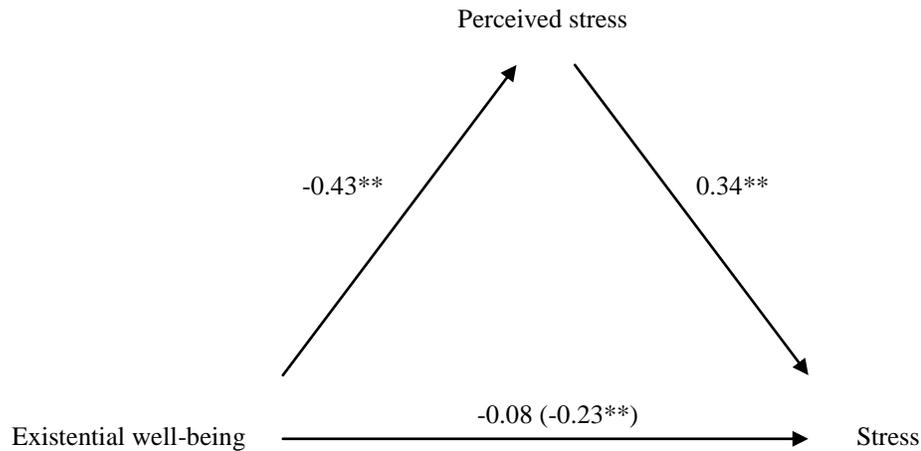


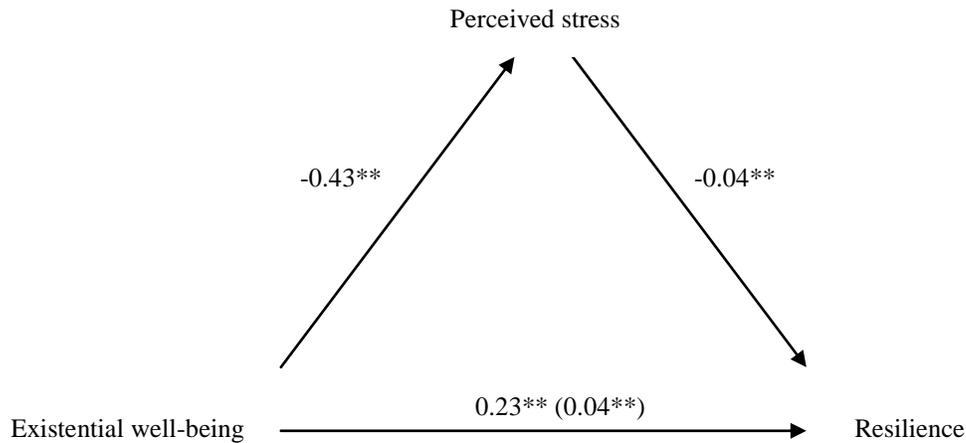
Figure 6. Perceived stress as a mediator between existential well-being and stress. Path coefficients are unstandardised regression weights.

\* $p < .05$ . \*\* $p < .01$ .

analysis confirmed the mediation role of perceived stress in the relationship between existential well-being and stress,  $b = -0.15$ , 95% CI  $[-0.21, -0.09]$ . In addition, results indicated that the direct effect of existential well-being on stress became weaker,  $b = -0.08$ ,  $t(159) = -2.39$ ,  $p = .018$ , when controlling for perceived stress, thus suggesting partial mediation. This was confirmed by a Sobel test ( $z = -5.73$ ,  $p < .001$ ,  $\kappa^2 = .30$ ). These results indicate that higher levels of existential well-being are associated with lower levels of stress, and this is partly due to higher existential well-being predicting lower levels of perceived stress, which in turn predict less stress. Figure 6 show the results of the mediation analysis.

*Perceived stress as a mediator between spirituality and resilience.*

Multiple regression analyses were conducted to assess the mediation of perceived stress between existential well-being and resilience. First, it was found that existential well-being was significantly associated with resilience,  $b = 0.04$ ,  $t(160) = 6.92$ ,  $p = .001$ , thus satisfying the first condition of mediation. As reported earlier, existential well-being was significantly associated with perceived stress, thus satisfying the second condition of mediation and confirming the findings from the regression reported earlier (see Table 14). Lastly, results indicated that the mediator, perceived stress, was significantly associated with resilience,  $b = -0.04$ ,  $t(159) = -4.36$ ,  $p < .001$ . As all conditions were met, mediation was tested using the bootstrapping method with bias-corrected confidence estimates (MacKinnon et al., 2004; Preacher & Hayes, 2004). Results of the mediation analysis confirmed the mediation role of perceived stress in the relationship between existential well-being and resilience,  $b = 0.02$ , 95% CI [0.01, 0.03]. In addition, results indicated that the direct effect of existential well-being on depression became weaker,  $b = 0.23$ ,  $t(159) = 3.28$ ,  $p = .001$  when controlling for perceived stress, thus suggesting partial mediation. This was confirmed by a Sobel test ( $z = -3.93$ ,  $p < .001$ ,  $\kappa^2 = .19$ ). These results indicate that higher levels of existential well-being are associated with higher levels of resilience, and this is partly due to higher existential well-being predicting lower levels of perceived stress, which in turn predict more resilience. Figure 7 show the results of the mediation analysis.



*Figure 7.* Perceived stress as a mediator between existential well-being and resilience. Path coefficients are unstandardised regression weights.

\* $p < .05$ . \*\* $p < .01$ .

## Component Two

The following analyses explore the predictors of academic motivation, as indicated in Figure 8. Psychological well-being, resilience and academic self-efficacy were all expected to predict academic motivation. In order to examine this, several regression analyses were conducted. Motivation was measured on the three subscales of intrinsic motivation, extrinsic motivation and amotivation. Psychological well-being was operationalised as the three subscales of depression, anxiety and stress.

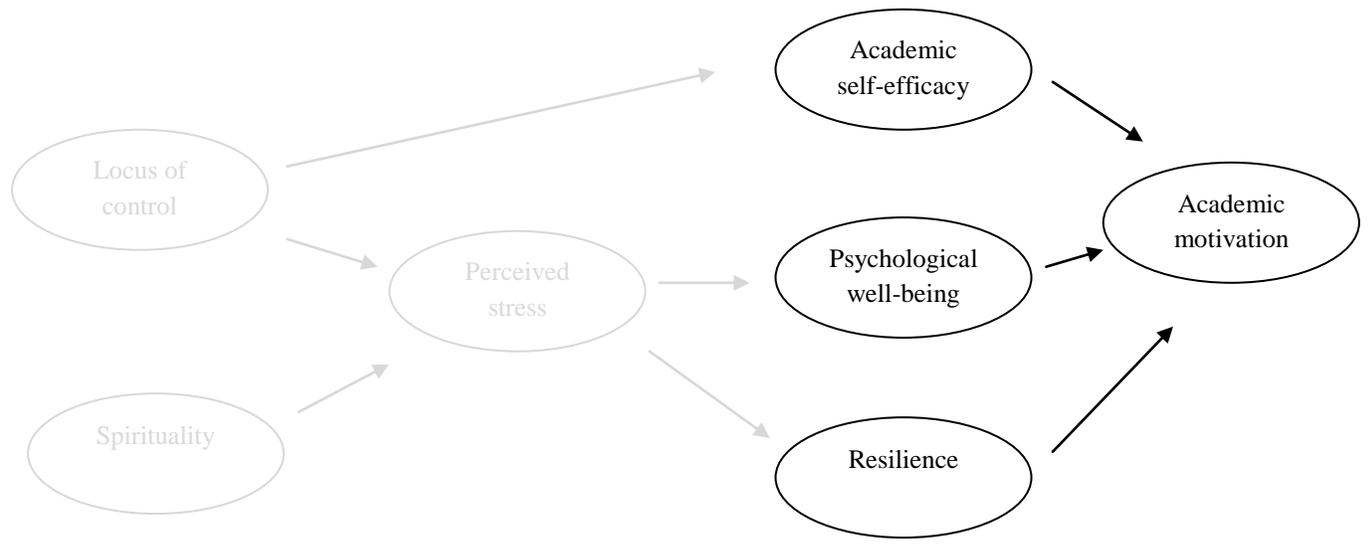


Figure 8. Component two of the proposed model. Psychological well-being is a multiple construct comprised of depression, anxiety and stress. Academic motivation is a multiple construct comprised of intrinsic motivation, extrinsic motivation and amotivation.

Firstly, it was important to consider the assumption of multicollinearity. It is preferable that there be a relationship between the independent and dependent variables, with a correlation score of at least .30 (Pallant, 2013). Therefore, bivariate correlations between all variables were computed (see Table 13). The highest correlations observed between independent and dependent variables were amongst academic self-efficacy with all motivation subscales (intrinsic, extrinsic, amotivation). Other correlations, however, were lower than desired, such as the anxiety and stress subscales of psychological well-being with all subscales of motivation; and resilience with all subscales of motivation. Further, correlations between independent variables should ideally be below .70 (Pallant, 2013). In

this instance, it was observed that all independent variables held correlations below .70 with the exception of two of the measures of anxiety and stress from the psychological well-being measures. Although excluding highly related independent variables is suggested; in this context it is understandable and to be expected that anxiety and stress are highly correlated as they measure similar constructs on the same overall scale, and therefore were included in analysis. Two further indicators of multicollinearity, variance inflation factor and tolerance, also suggested that the assumption of multicollinearity was not violated, even with the inclusion of stress and anxiety. The further assumptions of linearity and normality were also met, as was the assumption of independence of residuals and homoscedasticity, except with amotivation. As all other assumptions were met, and the heteroscedasticity of the amotivation subscale was minimal, a more stringent alpha level of .01 was used, rather than transforming the data (Tabachnick & Fidell, 2013).

Simple linear regression analyses were performed to assess the contribution and predictive power of psychological well-being, resilience and self-efficacy towards the variances in each subscale of motivation. Table 15 shows the results of these analyses. For extrinsic motivation, the overall model explained 11.9% of the variance, which was statistically significant  $F(5, 156) = 4.21, p = .001$ . An inspection of the individual predictors revealed that academic self-efficacy contributed positively towards extrinsic motivation; while depression and resilience were negative predictors. Anxiety and stress did not make significant unique contributions towards extrinsic motivation. It is important to note that while depression, academic self-efficacy and resilience significantly contributed towards extrinsic motivation, they were not significantly associated with

extrinsic motivation in the correlation analyses. This suggests a possible suppressor effect, in which individually none of the variables are related to extrinsic motivation, however as a combination, they contribute to levels of extrinsic motivation. A suppressor variable can be identified if the partial correlation is greater than the zero order correlation between the predictor and dependent variable (Ludlow & Klein, 2014), or if the simple correlation and beta weights have opposite signs (Tabachnick & Fidell, 2013). In this instance only resilience indicated a partial correlation ( $r = -.16$ ) larger than the zero order correlation ( $r = -.01$ ). It may be that resilience acts as a suppressor variable in that it contributes to levels of extrinsic motivation through its significant association with depression ( $r = -.45, p < .001$ ). Higher levels of resilience may act as a buffer against low levels of depression, hence increasing levels of extrinsic motivation. Tabachnick and Fidell (2013) however, state that in models with three or more predictors, it can be difficult to distinguish which variable is creating the suppression effect.

For intrinsic motivation, the overall model explained 25.90% of the variance, which was statistically significant,  $F(5, 156) = 10.88, p < .001$ . At inspection of individual predictors, however, academic self-efficacy was the only significant predictor of intrinsic motivation. The positive coefficient indicates that higher scores on academic self-efficacy predict higher scores on intrinsic motivation.

**Table 15**  
*Summary of Multiple Regression Analysis Pertaining to Predictors of Academic Motivation*

	Extrinsic motivation				Intrinsic motivation				B	Beta
	B	Beta	p	95% CI	B	Beta	p	95% CI		
Constant			.000	[41.32, 69.24]			.091	[-2.38, 31.83]		
Academic self-efficacy	-4.97	.28	.001	[2.09, 7.86]	12.23	.51	.000	[8.69, 15.77]	-2.02	-.32
Resilience	-2.72	-.17	.045	[-5.37, -0.06]	-.73	-.04	.658	[-3.99, 2.52]	1.11	.20
Depression	-.65	-.26	.018	[-1.19, -0.11]	-.29	-.09	.393	[-0.954, 0.38]	.44	.50
Anxiety	.21	.07	.561	[-0.51, 0.93]	.68	.16	.129	[-.201, 1.56]	-.01	-.01
Stress	.20	.07	.584	[-0.52, 0.92]	-.05	-.01	.918	[-0.928, 0.84]	-.29	-.28

Note. Beta= standardised coefficient

For amotivation, the overall model explained 24.9% of the variance, which was statistically significant,  $F(5, 156) = 10.35, p < .001$ . At inspection of individual predictors, depression was a positive predictor such that higher scores on depression contributed to higher levels of amotivation. Self-efficacy and stress were negative predictors, indicating that lower levels of academic self-efficacy and stress contributed to higher levels of amotivation. Finally, resilience was a positive predictor with higher scores reflective of higher levels of amotivation. Anxiety did not offer significant unique contributions. As with extrinsic motivation, there is evidence to suggest a suppressor effect resulting from the significant contribution by stress and resilience. Earlier analyses (Table 13) showed they were not significantly correlated with amotivation. In the prediction of amotivation, it may be possible that both resilience and stress create a suppressor effect as they both have higher partial correlations (stress  $r = -.19$ ; resilience  $r = .20$ ) compared to zero order correlations (stress  $r = .05$ ; resilience  $r = -.03$ ) with amotivation (Ludlow & Klein, 2014). In addition to a higher partial correlation, stress also displayed a positive correlation as opposed to the negative beta weight, which is further evidence for a suppression effect

(Tabachnick & Fidell, 2013). With stress and resilience being significantly associated with depression in the negative direction, it may also be that resilience and stress are acting as suppressor variables by contributing to lower levels of depression, which in turn is related to lower levels of amotivation. Tabachnick and Fidell (2013) caution that in models with three or more predictors, it can be difficult to distinguish which variable is creating the suppression effect.

**Component Three**

The following analyses consider academic self-efficacy as an outcome variable and will also explore academic self-efficacy as a mediator between locus of control and academic motivation. See Figure 9.

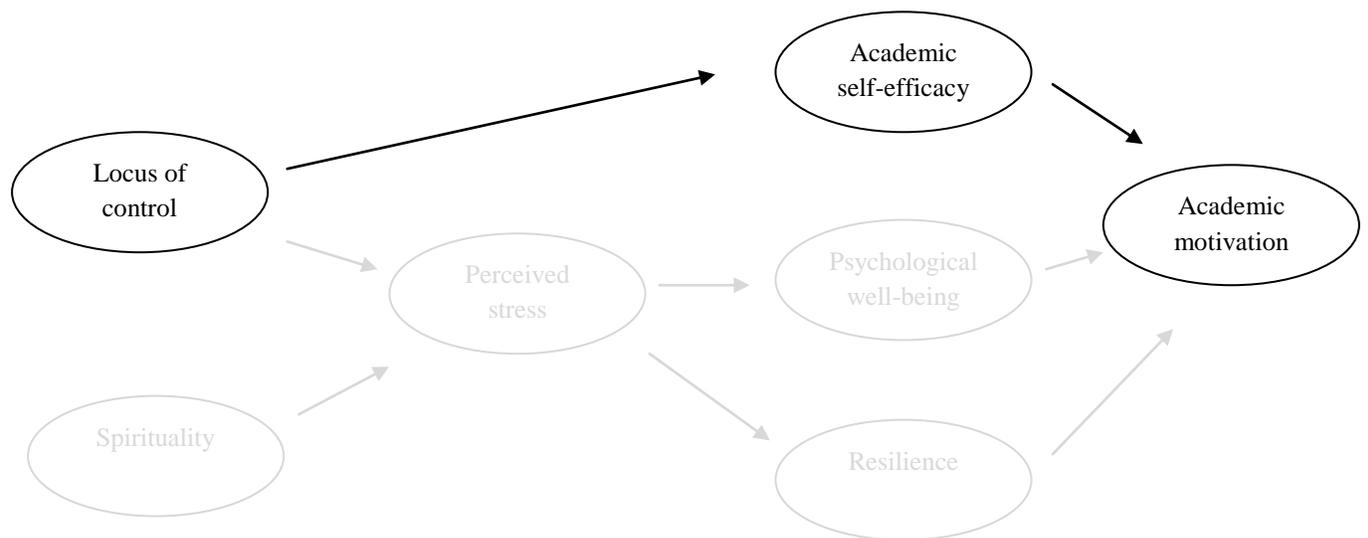


Figure 9. Component three of the proposed model. Academic motivation is a multiple construct comprised of intrinsic motivation, extrinsic motivation and amotivation.

**Predictor of academic self-efficacy.**

It was expected that an internal locus of control would predict higher levels of academic self-efficacy. Earlier correlation analyses indicated a significant **negative** association at the  $p < .05$  **level** ( $r = -.21$ ).

**Academic self-efficacy as a mediator between locus of control and motivation.***Analyses relating to intrinsic motivation.*

Multiple regression analyses were conducted to assess the expectation that academic self-efficacy would mediate the relationship between locus of control and motivation. First, it was found that locus of control was not significantly associated with intrinsic motivation,  $b = -0.58$ ,  $t(160) = -1.77$ ,  $p = .078$ . Due to the non-significant relationship, the first condition of mediation was not satisfied, therefore mediation analysis was discontinued, and academic self-efficacy was deemed not to mediate locus of control and intrinsic motivation.

*Analyses relating to extrinsic motivation.*

The second regression analysis was conducted to assess the mediation of academic self-efficacy between locus of control and extrinsic motivation. Locus of control was not significantly associated with extrinsic motivation,  $b = -0.21$ ,  $t(160) = -0.84$ ,  $p = .404$ . Mediation analysis was discontinued due to the first condition of mediation being violated by the non-significant result; hence academic self-efficacy was deemed not to mediate any association between locus of control and extrinsic motivation.

*Analyses relating to amotivation.*

A third set of regression analyses was conducted to assess academic self-efficacy as a mediator of the association between locus of control and amotivation. First, it was found that locus of control was significantly associated with amotivation,  $b = 0.22$ ,  $t(160) = 2.56$ ,  $p = .011$ , thus satisfying the first condition of mediation. It was also found that locus of control was significantly associated with academic self-efficacy,  $b = -0.04$ ,  $t(160) = -2.65$ ,  $p = .009$ , thus satisfying the second condition of mediation. Lastly, results indicated that the mediator, academic self-efficacy was significantly associated with amotivation,  $b = -2.04$ ,  $t(159) = -0.26$ ,  $p < .001$ . As all conditions were met, mediation was tested using the bootstrapping method with bias-corrected confidence estimates (MacKinnon et al., 2004; Preacher & Hayes, 2004). Results of the mediation analysis confirmed the mediation role of academic self-efficacy in the relationship between locus of control and amotivation,  $b = 0.07$ , 95% CI [0.01, 0.17]. In addition, results indicated that the direct effect of locus of control on amotivation became non-significant,  $b = 0.14$ ,  $t(159) = 1.76$ ,  $p = .079$ , when controlling for academic self-efficacy, thus suggesting full mediation. This was confirmed by a Sobel test ( $z = 2.21$ ,  $p = .027$ ,  $\kappa^2 = .07$ ). These results indicate that higher levels of locus of control (i.e., external locus of control) are associated with higher levels of amotivation, and this is partly due to higher levels of locus of control predicting lower levels of academic self-efficacy, which in turn predict more amotivation. Figure 10 shows the results of the mediation analysis.

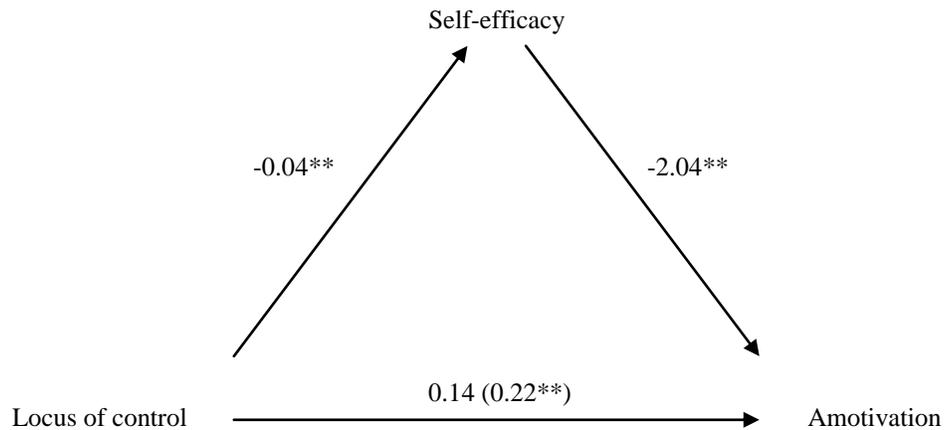


Figure 10. Academic self-efficacy as a mediator between locus of control and amotivation. Path coefficients are unstandardised regression weights.

\* $p < .05$ . \*\* $p < .01$ .

#### Component Four

The following analyses explore the potential mediating variables between perceived stress and academic motivation. See Figure 11.

