



The impact of an emotional fitness and resilience building intervention – Mytern - on the psychological wellbeing, life satisfaction, resilience and distress levels of first year university students

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**The impact of an emotional fitness and resilience building
intervention – *Mytern* - on the psychological wellbeing, life
satisfaction, resilience and distress levels of first year
university students**

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This thesis is submitted in fulfilment for the degree for Doctor of Philosophy
at the University of the Sunshine Coast

Supervisors: Dr Florin Oprescu, Dr Bill Allen and Professor Margaret McAllister

October, 2013.

Abstract

The rising prevalence of mental health problems within the university student population has been well documented, yet few resilience-building interventions embedded within the first year curriculum have been empirically tested. This thesis evaluates the impact of a time and cost effective intervention (*Mytern*) which was embedded into a first year compulsory course in one Australian university, and delivered via a brief movie on DVD, a mini manual and a daily SMS.

By adopting a salutogenic perspective and employing a mixed method approach, the study gathered data from surveys of wellbeing, semi-structured interviews and SMS feedback. Participants were divided into 3 groups: control (C), intervention involving DVD and mini manual (IA), and intervention involving DVD, mini manual and daily *Mytern* SMS (ISMS). One way ANOVA involving planned contrasts were used to investigate differences between the groups from baseline to the end of intervention, with results indicating that the intervention SMS group (ISMS) experienced significant positive changes in all 3 surveys of wellbeing (FS Diff = 5.74 ± 5.86 , $p = .000$; SWLS Diff = 5.53 ± 5.16 , $p = .000$; CD-RISC Diff = 3.84 ± 3.77 , $p = .000$) and a decreased score in psychological distress (K-10 = -6.47 ± 7.18 , $p = .000$). The results for the ISMS group supported the hypotheses that the intervention (*Mytern*) would increase students' psychological wellbeing, life satisfaction and resilience, and decrease levels of psychological distress. Thematic analysis of the qualitative data added depth to the quantitative results by revealing how the resilience-building intervention developed a feeling of connection and a sense of control within a large number of students; enabling them to feel better mentally and physically; perform better academically; whilst encouraging them to continue at university.

The contributions to knowledge include the generation of the Anonymous Caring Connection Theory (ACCT), which helped to explain the connection that was created between the student and the daily *Mytern* SMS; as well as empirically testing a resilience-building intervention that has the capacity to be embedded into a first year course and implemented within a tutorial by tutors. The study findings indicate that equipping students with a skill to reframe the daily stressors of university and life may increase wellbeing, increase resilience, reduce distress and as a result may result in increased student retention.

Style

The style and format contained within this dissertation document is in accordance with the *Publication Manual of the American Psychological Association (6th Edition)* (APA, 2009).

There is one modification to the style. Because of their large number, quotations from interview data in the text are indicated by using italics, to ensure clarity. The quotations are reproduced verbatim and any grammatical or syntax errors have not been removed or changed; so [sic] will not be used.

Declaration of Originality

The work contained in this thesis has not been previously submitted to meet requirements for an award at this or any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made.

.....

Jane Foster

{insert date}

Related Publications and Presentations

Published papers

Foster, J. M., Allen, W., McAllister, M., & Oprescu, F. (2013). *An SMS a day keeps attrition at bay. Preliminary findings from an intervention using SMS with first year students from a regional Australian university*. Paper presented at the 16th International FYHE Conference Wellington, NZ. http://fyhe.com.au/past_papers/papers13/7A.pdf

Foster, J. M., Allen, W., Oprescu, F., & McAllister, M. (2014). Mytern: An Innovative Approach to Increase Students' Achievement, Sense of Wellbeing and Levels of Resilience. *JANZSSA*(43), 31-40.

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Without the help and support of my wonderful family, this thesis would not have been possible. To my mother and Paul, whose constant love, support and undying faith in me gave me the strength and confidence to keep going in those moments when I felt challenged. To my two amazing sons, Dave and Sam, whose input and support was invaluable. Their combined ability to see the bigger picture and debate the finer details served to deepen the quality and impact of the final product.