#### **Analyses relating to resilience as a mediator between perceived stress and motivation.**

##### *Analyses relating to intrinsic motivation.*

Earlier analyses highlighted a non-significant association between resilience and intrinsic motivation. As this is one condition for a mediated relationship, which was

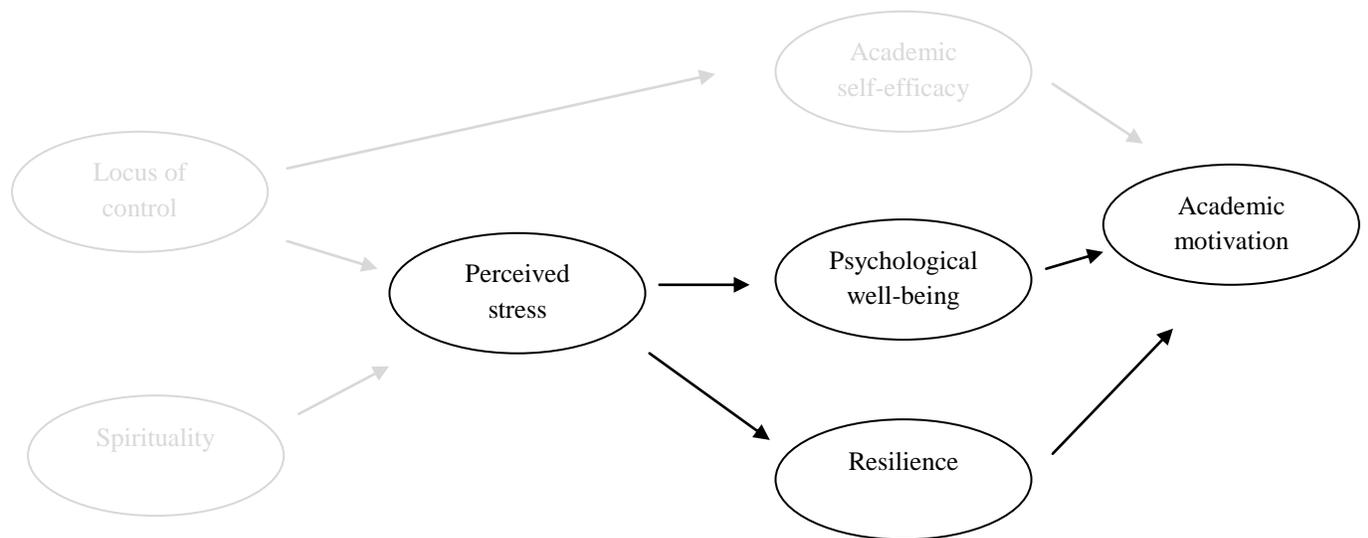


Figure 11. Component four of the proposed model. Psychological well-being is a multiple construct comprised of depression, anxiety and stress. Academic motivation is a multiple construct comprised of intrinsic motivation, extrinsic motivation and amotivation.

violated, resilience was not tested as a mediator of the relationship between perceived stress and intrinsic motivation.

#### *Analyses relating to extrinsic motivation.*

Multiple regression analyses were conducted to assess the mediation between perceived stress and extrinsic motivation, by resilience. Firstly, it was found that perceived stress was not significantly associated with extrinsic motivation,  $b = -0.06$ ,  $t(160) = -0.40$ ,  $p = .690$ . As the first condition of mediation was violated, mediation analysis was

discontinued and resilience was deemed not a mediator of perceived stress and extrinsic motivation.

*Analyses relating to amotivation.*

Multiple regression analyses were conducted to assess the mediation between perceived stress and amotivation by resilience. Firstly, it was found that perceived stress was significantly associated with amotivation,  $b = 0.13$ ,  $t(160) = 2.43$ ,  $p = .016$ , thus satisfying the first condition of mediation. It was also found that perceived stress was significantly associated with resilience,  $b = -0.06$ ,  $t(160) = -7.62$ ,  $p < .001$ , thus satisfying the second condition of mediation. However, results indicated that the proposed mediator, resilience, was not significantly associated with amotivation,  $b = 0.52$ ,  $t(159) = 1.05$ ,  $p = .297$ . Due to the non-significant result, mediation analysis was discontinued, and resilience was determined not to mediate perceived stress and amotivation. Resilience being a non-significant predictor supports earlier summations that resilience was acting as a suppressor variable which is not significant on its own, but when added to a model with multiple predictors, became a significant predictor by suppressing irrelevant variance in the other predictors (Tabachnick & Fidell, 2013).

**Analyses relating to psychological well-being as a mediator between perceived stress and motivation.**

*Analyses relating to the stress subscale of psychological well-being as a mediator.*

*Analyses relating to intrinsic and extrinsic motivation.*

Due to earlier findings reported in this section which established that stress was not significantly associated with intrinsic or extrinsic motivation, it is therefore not possible to provide a mediated relationship between perceived stress and intrinsic or extrinsic motivation, and these mediated analyses were hence not performed.

*Analyses relating to amotivation.*

Multiple regression analyses were conducted to assess the mediation between perceived stress and amotivation by stress. First, it was found that perceived stress was significantly associated with amotivation,  $b = 0.13$ ,  $t(160) = 2.43$ ,  $p = .016$ , thus satisfying the first condition of mediation. It was also found that perceived stress was significantly associated with stress,  $b = 0.41$ ,  $t(160) = 10.69$ ,  $p < .001$ , thus satisfying the second condition of mediation. Lastly, results indicated that the mediator, stress, was not significantly associated with amotivation,  $b = -0.13$ ,  $t(159) = -1.19$ ,  $p = .234$ . Due to the non-significant result violating the third condition of mediation, analysis was discontinued. Stress was therefore determined not to mediate the relationship between perceived stress and amotivation. As with resilience, this result of stress as a non-significant predictor supports the earlier assumption that stress was acting as a suppressor variable. Although not

significant on its own, when added to the model with other predictors it became significant by suppressing irrelevant variance in the other predictors (Tabachnick & Fidell, 2013).

*Analyses relating to the anxiety subscale of psychological well-being as a mediator.*

Due to earlier findings which established that the anxiety subscale of psychological well-being was not significantly associated with any of the three forms of motivation, mediation analyses were not conducted.

*Analyses relating to the depression subscale of psychological well-being as a mediator.*

*Analyses relating to intrinsic motivation.*

Due to earlier findings which established that depression was not significantly associated with intrinsic motivation, mediation analyses were not conducted due to the non-significant association violating a condition for a mediated relationship to be established.

*Analyses relating to extrinsic motivation.*

Multiple regression analyses were conducted to assess the mediation between perceived stress and extrinsic motivation, by depression. First, it was found that perceived stress was not significantly associated with extrinsic motivation,  $b = -0.06$ ,  $t(160) = -0.40$ ,  $p = .690$ . Due to this non-significant result violating mediation conditions, mediation analysis was discontinued.

*Analyses relating to amotivation.*

Multiple regression analyses were conducted to assess depression as a mediator between perceived stress and amotivation. First, it was found that perceived stress was significantly associated with amotivation,  $b = 0.13$ ,  $t(160) = 2.43$ ,  $p = .016$ , thus satisfying the first condition of mediation. Perceived stress was significantly associated with depression,  $b = 0.47$ ,  $t(160) = 10.08$ ,  $p < .001$ , thus satisfying the second condition of mediation. Lastly, results indicated that the mediator, depression, was significantly associated with amotivation,  $b = 0.29$ ,  $t(159) = 3.44$ ,  $p < .001$ . As all conditions were met, mediation was tested using the bootstrapping method with bias-corrected confidence estimates (MacKinnon et al., 2004; Preacher & Hayes, 2004). Results of the mediation analysis confirmed the mediating role of depression in the relationship between perceived stress and amotivation,  $b = 0.14$ , 95% CI [0.04, 0.25]. In addition, results indicated that the direct effect of perceived stress on amotivation became non-significant,  $b = -0.01$ ,  $t(159) = -0.18$ ,  $p = .857$ , when controlling for depression, thus suggesting full mediation. This was confirmed by a Sobel test ( $z = 3.24$ ,  $p = .001$ ,  $\kappa^2 = .17$ ). These results indicate that higher levels of perceived stress are associated with higher levels of amotivation, and this is partly due to higher perceived stress predicting higher levels of depression, which in turn predicts more amotivation. Figure 12 shows the results of the mediation analysis.

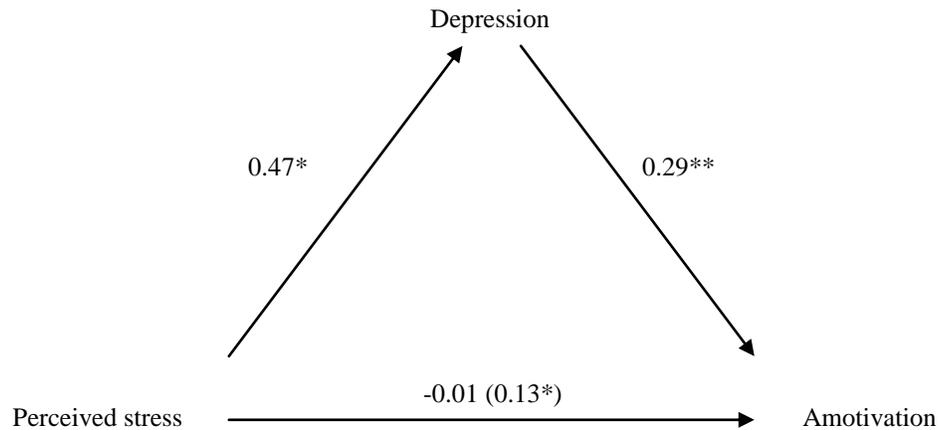


Figure 12. Depression as a mediator between perceived stress and amotivation. Path coefficients are unstandardised regression weights.

\* $p < .05$ . \*\* $p < .01$ .

## Summary of Findings

### Exploratory analyses.

Initially, exploratory analyses were conducted to investigate whether any group differences were evident in relation to the outcome variables of psychological well-being, motivation, resilience and academic self-efficacy. The group differences considered included gender, age, financial security, current engagement with student support services, current assessments, current examinations, self-reported academic progress and level of study. The only group that did not produce any significant differences on any outcome was gender.

Financial security was divided into three separate groups (struggling, adequate, secure), and produced significant group differences on levels of stress and academic self-efficacy. Students who self-reported as financially secure (able to pay for what they want) also reported lower levels of stress than students who self-identified as financially struggling (to pay for necessities). Students who identified themselves as financially secure also reported higher levels of academic self-efficacy than students financially struggling.

Current engagement with student support services also produced significant group differences in relation to psychological well-being, amotivation and resilience. All three subscales of psychological well-being yielded significantly higher scores among students who were engaged with student support services, compared to students not engaged with student support services. In contrast, students who were not engaged with student support services scored significantly higher on levels of resilience and amotivation.

Academic workload was also considered in terms of working on current assessments and currently studying for exams. Students who were not working on current assessments exhibited higher levels of academic self-efficacy, while students who were working on current assessments scored lower on intrinsic motivation. In relation to examinations, students who were studying for examinations reported higher levels of psychological distress (depression, anxiety, stress), compared to students who did not have current examinations. Also, not studying for current examinations was associated with higher levels of academic self-efficacy compared to students studying for examinations. When taking self-reported academic progress into account, group differences emerged for students who were performing not as well as anticipated compared to students performing

about as well as anticipated. Students who were performing not as well as anticipated scored higher on depression and lower on stress, compared to students performing as expected. Levels of amotivation were also higher for students who were performing not as well as anticipated compared to students performing better than expected. Postgraduate by coursework versus postgraduate by research students also differed in terms of intrinsic motivation, with postgraduate by research students displaying higher levels of intrinsic motivation.

### **Predictive associations and mediated relationships.**

Predictors of motivation were considered with psychological well-being, resilience and academic self-efficacy as the predictors. The combined predictors significantly contributed to all three types of motivation. When exploring unique individual contributions of each predictor, however, the patterns of prediction were somewhat different for each type of motivation. Individually, academic self-efficacy, depression and resilience each contributed towards extrinsic motivation; while depression, academic self-efficacy, resilience and stress each contributed towards amotivation, but only academic self-efficacy contributed towards intrinsic motivation. A suppressor effect may have been in place as significant beta coefficients were in contrast to non-significant bivariate correlations. Self-efficacy scores were influenced by locus of control; specifically, a stronger internal locus of control was predictive of higher levels of academic self-efficacy.

Locus of control and spirituality were also explored as predictors of perceived stress, which showed to be significant in their joint prediction of perceived stress. Higher

levels of spirituality, as measured by existential well-being, were predictive of lower levels of perceived stress. An internal locus of control was also predictive of lower levels of perceived stress when considered in isolation, however it became non-significant when it was a joint predictor with existential well-being. Perceived stress was also considered as a predictor of resilience and psychological well-being. Results indicated that lower levels of perceived stress were indicative of higher levels of resilience, while higher levels of perceived stress were predictive of higher levels of depression, anxiety and stress.

The relationship between perceived stress and motivation was also examined with psychological well-being and resilience as hypothesized mediators. Resilience did not mediate any of the associations, and only the depression subscale of psychological well-being mediated the relationship between perceived stress and amotivation. Perceived stress as a mediator, however, fully mediated the associations between locus of control and all subscales of psychological well-being. Finally, perceived stress fully mediated the association between spirituality and anxiety, and partially mediated the association between spirituality and both depression and stress. Figure 13 shows the full model of significant mediated relationships.

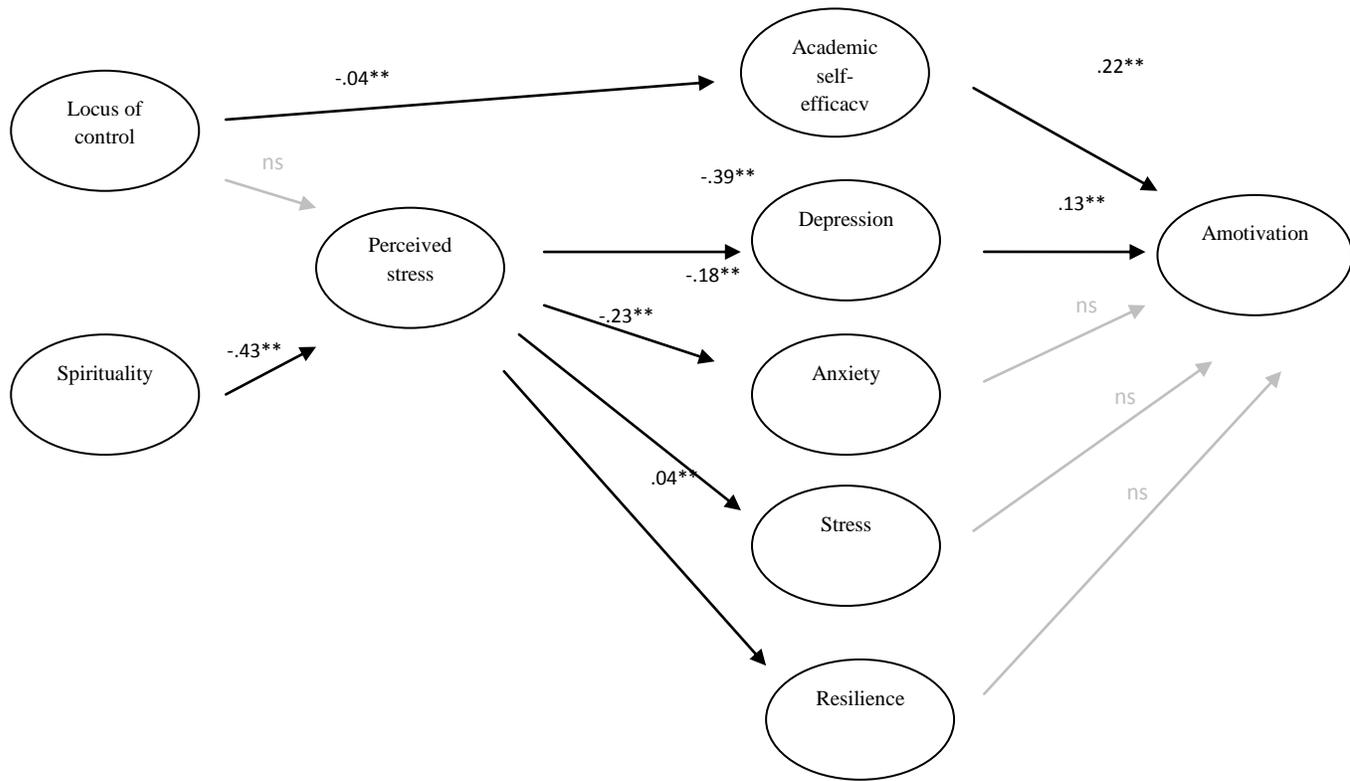


Figure 13. Significant mediated relationships. Path coefficients are unstandardised regression weights.

\*  $p < .05$ . \*\*  $p < .01$ . ns non-significant

### Discussion

Higher education students have repeatedly been shown to be at greater risk of adverse experiences compared to the general population, including higher rates of mental illness (Deasy et al., 2014; Hunt & Eisenberg, 2010) and physiological complaints (Adams et al., 2008). This trend has been documented across cultures (Dyrbye, Thomas &

Shanafelt, 2006; Goebert, et al., 2009) and is particularly relevant for Australian higher education students (Andrews & Chong, 2011; Stallman & Shochet, 2009). Studies looking at Australian higher education students tend to explore rates and prevalence of mental illness (Cvetkovski et al., 2012) or symptoms indicating psychological distress (Andrews & Chong, 2011; Stallman, 2010); however, little is known about individual characteristics which hinder or promote positive student experiences in relation to protective factors which promote academic motivation, an important pre-cursor to academic success (Hustinx, Kuyper, et al., 2009; Linnenbrink & Pintrich, 2002) and persistence (Vansteenkiste, Lens & Deci, 2006; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004). The present study aimed to explore such factors that promote or contribute towards academic motivation. It examined various factors contributing to psychological well-being, academic self-efficacy and resilience of Victoria University students, and whether they in turn predicted or contributed to academic motivation.

Motivation was explored in terms of the three types of motivation as described by self-determination theory (Deci & Ryan, 2002; Ryan & Deci, 2000b); that is, intrinsic motivation, extrinsic motivation and amotivation. Factors explored and which were predicted to contribute towards motivation included psychological well-being, resilience, and academic self-efficacy. Other factors which were expected to contribute towards, and/or be mediated by psychological well-being, resilience and academic self-efficacy, included perceived stress, spirituality and locus of control. Specifically, the present study proposed a model of relationships and pathways that predicted and contributed towards academic motivation. Figure 1 (p. 57) outlines the model beginning with locus of control

and spirituality as predictors of perceived stress. As mentioned earlier, perceived stress in this study was operationalised as the cognitive appraisal of stress. Perceived stress was in turn predicted to contribute towards levels of psychological well-being as measured by symptoms of depression, anxiety and stress, as well as resilience. As such, perceived stress was expected to mediate the relationships between its predictors locus of control and spirituality, with psychological well-being and resilience. Psychological well-being and resilience along with academic self-efficacy were expected to predict levels of motivation. Psychological well-being and resilience were also anticipated to act as mediators between perceived stress and academic motivation. Academic self-efficacy was assumed to be predicted by locus of control, and therefore also to mediate the relationship between locus of control and motivation.

Due to the small sample size, it was not possible to test the overall model with the preferred statistical method of structural equation modeling. Instead, the model was broken down into four components, and relationships were tested through a series of regression and mediation analyses. Component one considered the first section of the model examining the predictors of perceived stress, and perceived stress as a predictor and mediator. Component two moved towards the end of the model and looked at the three predictors of academic motivation (psychological well-being, resilience and academic self-efficacy). Components three and four considered the middle sections of the model, assessing variables which joined the first and last parts of the model with primarily mediating relationships. The relationships between locus of control, academic self-efficacy and motivation were

considered in component three while component four examined the mediators of perceived stress and motivation.

Results of the present study partially supported the overall hypothesised model, in that the combination of spirituality, locus of control, academic self-efficacy, perceived stress, psychological well-being and resilience were significant in contributing to all three levels of motivation, that is, intrinsic motivation, extrinsic motivation and amotivation. This will be discussed in further detail later, as broken down into the four components.

### **Exploratory findings**

Previous studies have reported motivation as a pre-cursor to well-being and achievement in educational settings (Kusurkar, Ten Cate, Van Asperen & Croiset, 2011); however, Gottfried (1990) suggested that the relationship is bi-directional and cyclical in nature with motivation influencing achievement, which in turn fosters further motivation. The present study showed some support for this notion. Students who reported to be performing not as well as they had expected academically also experienced higher levels of amotivation (i.e., less motivation) compared to students who were performing better than they had anticipated. It may be that performing poorly, or worse than anticipated, creates a lack of motivation or amotivation, which in turn affects the amount of time and effort put into academic work, thereby resulting in worse than expected performance. Levels of depression and stress were also higher for students who were performing worse than anticipated compared to students who were performing at about the same level as they had expected. It may be that levels of depression, stress and amotivation are tied together, and

perhaps associations between them are bi-directional and cyclical as proposed by Gottfried. Receiving grades lower than expected may elevate levels of depression and stress which may exacerbate feelings of helplessness and a difficulty to 'get going' again. This may increase levels of amotivation and hinder further academic studies and progress through factors such as lethargy, procrastination, fear and anxiety; hence reinforcing amotivation, and so forth.

The heightened level of psychological distress reported by participants of the present study is in line with other studies of higher education students (Berger, Franke, Hofmann, Sperth & Holm-Hadulla, 2015; Kreb, Sperth, Hofmann & Hom-Hadulla, 2015; Stewart-Brown et al., 2000), and of particular relevance, Australian higher education students (Cvetkovski et al., 2012; Stallman, 2008, 2010). The present study also found that students at Victoria University reported higher levels of symptoms of psychological distress compared with the general population (Slade, 2009) as measured by self-reported symptoms of depression, anxiety and stress. This is consistent with an American study of college students in which Sax (1997) reported a ten year trend of students increasingly feeling overwhelmed. More than half (52.8%) of the students in the present study reported symptoms of depression above the normal range, and 54.5% of students reported symptoms of anxiety above the normal range. Just under half (48.5%) of the students also reported levels of stress above the normal range. The measure used (i.e., the DASS-21) is not a diagnostic tool, however, it is often used clinically to explore psychological symptomatology and indicate psychological distress with any scores above the normal range indicating clinical levels of severity (Lovibond & Lovibond, 1995). While the current

study's findings are not directly comparable to the Australian population as a whole, due to differences in the measures used, it does indicate the same general trend of higher education students experiencing heightened levels of psychological distress. The 2007 National Survey of Mental Health and Wellbeing (Slade et al., 2009) indicated that 10% of Australians met criteria for an anxiety, affective and/or substance use disorder in the last month, 20% met criteria for diagnosis in the previous year, and 45.5% met criteria for diagnosis over the course of their lifetime. For those meeting criteria for any mental illness diagnosis in the previous 12 months, 46.3% were categorised as mild, 33.2% were categorised as moderate and 20.5% were categorised as severe. For anxiety disorders, 22.2% were in the severe range, while 51% of affective disorders met criteria for the severe range (Slade et al., 2009). These population rates are lower than that among the students of the present study.