I also wish to acknowledge the University of the Sunshine Coast, the staff and students, for providing me with the support needed to complete a study of this kind. I would especially like to thank those students who not only contributed to the study through interview, but chose to share their very personal stories on video, communicating to a larger audience the very real problems and mental health challenges that first year students face.

My inspiration not only throughout this study, but throughout my life, is encapsulated in the words of Ghandi:

‘You must be the change you wish to see in the world.’

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Foreword

Autobiographical Motivations

“However technical and complex the world of research becomes, it is also fundamentally human” (Ravitch & Riggan, 2012, p. 144)

Ravitch and Riggan (2012) emphasise that research is not neutral or apolitical; it is influenced by the researcher’s autobiographical motivations, with biases which need to be made clear from the outset. The autobiographical origins for this research interest began with my mother who was given 6 months to live over 50 years ago. She now continues to live a healthy life (attending gym 3 days a week, working at a hospice one day a week) and leading an active life at the age of 87. Watching someone take charge of their life despite circumstance and create their own health, inspired me to not only take responsibility for my own health (physically, mentally and emotionally) but to also educate others to be able to do the same.

The origin of health is deeply linked with the origins of this thesis. The desire to create health has always been at the heart of my life experience - choosing to focus on creating health despite the situation; not looking to limit the daily stressors encountered, but creating health from these. This perspective is in contrast to the pathogenic concept which focusses on obstacles and deficits; or the origin of disease. Therefore, adopting a wellness orientation to this thesis aligned perfectly with my already existing positive health perspective. The wellness orientation that underpins this project is salutogenesis (discussed in Chapter 2).

This study arose from an initial personal concern surrounding students’ mental health and wellness. As a primary and secondary school educator, I had witnessed an increasing number of students struggling with mental health problems such as stress, anxiety and depression. Although numerous schools nationally and internationally were implementing self-help programs (Barrett & Turner, 2001; Lechtenberger, Mullins, & Greenword, 2008; Miller & Chung, 2009), students still appeared to struggle with assuming some of the responsibility for handling their own emotional health. This inability for students to be able to accept personal responsibility created a desire to implement strategies within the

classroom that would engender that responsibility and in turn, strengthen their levels of resilience. The anecdotal feedback from students and parents regarding the success of these strategies prompted me to formalise the central theme and design an educational intervention that would be suitable for primary, secondary and tertiary students, termed *Mytern* - an acronym that stands for Take Emotional Responsibility Now (outlined in Chapter 4). As inferred by the name, the intervention required that students take responsibility for their emotions and thoughts. I implemented *Mytern* with students in my Years 7, 8, 9, 11 and 12 classes. The students found the skill easy to understand and could comprehend the value of incorporating such a skill into their daily lives. The anecdotal feedback which I received surrounding the intervention was encouraging. Therefore, it was with positive expectations that I embarked on a PhD.

Chapter 1 Introduction

Mental health problems currently pervade every country, with approximately 14% of the global burden of disease being attributed to the chronically disabling nature of poor mental health (Price, McLeod, Gleich, & Hand, 2006). According to the Australian Bureau of Statistics (2006), mental health problems are among the ten leading causes of disability, reduced quality of life and reduced productivity in Australia. The acknowledgement that mental health is of concern is also increasing, along with the desire and need to do something about it, creating the perfect climate for the development, implementation and evaluation of proactive rather than reactive health promotion interventions.

In terms of the total population, the Australian National Survey of Mental Health and Wellbeing (2007) reported that 4.1% (over 650,000 people) had severe mental disorders in the previous 12 months. The survey revealed that the prevalence of 12-month mental disorders was higher in younger age groups, with more than a quarter experiencing a 12-month mental disorder. As the 16-24 age group constitutes approximately 75% of the first year population at most universities, the first year cohort is therefore particularly at risk (Price, et al., 2006; Wong, Cheung, Chan, Ma, & Tang, 2006). This study presents a proactive strategy in response to this problem.

The first chapter opens with the discussion surrounding the evolution of the research topic and question, before contextualising the study within the rising prevalence of mental health problems in the first year university student population. It presents both global and Australian statistics, illustrating the vulnerability of the 16-24 age group, emphasising that research into mental health promotion interventions must become an issue of priority within university cohorts. Attention is given to the significance of the research project, along with its expected outcomes. Finally, a summary of the following chapters of the thesis is presented.

1.1 Evolution of the Research Topic, Title and Question

As a result of an extensive literature search, the prevalence of mental health problems within tertiary students was identified. Numerous Australian and international studies, confirming the rising number of mental health problems within the tertiary cohort, were

found (Bitsika, Sharpley, & Rubenstein, 2010; Rowling, Weber, & Scanlon, 2005; Stallman, 2008, 2010; Vivekananda, Telley, & Trethowan, 2011); but there were extremely few studies demonstrating the efficacy of early prevention interventions within higher education (Bretag, Hayes, & Rohde, 2009; Conley, Durlak, & Dickson, 2013). This presented a significant gap in the area of empirically tested emotional fitness and resilience interventions within university cohorts, allowing the current study to assist in/work towards addressing this gap, through testing the efficacy of an emotional fitness and resilience building intervention such as *Mytern*. Thus, the research title, question and hypotheses were created.

1.1.1 The Research title.

The intervention was initially intended to be introduced to the entire university student population.

The prima facie title suggested for this study was:

1. The impact of a resilience building intervention (*Mytern*) on tertiary students' mental health.

Involving the entire student population was soon seen as far too big a project. As a result of the literature search, the implementation of the intervention was narrowed to the first year cohort. As this strategy was preventative, it appeared sensible to introduce first year students to the strategy, in the hope that they would be able to apply it throughout their university experience and continue its application into future life.

The title then became:

2. The impact of a resilience building intervention (*Mytern*) on first year university students' mental health.

The term 'mental health' was far too broad, and so was narrowed to include the constructs measured in the instruments that were to be used (outlined in Chapter 7.2): psychological capital measured by Psycap (Luthans, Avolio, Avey, & Norman, 2007) and distress levels measured by K10 (Kessler et al., 2003). Thus the next title became:

3. The impact of a resilience building intervention (*Mytern*) on the positive psychological capital and distress levels in first year university students.

As a result of the pilot study (see Chapter 6), it was revealed that one of the questionnaires (Psyscap) was no longer suitable for use. The questionnaires that were finally adopted were FS (Flourishing Scale) measuring psychological wellbeing; SWLS (Satisfaction With Life Scale) measuring life satisfaction; CD-RISC measuring resilience and K-10 measuring psychological distress. This change to the questionnaires resulted in a revised research title, and consequently changes to the research questions and hypotheses.

Thus, the final title became:

**The impact of an emotional fitness and resilience building intervention
(*Mytern*) on the psychological wellbeing, life satisfaction, resilience and
distress levels of first year university students.**

1.1.2 The Research questions and hypotheses.

The development of the research questions and hypotheses followed the pattern of the development of the research title.

Research Question

What is the impact of an emotional fitness and resilience building intervention (*Mytern*) on the psychological wellbeing, life satisfaction, resilience and distress levels of first year university students?

Research Guiding Questions (RGQ)

RGQ1: Is there a relationship between psychological wellbeing, life satisfaction, resilience and distress levels in first year university students?

RGQ2: What other factors may influence the psychological wellbeing, life satisfaction, resilience and distress levels of first year students who have participated in the *Mytern* intervention?

RGQ3: Does the delivery of the intervention (video-based, booklet or SMS) impact the psychological wellbeing, life satisfaction, resilience and distress levels in first year university students?

RGQ4: Has change occurred in the students who participated in the intervention *Mytern*?

RGQ5: If change did occur as a result of the intervention *Mytern*, why did this change take place?