In contrast to the general population whereby females reported higher rates of anxiety, affective and substance use disorders (Slade et al., 2009), the present study did not find significant gender differences in levels of psychological distress as measured by self-reported symptoms of depression, anxiety and stress. This is consistent with Stallman (2010) in which a study of Australian higher education students yielded no significant difference in psychological distress between male and female students. Boughton and Street (2007) also reported inconsistent gender differences related to depression in university students and Bhullar et al. (2014) reported no gender differences in psychological distress. Similarly, no gender differences were evident on any other outcome measures in the present study. Although gender differences have been found in relation to many outcomes,

Drapeau, Marchand and Beaulieu-Prevost (2012) suggest that when faced with stressors of a similar nature, there is no gender difference in the level of distress experienced. This may explain why there were no gender differences on any of the outcome measures in the present study, as all participants were faced with the same stressor of academic study. Also, the majority of participants reported current assessments as their primary stressor, further indicating similar stressors experienced by participants.

It appears that academic stressors are a large contributor to increased psychological distress, and hence lower psychological well-being. Working on current assessments and assignments was reported as the top stressor faced by students in the present study. Students who were studying for examinations reported higher levels of depression, anxiety and stress compared with students who were not required to sit examinations at the time of data collection. Financial hardship was the second most reported stressor by the students. Students reporting a secure financial situation also reported lower levels of stress compared to students who were struggling financially. Andrews and Wilding (2004) found that financial stress impacted negatively on academic performance and increased symptoms of anxiety and depression. This was also replicated with Australian university students in which financial stress was associated with increased distress (Cvetkovski et al., 2012). It appears that the cumulative effects of academic stressors and financial insecurity create an additional burden. Students who are not in a financially secure situation may need to work additional hours in paid employment which can be particularly taxing when studying for exams. Alternatively, it could be that during the examinations period, students may limit

their hours in paid employment to allow more time for study, hence increasing financial stress and burden.

Although students experienced multiple stressors and heightened levels of psychological distress, access to professional support was low. In support of prior findings which highlight a low prevalence of help seeking behaviour of Australian young people aged 12-24 years (Rickwood, Deane & Wilson, 2007), including students at an Australian university (Stallman, 2008), the present study also found that a large portion of students who required support were not accessing student support services through the university. In the present sample, 56.4% of students reported that they felt they needed some form of student services support, however the type of support required was not listed. Of those, only 11.7% of the students were engaged in student support services at the university at the time of data collection, and 35% reported having some contact with student support services during their time at the university. Of those who had not accessed student support services, the primary reason listed was due to being unaware of which support services were available (25.8%) while only 14.1% of students had accessed support outside of the university. Not surprisingly, students who were engaged with student support services also reported lower psychological well-being in the form of increased symptoms of depression, anxiety and stress; compared to students who were not engaged with student support services. This is to be expected, as it is likely that students engaged with support services are those seeking support due to symptoms of psychological distress. In line with this, students who were not engaged with student support services also reported higher levels of amotivation and resilience compared to students engaged with support services. Again, this

is not surprising as it takes some level of motivation, whether intrinsic or extrinsic and goal directed behaviour, to seek support.

Amotivation, or the lack of motivation to pursue goals and take steps towards attaining those goals, may be keeping students from seeking support. Resilience scores being higher in students not engaged with student support services compared to students engaged with support services is also not surprising, and in line with the conceptualisation of the three approaches of resilience described by Davydov et al. (2010). It may be that in terms of harm reduction, students who experience stressors but are able to recover quickly do not require additional support. The second approach of protection may also be a factor in the current sample in that students may have some pre-existing level of resilience, or protective factors which act as buffers against adverse effects and which they are able to utilise to cope with stressors. With that, students may have adopted tools and skills they have used in previous stressful situations in order to better deal with current stressors and strengthened their capacity to deal with future stressors, which Davydov et al. described as resilience promotion. Therefore, it is understandable that students who are better able to recover quickly, have protective factors to buffer against stressors and utilise skills and strategies to deal with difficulties may be less likely to seek student services support. Amotivation through levels of apathy and disengagement may also serve as a coping strategy and protective factor which students utilise in order to preserve their mental health by opting to care less about their studies. This may be a form of resilience in itself.

## **Findings pertaining to the proposed model**

### **Component one**

The first component of the proposed model centred on perceived stress. It examined locus of control and spirituality as predictors of perceived stress. Perceived stress as a predictor of psychological well-being and resilience was examined. Perceived stress was also considered as a mediator between both locus of control and spirituality with psychological well-being and resilience, respectively. In predicting levels of perceived stress, only spirituality in the form of existential well-being was significant such that higher existential well-being was associated with lower perceived stress. In contrast, locus of control did not independently predict perceived stress. Therefore, perceived stress was not tested as a mediator of any relationships between locus of control and psychological well-being or resilience.

The hypothesis that higher levels of perceived stress would result in higher levels of psychological distress was supported on all three measures of psychological well-being. Students with a greater tendency to perceive events as stressful also reported higher levels of depression, anxiety and stress. These findings are in line with earlier reports by Moeini et al. (2008), who reported that higher levels of perceived stress were related to lower levels of self-efficacy and poorer mental health. Similar to the present study, their measure of mental health included four subscales measuring somatic symptoms, anxiety and insomnia, social dysfunction and severe depression. While not directly comparable, as their sample consisted of 154 twelfth-grade male students in Iran, the present findings add

generalisability to the findings of Moeini et al. The present findings are also consistent with those of Krackow and Rudolph (2008), who examined life stress and cognitive appraisals in two groups of youths; one with depressive symptomatology in line with diagnostic criteria of major depressive disorder, dysthymic disorder and sub-syndromal symptoms; and one group with no symptoms of depressive disorders. They found that young people with depressive symptoms tended to rate events as more stressful compared to their non-symptomatic counterparts. Those who did not meet full criteria for diagnosis, but displayed depressive symptoms, also displayed similar patterns to those with diagnoses, albeit at a lesser intensity. The authors warned that it was not possible, however, to determine the direction of the relationship and questioned whether stress perception was a source or an outcome of depression. It is also important to note that the mean age of the participants in their study was 12.41 years, which is considerably younger than the current study of university students at the later stages of youth and emerging adulthood; however, this indicates that individual differences in cognitive appraisal of stress negatively impacts psychological well-being in people across different groups.

Cognitive vulnerability of depression is played out or evident through negative schemas individuals have about themselves, the world and the future. An individual's vulnerability to depression is heightened through negatively biased interpretations of causes and consequences in addition to negative appraisals of events which are understood as threatening and harmful (Krackow & Rudolph, 2008). Taken together with the findings of previous studies, the present finding that greater perceived stress was predictive of higher levels of depressive symptoms indicates that it may be maladaptive inferences and

appraisals that contribute to students' understanding of their environment as stressful and burdensome, to levels high enough to result in psychological distress. Misra and McKean (2000) found perceived stress and anxiety to be related in college students, however they reported an association in the opposite direction to that found in the present study. They suggested that levels of anxiety were predicted by perceived academic stress. The present study suggests, in contrast, that anxiety and stress (along with depression as discussed above) are emotional responses to stress once it has been appraised as too challenging and overwhelming. Even so, it is possible that there is a bidirectional relationship between cognitive appraisals and emotional responses. In addition, higher levels of perceived stress also predicted lower levels of resilience in this study. Resilience, being the ability to bounce back and persevere in the face of adversity, may be compromised by the appraisal of situations as too stressful for the available resources the individual has to cope.

Finally, the relationship between spirituality and psychological well-being was examined. In the present study, the scale measuring spirituality produced three scores: an overall spiritual well-being score and a score for each of the two subscales of religious well-being and existential well-being. Spiritual well-being was excluded in order to allow for both subscales of religious well-being and existential well-being to be considered separately to allow for distinctions between religiosity and spirituality to be considered. Initial analyses of the predictors of perceived stress (locus of control, religious well-being and existential well-being), however, highlighted religious well-being and locus of control as non-significant predictors. Thus, religious well-being and locus of control were excluded from further analyses, leaving existential well-being as the sole measure of spirituality and

the sole predictor of perceived stress. Also, as this study aligned with other studies which view religiosity and spirituality as distinct measures, existential well-being was used as the measure of spirituality as it is not connected to any religion or deity, but rather a personal sense of purpose and satisfaction.

As expected, higher levels of spirituality (existential well-being) were significantly related to lower levels of depression, anxiety and stress. This is consistent with the work of Brown, Carney, Parrish and Klem (2013) who found significant relationships between existential well-being and both depression and anxiety. Cotton et al. (2005) also found higher levels of spirituality, particularly existential well-being, in adolescents in an American high school was associated with fewer depressive symptoms compared to those with lower levels of spirituality. Lower levels of psychological distress being predicted by higher levels of spirituality may be due to the mediating effect of the cognitive appraisal of stress, as demonstrated in the present study. The relationships mediated by perceived stress, however, were only partial, with the direct effects between spirituality and resilience, depression and stress, respectively, remaining significant, albeit reduced. This suggests that mechanisms in addition to perceived stress are influencing the mediated relationships. This may occur through various means such as increased hope, finding a sense of meaning or purpose behind the stressful experience, or maybe even through an increased sense of perceived control. This may explain the non-significant contribution of locus of control in this instance, as it may not contribute any additional variance once existential well-being is accounted for. Perceived stress mediated the relationship between spirituality and all measures of psychological well-being and resilience. While higher levels of perceived

stress resulted in higher levels of psychological distress, spirituality predicted less perceived stress which may explain spirituality predicting lower levels of psychological distress. In short, it appears that perceived stress may act as a buffer against psychological distress, and a protective factor in resilience, in that perceiving events as less stressful because of the aid and protection of a spiritual power or existential purpose helps to alleviate psychological distress symptoms and strengthen resilience.

### **Component two**

Component two considered the predictors of academic motivation. Academic self-efficacy, resilience, depression, anxiety and stress were expected to predict each type of motivation. Amotivation, or the lack of motivation, was predicted by academic self-efficacy, resilience, depression and stress. Specifically, higher academic self-efficacy contributed to lower levels of amotivation (that is, *less* amotivation), suggesting that academic self-efficacy may act as a buffer against amotivation. It is possible that perceived competence or the confidence in performing academic tasks and succeeding academically enables students to continue to perform, believing they have the ability to accomplish what they desire. In contrast, having lower self-efficacy may put students at risk of giving up and not trying due to the belief that they do not have what it takes to succeed academically. Self-efficacy underlies behaviour change and maintenance, influencing effort and persistence in attaining an identified goal, therefore it is possible that academic self-efficacy maintains levels of motivation and keeps levels of amotivation at a low, healthy and functional level. Surprisingly, also contributing towards higher levels of amotivation was increased resilience. However, the very low, non-significant bivariate

correlation between amotivation and resilience suggests that the significant regression result may be a statistical artefact due to a suppression effect.

Similarly, two of the three measures of psychological well-being (depression and stress) were significant predictors of amotivation. Anxiety did not offer any significant unique contribution towards amotivation. Although the measures of anxiety and stress are similar, they differ conceptually in this instance in that the anxiety subscale is considered as more situational and corresponds closely with panic disorder, whereas the stress subscale is more akin to generalised anxiety with irritability, agitation, tension, impatience and negative affect as key features (Lovibond & Lovibond, 1995). The very features of depression are associated with characteristics or symptoms of amotivation such as disengagement, anhedonia, a diminished ability to initiate behaviour, a negative outlook and pessimism. In light of these symptoms it is understandable that higher levels of depression would be associated with higher levels of amotivation through limited intrinsically or extrinsically directed behavior and a lack of commitment to academic tasks. In contrast, higher levels of stress predicted lower levels of amotivation (*less* amotivation). In this instance, stress may be operating as a hidden motivator, through which it enables students to focus, take action and be productive. This may be due to many reasons such as fear of failure, embarrassment at failing an exam or family pressure to succeed. This beneficial stress or eustress, which is considered a positive psychological response to a stressor (Simmons & Nelson, 2001) may encourage students to pursue goals which are challenging but not too overwhelming. O'Sullivan (2011) found eustress in undergraduate students was beneficial in predicting life satisfaction, particularly when considered with

hope and self-efficacy. O'Sullivan reported that higher levels of eustress, hope and self-efficacy predicted higher levels of academic and life satisfaction. She suggested that increased life satisfaction might be an important pre-cursor to academic engagement and commitment; however Mesurado, Richaud & Mateo (2016) suggest eustress does not influence academic commitment directly, but rather through flow. They described flow as a mental state that in which an individual is fully attentive to the task or experience at hand, providing a positive experience, or joy in participating in the activity despite any effort required to do so. Mesurado, Richaud and Mateo also reported that when related to academic activities, if a student experiences flow, they will continue to learn while enjoying the learning experience. This may be related to the most self-determined end of the motivation continuum in which students are intrinsically motivated and participating in studies due to the personal satisfaction or enjoyment experienced.

The only significant predictor of intrinsic motivation was academic self-efficacy, with higher levels of academic self-efficacy in students being associated with higher levels of intrinsic motivation. This finding is in line with Komarraju and Dial (2014) who reported that students with higher self-efficacy also experienced higher levels of self-determined motivation, that is, intrinsic motivation. Self-determination theory indicates that a stronger sense of self-determination is achieved through the acquisition of three innate needs, one of which is feeling confident and competent in overcoming challenges (Deci & Ryan, 2000). This is very similar to the definition of self-efficacy in that it is more about a belief and confidence in executing behaviours rather than an actual ability to perform a task, for example, gaining a good grade in academic studies. Therefore, it is comprehensible that a

higher sense of self-efficacy is associated with higher levels of intrinsic motivation due to the very fact that the essence of self-efficacy is akin to one of the three needs to achieve intrinsic motivation.

Academic self-efficacy, depression and resilience all contributed significantly towards levels of extrinsic motivation. Students who reported higher levels of academic self-efficacy also experienced higher levels of extrinsic motivation; while students who reported higher levels of depression and resilience experienced lower levels of extrinsic motivation. An increased sense of confidence and competence in specific academic tasks may elicit more extrinsic motivation as it is the form of motivation that is more associated with external rewards; therefore, a student more confident in their ability to write an essay or understand course material may be more motivated to study in order to obtain better grades. As low motivation, anhedonia and feelings of apathy are symptomatic of depression, it was expected and not surprising that higher levels of depression predicted lower levels of extrinsic motivation; however, the finding that lower levels of resilience predicted higher levels of extrinsic motivation was somewhat surprising. Resilience tends to be associated with qualities and characteristics such as optimism, positive affect, self-esteem and spirituality which can be considered as internal resources (Resnick, 2011). These internal resources may not be associated with external rewards and gains, on which extrinsic motivation is based; potentially explaining the negative association between resilience and extrinsic motivation. It is important to note, however, that bivariate correlation results showed a low non-significant association between resilience and extrinsic motivation. Therefore, resilience emerging as a significant predictor in the regression may indicate a suppression effect in which resilience was not significantly associated with extrinsic motivation alone, but had a role in jointly contributing towards levels of extrinsic motivation along with the other predictors.

The current findings regarding academic self-efficacy and motivation are somewhat consistent with previous literature. For instance, McGeown et al. (2014) found self-efficacy to predict levels of intrinsic and extrinsic motivation in a sample of secondary school students aged 12 to 16 years. In contrast to the present study, however, which found a *positive* relationship between academic self-efficacy and *both* intrinsic and extrinsic motivation, McGeown et al. found self-efficacy to be positively related to intrinsic motivation but negatively related to extrinsic motivation. Participating in activities for personal pleasure and satisfaction tends to be more enjoyable which in turn promotes perseverance in tasks and a sense of control which may foster a greater sense of confidence (i.e., self-efficacy) in a student's ability to succeed in their studies. In McGeown et al.'s study, students who were more motivated by external factors such as not failing or parental pressure to succeed may have been less likely to persist on difficult tasks, resulting in lower achievement, feeding future feelings of incompetence and therefore lower confidence in their academic ability, thus being negatively related to extrinsic motivation. This difference may also be due to the fact that McGeown et al. utilised a generalised and global measure of self-efficacy, as opposed to the domain-specific measure of academic self-efficacy used in the current study, whereby questions were based around academic tasks and activities such as contributing to class discussions and understanding class content. Self-efficacy has been shown to be domain-specific (Pajares, 1996), therefore McGeown et al.'s general measure of self-efficacy may not have provided an accurate reflection of self-efficacy in an academic and educational context.

Self-efficacy beliefs are generally formed based on an individual's prior performance and attainments with self-efficacy beliefs in one domain being independent from prior performance in other domains (Bong & Clark, 1999). The present study utilised an academic domain specific measure which relates to specific academic demands. Stajkovic and Luthans (1998) suggested that domain specific self-efficacy is dynamic and can vary based on specific tasks and situations. It may therefore be, that the specific academic measure of the present study captured subtle nuances and tapped into specific external or extrinsic motivators that McGeown et al.'s study did not. For example, the specific measure of academic self-efficacy in the present study, which asks questions about education may have tapped into extrinsic or external motivators such as getting good grades or to obtain a higher paying job later on.

Consistent with the present study, Komarraju and Dial (2014) found a positive relationship between academic self-efficacy and self-determined motivation. Self-determined motivation may be understood as equivalent to intrinsic motivation, with intrinsic motivation sitting on the positive and self-determined end of the motivation continuum, compared with extrinsic motivation and amotivation sitting on the lower end of the continuum, according to self-determination theory (Ryan & Deci, 2000b). Also consistent with the findings of the current study, Fortier, Vallerand and Guay (1995) concluded that an individual's perception of academic competence was associated with higher levels of autonomous academic motivation. Perceived academic competence can be likened to that of academic self-efficacy, as self-efficacy is a measure of an individual's beliefs and confidence in their abilities, rather than an objective measure of ability. They

derived the measure of autonomous motivation through various subsets of the intrinsic and extrinsic motivation sets of questions on the Academic Motivation Scale (Vallerand et al., 1992), which most closely correspond to intrinsic motivation, while acknowledging some elements of extrinsic motivation are autonomous and internally driven by the individual. Using a different motivation scale, Katz, Eilat and Nevo (2014) also lend support for the positive relationship between autonomous motivation and self-efficacy. They found autonomous motivation to mediate the relationship between self-efficacy and procrastination. They suggested that self-efficacy shapes the type of motivation experienced which impacts on procrastination and that intrinsic or autonomous motivation is not sufficient on its own as a buffer against procrastination, but rather that self-efficacy, or confidence and perceived competence, needs to be fostered or present.

### **Component three**

Component three considered locus of control as a predictor of academic self-efficacy and academic self-efficacy as a mediator between locus of control and motivation. The expectation that locus of control would predict academic self-efficacy was supported by the data, with an internal locus of control predicting higher levels of academic self-efficacy. An internal locus of control is associated with feelings of being in control of outcomes of situations and also having personal agency in how situations are dealt with even if the outcome cannot be controlled (Peacock & Wong, 1990). Students who feel that they are in control of situations may also feel in control of their studies, with study outcomes such as grades dependent on their own efforts rather than on external (non-controllable) factors such as the quality of teaching. Feeling in control of their studies,

students may therefore feel more confident in their ability to study, learn, retain information and execute required tasks pertaining to their studies. Phillips and Gully (1997) also found an internal locus of control to predict higher levels of self-efficacy in a study of 405 undergraduate students. This has also been replicated in other areas, particularly with health behaviours and work stress.

While an internal locus of control was predictive of higher academic self-efficacy, as predicted, analyses revealed some interesting additional findings in relation to higher academic self-efficacy. Students who were not studying for examinations at the time of data collection reported higher levels of academic self-efficacy compared to students studying for examinations. Similarly, students who were not working on any current assessments and assignments also reported levels of higher academic self-efficacy compared to students who were working on current assessments and assignments. Confidence and perceived competence may be easier to channel at times when little effort is required, such as a quiet time of semester without assessments and examinations. At these times, students may be overestimating their abilities due to the fact that they are not required to exert too much effort. During examination or assessment periods, however, as work and demands get more difficult, students may begin to feel overwhelmed and doubt their academic capabilities; that is, they may have lower levels of academic self-efficacy when they are required to perform.

It was also expected that the association between locus of control and motivation would be mediated by academic self-efficacy. Earlier analyses of self-efficacy's contribution towards motivation indicated that higher levels of academic self-efficacy contributed to higher levels of

intrinsic and extrinsic motivation, and lower levels of amotivation. These findings are in line with prior research highlighting mastery (i.e., self-efficacy) as a predictor of student motivation (Ning & Downing, 2010; Kalechstein & Nowicki, 1997), particularly intrinsic motivation (Vallerand & Bissonnette, 1992; Vallerand et al., 1992). Bandura (1993) also highlighted self-efficacy as playing a pivotal role in motivation. Academic stressors have been highlighted as more controllable than relationship stressors (Hampel & Petermann, 2006), therefore it may be that students perceive more control over these stressors (i.e., an internal locus of control), which in turn may impact on their belief and confidence (i.e., self-efficacy) to overcome these stressors through problem-focused strategies which tend to be used in situations that are thought to be changeable (Folkman & Lazarus, 1980). From this, it appears that academic self-efficacy provides a buffer against amotivation. This is reflected in analyses which indicated that academic self-efficacy mediates the relationship between locus of control and amotivation but not intrinsic or extrinsic motivation. Results indicated that an external locus of control predicted lower levels of academic self-efficacy which in turn predicted higher levels of amotivation. Therefore, an external locus of control predicts amotivation through its undermining effects on academic self-efficacy. Through less perceived control stems low confidence in attempting to succeed and be effective, resulting in less motivation, or more amotivation.

Locus of control, however did not contribute towards levels of extrinsic and intrinsic motivation. This is in contrast to prior literature which suggests that an internal locus of control is associated with motivation (Landine & Stewart, 1998; Wuhrmann, 2008), although the studies did not differentiate between the types of motivation. Deci and Ryan (2000) suggest that classroom environments have the capacity to promote or impede intrinsic motivation through the supporting or hindering of the basic needs (autonomy, competence and relatedness) of intrinsic

motivation. They also suggest that behaviours or environments which tend to undermine motivation include threats, directive and the pressure to compete, all of which can be common in an academic environment, particularly as many participants were studying for examinations and assessments which creates an additional burden. Therefore, it may be that the time of data collection being during the examination period for many participants was not conducive to meeting the needs of autonomy, competence and relatedness which undermined the relationship or association between locus of control and intrinsic and extrinsic motivation.

#### **Component four**

Component four of the model focused on the role of psychological well-being and resilience as mediators between perceived stress and academic motivation. It was predicted that psychological well-being and resilience would mediate the relationship between perceived stress and motivation. However, resilience did not mediate any relationships between perceived stress and the three types of motivation. Correlation and regression analyses indicated that resilience may have been acting as a suppressor when combined with other variables, but on its own it was not associated with any of the motivation subscales. Resilience and perceived stress, however, were highly associated in the negative direction. Waugh, Thompson and Gotlieb (2011) reported that resilient individuals are more flexible and better able to shift and adapt their emotional responses to environmental and contextual changes, compared with less resilient individuals. It may be, then, that as a precursor to resilience, an individual has cognitively appraised situations as manageable and non-threatening, representing an ability to cope with adversity.

Psychological distress as a mediator of the association between perceived stress and motivation was considered in terms of each subscale individually. Stress and anxiety as measures of psychological well-being did not mediate the relationships between perceived stress and any type of motivation. Depression, however, significantly mediated the relationship between perceived stress and amotivation, but did not mediate the relationship between the other forms of motivation and perceived stress. Students who perceive events and experiences as more stressful may experience higher levels of amotivation through increased symptoms of depression. Feeling overly stressed may elicit feelings of hopelessness and helplessness and an inability to cope with demands. This sense of apathy is common to amotivation and may amplify levels of amotivation through behaviours such as giving up and no longer trying, or feeling unable to get started again.

### **Limitations**

While the present research offers some understanding into student psychological well-being and the experience of motivation, it is important to note some limitations. One particular limitation of this study is that the sample was from one university only, therefore the results are less generalisable to the broader Australian university student population. Although Victoria University was deemed a suitable university for this study due to the diversity of students from a range of cultural and socioeconomic backgrounds, in order to obtain results which may be generalised to the Australian higher education sector overall, it would be worthwhile replicating this study with a cross section of students from a range of Australian higher education institutes.

In addition to the sample consisting of students from one university, perhaps a greater threat to generalisability is self-selection into the study, whereby the respondents who chose to participate may have done so purely due to personal interest in the topic at hand. This may create a sample not representative of the greater university population, or exaggerates particular findings.

The present study also relied solely on self-report measures, which raises concerns around validity and reporting bias. To obtain a more objective view of each participant and their functioning, it may be worthwhile for future studies to incorporate numerous sources of evidence, as is common practice in clinical settings. For example, it may be useful to incorporate actual grades received, reports from academic staff, peers, family or friends in addition to the student. Also, the current study included a predominantly female and undergraduate sample, which may lend to the results of no gender differences found on any of the measures.

The relatively small sample size may also not have shown the true magnitude of effects. In line with other studies of student populations from one university where the sample sizes have generally consisted of less than 300 students (Cooke et al., 2006), the current sample size of 163 may be unlikely to capture the complete student experience. Further research with a higher number of participants may permit more robust interpretations, and allow for the model to be tested as a whole using structural equation modeling without compromising statistical power. In addition, the limited sample size did not allow for the consideration of the factor structure of the constructs and model. A larger

sample size would have provided an opportunity to undertake structural equation modeling and to empirically consider factorial structures for construct validity and reliability.

Also impacting and potentially skewing the interpretation of the results is the high number of tests of significance evaluating mean differences which were performed. The high number of mean differences tested lends to the possibility that some statistically significant findings may be due to chance alone.

It is widely agreed upon and reported (Zinnbauer, 1997; Koenig & Larson, 2001) that spirituality is a difficult concept to define and therefore to quantify and measure validly. For this reason, it remains, as in previous studies, a limitation of the current study. The findings did, however, support the present study's approach in separating the terms spirituality and religiosity and to understand them as distinct constructs. This was evident through analyses which highlighted the null contribution of religiosity and religious well-being towards perceived stress compared to existential well-being. It may be that elements of spirituality, or existential well-being compared to religious well-being, plays a greater role in student well-being. While religiosity and religious well-being is closely aligned with practices, rituals, and identifying with a particular faith or worshipping a specific deity, existentialism focuses an individual's experience and understanding of the self and considers elements of personal freedom, suffering, death and the pursuit of purpose and life meaning (Ownsworth & Nash, 2015), which may be a reason why the present study found existential well-being having more psychological significance compared to religious well-being. McMahon and Biggs (2012) found that existential well-being better predicted lower levels of anxiety in students preparing for exams at an Australian university,

compared to religious well-being. Cotton et al. (2009) also reported that the aspects of purpose of life and meaning making behind existential well-being were better predictors of less depressive symptoms and improved emotional functioning in adolescents, compared to the connection to a higher power aspects of religious well-being. Similarly, Visser, Garssen and Vingerhoets (2016) found that while there was an overlap between existential well-being and psychological well-being, meaning of life was better aligned with existential well-being than psychological well-being.

Due to time constrictions and limited resources, it was not possible to perform a longitudinal study in which a cohort of students could be followed through their university experience from commencement through to degree completion. Future research may also benefit from a longitudinal design whereby students are asked to complete measures and questionnaires before the beginning of the academic year, at the beginning of the academic year, in the middle and towards the end. This may assist in determining any lasting or ongoing effects of mental health and may identify the directionality of the relationship between mental health and academic outcomes. In addition, it might be worthwhile to replicate this study longitudinally, and consider times of high stress versus low stress in the academic year (Andrews & Chong, 2011). Such examples of high stress would be the examination and assessment periods, with examples of low stress time being either during semester without examinations or assessments or during semester breaks. This was evident in the present study with students who were studying for exams and had assessments also reporting higher levels of psychological distress. Andrews and Chong (2011) found that at the beginning of semester, students recorded higher than expected scores of psychological

distress. However, it is important to keep in mind that university students experience compounding stress, and academic stress is only one source of stress. For students of the present study, current assessments was the most common stressor, but other stressors were also reported, including financial stress, employment stress, family stress, exam stress, relationship stress, physical health stress and other sources of stress that were unnamed.

### **Future directions and implications**

The present study's exploratory analyses highlighted some interesting findings and raised some interesting questions. Unfortunately, pursuing them at this point was beyond the scope of the present study; however, it would be interesting and potentially beneficial if future studies further explored and unpacked how factors such as financial stress fit into a model such as that proposed in this study.

Future studies may also benefit in further deconstructing the findings in terms of students' cultural backgrounds. In the current study, more than a quarter of participants identified themselves as having a cultural background other than Australian. Only one participant self-identified as an international student. It is important, however, to include international students in future studies as just over one-fifth (21.1%) of students in Australia are international students (OECD, 2012a). Australia ranks third on the list of countries to attract international students (OECD, 2012b), with approximately 500,000 students from 200 countries studying in Australia in 2015 (Australian Government Department of Education, 2016), therefore it may be important to capture cultural differences. Not only do international students contribute to the mix of different cultures,

but Australia in general is known for its multicultural social environment, and many students may have diverse cultural backgrounds. This may influence the results, such as through the expression of psychological distress. Esia-Donkoh, Yelkpleri & Esia-Donkoh (2011) suggest that understanding the cultural expressions of psychological symptoms is paramount in understanding the student experience as cultures express distress differently; for example, their sample of Ghanaian college students tended to report somatic and physiological symptoms as expressions of psychological distress. Ryder et al. (2008) provide further evidence with findings that Chinese participants tended to report somatic symptoms of depression compared with Canadian participants who reported more psychological symptoms. This is in line with other cultural differences felt by students. For example, in non-Western collectivist cultures there may be more family pressure felt by students to succeed academically whereas students of a Western individualistic culture may tend to pursue higher education of their own volition.

In 2012, most (54%) undergraduate Australian students enrolled in higher education came directly from secondary schooling (Gale & Parker, 2013), with 25.8% of the 46% who did not come directly from secondary schooling having entered higher education after a 12 month 'gap year' from secondary schooling. Studies have shown that while levels of distress in higher education students can fluctuate depending on academic pressures such as examinations and assessments, levels of distress have been found not to decrease to pre-university levels at four different time points across their first year of study (Cooke et al., 2006). Therefore, it might be worthwhile to pilot a transition program for first year, or newly enrolled university students, particularly those transitioning directly from secondary

schooling. It might even be useful to begin such transition programs during their final year of secondary schooling, and continue through to their first year of higher education studies. Limited research of such transition programs was found. One example of an intervention program to reduce psychological distress has been documented in the United States of America (Deckro et al., 2002). Deckro et al. (2002) implemented a six week mind/body intervention to reduce psychological distress in 128 college students in the United States. Their intervention included a relaxation component and a cognitive behavioural therapy component. A particular strength of their intervention was the use of a control group with which they were able to compare the results of the intervention group, which received six 90 minute group sessions. After six weeks, the intervention group differed significantly in the reduction of their measures of psychological distress, state anxiety and perceived stress. Furthermore, anxiety scores in particular were lower than the average for college students post-intervention and the measure for psychological distress was in the non-clinical range for adults. This is an important finding, as many studies have reported that higher education students tend to score higher than adults of the general population (Cvetkovski et al., 2012; Stallman, 2010). Deckro et al. suggest that their intervention strategy may be useful as a preventive intervention.

Rasanen, Lappalainen, Muotka, Tolvanen, & Lappalainen (2016) trialed a seven week online acceptance and commitment therapy intervention to enhance psychological well-being in university students. Compared to the control waiting group, participants showed significant increases in well-being, life satisfaction and mindfulness skills with

reduced self-reported symptoms of stress and depression. These gains were maintained for 12 months, post intervention.

In the present study, significant group differences were evident on measures of academic self-efficacy, depression, anxiety, stress, resilience, amotivation, and intrinsic motivation. Taking these findings together with the significant mediated relationships, some implications begin to emerge. Access to student support services appears to impact on levels of depression, anxiety, stress, resilience and amotivation, acting as a buffer in many instances. Therefore, it might be useful for universities to be more active in promoting student support services, particularly first year students. Not surprisingly, exams, assessments and academic progress were also instrumental in predicting differences in levels of academic self-efficacy, depression, anxiety, stress, intrinsic motivation, and amotivation. Perceived stress acted as a mediator and predictor of psychological well-being and resilience; therefore it may be useful for interventions to focus on dealing with stressful situations, particularly related to academic pressures in addition to financial stress.

Based on the present findings, it may be worthwhile to trial programs and interventions which focus on a few different elements. The present findings suggest that academic self-efficacy is a key component in academic motivation. Higher academic self-efficacy was associated with higher levels of intrinsic and extrinsic motivation, and lower levels of amotivation. Perceived competence and confidence in academic tasks may promote self-determined behaviour in students, while protecting against amotivation and a lack of drive and energy to pursue goals and take action towards attaining academic goals. The present study also highlighted students' perceived competence in their studies was

predicted by an internal locus of control, and academic self-efficacy mediated locus of control and amotivation. McGeown et al. (2014) indicated that academic self-efficacy is more malleable than other personality traits which might be a good starting point in enhancing academic motivation. Therefore, it may be useful to students if their institutions and teaching staff were able to instil a sense of confidence and promote self-driven behaviours towards their studies. For example, teaching staff could provide honest positive feedback on students' performance with specific examples of good work, particularly student initiated work. A sense of mastery may be developed or enhanced by breaking down big tasks into smaller manageable goals. Teaching and support staff at universities may also be able to increase self-efficacy and motivation by eliciting personal meaning in their studies. These strategies take into consideration two of the three basic psychological needs of motivation (autonomy and competence), therefore students may also benefit from having the third need of relatedness met. This may be met through activities such as group work in class and assigning group assessments. Offering student support groups such as group mindfulness and cognitive behavioural therapy so students can feel connected to their peers and studies may also help. Mindfulness and cognitive behavioural therapy may increase self-efficacy to better regulate emotions and distress. Zimmaro et al. (2016) reported mindfulness was associated with better psychological well-being and lower perceived stress in undergraduate students.

Perceived stress was also instrumental in predicting levels of psychological well-being and resilience. Since stress is related to an individual's reaction to events and not the events themselves (Lazarus, 1966), it may be useful to foster students' coping

strategies to better deal with stress and psychological distress. Cognitive behavioural therapy might be useful in this instance to assist with and challenge the cognitive appraisal of stress and replace maladaptive thoughts and behaviours with more constructive thoughts and behaviours which might assist in the reduction of future stress-related symptoms.

Existential well-being was related to perceived stress in that higher levels of spirituality predicted lower levels of perceived stress. Therefore, it may also be useful to further encourage and develop a sense of spirituality in students. This can be problematic due to terminology and some people rejecting spirituality on the basis of religious involvement or just not considering themselves spiritual. Therefore it may be useful to utilise components and elements of spirituality such as hope and optimism which might enable students to appraise future events as less stressful. This may promote lower levels of psychological distress and ability to deal with setbacks and adversity. Ponterotto, Mendelowitz, & Collabollotta (2008) state that hope includes goals and goal directed behaviour as well as pathways and plans to attain and reach those goals. Therefore it may be useful to assist students to develop attainable goals and outline various potential strategies to reach those goals. Regularly reviewing the goals and plans and adjusting them if necessary may provide a sense of hope to students that they are able to reach their goals. This also allows students to think about their future, which may tap into further elements of spirituality and existential well-being, as further protective factors against psychological distress.

Deckro et al. (2002) suggested it is important to consider psychopathology and negative symptoms along with positive functioning. The present study considered some

elements of positive functioning, such as academic self-efficacy and resilience, in examining factors influencing motivation, which is a key element to student academic performance. However, to consider the whole student experience, it may be worthwhile to consider other elements of positive functioning such as relationships (peer, family and romantic) and employment. Other studies (Steinhardt & Dolbier, 2008; Pierceall & Keim, 2007) have suggested that research needs to focus on coping strategies used. Further research and future directions that can be pursued to add to the current research in motivation, psychological well-being and resilience in Australian higher education students may benefit from this also. While the current research adds some insights into protective factors in higher education students at an Australian university, beyond spirituality it did not tap into any coping strategies and whether the coping strategies differ between more intrinsically and extrinsically motivated students, compared to students who lack motivation. This may have clinical implications and be able to better inform treatments and programs at a preventative level for student support services in Australian universities.

### **Summary and conclusion**

This research began with the intention of exploring factors contributing to academic motivation in students at Victoria University. It explored psychological well-being, academic self-efficacy and resilience as direct contributors to motivation. Expecting to contribute towards these factors and motivation were locus of control, spirituality and perceived stress. Unfortunately time restraints and a small sample size did not allow for the model to be analysed as a whole using the preferred method of structural equation

modeling. Instead, the model was isolated into four separate components for analysis, which provided some support for the predicted associations.

The present findings are largely congruent with other studies, Australian and international, finding that higher education students do indeed experience high levels of psychological distress, at a level higher than the general community (Cvetkovski et al., 2012; Stallman, 2010). This is a concern. While students face the same stressful circumstances and life events as the general community, such as financial and relationship stress, it appears that they have an additional stressor or burden of academic studies which may be what others perceive as seemingly minor or routine, but in fact may be quite large due to the cumulative effect of stressors.

Despite the large obstacle of the experience of psychological distress at high and clinical levels, students are still succeeding in their studies. Nearly half (43.6%) of students in the current study reported to be progressing at a level better than expected in relation to their studies. It must be noted, however that when students were performing not as well as anticipated, they also experienced higher levels of depression. So, as posed in the introduction, the question is: which factors allow students to persevere and succeed in their studies? The present study answers that question to some extent while at the same time opens up further questions. While the proposed model was not able to be analysed as a whole, each component provided some insight into the student experience at Victoria University. The only factor to contribute towards all levels of motivation was academic self-efficacy. It appears that perceived competence and confidence is an important pre-cursor to intrinsic and extrinsic motivation, while also protecting students against

amotivation, or the lack of drive and effort to engage in behaviours related to attaining specific goals. Locus of control was an important antecedent to academic self-efficacy in that students who believed that they were in control of their environments were also more confident in their studies, and therefore more motivated to execute the required academic tasks.

Perceived stress appeared to play an important role as it significantly predicted all subscales of psychological well-being and resilience. Perceiving situations as stressful was associated with higher levels of psychological distress and lower levels of resilience. Predicting perceived stress was spirituality in the form of existential well-being. These results seem to suggest that an element of meaning-making is important to students, enhancing positive elements of functioning which in turn enhance optimum motivation. Meaning-making can come in many forms. Spirituality is one paradigm, which this study highlighted as a potential protective factor. Meaning-making is the process through which people make sense of the world around them including events, relationships and themselves. It appears that there may be a connection or common element of meaning making between spirituality, perceived stress and academic self-efficacy, which in turn impact on psychological well-being, resilience and motivation.

Universities need to be aware of these individual differences and adapt them into their curricula and student support services. Students are not seeking professional support in high numbers, therefore universities need to be more creative in fostering these protective factors. If Australia is committed to widening participation in higher education

(Gale & Parker, 2013); it must meet that with a commitment to enhancing and supporting student well-being.

## References

- Abdel-Khalek, A. M., & Lester, D. (2010). Constructions of religiosity, subjective well-being, anxiety, and depression in two cultures: Kuwait and USA. *International Journal of Social Psychiatry, 58*(2), 138-145. doi: 10.1177/0020764010387545
- Acikgoz Cepni, S., & Kitis, Y. (2016). Relationship between healthy lifestyle behaviors and health locus of control and health-specific self-efficacy in university students. *Japan Journal of Nursing Science*. doi: 10.1111/jjns.12154
- Adams, S. (n.d). The impact of religiosity and locus of control on academic achievement in college students. Retrieved from <http://www2.webster.edu/~hulsizer/research/Adams.pdf>
- Adams, T. B., Wharton, C. M., Quilter, L., & Hirsch, T. (2008). The association between mental health and acute infectious illness among a national sample of 18- to 24-year-old college students. *Journal of American College Health, 56*(6), 657-663. doi: 10.3200/JACH.56.6.657-664
- Adlaf, E. M., Gliksman, L., Demers, A., & Newton-Taylor, B. (2001). The prevalence of elevated psychological distress among Canadian undergraduates: Findings from the 1998 Canadian campus survey. *Journal of American College Health, 50*, 67-72. doi: 10.1080/07448480109596009
- Ahern, N. R., Kiehl, E. M., Sole, M. L., & Byers, J. (2006). A review of instruments measuring resilience. *Issues in Comprehensive Pediatric Nursing, 29*, 103-125. doi: 10.1007/s10508-008-9406-1

- Ahrold, T. K., & Meston, C. M. (2010). Ethnic differences in sexual attitudes of U.S. college students: Gender, acculturation, and religiosity factors. *Archives of Sexual Behavior, 39*(1), 190-202. doi: 10.1007/s10508-008-9406-1
- Akin, A. (2008). The scales of psychological well-being: A study of validity and reliability. *Educational Sciences: Theory and Practice, 8*(3), 741-750. Retrieved from ERIC database. (EJ837765)
- Aldwin, C. M. (2007). *Stress, coping, and development: An integrative perspective*. New York: The Guilford Press.
- Alfaro, E. C., Umana-Taylor, A. J., Gonzales-Backen, M. A., Bamaca, M. Y., & Zeiders, K. H. (2009). Latino adolescents' academic success: The role of discrimination, academic motivation, and gender. *Journal of Adolescence, 32*, 941-962. doi: 10.1007/s10508-008-9406-1
- Amat, S., Subhan, M., Jaafar, W. M. W., Mahmud, Z., & Johari, K. S. K. (2014). Evaluation and psychometric status of the Brief Resilience Scale in a sample of Malaysian international students. *Asian Social Science, 10*(18), 240-245. doi: 0.5539/ass.v10n18p240
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.

Anderson, E. S., & Keith, T. Z. (1997). A longitudinal test of a model of academic success for at-risk high school students. *The Journal of Educational Research, 90*(5), 259-268. doi: 10.1080/00220671.1997.10544582

Andrews, A., & Chong, J. L. Y. (2011). Exploring the wellbeing of students studying at an Australian university. *Journal of the Australia and New Zealand Student Services Association, 37*, 9-38. Retrieved from [https://anzssa.com/Public/Public/JANZSSA/Complete\\_Editions.aspx](https://anzssa.com/Public/Public/JANZSSA/Complete_Editions.aspx)

Andrews, G., Hall, W., Teesson, M., & Henderson, S. (1999). *The mental health of Australians*. Canberra, Australia: Mental Health Branch, Commonwealth Department of Aged Care.