Hypotheses (directional) (H)

H1: That the students who receive the *Mytern* intervention will have higher levels of psychological wellbeing, life satisfaction, and resilience than the control group.

H2: That the students who receive the *Mytern* intervention will have lower levels of psychological distress than the control group.

(It needs to be noted here that the experimental group was divided into two groups, as they received different aspects of the intervention- See Chapter 8)

Having outlined the evolution of the topic, title and questions (see Figure 1, which depicts the evolution of the study from the initial problem through to the study's outcomes) the study will now be contextualised from a personal perspective. The problem will then be defined, having emerged from an extensive exploration of the current available literature surrounding mental health the prevalence of mental health problems within tertiary education.

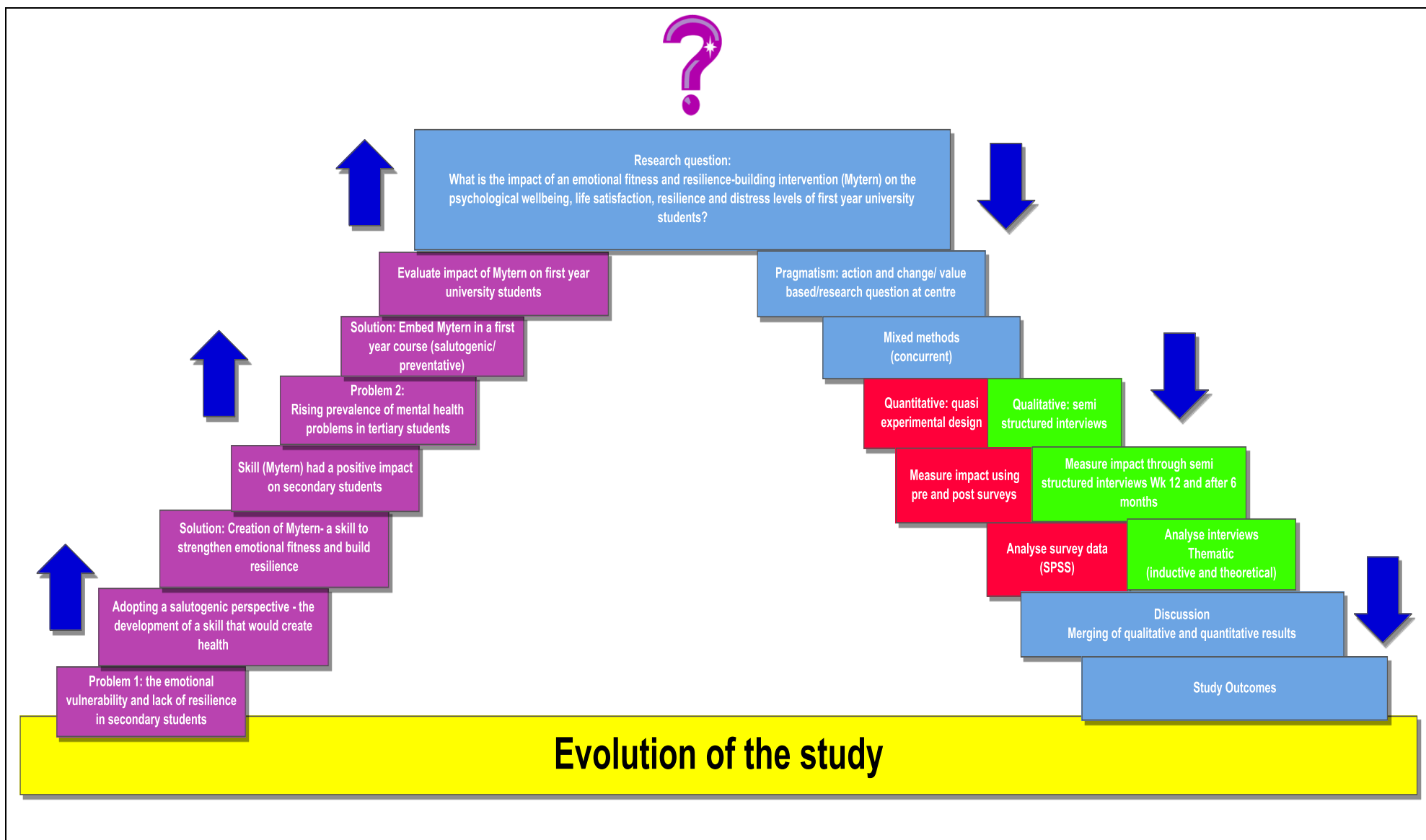


Figure 1. The evolution of the study

1.2 Defining the Problem

For Australian students, embarking on a new journey into tertiary education can be extremely positive. However, for an increasing number of students, it can also negatively impact their mental health, impeding their ability to be able to meet their own academic potential and to make a positive contribution to society (Stallman, 2011; Vivekananda, et al., 2011). In the absence of strong information relevant to wellbeing, information on mental health problems is concerning. National and international studies have documented high levels of depression, anxiety and stress amongst first year university students (Eisenberg, Gollust, Golberstein, & Hefner, 2007; Price, et al., 2006; Wong, et al., 2006).

Stallman and Shochet (2009) reported that elevated stress levels in Australian university students affected academic performance, finding that when stress levels rose, so did the DOR (Days Out of Role). Heiligenstein, Guenther, Hsu and Herman (1996) supported this by stating that moderate-to-severe depression nearly always resulted in missed classes, decreased academic performance, and significant interpersonal problems. These findings imply that, as a consequence of mental health problems, a high proportion of first year students are neither reaching their academic potential nor enjoying a positive quality of life, and often find themselves unable to positively contribute to their world (Wong et al., 2006). With universities struggling to survive financially, and one in five students dropping out by the end of their first year, it appears that incorporating support strategies and health promotion within the first year curriculum is not only needed, but crucial to a student's overall mental wellbeing (Coates & Ransom, 2011).