Andrews, B., & Wilding, J. M. (2004). The relation of depression and anxiety to life-stress and achievement in students. *British Journal of Psychology, 95*(4), 509-521. doi: 10.1348/0007126042369802

Antaramian, S. (2015). Assessing psychological symptoms and well-being: Application of a dual-factor mental health model to understand college student performance. *Journal of Psychoeducational Assessment, 33*(5), 419-429. doi: 10.1080/00220671.1997.10544582

Arazzini Stewart, M., & De George-Walker, L. (2014). Self-handicapping, perfectionism, locus of control and self-efficacy: A path model. *Personality and Individual Differences, 66*, 160-164. doi: <http://dx.doi.org/10.1016/j.paid.2014.03.038>

- Areepattamannil, S., Freeman, J. G., & Klinger, D. A. (2011). Intrinsic motivation, extrinsic motivation, and academic achievement among Indian adolescents in Canada and India. *Social Psychology and Education, 14*, 427-439. doi: 10.1007/s11218-011-9155-1
- Atkinson, P. A., Martin, C. R., & Rankin, J. (2009). Resilience revisited. *Journal of Psychiatric and Mental Health Nursing, 16*(2), 137-145. doi: 10.1111/j.1365-2850.2008.01341.x
- Au, E. W. M. (2015). Locus of control, self-efficacy, and the mediating effect of outcome control: predicting course-level and global outcomes in an academic context. *Anxiety, Stress, & Coping, 28*(4), 425-444. doi: 10.1080/10615806.2014.976761
- Australian Bureau of Statistics. (2008). *4326.0- National survey of mental health and wellbeing: Summary of results*. Retrieved from <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage4326.02007>
- Australian Bureau of Statistics. (2011). *6523.0 - Household Income and Income Distribution*. Retrieved from <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Previousproducts/6523.0Main%20Features62011-12?opendocument&tabname=Summary&prodno=6523.0&issue=2011-12&num=&view=>
- Australian Bureau of Statistics. (2013). *4102.0 - Australian Social Trends, July 2013*. Retrieved from: <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Main+Features20July+2013>

- Australian Bureau of Statistics. (2015). *3303.0 - Causes of Death, Australia, 2013*. Retrieved from <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/3303.0~2013~Main%20Features~Leading%20Causes%20of%20Death~10001>
- Australian Government Department of Education. (2014). *Higher education report 2011-2013*. Retrieved from [https://docs.education.gov.au/system/files/doc/other/higher\\_education\\_report\\_2011-2013\\_final\\_web.pdf](https://docs.education.gov.au/system/files/doc/other/higher_education_report_2011-2013_final_web.pdf)
- Australian Government Department of Education. (2016). *Australia attracts international students*. Retrieved from <https://www.education.gov.au/news/australia-attracts-international-students>
- Bailin, S., Case, R., Coombs, J. R., & Daniels, L. B. (1999). Conceptualizing critical thinking. *Journal of Curriculum Studies, 31*(3), 285-302. doi: 10.1080/002202799183133
- Baker, G., & Hawkins, K. (2006). The international student journey. *Australian Universities Review, 48*(2), 20-25. Retrieved from <http://www.aur.org.au/>
- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37*(2), 122-147. doi: 10.1037/0003-066X.37.2.122
- Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 28*(2), 117-148. doi: 10.1207/s15326985ep2802\_3

- Beck, A. T. (1983). Cognitive therapy of depression: New perspectives. In P. J. Clayton, & Barrett, J. E (Ed.), *Treatment of Depression: Old Controversies and New Approaches* (pp. 265-285). New York: Raven Press.
- Bedford, A., & Foulds, G. (1978). Manual of the Personal Disturbance Scale (DSSI/sAD). Windsor: NFER-Nelson.
- Bembenutty, H., & White, M. C. (2013). Academic performance and satisfaction with homework completion among college students. *Learning & Individual Differences, 24*, 83-88. doi: 10.1016/j.lindif.2012.10.013
- Bennett, K. M. (2005). Psychological wellbeing in later life: The longitudinal effects of marriage, widowhood and marital status change. *International Journal of Geriatric Psychiatry, 20*(3), 280-284. doi: 10.1002/gps.1280
- Berger, H., Franke, G. H., Hofmann, F-H., Sperth, M., & Holm-Hadulla, R. M. (2015). Mental health of students and its development between 1994 and 2012. *Mental Health and Prevention, 3*, 48-56. doi: 10.1016/j.mhp.2015.01.001
- Bernard, J. L., & Bernard, M. L. (1982). Factors related to suicidal behavior among college students and the impact of institutional response. *Journal of College Student Personnel, 23*(5), 409-413.
- Bernardi, R. A. (1997). The relationships among locus of control, perceptions of stress, and performance. *Journal of Applied Business Research, 13*(4), 1-8. doi: 10.19030/jabr.v13i4.5736

- Bernhardsdottir, J., & Vilhjalmsson, R. (2013). Psychological distress among university female students and their need for mental health services. *Journal of Psychiatric and Mental Health Nursing, 20*(8), 672-678. doi: 10.1111/jpm.12002
- Bhullar, N., Hine, D. W., & Phillips, W. J. (2014). Profiles of psychological well-being in a sample of Australian university students. *International Journal of Psychology, 49*(4), 288-294. doi: 288-294. 10.1002/ijop.12022
- Bonanno, G. A., Galeo, S., Bucciarelli, A., & Vlahov, D. (2007). What predicts psychological resilience after disaster? The role of demographics, resources and life stress. *Journal of Consulting and Clinical Psychology, 75*(5), 671-682. doi: 10.1037/0022-006X.75.5.671
- Bonanno, G. A., Romero, S. A., & Klein, S. I. (2015). The temporal elements of psychological resilience: An integrative framework for the study of individuals, families, and communities. *Psychological Inquiry, 26*(2), 139-169. doi: 10.1080/1047840x.2015. 992677
- Bong, M., & Clark, R. E. (1999). Comparison between self-concept and self-efficacy in academic motivation research. *Educational Psychologist, 34*(3), 139-153. doi: 10.1207/s15326985ep3403\_1
- Boomsma, A., & Hoogland, J. J. (2001). The robustness of LISREL modeling revisited. *Structural equation models: Present and future. A Festschrift in honor of Karl Jöreskog*, 139-168. Retrieved from <https://core.ac.uk/download/pdf/20770852.pdf>

- Borman, G. D., & Rachuba, L. T. (2001). *Academic success among poor and minority students: An analysis of competing models of school effects*. Retrieved from ERIC database. (ED451281)
- Boughton, S., & Street, H. (2007). Integrated review of the social and psychological gender differences in depression. *Australian Psychologist*, *42*(3), 187-197. doi: 10.1080/00050060601139770
- Broussard, S. C., & Garrison, M. E. B. (2004). The relationship between classroom motivation and academic achievement in elementary-school-aged children. *Family and Consumer Sciences Research Journal*, *33*(2), 106-120. doi: 10.1177/1077727X04269573
- Brown, D. R., Carney, J. S., Parrish, M. S., & Klem, J. L. (2013). Assessing spirituality: The relationship between spirituality and mental health. *Journal of Spirituality in Mental Health*, *15*(2), 107-122. doi: 10.1080/19349637.2013.776442
- Bufford, R. K., Paloutzian, R. F., & Ellison, C. W. (1991). Norms for the spiritual well-being scale. *Journal of Psychology and Theology*, *19*, 56-70.
- Burris, J. L., Brechting, E. H., Salsman, J., & Carlson, C.R. (2009). Factors associated with the psychological well-being and distress of university students. *Journal of American College Health*, *57*(5), 536-543. doi: 10.3200/JACH.57.5.536-544
- Busato, V. V., Prins, F. J., Elshout, J. J., & Hamaker, C. (2000). Intellectual ability, learning style, personality, achievement motivation and academic success of

psychology students in higher education. *Personality and Individual Differences*, 29, 1057-1068. doi: 10.1016/S0191-8869(99)00253-6

Cacioppo, S., Capitanio, J. P., & Cacioppo, J. T. (2014). Toward a neurology of loneliness. *Psychological Bulletin*, 140(6), 1464-1504. doi: 10.1037/a0037618

Caldwell, T., & Obasi, E. M. (2010). Academic performance in African American undergraduates: Effects of cultural mistrust, educational value, and achievement motivation. *Journal of Career Development*. doi: 10.1177/0894845309349357

Calloway, S. J., Kelly, P., & Ward-Smith, P. (2012). Stressors and barriers to help seeking for psychological distress among students attending a rural university. *Journal of Rural Mental Health*, 36(1), 3-10. doi: 10.1037/h0094774

Carek, V., Norman, P., & Barton, J. (2010). Cognitive appraisals and posttraumatic stress disorder symptoms in informal caregivers of stroke survivors. *Rehabilitation Psychology*, 55(1), 91-96. doi: 10.1037/a0018417

Case, R. (2005). Moving critical thinking to the main stage. *Education Canada*, 45(2), 45-49. Retrieved from <http://www.cca-ace.ca/education-canada>

Cefai, C. (2007). Resilience for all: A study of classrooms as protective contexts. *Emotional and Behavioural Difficulties*, 12(2), 119-134. doi: 10.1080/13632750701315516

- Charney, D. S. (2004). Psychobiological mechanisms of resilience and vulnerability: Implications for successful adaptation to extreme stress. *American Journal of Psychiatry, 161*(2), 195-216. doi: 10.1176/foc.2.3.368
- Cherry, B. (2013, April 3). The rise of the word resilience [Web log post]. Retrieved from <http://ihrrblog.org/2013/04/03/the-rise-of-the-word-resilience/>
- Chow, H. P. H. (2010). Predicting academic success and psychological wellness in a sample of Canadian undergraduate students. *Electronic Journal of Research in Educational Psychology, 8*(2), 473-496. Retrieved from <http://investigacion-psicopedagogica.org/revista/new/english/index.php>
- Church, M. A., Elliot, A. J., & Gable, S. L. (2001). Perceptions of classroom environment, achievement goals, and achievement outcomes. *Journal of Educational Psychology, 93*(1), 43-54. doi: 10.1037/0022-0663.93.1.43
- Ciarrocchi, J. W., & Deneke, E. (2004). Happiness and the varieties of religious experience: Religious support, practices, and spirituality as predictors of well-being. In R. L. Piedmont, & D. O. Moberg (Eds.), *Research in the Social Scientific Study of Religion, Vol. 15*, (pp. 209-233). Boston: Brill Leiden.
- Cicchetti, D., & Toth, S. L. (1998). The development of depression in children and adolescents. *American Psychologist, 53*(2), 221-241. doi: 10.1037/0003-066X.53.2.221

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress.

*Journal of Health and Social Behavior*, 24(4), 385-396. doi: 10.2307/2136404

Cohen, S., & Williamson, G. M. (1988). Perceived stress in a probability sample in the

United States. In S. Spacapan & S. Oskamp (Eds.), *The social psychology of health* (pp. 31-67). Newbury Park, CA: Oxford.

Connell, J. P., & Wellborn, J. G. (1991). Competence, autonomy, and relatedness: A

motivational analysis of self-system processes. In M. R. Gunnar & L. A. Sroufe (Eds.), *Self processes and development* (pp. 43-77). Hillsdale, New Jersey:

Lawrence Erlbaum Associates, Inc.

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, 76-82. doi: 10.1002/da.10113

Cooke, R., Bewick, B. M., Barkham, M., Bradley, M., & Audin, K. (2006). Measuring,

monitoring and managing the psychological well-being of first year university students. *British Journal of Guidance and Counselling*, 34(4), 505-517. doi:

0.1080/030698806 00942624

Cotton, S., Kudel, I., Roberts, Y. H., Pallerla, H., Tsevat, J., Succop, P., & Yi, M. (2009).

Spiritual well-being and mental health outcomes in adolescents with or without inflammatory bowel disease. *The Journal of Adolescent Health : Official*

*Publication of the Society for Adolescent Medicine, 44(5), 485-492. doi:*

10.1016/j.jadohealth.2008.09.013

Cotton, S., Larkin, E., Hoopes, A., Cromer, B.A., & Rosenthal, S. L. (2005). The impact of adolescent spirituality on depressive symptoms and health risk behaviors. *Journal of Adolescent Health, 36*, 529e.7-529.e14. doi: 10.1016/j.jadohealth.2004.07.017

Cotton, S., Puchalski, C. M., Sherman, S. N., Mrus, J. M., Peterman, A. H., Feinberg, J., . . . Tsevat, J. (2006). Spirituality and religion in patients with HIV/AIDS. *Journal of General Internal Medicine, 21*, s5-13. doi: 10.1111/j.1525-1497.2006.00642.x

Cvetkovski, S., Reavley, N. J., & Jorm, A. F. (2012). The prevalence and correlates of psychological distress in Australian tertiary students compared to their community peers. *Australian and New Zealand Journal of Psychiatry, 46(5)*, 457-467. doi: 10.1177/0004867411435290

Dailey, D. E., & Stewart, L. A. (2007). Psychometric characteristics of the Spiritual Perspective Scale in pregnant African-American women. *Research in Nursing and Health(30)*, 61-71. doi: 10.1002/nur.20173

Daoust, H., Vallerand, R., & Blais, M. (1988). Motivation and education: A look at some important consequences. *Canadian Psychology, 29(2a)*, 172. Retrieved from <http://psycnet.apa.org/journals/cap/>

Davidson, R. J. (2000). Affective style, psychopathology, and resilience: Brain mechanisms and plasticity. *American Psychologist*, *55*(11), 1196. doi: 10.1037//0003-066x.55.11.1196

Davis, T. L., Kerr, B. A., & Kurpius, S. E. R. (2003). Meaning, purpose, and religiosity in at-risk youth: The relationship between anxiety and spirituality. *Journal of Psychology & Theology*, *31*(4).

Davydov, D. M., Stewart, R., Ritchie, K., & Chaudieu, I. (2010). Resilience and mental health. *Clinical Psychology Review*, *30*, 479-495. doi: 10.1016/j.cpr.2010.03.003

DCPD Spatial Analysis and Research Branch. (2009). *Demographic characteristics of communities within the Melbourne Investigation Area*. Retrieved from <http://www.veac.vic.gov.au/reports/VEAC%20demographics%20report%20Final%2014.7.09.pdf>

Deasy, C., Coughlan, B., Pironom, J., Jourdan, D., & McNamara, P. M. (2014). Psychological distress and lifestyle of students: Implications for health promotion. *Health Promotion International*, *30*(1), 77-87. doi: 10.1093/heapro/dau086

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227-268. doi: 10.1207/s15327965pli1104\_01

- Deci, E. L., & Ryan, R. M. (2002). *Handbook of self-determination research*. Rochester, New York: University of Rochester Press.
- Deci, E. L., Vallerand, R. J., Pelletier, L. G., & Ryan, R. M. (1991). Motivation and education: The self-determination perspective. *Educational Psychologist, 26*(3-4), 325-346. doi: 10.1080/00461520.1991.9653137
- Deckro, G. R., Ballinger, K. M., Hoyt, M., Wilcher, M., Dusek, J., Myers, P., . . . Benson, H. (2002). The evaluation of a mind/body intervention to reduce psychological distress and perceived stress in college students. *Journal of American College Health, 50*(6), 281-287. doi: 10.1080/07448480209603446
- Dixon, W. A., Rumford, K. G., Heppner, P. P., & Lips, B. J. (1992). Use of different sources of stress to predict hopelessness and suicide ideation in a college population. *Journal of Counseling Psychology, 39*(3), 342-349. doi: 10.1037/0022-0167.39.3.342
- Dodge, T. M., Mitchell, M. F., & Mensch, J. M. (2009). Student retention in athletic training programs. *Journal of Athletic Training, 44*(2), 197-207. doi: 10.4085/1062-6050-44.2.197
- Domene, J. F., Socholotiuk, K. D., & Woitowicz, L. A. (2011). Academic motivation in post-secondary students: Effects of career outcome expectations and type of aspiration. *Canadian Journal of Education, 34*(1), 99-127. Retrieved from ERIC database. (EJ932471)

Drapeau, A., Marchand, A., & Beaulieu-Prevost, D. (2012). *Epidemiology of psychological distress*: INTECH Open Access Publisher.

Duckett, P., Sixsmith, J., & Kagan, C. (2008). Researching pupil well-being in UK secondary schools: Community psychology and the politics of research. *Childhood, 15*(1), 89-106. doi: 10.1177/0907568207086838

Dusselier, L., Dunn, B., Wang, Y., Shelley Ii, M. C., & Whalen, D. F. (2005). Personal, health, academic, and environmental predictors of stress for residence hall students. *Journal of American College Health, 54*(1), 15-24. doi: 10.3200/jach.54.1.15-24

Dyrbye, L. N., Thomas, M. R., & Shanafelt, T. D. (2006). Systematic review of depression, anxiety, and other indicators of psychological distress among US and Canadian medical students. *Academic Medicine, 81*(4), 354-373. doi: 10.1097/00001888-200604000-00009

Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology, 53*, 109-132. doi: 10.1146/annurev.psych.53.100901.135153

Ellis, S. (2015, April 17). Pull yourself up by your bra straps: Women's resilience in pop culture. Retrieved from <https://femsplain.com/pull-yourself-up-by-your-bra-straps-womens-resilience-in-pop-culture/>

Ellison, C. G., & Fan, D. (2008). Daily spiritual experiences and psychological well-being among US adults. *Social Indicators Research, 88*(2), 247-271. doi: 10.1007/s11205-007-9187-2

Ellison, C. G., & Smith, J. (1991). Toward an integrative measure of health and well-being.

*Journal of Psychology and Theology*, 19(1), 35-48. Retrieved from

<http://journals.biola.edu/jpt/>

Esia-Donkoh, K., Yelkper, D., & Esia-Donkoh, K. (2011). Coping with stress: Strategies adopted by students at the Winneba campus of University of Education, Winneba, Ghana. *US-China Education Review B* 2, 290-299. Retrieved from ERIC database. (ED528318)

Feder, A., Nestler, E. J., Westphal, M., & Charney, D. S. (2010). Psychobiological mechanisms of resilience to stress. In J. W. Reich, A. J. Zautra & J. S. Hall (Eds.), *Handbook of adult resilience* (pp. 35-54). New York: Guilford Press.

Finn, J. D., & Rock, D. A. (1997). Academic success among students at risk for school failure. *Journal of Applied Psychology*, 82(2), 221-234. doi: 10.1037/0021-9010.82.2.221

Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior*, 21(3), 219-239. doi: 10.2307/2136617

Folkman, S., & Moskowitz, J.T. (2004). Coping: Pitfalls and promise. *Annual Review of Psychology*, 55, 745-774. doi: 10.1146/annurev.psych.55.090902.141456

- Fortier, M. S., Vallerand, R. J., Guay, F. (1995). Academic motivation and school performance: Toward a structural model. *Contemporary Educational Psychology*, 20(3), 257-274. doi: 10.1006/ceps.1995.1017
- Friborg, O., Hjemdal, O., Rosenvinge, J. H., & Martinussen, M. (2003). A new rating scale for adult resilience: What are the central protective resources behind healthy adjustment? *International Journal of Methods in Psychiatric Research*, 12(2), 65-75. doi: 10.1002/mpr.143
- Froiland, J. M., Oros, E., Smith, L., & Hirschert, T. (2012). Intrinsic motivation to learn: The nexus between psychological health and academic success. *Contemporary School Psychology: Formerly "The California School Psychologist"*, 16(1), 91-100. doi: 10.1007/bf03340978
- Frydenberg, E. (2008). *Adolescent coping: Advances in theory, research and practice*. East Sussex: Routledge.
- Gale, T., & Parker, S. (2013). *Widening Participation in Australian Higher Education*. Report to the Higher Education Funding Council for England (HEFCE) and the Office of Fair Access (OFFA), England. Retrieved from [http://www.deakin.edu.au/\\_\\_data/assets/pdf\\_file/0006/365199/widening-participation.pdf](http://www.deakin.edu.au/__data/assets/pdf_file/0006/365199/widening-participation.pdf)
- Gallagher, R. P. (1987). *Counseling Center Survey And Directory*. Pittsburgh: University of Pittsburgh.
- Gartoulla, P., Bell, R. J., Worsley, R., & Davis, S. R. (2015). Moderate-severely bothersome vasomotor symptoms are associated with lowered psychological

general wellbeing in women at midlife. *Maturitas*, 81(4), 487-492. doi:

10.1016/j.maturitas.2015.06.004

Geldard, K., & Geldard, D. (2010). *Counselling adolescents: The proactive approach for young people* (3rd ed.). London: Sage Publications.

Genet, J. J., & Siemer, M. (2011). Flexible control in processing affective and non-affective material predicts individual differences in trait resilience. *Cognition and Emotion*, 25(2), 380-388. doi: 10.1080/02699931.2010.491647

Genia, V. (2001). Evaluation of the Spiritual Well-Being Scale in a sample of college students. *The International Journal for the Psychology of Religion*, 11(1), 25-33. doi: 10.1207 /S15327582IJPR1101\_03

Gibney, E. (2013). *A different world*. Retrieved from <https://www.timeshighereducation.com/features/a-different-world/2001128.article>

Gibson, C. C., & Graff, A. O. (1992). Impact of adults' preferred learning styles and perception of barriers on completion of external baccalaureate degree programs. *International Journal of E-Learning and Distance Education*, 7(1), 39-51. Retrieved from <http://www.ijede.ca/index.php/jde/index>

Gifford, D. D., Briceno-Perriott, J., & Mianzo, F. (2006). Locus of control: Academic achievement and retention in a sample of university first-year students. *Journal of College Admission*, 191, 18-25.

- Gloster, A. T., Rhoades, H. M., Novy, D., Klotsche, J., Senior, A., Kunik, M., . . . Stanley, M. A. (2008). Psychometric properties of the Depression Anxiety and Stress Scale-21 in older primary care patients. *Journal of Affective Disorders, 110*(3), 248-259. doi: 10.1016/j.jad.2008.01.023
- Goebert, D., Thompson, D., Takeshita, J., Beach, C., Bryson, P., Ephgrave, K., . . . Tate, J. (2009). Depressive symptoms in medical students and residents: A multi-school study. *Academic Medicine, 84*(2), 236-241. doi: 10.1097/ACM.0b013e31819391bb
- Goodwin, L. (2007). *Enhancing academic resiliency*. Paper presented at the 26th Annual Conference on the First-Year Experience, Addison, Texas.
- Gore Jr., P. A. (2006). Academic self-efficacy as a predictor of college outcomes: Two incremental validity studies. *Journal of Career Assessment, 14*(1), 92-115. doi: 10.1177/1069072705281367
- Gottfried, A. E. (1990). Academic intrinsic motivation in young elementary school children. *Journal of Educational Psychology, 82*(3), 525-538. doi: 10.1037/0022-0663.82.3.525
- Grant, A. (2002). Identifying students' concerns taking a whole institutional approach. In N. Stanley & J. Manthorpe (Eds.), *Students' mental health needs problems and responses*. London: Jessica Kinsley.

- Greenway, A. P., Phelan, M., Turnbull, S., & Milne, L.C. (2007). Religious coping strategies and spiritual transcendence. *Mental Health, Religion and Coping, 10*(4), 325-333. doi: 10.1080/13694670600719839
- Grolnick, W. S., & Ryan, R. M. (1987). Autonomy in children's learning: An experimental and individual difference investigation. *Journal of Personality and Social Psychology, 52*(5), 890-898. doi: 10.1037/0022-3514.52.5.890
- Grote, N. K., Bledsoe, S. E., Larkin, J., Lemay Jr., E. P., & Brown, C. (2007). Stress exposure and depression in disadvantaged women: The protective effects of optimism and perceived control. *Social Work Research, 31*(1), 19-33. doi: 10.1093/swr/31.1.19
- Hackney, C. H., & Sanders, G. S. (2003). Religiosity and mental health: A meta-analysis of recent studies. *Journal for the Scientific Study of Religion, 42*(1), 43-55. doi: 10.1111/1468-5906.t01-1-00160
- Halonen, J. S. (1995). Demystifying critical thinking. *Teaching of Psychology, 22*(1), 75-81. doi: 10.1207/s15328023top2201\_23
- Hamill, S. K. (2003). Resilience and self efficacy: The importance of efficacy beliefs and coping mechanisms in resilient adolescents. *Colgate University Journal of the Sciences, 115*-145. Retrieved from [http://groups.colgate.edu/cjs/student\\_papers/2003?hamill.pdf](http://groups.colgate.edu/cjs/student_papers/2003?hamill.pdf)

- Hampel, P., & Petermann, F. (2006). Perceived stress, coping, and adjustment in adolescents. *Journal of Adolescent Health, 38*(4), 409-415. doi: 10.1016/j.jadohealth.2005.02.014
- Hankin, B. L., & Abramson, L. Y. (2001). Development of gender differences in depression: An elaborated cognitive vulnerability–transactional stress theory. *Psychological Bulletin, 127*(6), 773-796. doi: 10.1037/0033-2909.127.6.773
- Harris, D. (1940). Factors affecting college grades: A review of the literature, 1930-1937. *Psychological Bulletin, 37*(3), 125-166. doi: 10.1037/h0055365
- Hart, C. (2012). Factors associated with student persistence in an online program of study: A review of the literature. *Journal of Interactive Online Learning, 11*(1), 19-42. Retrieved from <http://www.ncolr.org/jiol>
- 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. doi: 10.1080/07448481.2010.515632
- Hay, D., Reich, K. H., & Utsch, M. (2006). Spiritual development: Intersections and divergence with religious development. In E. C. Roehlkepartain, P. E. King, L. Wagener & P. L. Benson (Eds.), *The handbook of spiritual development in childhood and adolescence* (pp. 46-59). Thousand Oaks, CA: Sage.
- Hayes, J. A. (1997). What does the Brief Symptom Inventory measure in college and university counseling center clients? *Journal of Counseling Psychology, 44*(4), 360-367. doi: 10.1037/0022-0167.44.4.360

- Hayes, A. F. (2016). *The PROCESS macro for SPSS and SAS version 2.16*. Retrieved from <http://processmacro.org/download.html>
- Henry, J. D., & Crawford, J. R. (2005). The short-form version of the Depression Anxiety Stress Scale (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology, 44*, 227-239. doi: 10.1348/014466505X29657
- Hill, P. C., & Pargament, K. I. (2003). Advances in the conceptualisation and measurement of religion and spirituality: Implications for physical and mental health research. *American Psychologist, 58*(1), 64-74. doi: 10.1037/1941-1022.S.1.3
- Hoogland, J. J., & Boomsma, A. (1998). Robustness studies in covariance structure modeling: An overview and a meta-analysis. *Sociological Methods and Research, 26*(3), 329-367. doi: 10.1177/0049124198026003003
- Hunt, J., & Eisenberg, D. (2010). Mental health problems and help-seeking behavior among college students. *Journal of Adolescent Health, 46*(1), 3-10. doi: 10.1016/j.jadohealth.2009.08.008
- Hustinx, P. W. J., Kuyper, H., van der Werf, M. P. C., & Dijkstra, P. (2009). Achievement motivation revisited: new longitudinal data to demonstrate its predictive power. *Educational Psychology, 29*(5), 561-582. doi: 10.1080/01443410903132128
- Ironson, G., Stuetzie, R., & Fletcher, M. A. (2006). An increase in religiousness/spirituality occurs after HIV diagnosis and predicts slower disease progression over four years

in people with HIV. *Journal of General Internal Medicine*, 21, S26-28. doi: 10.1111/j.1525-1497.2006.00648.x

Johnson, B. R. (2008). A tale of two religious effects: Evidence for the protective and prosocial impact of organic religion. In K. K. Kline (Ed.), *Authoritative communities: The scientific case for nurturing the whole child* (pp. 187-225). New York: Springer.

Johnson, J. H., & Sarason, I. G. (1978). Life stress, depression and anxiety: Internal-external control as a moderator variable. *Journal of Psychosomatic Research*, 22(3), 205-208. doi: 10.1016/0022-3999(78)90025-9

Joshanloo, M. (2012). Investigation of the factor structure of spirituality and religiosity in Iranian Shiite university students. *International Journal of Psychology*, 47(3), 211-221. doi: 10.1080/00207594.2011.617372

Kalechstein, A.D., & Nowicki, Jr., S. (1997). A Meta-analytic examination of the relationship between control expectancies and academic achievement: An 11-year follow-up to Findlay and Cooper. *Genetic, Social, and General Psychology Monographs*, 123(1), 27-57

Kang, P. P., & Romo, L. F. (2011). The role of religious involvement on depression, risky behavior, and academic performance among Korean American adolescents. *Journal of Adolescence*, 34(4), 767-778. doi: 10.1016/j.adolescence.2010.08.003

- Kanner, A. D., Coyne, J. C., Schaefer, G., & Lazarus, R. S. (1981). Comparison of two modes of stress measurement: Daily hassles and uplifts versus major life events. *Journal of Behavioral Medicine, 4*, 1-39. doi: 10.1007/bf00844845
- Katz, I., Eilat, K., & Nevo, N. (2014). 'I'll do it later': Type of motivation, self-efficacy and homework procrastination. *Motivation and Emotion, 38*(1), 111-119. doi: 10.1007/s11031-013-9366-1
- Kaufman, J. C., Agars, M. D., & Lopez-Wagner, M. C. (2008). The role of personality and motivation in predicting early college academic success in non-traditional students at a Hispanic-serving institution. *Learning and Individual Differences, 18*, 492-496. doi: 10.1016/j.lindif.2007.11.004
- Keyes, C. L. (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. doi: 10.1037/0022-006X.73.3.539
- Killian, K. D. (2015, September 6). Fight song and hero: Pop anthems of lonely resilience [Web log post]. Retrieved from <https://www.psychologytoday.com/blog/intersections/201509/fight-song-and-hero-pop-anthems-lonely-resilience>
- Kim, S., & Esquivel, G. B. (2011). Adolescent spirituality and resilience: Theory, research, and educational practices. *Psychology in the Schools, 48*(7), 755-765. doi: 10.1002/pits.20582

- Kinderman, P., Schwannauer, M., Pontin, E., & Tai, S. (2011). The development and validation of a general measure of well-being: The BBC Well-Being Scale. *Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, Care & Rehabilitation*, 20(7), 1035-1042. doi: 10.1007/s11136-010-9841-z
- Kirby, D. (2007). Reviewing Canadian post-secondary education: Post-secondary education policy in post-industrial Canada. *Canadian Journal of Educational Administration and Policy*, n65, 1-24. Retrieved from ERIC database. (EJ806980)
- Koenig, H. G., & Larson, D. B. (2001). Religion and mental health: Evidence for an association. *International Review of Psychiatry*, 13, 67-78. doi: 10.1080/09540260124661
- Komaraju, M., & Dial, C. (2014). Academic identity, self-efficacy, and self-esteem predict self-determined motivation and goals. *Learning and Individual Differences*, 32, 1-8. doi: 10.1016/j.lindif.2014.02.004
- Krackow, E., & Rudolph, K. D. (2008). Life stress and the accuracy of cognitive appraisals in depressed youth. *Journal of Clinical Child and Adolescent Psychology*, 37(2), 376-385. doi: 10.1080/15374410801955797
- Krampen, G. (1988). Toward an action-theoretical model of personality. *European Journal of Personality*, 2(1), 39-55. doi: 10.1002/per.2410020104

- Kreb, V., Sperth, M., Hofmann, F-H., & Hom-Hadulla, R. M. (2015). Psychological complaints of students: A comparison of field samples with clients of a counseling service at a typical German university. *Mental Health and Prevention, 3*, 41-47. doi: 10.1016/j.mhp.2015.04.002
- Kuiper, N. A., Martin, R. A., & Olinger, L. J. (1993). Coping humour, stress, and cognitive appraisals. *Canadian Journal of Behavioural Science / Revue Canadienne des Sciences du Comportement, 25*(1), 81-96. doi: 10.1037/h0078791
- Kuo, B. C. H., Arnold, R., & Rodriguez-Rubio, B. (2014). Mediating effects of coping in the link between spirituality and psychological distress in a culturally diverse undergraduate sample. *Mental Health, Religion and Coping, 17*(2), 173-184. doi: 10.1080/1367 4676.2013.780015
- Kusurkar, R. A., Ten Cate, T. H. J., Van Asperen, M., & Croiset, G. (2011). Motivation as an independent and a dependent variable in medical education: A review of the literature. *Medical Teacher, 33*, e242-e262. doi: 10.3109/0142159X.2011.558539
- Lai, E. R. (2011). Motivation: A literature review. Research report. Retrieved from [http://nibeer.s3.amazonaws.com/uploads/publication/pdf/7/Motivation\\_Review\\_final.pdf](http://nibeer.s3.amazonaws.com/uploads/publication/pdf/7/Motivation_Review_final.pdf)
- Landine, J., & Stewart, J. (1998). Relationship between meta-cognition, motivation, locus of control, self-efficacy, and academic achievement. *Canadian Journal of Counselling, 23*(3), 200-212.

- Lapierre, S., Dube, M., Bouffard, L., & Alain, M. (2007). Addressing suicidal ideations through the realization of meaningful personal goals. *Crisis*, 28(1), 16-25. doi:10.1027/0227-5910.28.1.16
- Lazarus, R. S. (1966). *Psychological stress and the coping process*. New York: McGraw-Hill.
- Lazarus, R. S., & Cohen, J. B. (1977). Environmental stress. In I. Altman & J. F. Wohlwill (Eds.), *Human behavior and environment: Advances in theory and research Vol. 2* (pp. 89-127). New York: Springer.
- Lee, E-H. (2012). Review of the psychometric evidence of the Perceived Stress Scale. *Asian Nursing Research*, 6(4), 121-127. doi: 10.1016/j.anr.2012.08.004
- Liem, G. A. D., Martin, A. J., Porter, A. L., & Colmar, S. (2012). Sociocultural antecedents of academic motivation and achievement: Role of values and achievement motives in achievement goals and academic performance. *Asian Journal of Social Psychology*, 15(1), 1-13. doi: 10.1111/j.1467-839X.2011.01351.x
- Lightsey Jr., O. R. (2006). Resilience, meaning and well-being. *The Counseling Psychologist*, 34(1), 96-107. doi: 10.1016/j.anr.2012.08.004
- Linnenbrink, E. A., Pintrich, P. R. (2002). Motivation as an enabler for academic success. *School Psychology Review*, 31(3), 313-327. Retrieved from <http://naspjournals.org/loi/spsr>

- Lovibond, S. H., & Lovibond, P. F. (1995). *Manual for the Depression Anxiety Stress Scales*. (2nd. ed.). Sydney: Psychology Foundation.
- Ludlow, L., & Klein, K. (2014). Suppressor variables: the difference between 'is' versus 'acting as'. *Journal of Statistics Education*, 22(2), 1-28. Retrieved from <http://www.amstat.org/publications/jse/v22n2/ludlow.pdf>
- 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. doi: 10.1111/1467-8624.00164
- Luthar, S. S., & Zigler, E. (1992). Intelligence and social competence among high-risk adolescents. *Development and Psychopathology*, 4(2), 287-299. doi: 10.1017/s0954579400000158
- MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioral Research*, 39(1), 99-128. doi: 10.1207/s15327906mbr3901\_4
- Macovei, C. M. (2015). The brief resilience scale – a Romanian-language adaptation. *Agora Psycho-Pragmatica*, 9(1), 70-87. Retrieved from <http://www.uav.ro/jour/index.php/app>
- Marr, J., & Wilcox, S. (2015). Self-Efficacy and social support mediate the relationship between internal health locus of control and health behaviors in college students.

*American Journal of Health Education*, 46(3), 122-131. doi: 10.1080/19325037.2015.1023477

Martin, A. J. (2007). *The Motivation and Engagement Scale*. Sydney: Lifelong

Achievement Group. Retrieved from <http://www.lifelongachievement.com>

Martin, A. J., & Marsh, H. W. (2008). Academic buoyancy: Towards an understanding of students' everyday academic resilience. *Journal of School Psychology*, 46, 53-58.

doi: 10.1016/j.jsp.2007.01.002

McCullough, M. E., Hoyt, W. T., Larson, D. B., Koenig, H. G., & Thoresen, C. (2000).

Religious involvement and mortality: A meta-analytic review. *Health Psychology*, 19(3), 211-222. doi: 10.1037/0278-6133.19.3.211

McGeown, S. P., Putwain, D., Geijer Simpson, E., Boffey, E., Markham, J., & Vince, A.

(2014). Predictors of adolescents' academic motivation: Personality, self-efficacy and adolescents' characteristics. *Learning and Individual Differences*, 32, 278-286.

doi: <http://dx.doi.org/10.1016/j.lindif.2014.03.022>

McIntosh, D. N., Poulin, M. J., Silver, R. C., & Holman, E. A. (2011). The distinct roles of

spirituality and religiosity in physical and mental health after collective trauma: A national longitudinal study of responses to the 9/11 attacks. *Journal of Behavioral*

*Medicine*, 34(6), 497-507. doi: 10.1007/s10865-011-9331-y

McMahan, E. A., Ryu, S., & Choi, I. (2014). Lay conceptions of well-being among

undergraduate students from the United States and South Korea: Culture-level

differences and correlates. *Social Indicators Research*, 119(1), 321-339. doi: 10.1007 /s11205-013-0476-7

McMahon, B. T., & Biggs, H. C. (2012). Examining spirituality and intrinsic religious orientation as a means of coping with exam anxiety. *Vulnerable Groups and Inclusion*. doi: 10.3402/vgi.v3i0.14918

McMillan, J. H., & Reed, D. F. (1994). At-risk students and resiliency: Factors contributing to academic success. *The Clearing House*, 67(3), 137-140. doi: 10.1080/00098655.1994.9956043

Mela, M. A., Marcoux, E., Baetz, M., Griffin, R., Angelski, C., & Deqiang, G. (2008). The effect of religiosity and spirituality on psychological well-being among forensic psychiatric patients in Canada. *Mental Health, Religion and Culture*, 11(5), 517-532. doi: 10.1080/13674670701584847

Mesurado, B., Richaud, C. M., & Mateo, J. N. (2016). Engagement, flow, self-efficacy, and eustress of university students: A cross-national comparison between the Philippines and Argentina. *The Journal of Psychology*, 150(3), 281-299. doi: 10.1080/00223980.2015.1024595

Miller, W. R., & Thoresen, C. E. (2003). Spirituality, religion, and health: An emerging research field. *American Psychologist*, 58(1), 24-35. doi: 10.1037/0003-066x.58.1.24

- Miquelon, P., Vallerand, R. J., Grouzet, F. M. E., & Cardinal G. (2005). Perfectionism, academic motivation, and psychological adjustment: An integrative model. *Personality and Social Psychology Bulletin*, *31*(7), 913-924. doi: 10.1177/0146167204272298
- Misra, R., & McKean, M. (2000). College students' academic stress and its relation to their anxiety, time management, and leisure satisfaction. *American Journal of Health Studies*, *16*(1), 41-51. Retrieved from <http://www.va-ajhs.com/>
- Moberg, D. (2010). Spirituality research: Measuring the immeasurable? *Perspectives on Science and Christian Faith*, *62*(2), 99-114. Retrieved from <http://network.asa3.org/?page =PSCF>
- Moeini, B., Shafi, F., Hidarnia, A., Babaii, G. R., Birashk, B., & Allahverdipour, H. (2008). Perceived stress, self-efficacy and its relations to psychological well-being status in Iranian male high school students. *Social Behavior and Personality*, *36*(2), 257-266. doi: 10.2224/sbp.2008.36.2.257
- Monod, S., Brennan, M., Rochat, E., Martin, E., Rochat, S., & Bula, C. J. (2011). Instruments measuring spirituality in clinical research: A systematic review. *Journal of General Internal Medicine*, *26*(11), 1345-1357. doi: 10.1007/s11606-011-1769-7
- Muller, S. M., & Dennis, D. L. (2007). Life change and spirituality among a college student cohort. *Journal of American College Health*, *56*(1), 55-59. doi: 10.3200/JACH.56.1.55-60

- Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. *Journal of Counseling Psychology, 38*(1), 30-38. doi: 10.1037/0022-0167.38.1.30
- Murray-Harvey, R. (2010). Relationship influences on students' academic achievement, psychological health and well-being at school. *Educational and Child Psychology, 27*(1), 104-115.
- National Center for Education Statistics. (n.d). *Fast facts*. Retrieved from <http://nces.ed.gov/fastfacts/display.asp?id=98>
- Nerdrum, P., Rustoen, T., & Ronnestad, M. H. (2006). Student psychological distress: A psychometric study of 1750 Norwegian first year undergraduate students. *Scandinavian Journal of Educational Research, 50*(1), 95-109. doi: 10.1080/00313830500372075
- Netuveli, G., Wiggins, R. D., Montgomery, S. M., Hildon, Z., & Blane, D. (2008). Mental health and resilience at older ages: Bouncing back after adversity in the British Household Panel Survey. *Journal of Epidemiology and Community Health, 62*(11), 987-991. doi: 10.1136/jech.2007.069138
- Newton, A. T., & McIntosh, D. N. (2010). Specific religious beliefs in cognitive appraisal model of stress and coping. *The International Journal for the Psychology of Religion, 20*, 39-58. doi: 10.1080/10508610903418129

- Ning, H. K., & Downing, K. (2010). The reciprocal relationship between motivation and self-regulation: A longitudinal study on academic performance. *Learning and Individual Differences, 20*, 682-686. doi: 10.1016/j.lindif.2010.09.010
- O'Connor, K., Vizcaino, M., & Benavides, N. A. (2015). Mental health outcomes of drug conflict among university students at the U.S.–Mexico border. *Traumatology, 21*(2), 90-97. doi: 10.1037/trm0000029
- OECD. (2012a). *Education at a glance 2012: OECD indicators*, OECD Publishing. doi: 10.1787/eag-2012-en.
- OECD. (2012b). *Education at a glance 2012: Highlights*, OECD Publishing. doi: 10.1787/eag\_highlights-2012-en
- Olsson, C. A., Bond, L., Burns, J. M., Vella-Brodrick, D. A., & Sawyer, S. M. (2003). Adolescent resilience: A concept analysis. *Journal of Adolescence, 26*, 1-11. doi: 10.1016/s0140-1971(02)00118-5
- Oman, D., & Thoresen, C. E. (2002). 'Does religion cause health?': Differing interpretations and diverse meanings. *Journal of Health Psychology, 7*(4), 365-380. doi: 10.1177/1359105302007004326
- O'Sullivan, G. (2011). The relationship between hope, eustress, self-efficacy, and life satisfaction among undergraduates. *Social Indicators Research, 101*(1), 155-172. doi: 10.1007/s11205-010-9662-z

- Owen, S. V., & Froman, R.D. (1988). *Development of a college academic self-efficacy scale*. Paper presented at the National Council of Measurement in Education, New Orleans, LA.
- Owensworth, T., & Nash, K. (2015). Existential well-being and meaning making in the context of primary brain tumor: conceptualization and implications for intervention. *Frontiers in Oncology, 5*, 96. doi: 10.3389/fonc.2015.00096
- Ozer, E. M., & Bandura, A. (1990). Mechanisms governing empowerment effects: A self efficacy analysis. *Journal of Personality and Social Psychology, 58*(3), 472-486. doi: 10.1037/0022-3514.58.3.472
- Padron, J. M. (2006). Experience with post-secondary education for individuals with severe mental illness. *Psychiatric Rehabilitation Journal, 30*(2), 147-149. doi: 10.2975/30.2006.147.149
- Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research, 66*(4), 543-578. doi: 10.3102/00346543066004543
- Pallant, J. (2013). *SPSS survival manual*. United Kingdom: McGraw-Hill Education
- Paloutzian, R. F., & Ellison, C. W. (1982). Loneliness, spiritual well-being, and the quality of life. In L. A. Peplan & D. Pearlman (Eds.), *Loneliness: A sourcebook of current theory, research and therapy*. New York: Wiley.
- Pargament, K. I., Koenig, H. G., & Perez, L. (2000). The many methods of religious coping: Development and initial validation of the RCOPE. *Journal of Clinical*

*Psychology*, 56(4), 519-543. doi: 10.1002/(SICI)1097-4679(200004)

56:4<519::AID-JCLP6 >3.0.CO;2-1

Pargament, K. I., Koenig, H. G., Tarakeshwar, N., Hahn, J. (2001). Religious struggle as a predictor of mortality among medically ill elderly patients. *Archive of Internal Medicine*, 161, 1881-1885. doi: 10.1001/archinte.161.15.1881

Pargament, K. I., Smith, B. W., Koenig, H. G., & Perez, L. (1998). Patterns of positive and negative religious coping with major life stressors. *Journal of Scientific Study of Religion*, 37(4), 710-724. doi: 10.2307/1388152

Patel, V., & Goodman, A. (2007). Researching protective and promotive factors in mental health. *International Journal of Epidemiology*, 36(4), 703-703. doi: 10.1093/ije/dym147

Paul, R. (1992). Critical thinking: What, why, and how. *New Directions for Community Colleges*, 1992(77), 3-24. doi: 10.1002/cc.36819927703

Peacock, E. J., & Wong, P. T. P. (1990). The stress appraisal measure (SAM): A multidimensional approach to cognitive appraisal. *Stress Medicine*, 6, 227-236. doi: 10.1002/smi. 2460060308

Pearson, A., & Naug, H. (2013). Identification of at-risk students and strategies to improve academic success in first year health programs. A practice report. *The International Journal of the First Year in Higher Education*, 4(1), 135-144. doi: 10.5204/intjfy he.v4i1.152

Peng, S. S., Lee, R. M., Wang, M. C., & Walberg, H. J. (1992). *Resilient students in urban settings*. Paper presented at the Annual meeting of the American Educational Research Association, San Francisco, CA.