In response to the rising prevalence of mental health problems in higher education, the National Summit on the Mental Health of Tertiary Students 2011 (Brett, Norton & James, 2012) brought together over 200 delegates from almost every university in Australia and New Zealand, as well as Institutes of TAFE, major representatives of tertiary education interest groups and the mental health sector, and government departments. During the summit, the need for preventative programs was identified with the recommendation that resilience training be embedded in course design, as part of building mental health capacity in a proactive way. Whilst distress levels amongst first year cohorts have been studied in the national and international contexts, it is the interventions themselves which lack empirical evidence. This makes the present study extremely relevant; not only because it has not been

done before in the local context, but because understanding the impact that an emotional fitness and resilience building intervention can have on first year students can only add to the growing body of literature surrounding student mental health.

As education becomes increasingly responsive to the diverse learning needs of students, (Kift & Nelson, 2005) strategies that empower students to recognise their own vulnerabilities and respond proactively to them, need to be addressed. Following the Ottawa Charter for Health Promotion, and based on implications from research (Pimentel & Cova, 2011; Potvin & Jones, 2011; Stallman, 2011) it appears that embedding mental health promotion programs within the curriculum is one of the more sustainable ways to address the current need in the Australian tertiary education sector. Strategies which involve small interventions may have the benefit of alleviating stress levels before the need for counselling is required. Research into the efficacy of resilience interventions is also recommended (Conley, Durlak, & Dickson, 2013). Several interventions will be discussed in the following chapter, highlighting the success of simple, cost effective programs. The intervention to be implemented and evaluated in this study was both simple and cost effective, positioning itself in the area of health promotion - being proactive rather than reactive. Therefore, evaluating *Mytern's* ability to be an effective proactive intervention in a first year tertiary cohort became one of the major aims of the study.

1.3 The Aims of the Research

The major aim of the research was to evaluate the impact of a mental health promotion intervention, *Mytern*, on first year students' psychological wellbeing, life satisfaction, resilience and distress levels, through gathering both statistics and personal responses, in order to bring about change in the area of student mental health. Another important aspect of the study was to investigate the feasibility of any suitably prepared teacher being able to implement the intervention. The majority of the mental health interventions investigated were developed and implemented by student counsellors and psychologists (specialist staff); so it was important to evaluate the possibility of general staff being able to implement the emotional fitness and resilience intervention, *Mytern*, through embedding it into a compulsory first year course.

Other aims within the study were to document the effective means of delivery, via video, booklet or SMS (RGQ3); the logistics of embedding an intervention into an existing

curriculum; the effectiveness of daily text messaging; and developing/investigating the best instruments to measure the outcomes of the intervention. In order to provide empirical evidence as to whether this intervention was able to make a positive difference to first year university students' psychological wellbeing, life satisfaction, resilience and distress levels the following questionnaires were adopted:

- FS (Flourishing Scale),
- SWLS (life satisfaction),
- CD-RISC (resilience) and
- K-10 (distress levels) questionnaires

(Connor & Davidson, 2003; Hartley, 2012; Stallman, 2010)

The questionnaire data would then be combined with the information gathered through the focus groups, semi-structured interviews and SMS feedback. Therefore, it was important that the research design be able to achieve these aims.

1.4 From Aims to the Research Design

A pragmatic approach to the study was chosen, driven by the study's aims, objectives and research questions (Arthur, Waring, Coe & Hedges, 2012). Pragmatism is about action and change, the interplay between knowledge and action, looking at both sides while working along a continuum between objectivism and subjectivism (refer to chapter 5). Action is essential in pragmatism, and guided by purpose and knowledge, action is the way to change existence. Therefore, actions and their consequences are 'keys to cognitive/conceptual development and clarification' with the 'meaning of an idea or a concept' being the 'practical consequences of the idea/concept' (Goldkuhn, 2012, p. 139). Driving this action is the researcher's interest and enthusiasm in the inquiry, which is a central issue in pragmatism; the key idea being to create knowledge in the interest of change and improvement (Goldkuhl, 2012). These ideals represented and guided the study's aims, objectives and research questions.

The intent of the research was to produce a study that had breadth and depth, and was able to explore the problem from both a general and specific perspective. Under the influence of a pragmatic approach, the study chose to adopt a mixed method design (refer to Chapter 5),

incorporating a concurrent approach, in order to best answer the question posed (Creswell & Wisdom, 2012). Both quantitative and qualitative data was collected within the same timeframe, with each one addressing a different yet complementary aspect of the research questions (Leedy & Ormrod, 2013). The reason that mixed methods was deemed to be the most appropriate choice, was that the study intended to not only assess the impact of an emotional fitness and resilience building intervention on first year students psychological wellbeing, life satisfaction, resilience and distress levels statistically, but also to record the changes experienced by individual students as a result of the intervention. The combination of embedding focus groups, semi-structured interviews and SMS feedback within the statistical data had rarely been used in research on student mental health (Price, et al., 2006; Stallman, 2011); so was chosen to deepen the understanding of the problem and to illustrate the impact that the intervention had on the students. Refer to Figure 2, which outlines the pragmatic, mixed method design chosen for the study.