Peres, J. F. P., Moreira-Almeida, A., Nasello, A. G., & Koenig, H. G. (2007). Spirituality and resilience in trauma victims. *Journal of Religion and Health, 46*, 343-350. doi: 10.1007/s10943-006-9103-0

Peterson, C., & Seligman, M. E. P. (1984). Causal explanations as a risk factor for depression: Theory and evidence. *Psychological Review, 91*(3), 347-374. doi: 10.1037/0033-295X.91.3.347

Phillips, J. M., & Gully, S. M. (1997). Role of goal orientation, ability, need for achievement, and locus of control in the self-efficacy and goal-setting process. *Journal of Applied Psychology, 82*(5), 792-802. doi: 10.1037/0021-9010.82.5.792

Piccinelli, M., & Wilkinson, G. (2000). Gender differences in depression. *British Journal of Psychiatry, 177*, 486-492. doi: 10.1192/bjp.177.6.486

Piedmont, R. L. (2004). Spiritual transcendence as a predictor of psychosocial outcome from an outpatient substance abuse program. *Psychology of Addictive Behaviors, 18*(3), 213-222. doi: 10.1037/0893-164X.18.3.213

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. doi: 10.1080/10668920600866579

- Pintrich, P. R., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. Motivation and efficacy in education: Research and new directions. [Special section]. *Journal of Educational Psychology*, 82(1), 33-40. doi: 10.1037/0022-0663.82.1.33
- Ponterotto, J., Mendelowitz, D., & Collabолletta, E. (2008). Promoting hope: Suggestions for school counselors. *Professional School Counseling*, 12(2), 100-107. doi: 10.5330/PSC.n.2010-12.100
- Powell, L. H., Shahabi, L., & Thoresen, C. E. (2003). Religion and spirituality: Linkages to physical health. *American Psychologist*, 58(1), 36-52. doi: 10.1037/0003-066X.58.1.36
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, 36(4), 717-731. doi: 10.3758/bf03206553
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40(3), 879-891. doi: 10.3758/brm.40.3.879
- Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, 42(1), 185-227. doi: 10.1080/00273170701341316
- Rasanen, P., Lappalainen, P., Muotka, J., Tolvanen, A., & Lappalainen, R. (2016). An online guided ACT intervention for enhancing the psychological wellbeing of

university students: A randomized controlled clinical trial. *Behaviour Research and Therapy*, 78, 30-42. doi:10.1016/j.brat.2016.01.001

Readdy, T., Raabe, J., & Harding, J. S. (2014). Student-athletes' perceptions of an extrinsic reward program: A mixed-methods exploration of self-determination theory in the context of college football. *Journal of Applied Sport Psychology*, 26(2), 157-171. doi: 10.1080/10413200.2013.816801

Regnerus, M. D. (2003). Religion and positive adolescent outcomes: A review of research and theory. *Review of Religious Research*, 44(4), 394-413. doi: 10.2307/3512217

Reivich, K., & Schatte, A. (2002). *The resilience factor: Seven keys to finding your inner strength and overcoming life's hurdles*. New York: Broadway Books.

Resnick, B. (2011). The relationship between resilience and motivation. In B. Resnick, L. P. Gwyther & K. A. Roberto (Eds.), *Resilience in aging: Concepts, research, and outcomes* (pp. 199-215). New York: Springer.

Richards, S. T., & Nelson, C. L. (2012). Problematic parental drinking and health: Investigating differences in adult children of alcoholics status, health locus of control, and health self-efficacy. *Journal of Communication in Healthcare*, 5(2), 84-90. doi: 10.1179/1753807612y.0000000006

Richer, S. F., & Vallerand, R. J. (1995). Supervisors' interactional styles and subordinates' intrinsic and extrinsic motivation. *The Journal of Social Psychology*, 135(6), 707-722. doi: 10.1080/00224545.1995.9713974

- Rickwood, D. J., Deane, F. P., & Wilson, C. J. (2007). When and how do young people seek professional help for mental health problems? *The Medical Journal of Australia*, *187*(7), S35-S39. Retrieved from <https://www.mja.com.au/>
- Riulli, L., Savicki, V., & Spain, E. (2010). Positive emotions in traumatic conditions: Mediation of appraisal and mood for military personnel. *Military Psychology*, *22*, 207-223. doi: 10.1080/08995601003638975
- Roberti, J. W., Harrington, L. N., & Storch, E. A. (2006). Further psychometric support for the 10-item version of the Perceived Stress Scale. *Journal of College Counseling*, *9*, 135-147. doi: 10.1002/j.2161-1882.2006.tb00100.x
- 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. doi: 10.1080/07448489909595681
- Roffey, S. (2015). Becoming an agent of change for school and student well-being. *Educational & Child Psychology*, *32*(1), 21-30.
- Rose, J., Ahuja, A. K., & Jones, C. (2006). Attitudes of direct care staff towards external professionals, team climate and psychological wellbeing: A pilot study. *Journal of Intellectual Disabilities*, *10*(2), 105-120. doi: 10.1177/1744629506064008
- Rosenthal, D. A., Russell, V. J., & Thomson, G. D. (2006). A growing experience: The health and well-being of international students at The University of Melbourne. Melbourne: The University of Melbourne.

- Rotter, J. B. (1966). Generalized expectations for internal versus external control of reinforcement. *Psychological Monographs: General and Applied*, 80(1), 1-28. doi: 10.1037/h0092976
- Royal College of Psychiatrists. (2003). *The mental health of students in higher education*. (Council report CR112). Retrieved from <http://www.rcpsych.ac.uk/publications/collegereports/cr/cr166.aspx>
- Rudd, M. D. (2004). University counseling centers: Looking more and more like community clinics. *Professional Psychology: Research and Practice*, 35(3), 316-317. doi: 10.1037/0735-7028.35.3.316
- Ryan, R. M. (2009). Self-determination theory and wellbeing. *Wellbeing in Developing Countries Research Review*, 1. Retrieved from <http://www.welldev.org.uk/wed-new/network/research-review-page.html>
- Ryan, R. M., & Deci, E. L. (2000a). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78. doi: 10.1037/0003-066X.55.1.68
- Ryan, R. M., & Deci, E. L. (2000b). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25, 54-67. doi: 10.1006/ceps.1999.1020
- Ryder, A. G., Yang, J., Zhu, X., Yao, S., Yi, J., Heine, S. J., Bagby, R. M. (2008). The cultural shaping of depression: Somatic symptoms in China, psychological

symptoms in North America? *Journal of Abnormal Psychology*, 117(2), 300-313.

doi: 10.1037/0021-843x.117.2.300

Ryff, C. D., & Keyes, L. M. (1995). The structure of psychological well-being revisited.

*Journal of Personality and Social Psychology*, 69(4), 719-727. doi: 10.1037/0022-

3514.69.4.719

Sagone, E., & Caroli, M. E. D. (2014). Locus of control and academic self-efficacy in

university students: The effects of self-concepts. *Procedia - Social and Behavioral*

*Sciences*, 114, 222-228. doi: 10.1016/j.sbspro. 2013.12.689

Salmoirago-Blotcher, E., Crawford, S., Tran, C., Goldberg, R., Rosenthal, L., & Ockene, I.

(2012). Spiritual well-being may buffer psychological distress in patients with

implantable cardioverter defibrillators. *Journal of Evidence-Based Complementary*

*& Alternative Medicine*, 17(3), 148-154. doi: 10.1177/2156587212447627

Sameroff, A. J., Rosenblum, K. L. (2006). Psychosocial constraints on the development of

resilience. *Annals of the New York Academy of Sciences*, 1094, 116-124. doi:

10.1196/annals.1376.010

Sarkar, M., & Fletcher, D. (2014). Psychological resilience in sport performers: A review

of stressors and protective factors. *Journal of Sports Sciences*, 32(15), 1419-1434.

doi: 10.1080/02640414.2014.901551

Sax, L. J. (1997). Health trends among college freshmen. *Journal of American College*

*Health*, 45(6), 252-264. doi: 10.1080/07448481.1997.9936895

- Scales, P. C., & Leffert, N. (1999). *Developmental assets: A synthesis of the scientific research on adolescent development*. Minneapolis: Search Institute.
- Scalise, A., Besterfield-Sacre, M., Shuman, L., & Wolfe, H. (2000, October). *First term probation: Models for identifying high risk students*. Paper presented at the 30th Annual Frontiers in Education Conference. Abstract retrieved from <http://ieeexolore.ieee.org/document/8976>
- Schunk, D. H. (1991). Self-efficacy and academic motivation. *Educational Psychologist*, 26(3&4), 207-231. doi: 10.1080/00461520.1991.9653133
- Seeman, T. E., Dubin, L. F., & Seeman, M. (2003). Religiosity/spirituality and health: A critical review of the evidence for biological pathways. *American Psychologist*, 58(1), 53-63. doi: 10.1037/0003-066X.58.1.53
- Segrin, C. (1999). Social skills, stressful life events, and the development of psychosocial problems. *Journal of Social and Clinical Psychology*, 18(1), 14-34. doi: 10.1521/jscp.1999.18.1.14
- Sessanna, L., Finnell, D. S., Underhill, M., Chang, Y-P., & Peng, H-L. (2011). Measures assessing spirituality as more than religiosity: A methodological review of nursing and health-related literature. *Journal of Advanced Nursing*, 67(8), 1677-1694. doi: 10.1111/j.1365-2648.2010.05596.x

- Seybold, K. S., & Hill, P. C. (2001). The role of religion and spirituality in mental and physical health. *Current Directions in Psychological Science, 10*(1), 21-24. doi: 10.1111/1467-8721.00106
- Shia, R. (1998). *Academic intrinsic and extrinsic motivation and metacognition. Assessing academic intrinsic motivation: A look at student goals and personal strategy*. (Doctoral dissertation). Retrieved from <http://www.cet.edu/pdf/motivation.pdf>
- Sigmon, S. T., Pells, J. J., Boulard, N. E., Whitcomb-Smith, S., Edenfield, T. M., Hermann, B. A., . . . Kubik, E. (2005). Gender differences in self-reports of depression: The response bias hypothesis revisited. *Sex Roles, 53*(5-6), 401-411. doi: 10.1007/s11199-005-6762-3
- Simmons, B. L., & Nelson, D. L. (2001). Eustress at work: the relationship between hope and health in hospital nurses. *Health Care Management Review, 26*(4), 7-18. doi: 10.1097/00004010-200110000-00002
- Skinner, B. F. (1976). *About behaviorism*. New York: Vintage Books.
- Slade, T., Johnston, A., Teesson, M., Whiteford, H., Burgess, P., Pirkis, J., Saw, S. (2009). *The mental health of Australians 2. Report on the 2007 National Survey of Mental Health and Wellbeing Canberra*. Retrieved from <http://www.health.gov.au/internet/publications/publishing.nsf/Content/mental-pubs-m-mhaust2-toc>

- Smith, J. L., Cech, E., Metz, A., Huntoon, M., & Moyer, C. (2014). Giving back or giving up: Native American student experiences in science and engineering. *Cultural Diversity and Ethnic Minority Psychology, 20*(3), 413-429. doi: 10.1037/a0036945
- Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The Brief Resilience Scale: Assessing the ability to bounce back. *International Journal of Behavioral Medicine, 15*, 194-200. doi: 10.1080/10705500802222972
- Smith, J. L., Deemer, E. D., Thoman, D. B., & Zazworsky, L. (2014). Motivation under the microscope: Understanding undergraduate science students' multiple motivations for research. *Motivation and Emotion, 38*(4), 496-512. doi: 10.1007/s11031-013-9388-8
- Sniehotta, F. F., Scholz, U., & Schwarzer, R. (2005). Bridging the intention-behaviour gap: Planning, self-efficacy, and action control in the adoption and maintenance of physical exercise. *Psychology & Health, 20*(2), 143-160. doi: 10.1080/08870440512331317670
- Soenens, B., & Vansteenkiste, M. (2005). Antecedents and outcomes of self-determination in three life domains: The role of parents' and teachers' autonomy support. *Journal of Youth and Adolescence, 34*(6), 589-604. doi: 10.1007/s10964-005-8948-y
- Spencer, S. M., & Patrick, J. H. (2009). Social support and personal mastery as protective resources during emerging adulthood. *Journal of Adult Development, 16*(4), 191-198. doi: 10.1007/s10804-009-9064-0

- Stajkovic, A. D., & Luthans, F. (1998). Field report: Social cognitive theory and self-efficacy: Going beyond traditional motivational and behavioral approaches. *Organizational Dynamics*, 26, 62-74. doi: 10.1016/s0090-2616(98)90006-7
- Stallman, H. M. (2008). Prevalence of psychological distress in university students: Implications for service delivery. *Australian Family Physician*, 37(8), 673-677. Retrieved from <http://www.racgp.org.au/afp/>
- Stallman, H. M. (2010). Psychological distress in university students: A comparison with general population data. *Australian Psychologist*, 45(4), 249-257. doi: 10.1080/00050067.2010.482109
- Stallman, H. M., & Shochet, I. (2009). Prevalence of mental health problems in Australian university health services. *Australian Psychologist*, 44(2), 122-127. doi: 10.1080/00050060902733727
- Steinhardt, M., & Dolbier, C. (2008). Evaluation of a resilience intervention to enhance coping strategies and protective factors and decrease symptomatology. *Journal of American College Health*, 56(4), 445-453. doi: 10.3200/jach.56.44.445-454
- 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 Medicine*, 22(4), 492-499. doi: 10.1093/pubmed/22.4.492

- Stipek, D. J. (1996). Motivation and instruction. In D. C. Berliner & R. C. Calfee (Eds.), *Handbook of education psychology* (pp. 85-113). New York: Routledge.
- Stover, J. B., de la Iglesia, G., Boubeta, A. R., & Liporace, M. F. (2012). Academic Motivation Scale: Adaptation and psychometric analyses for high school and college students. *Psychology Research and Behavior Management, 5*, 71-83. doi: 10.2147/prbm.s33188
- Strawbridge, W. J., Cohen, R., Shema, S. J., & Kaplan, G. A. (1997). Frequent attendance at religious services and mortality over 28 years. *American Journal of Public Health, 87*(6), 957-961. doi: 10.2105/AJPH.87.6.957
- Szaflarski, M., Ritchey, N., Leonard, A. C., Mrus, J. M., Peterman, A.H., Ellison, C. G., . . . Tsevat, J. (2006). Modelling the effects of spirituality/religion on patients' perceptions of living with HIV/AIDS. *Journal of General Internal Medicine, 21*, S28-38. doi: 10.1111/j.1525-1497.2006.00646.x
- Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Boston: Pearson Education.
- Tella, A. (2007). The impact of motivation on student's academic achievement and learning outcomes in mathematics among secondary school students in Nigeria. *Eurasia Journal of Mathematics, Science and Technology Education, 3*(2), 149-156.
- Thatcher, A., & Milner, K. (2014). Changes in productivity, psychological wellbeing and physical wellbeing from working in a 'green' building. *Work: Journal of*

*Prevention, Assessment & Rehabilitation*, 49(3), 381-393. doi: 10.3233/WOR-141876

Theron, L. C. (2013). Community-researcher liaisons: The pathways to Resilience Project advisory panel. *South African Journal of Education*, 33, 1-19. doi: 10.15700/201412171324

Theron, L. C., & Theron, A. M. C. (2014). Meaning-making and resilience: Case studies of a multifaceted process. *Journal of Psychology in Africa*, 24(1), 24-32. doi: 10.1080/14330237.2014.904099

This Emotional Life. (n.d). Resilience. [Web log post]. Retrieved from [http://www.pbs.org/thisemotionallife/topic/resilience?ct=hn\\_blog\\_entry](http://www.pbs.org/thisemotionallife/topic/resilience?ct=hn_blog_entry)

Thompson, S. C. (2002). The role of personal control and adaptive functioning. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 202-213). New York: Oxford University Press.

Thoresen, C. E., & Harris, A. H. S. (2002). Spirituality and health: What's the evidence and what's needed? *Annals of Behavioral Medicine*, 24(1), 3-13. doi: 10.1207/S15324796ABM 2401\_02

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research*, 45(1), 89-125. doi: 10.3102/00346543045001089

- 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. doi: 10.1080/14733145.2010.519043
- Tugade, M. M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology, 86*(2), 320-333. doi: 10.1037/0022-3514.86.2.320
- Underwood, L. G. (2006). Ordinary spiritual experience: Qualitative research, interpretive guidelines, and population distribution for the Daily Spiritual Experience Scale. *Archive for the Psychology of Religion, 28*, 181-218. doi: 10.1163/008467206777832562
- Vaez, M., & Laflamme, L. (2008). Experienced stress, psychological symptoms, self rated health and academic achievement: A longitudinal study of Swedish university students. *Social Behavior and Personality, 36*(2), 183-196. doi: 10.2224/sbp.2008.36.2.183
- Vallerand, R. J., & Bissonnette, R. (1992). Intrinsic, extrinsic, and amotivational styles as predictors of behaviour: A prospective study. *Journal of Personality, 60*(3), 599-620. doi: 10.1111/j.1467-6494.1992.tb00922.x
- Vallerand, R. J., Blais, M. R., Briere, N. M., & Pelletier, L. G. (1989). Construction et validation de l'Echelle de Motivation en Education [Construction and validation of the Academic Motivation Scale]. *Canadian Journal of Behavioral Sciences, 21*, 323-349. doi: 10.1037/h0079855

Vallerand, R. J., Pelletier, L. G., Blais, M. R., Briere, N. M., Senecal, C., & Vallieres E. F. (1992). The Academic Motivation Scale: A measure of intrinsic, extrinsic, and amotivation in education. *Educational and Psychological Measurement, 52*, 1003-1017. doi: 10.1177/0013164492052004025

Vallerand, R. J., Pelletier, L. G., Blais, M. R., Briere, N. M., Senecal, C., & Vallieres, E. F. (1993). On the assessment of intrinsic, extrinsic, and amotivation in education: Evidence on the concurrent and construct validity of the Academic Motivation Scale. *Educational and Psychological Measurement, 53*, 159-172. doi: 10.1177/0013164493053001018

Van Dyke, C. J., & Elias, M. J. (2007). How forgiveness, purpose, and religiosity are related to the mental health and well-being of youth: A review of the literature. *Mental Health, Religion and Culture, 10*(4), 395-415. doi: 10.1080/13674670600841793

Vansteenkiste, M., Lens, W., & Deci, E. L. (2006). Intrinsic Versus Extrinsic Goal Contents in Self-Determination Theory: Another Look at the Quality of Academic Motivation. *Educational Psychologist, 41*(1), 19-31. doi: 10.1207/s15326985ep4101\_4

Vansteenkiste, M., Simons, J., Lens, W., Sheldon, K. M., & Deci, E. L. (2004). Motivating Learning, Performance, and Persistence: The Synergistic Effects of Intrinsic Goal Contents and Autonomy-Supportive Contexts. *Journal of Personality and Social Psychology, 87*(2), 246-260. doi: 10.1037/0022-3514.87.2.246

- Vecchione, M., Alessandri, G., & Marsicano, G. (2014). Academic motivation predicts educational attainment: Does gender make a difference? *Learning and Individual Differences, 32*, 124-131. doi: 10.1016/j.lindif.2014.01.003
- Veit, C. T., & Ware Jr., J. E. (1983). The structure of psychological distress and well-being in general populations. *Journal of Consulting and Clinical Psychology, 51*(5), 730-742. doi: 10.1037/0022-006X.51.5.730
- 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*, 643-650. doi: 10.1007/s00127-008-0486-y
- Victoria University. (2014). *University profile- The university of opportunity*. Retrieved from <http://www.vu.edu.au/sites/default/files/about-us/pdfs/university-profile.pdf>
- Victoria University. (2016a). *Our history*. Retrieved from <http://www.vu.edu.au/about-us/our-history>
- Victoria University. (2016b). *2015 Annual Report*. Retrieved from <https://www.vu.edu.au/sites/default/files/about-us/pdfs/vu-2015-annual-report.pdf>: Victoria University.
- Visser, A., Garssen, B., & Vingerhoets, A. J. (2016). Existential well-being: Spirituality or well-being? *The Journal of Nervous and Mental Disease*. doi: 10.1097/NMD.0000000000000617

- Vivekananda, K., Telley, A., & Trethowan, S. (2011). A five year study on psychological distress within a university counselling population. *Journal of the Australia and New Zealand Student Services Association, 37*, 39-57. Retrieved from [https://anzssa.com/Public/Public/JANZSSA/Complete\\_Editions.aspx](https://anzssa.com/Public/Public/JANZSSA/Complete_Editions.aspx)
- Wagner, E. (2012). Academic motivation in college students from Romania, Hungary and Germany. A cross-cultural investigation. *Transylvanian Journal of Psychology, 12*(2), 121-164. Retrieved from <http://epsz.pszichologia.psiedu.ubbcluj.ro/en/index.php>
- Wagner, E., & Szamoskozi, S. (2012). Effects of direct academic motivation-enhancing intervention programs: A meta-analysis. *Journal of Cognitive and Behavioral Psychotherapies, 12*(1), 85-101. Retrieved from <http://jebp.psychotherapy.ro/>
- Wagnild, G. M., & Young, H. M. (1993). Development and psychometric evaluation of the Resilience Scale. *Journal of Nursing Measurement, 1*(2), 165-178. Retrieved from <http://www.springerpub.com/journal-of-nursing-measurement.html>
- Walker, M. E. (2010). Relationship of spirituality, subjective well-being, and psychological well-being in a population of African-American college students. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 70*, 8-B.
- Walker, K. L., & Dixon, V. (2002). Spirituality and academic performance among African American college students. *Journal of Black Psychology, 28*(2), 107-121. doi: 10.1177/0095798402028002003

- Wallerstein, N. (1992). Powerlessness, empowerment, and health: Implications for health promotion programs. *American Journal of Health Promotion, 6*(3), 197-205. doi: 10.4278/0890-1171-6.3.197
- Wang, K. T., Heppner, P. P., Wang, L., & Zhu, F. (2015). Cultural intelligence trajectories in new international students: Implications for the development of cross-cultural competence. *International Perspectives in Psychology: Research, Practice, Consultation, 4*(1), 51-65. doi: 10.1037/ipp0000027
- Ward, A. (2014, May 19). Resilience and you [Web log post]. Retrieved from <http://www.3minuteangels.com/2014/05/blog-resilience-and-you/>
- Waugh, C. E., Thompson, R. J., & Gotlib, I. H. (2011). Flexible emotional responsiveness in trait resilience. *Emotion, 11*(5), 1059-1067. doi: 10.1037/a0021786
- Werner, E., & Smith, R. S (1992). *Overcoming the odds: High risk children from birth to adulthood*. New York: Cornell University Press.
- Weston, R., & Gore, P. A. (2006). A brief guide to structural equation modeling. *The Counseling Psychologist, 34*(5), 719-751. doi: 10.1177/0011000006286345
- Wigfield, A., Guthrie, J. T., Tonks, S., & Perencevich, K. C. (2004). Children's motivation for reading: Domain specificity and instructional influences. *The Journal of Educational Research, 97*(6), 299-310. doi: 10.3200/joer.97.6.299-310

Wilkinson, R. B., & Walford, W. A. (1998). The measurement of adolescent psychological health: One or two dimensions? *Journal of Youth and Adolescence*, 27(4), 443-455. doi: 10.1023/A:1022848001938

Willingham, D. T. (2007). Critical thinking: Why is it so hard to teach? *American Educator*, 8-19. doi: 10.3200/aepr.109.4.21-32

Wuhrmann, M. (2008). The Effects of Expected Reward and Locus of Control on Intrinsic Motivation. *The Huron University College Journal of Learning and Motivation*, 46(1), 151-167.

Yesilyurt, E. (2014). Academic locus of control, tendencies towards academic dishonesty and test anxiety levels as the predictors of academic self-efficacy. *Educational Sciences: Theory and Practice*, 14(5), 1945-1956. Retrieved from ERIC database. (EJ1050425)

Yi, M. S., Mrus, J. M., Wade, T. J., Ho, M. L., Hornung, R. W., Cotton, S., . . . Tsevat, J. (2006). Religion, spirituality, and depressive symptoms in patients with HIV/AIDS. *Journal of General Internal Medicine*, 21, S21-27. doi: 10.1111/j.1525-1497.2006.00643.x

Zigmond, A. S. and Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*, 67, 361-370. doi:10.1111/j.1600-0447.1983.tb09716.x

Zimmaro, L. A., Salmon, P., Naidu, H., Rowe, J., Phillips, K., Rebholz, W. N., . . . Sephton, S. E. (2016). Association of dispositional mindfulness with stress, cortisol, and

well-being among university undergraduate students. *Mindfulness*, 7(4), 874-885.

doi: 10.1007/s12671-016-0526-8

Zimmerman, B. J. (1995). Self-efficacy and educational development. In A. Bandura (Ed.), *Self-efficacy in changing societies* (pp. 202-231). London: Cambridge University Press.

Zinnbauer, B. J. (1997). Religion and spirituality: Unfuzzifying the fuzzy. *Journal for the Scientific Study of Religion*, 36(4), 549-564. doi: 10.2307/1387689

Appendix A

Demographic questionnaire

Please answer the following questions about yourself and your experiences.

Male  Female

Age (in years)\_\_\_\_\_

Marital Status

Married/de facto relationship  Single

Divorced/widowed/ separated  Partnered

Which type of course are you currently enrolled in?

TAFE  Postgraduate- research

Undergraduate  Postgraduate -coursework

Are you enrolled on a full or part time basis?

Full time  Part time

Which academic college do you belong to?

Arts  Health and Biomedicine

Business  Law and Justice

Education  Sports and Exercise Science

Engineering and Science  Trades College

What is your main area of study? Please specify\_\_\_\_\_

How are you progressing with your studies in comparison to what you anticipated?

Better  Not as well

About the same

Are you an International student?

Yes  No

What is your ethnicity?

Oceania <input type="checkbox"/>	Southern and Eastern Europe <input type="checkbox"/>
Australian <input type="checkbox"/>	North African and Middle Eastern <input type="checkbox"/>
Australian Aboriginal <input type="checkbox"/>	South East Asian <input type="checkbox"/>
Torres Strait Islander <input type="checkbox"/>	North East Asian <input type="checkbox"/>
Australian South Sea Islander <input type="checkbox"/>	Southern and Central Asian <input type="checkbox"/>
New Zealander <input type="checkbox"/>	People of the Americas <input type="checkbox"/>
North Western European <input type="checkbox"/>	Sub Saharan African <input type="checkbox"/>
Other <input type="checkbox"/>	

Please specify \_\_\_\_\_

In which country were you born?

Please specify \_\_\_\_\_

What is your religious orientation?

None <input type="checkbox"/>	Protestant <input type="checkbox"/>
Jewish <input type="checkbox"/>	Catholic <input type="checkbox"/>
Buddhist <input type="checkbox"/>	Orthodox <input type="checkbox"/>
Muslim <input type="checkbox"/>	Other Christian <input type="checkbox"/>
Other <input type="checkbox"/>	

Please specify \_\_\_\_\_

Are you currently employed?

Casual <input type="checkbox"/>	Full time <input type="checkbox"/>
Part time <input type="checkbox"/>	Unemployed <input type="checkbox"/>

How would you categorise your socio economic status?

Struggling

(to pay for necessities)

Secure

(able to pay for what I want)

Adequate

(able to pay for necessities but not much else)

How would you describe your physical health?

Poor

Good

Average

Excellent

Are you aware of any student support services at the university? Please specify

Yes

No

Do you know where to access/find student support services at the University?

Yes

No

During your time at university, did you feel you needed help from any university services?

Yes

No

Have you accessed any student support services at the University?

Yes

No

How many times? \_\_\_\_\_

Are you currently engaged in any student support services at the University?

Yes

No

If you have accessed support services at the University, how would you rate their service?

Not helpful

Very helpful

Somewhat helpful

If you have not accessed student support services, why not?

- |  |                          |  |                          |
|--|--------------------------|--|--------------------------|
| I didn't know what was available         | <input type="checkbox"/> | I went to a service off campus                   | <input type="checkbox"/> |
| I didn't know how to make an appointment | <input type="checkbox"/> | I thought it might influence my academic results | <input type="checkbox"/> |
| Other                                    | <input type="checkbox"/> | I didn't know it was free                        | <input type="checkbox"/> |

Please specify \_\_\_\_\_

Does the University offer opportunities for meaningful contribution?

- |     |                          |    |                          |
|-----|--------------------------|----|--------------------------|
| Yes | <input type="checkbox"/> | No | <input type="checkbox"/> |
|-----|--------------------------|----|--------------------------|

Are you currently studying for exams?

- |     |                          |    |                          |
|-----|--------------------------|----|--------------------------|
| Yes | <input type="checkbox"/> | No | <input type="checkbox"/> |
|-----|--------------------------|----|--------------------------|

Are you currently working on any assessments/assignments to submit?

- |     |                          |    |                          |
|-----|--------------------------|----|--------------------------|
| Yes | <input type="checkbox"/> | No | <input type="checkbox"/> |
|-----|--------------------------|----|--------------------------|

Do you have any other current stressors?

- |     |                          |
|-----|--------------------------|
| Yes | <input type="checkbox"/> |
|-----|--------------------------|

Please specify \_\_\_\_\_

- |    |                          |
|----|--------------------------|
| No | <input type="checkbox"/> |
|----|--------------------------|

## Appendix B

## Scale used to measure psychological well-being

The Depression, Anxiety, Stress Scale- 21 items (Lovibond & Lovibond, 1995).

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

- 0 Did not apply to me at all
- 1 Applied to me to some degree, or some of the time
- 2 Applied to me to a considerable degree, or a good part of time
- 3 Applied to me very much, or most of the time

1. I found it hard to wind down.

0                      1                      2                      3

2. I was aware of dryness of my mouth.

0                      1                      2                      3

3. I couldn't seem to experience any positive feeling at all.

0                      1                      2                      3

## PREDICTORS OF ACADEMIC MOTIVATION

4. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion).

0            1            2            3

5. I found it difficult to work up the initiative to do things.

0            1            2            3

6. I tended to over-react to situations.

0            1            2            3

7. I experienced trembling (e.g., in the hands).

0            1            2            3

8. I felt that I was using a lot of nervous energy.

0            1            2            3

9. I was worried about situations in which I might panic and make a fool of myself.

0            1            2            3

10. I felt that I had nothing to look forward to.

0            1            2            3

11. I found myself getting agitated.

0            1            2            3

## PREDICTORS OF ACADEMIC MOTIVATION

12. I found it difficult to relax.

0            1            2            3

13. I felt down-hearted and blue.

0            1            2            3

14. I was intolerant of anything that kept me from getting on with what I was doing.

0            1            2            3

15. I felt I was close to panic.

0            1            2            3

16. I was unable to become enthusiastic about anything.

0            1            2            3

17. I felt I wasn't worth much as a person.

0            1            2            3

18. I felt that I was rather touchy.

0            1            2            3

19. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat).

0            1            2            3

## PREDICTORS OF ACADEMIC MOTIVATION

20. I felt scared without any good reason.

0            1            2            3

21. I felt that life was meaningless.

0            1            2            3

## PREDICTORS OF ACADEMIC MOTIVATION

## Appendix C

## Scale used to measure resilience

Brief Resilience Scale (Smith et al., 2008).

Please indicate the extent to which you agree with each of the following statements by using the following statements:

1 = strongly disagree

2 = disagree

3 = neutral

4 = agree

5 = strongly agree

1. I tend to bounce back quickly after hard times

1                      2                      3                      4                      5

2. I have a hard time making it through stressful events

1                      2                      3                      4                      5

3. It does not take me long to recover from a stressful event

1                      2                      3                      4                      5

4. It is hard for me to snap back when something bad happens

1                      2                      3                      4                      5

## PREDICTORS OF ACADEMIC MOTIVATION

5. I usually come through difficult times with little trouble

1                      2                      3                      4                      5

6. I tend to take a long time to get over set-backs in my life

1                      2                      3                      4                      5

## PREDICTORS OF ACADEMIC MOTIVATION

## Appendix D

## Scale used to measure spirituality

Spiritual Well Being Scale (Ellison & Paloutzian, 1982).

For each of the following statements circle the choice that best indicates the extent of your agreement or disagreement as it describes your personal experience:

SA= strongly agree

D= disagree

MA= moderately agree

MD= moderately disagree

A= agree

SD= strongly disagree

1. I don't find much satisfaction in private prayer with God.

SA            MA            A            D            MD            SD

2. I don't know who I am, where I came from, or where I'm going.

SA            MA            A            D            MD            SD

3. I believe that God loves me and cares about me.

SA            MA            A            D            MD            SD

4. I feel that life is a positive experience.

SA            MA            A            D            MD            SD

5. I believe that God is impersonal and not interested in my daily situations.

SA            MA            A            D            MD            SD

## PREDICTORS OF ACADEMIC MOTIVATION

6. I feel unsettled about my future.

SA MA A D MD SD

7. I have a personally meaningful relationship with God.

SA MA A D MD SD

8. I feel very fulfilled and satisfied with life.

SA MA A D MD SD

9. I don't get much personal strength and support from God.

SA MA A D MD SD

10. I feel a sense of well-being about the direction my life is headed in.

SA MA A D MD SD

11. I believe that God is concerned about my problems.

SA MA A D MD SD

12. I don't enjoy much about life.

SA MA A D MD SD

13. I don't have a personally satisfying relationship with God.

SA MA A D MD SD

14. I feel good about my future.

SA MA A D MD SD

15. My relationship with God helps me not to feel lonely.

SA MA A D MD SD

16. I feel that life is full of conflict and unhappiness.

SA MA A D MD SD

## PREDICTORS OF ACADEMIC MOTIVATION

17. I feel most fulfilled when I'm in close communion with God.

SA            MA            A            D            MD            SD

18. Life doesn't have much meaning.

SA            MA            A            D            MD            SD

19. My relationship with God contributes to my sense of well-being.

SA            MA            A            D            MD            SD

20. I believe there is some real purpose for my life.

SA            MA            A            D            MD            SD

## PREDICTORS OF ACADEMIC MOTIVATION

## Appendix E

## Scale used to measure perceived stress

Perceived Stress Scale- 10 items (Cohen, Kamarck & Mermelstein, 1983).

The questions in this scale ask you about your feelings and thoughts *during the last month*. In each

case, you will be asked to indicate by circling *how often* you felt or thought a certain way.

0 = Never

1 = Almost Never

2 = Sometimes

3 = Fairly Often

4 = Very Often

1. In the last month how often have you been upset because of something that happened unexpectedly?

0                      1                      2                      3                      4

2. In the last month, how often have you felt that you were unable to control the important things in your life?

0                      1                      2                      3                      4

## PREDICTORS OF ACADEMIC MOTIVATION

3. In the last month, how often have you felt nervous and “stressed”?

0            1            2            3            4

4. In the last month, how often have you felt confident about your ability to handle your personal problems?

0            1            2            3            4

5. In the last month, how often have you felt that things were going your way?

0            1            2            3            4

6. In the last month, how often have you found that you could not cope with all the things that you had to do?

0            1            2            3            4

7. In the last month, how often have you been able to control irritations in your life?

0            1            2            3            4

8. In the last month, how often have you felt that you were on top of things?

0            1            2            3            4

9. In the last month, how often have you been angered because of things that were outside of your control?

0            1            2            3            4

10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

0            1            2            3            4

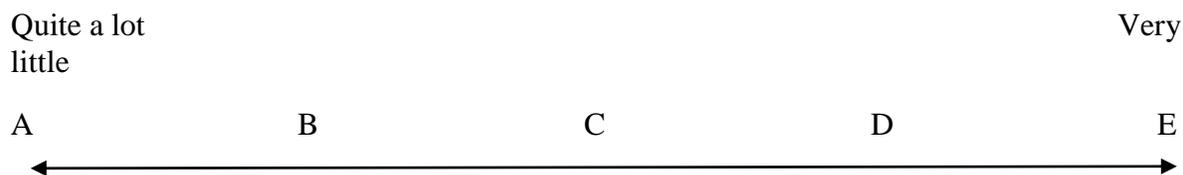
## PREDICTORS OF ACADEMIC MOTIVATION

## Appendix F

## Scale used to measure academic self-efficacy

Academic Self-Efficacy Scale (Owen & Froman, 1988).

How much confidence do you have about doing each of the behaviours listed below? Circle the letters that best represent your confidence.



- |   |           |
|---|-----------|
| 1. Taking well-organised notes during a lecture.                          | A B C D E |
| 2. Participating in a class discussion.                                   | A B C D E |
| 3. Answering a question in a large class.                                 | A B C D E |
| 4. Answering a question in a small class.                                 | A B C D E |
| 5. Taking “objective” tests (multiple choice, T-F, matching)              | A B C D E |
| 6. Taking essay tests.  | A B C D E |
| 7. Writing a high quality term paper.                                     | A B C D E |
| 8. Listening carefully during a lecture on a difficult topic.             | A B C D E |
| 9. Tutoring another student.  | A B C D E |
| 10. Explaining a concept to another student.                              | A B C D E |
| 11. Asking a professor in class to review a concept you don’t understand. | A B C D E |
| 12. Earning good marks in most courses.                                   | A B C D E |

## PREDICTORS OF ACADEMIC MOTIVATION

- |  |           |
|--|-----------|
| 13. Studying enough to understand content thoroughly.            | A B C D E |
| 14. Running for student government office.                       | A B C D E |
| 15. Participating in extracurricular activities (sports, clubs). | A B C D E |
| 16. Making professors respect you.                               | A B C D E |
| 17. Attending class regularly.                                   | A B C D E |
| 18. Attending class consistently in a dull course.               | A B C D E |
| 19. Making a professor think you're paying attention in class.   | A B C D E |
| 20. Understanding most ideas you read in your texts.             | A B C D E |
| 21. Understanding most ideas presented in class.                 | A B C D E |
| 22. Performing simple math computations.                         | A B C D E |
| 23. Using a computer.  | A B C D E |
| 24. Mastering most content in a math course.                     | A B C D E |
| 25. Talking to a professor privately to get to know him or her.  | A B C D E |
| 26. Relating course content to material in other courses.        | A B C D E |
| 27. Challenging a professor's opinion in class.                  | A B C D E |
| 28. Applying lecture content to a laboratory session.            | A B C D E |
| 29. Making good use of the library.                              | A B C D E |
| 30. Getting good grades.   | A B C D E |
| 31. Spreading out study instead of cramming.                     | A B C D E |
| 32. Understanding difficult passages in textbooks.               | A B C D E |
| 33. Mastering content in a course you're not interested in.      | A B C D E |

## PREDICTORS OF ACADEMIC MOTIVATION

## Appendix G

## Scale used to measure academic motivation

## Academic Motivation Scale (Vallerand, et al., 1992)

Using the scale below, indicate to what extent each of the following items presently corresponds to one of the reasons why you go to University.

Does not correspond at all	Corresponds a little	Corresponds moderately	Corresponds a lot	Corresponds exactly		
1	2	3	4	5	6	7
1. Because with only a high-school qualification I would not find a high-paying job later on.						
1	2	3	4	5	6	7
2. Because I experience pleasure and satisfaction while learning new things.						
1	2	3	4	5	6	7
3. Because I think that a University education will help me better prepare for the career I have chosen.						
1	2	3	4	5	6	7
4. For the intense feelings I experience when I am communicating my own ideas to others.						
1	2	3	4	5	6	7
5. Honestly, I don't know; I really feel that I am wasting my time in school.						
1	2	3	4	5	6	7

## PREDICTORS OF ACADEMIC MOTIVATION

6. For the pleasure I experience while surpassing myself in my studies.

1            2            3            4            5            6            7

7. To prove to myself that I am capable of completing my University studies.

1            2            3            4            5            6            7

8. In order to obtain a more prestigious job later on.

1            2            3            4            5            6            7

9. For the pleasure I experience when I discover new things never seen before.

1            2            3            4            5            6            7

10. Because eventually it will enable me to enter the job market in a field that I like.

1            2            3            4            5            6            7

11. For the pleasure that I experience when I read interesting authors.

1            2            3            4            5            6            7

12. I once had good reasons for going to university; however, now I wonder whether I should continue.

1            2            3            4            5            6            7

13. For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments.

1            2            3            4            5            6            7

14. Because of the fact that when I succeed at university I feel important.

1            2            3            4            5            6            7

15. Because I want to have "the good life" later on.

1            2            3            4            5            6            7

16. For the pleasure that I experience in broadening my knowledge about subjects which appeal to me.

1            2            3            4            5            6            7

17. Because this will help me make a better choice regarding my career orientation.

1            2            3            4            5            6            7

## PREDICTORS OF ACADEMIC MOTIVATION

18. For the pleasure that I experience when I feel completely absorbed by what certain authors have written.

1            2            3            4            5            6            7

19. I can't see why I go to university and frankly, I couldn't care less.

1            2            3            4            5            6            7

20. For the satisfaction I feel when I am in the process of accomplishing difficult academic activities.

1            2            3            4            5            6            7

21. To show myself that I am an intelligent person.

1            2            3            4            5            6            7

22. In order to have a better salary later on.

1            2            3            4            5            6            7

23. Because my studies allow me to continue to learn about many things that interest me.

1            2            3            4            5            6            7

24. Because I believe that a few additional years of education will improve my competence as a worker.

1            2            3            4            5            6            7

25. For the "high" feeling that I experience while reading about various interesting subjects.

1            2            3            4            5            6            7

26. I don't know; I can't understand what I am doing in school.

1            2            3            4            5            6            7

27. Because university allows me to experience a personal satisfaction in my quest for excellence in my studies.

1            2            3            4            5            6            7

28. Because I want to show myself that I can succeed in my studies.

1            2            3            4            5            6            7

## PREDICTORS OF ACADEMIC MOTIVATION

## Appendix H

## Scale used to measure locus of control

Rotter Internal-External Locus of Control Scale (Rotter, 1966).

For each item, please choose which statement you agree with more, a or b.

1.     a. Children get into trouble because their parents punish them too much.  
       b. The trouble with most children nowadays is that their parents are too easy with them.
2.     a. Many of the unhappy things in people's lives are partly due to bad luck.  
       b. People's misfortunes result from the mistakes they make.
3.     a. One of the major reasons why we have wars is because people don't take enough interest in politics.  
       b. There will always be wars, no matter how hard people try to prevent them.
4.     a. In the long run people get the respect they deserve in this world.  
       b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
5.     a. The idea that teachers are unfair to students is nonsense.  
       b. Most students don't realize the extent to which their grades are influenced by accidental happenings.
6.     a. Without the right breaks one cannot be an effective leader.  
       b. Capable people who fail to become leaders have not taken advantage of their

## PREDICTORS OF ACADEMIC MOTIVATION

- opportunities.
7.
    - a. No matter how hard you try some people just don't like you.
    - b. People who can't get others to like them don't understand how to get along with others.
  8.
    - a. Heredity plays the major role in determining one's personality.
    - b. It is one's experiences in life which determine what they're like.
  9.
    - a. I have often found that what is going to happen will happen.
    - b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
  10.
    - a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.
    - b. Many times exam questions tend to be so unrelated to course work that studying in really useless.
  11.
    - a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.
    - b. Getting a good job depends mainly on being in the right place at the right time.
  12.
    - a. The average citizen can have an influence in government decisions.
    - b. This world is run by the few people in power, and there is not much the little guy can do about it.
  13.
    - a. When I make plans, I am almost certain that I can make them work.
    - b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

## PREDICTORS OF ACADEMIC MOTIVATION

14.
  - a. There are certain people who are just no good.
  - b. There is some good in everybody.
15.
  - a. In my case getting what I want has little or nothing to do with luck.
  - b. Many times we might just as well decide what to do by flipping a coin.
16.
  - a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
  - b. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.
17.
  - a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.
  - b. By taking an active part in political and social affairs the people can control world events.
18.
  - a. Most people don't realize the extent to which their lives are controlled by accidental happenings.
  - b. There really is no such thing as "luck."
19.
  - a. One should always be willing to admit mistakes.
  - b. It is usually best to cover up one's mistakes.
20.
  - a. It is hard to know whether or not a person really likes you.
  - b. How many friends you have depends upon how nice a person you are.
21.
  - a. In the long run the bad things that happen to us are balanced by the good ones.
  - b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.
22.
  - a. With enough effort we can wipe out political corruption.
  - b. It is difficult for people to have much control over the things politicians do in

## PREDICTORS OF ACADEMIC MOTIVATION

office.

23. a. Sometimes I can't understand how teachers arrive at the grades they give.  
b. There is a direct connection between how hard I study and the grades I get.
24. a. A good leader expects people to decide for themselves what they should do. b. A good leader makes it clear to everybody what their jobs are.
25. a. Many times I feel that I have little influence over the things that happen to me.  
b. It is impossible for me to believe that chance or luck plays an important role in my life.
26. a. People are lonely because they don't try to be friendly.  
b. There's not much use in trying too hard to please people, if they like you, they like you.
27. a. There is too much emphasis on athletics in high school. b. Team sports are an excellent way to build character.
28. a. What happens to me is my own doing.  
b. Sometimes I feel that I don't have enough control over the direction my life is taking.
29. a. Most of the time I can't understand why politicians behave the way they do.  
b. In the long run the people are responsible for bad government on a national as well as on a local level.