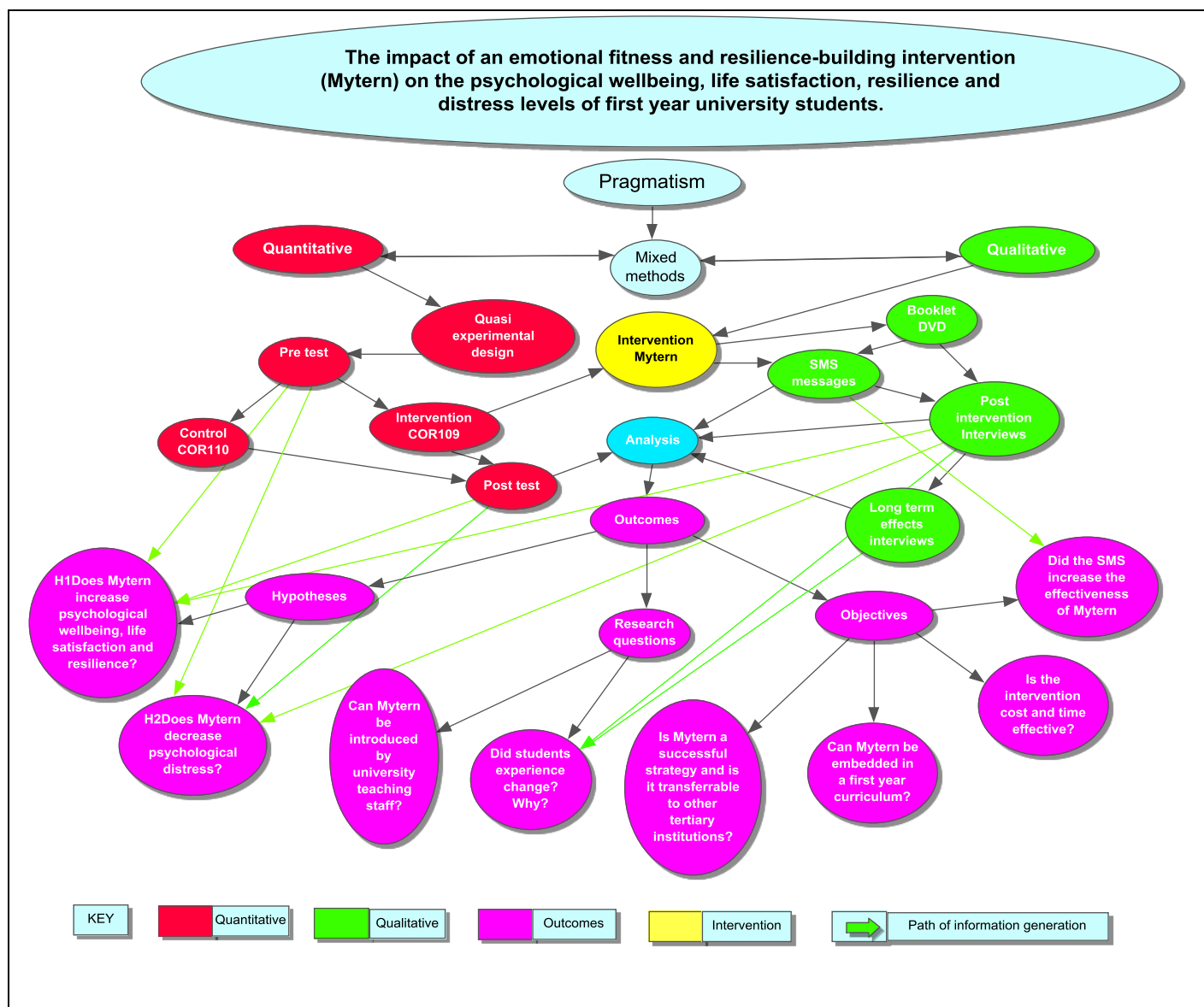


Figure 2. Research design

As a result of adopting a pragmatic approach, a mixed method design was selected. This then guided the choice of using a quasi-experimental approach with a concurrent design, producing a research design that not only suited the problem chosen, but was also flexible, balanced and able to support significant and innovative research.

1.5 The Significance and Innovation of the Research

Evaluating the efficacy of an emotional fitness and resilience-building intervention, which was originally created in response to the rising mental health problems amongst secondary students, was of major significance to this study. It was an intervention designed to be proactive rather than reactive in nature, and was adapted for a tertiary cohort as a result of the pilot study. *Mytern* (see Chapter 4) was incorporated into a compulsory first year

course/subject. At this stage, to the best of the researcher's knowledge, this was the first study of its kind in Australia, evaluating a universal intervention which incorporated the following attributes:

- embedded in a compulsory first year course
- both time and cost effective
- proactive rather than reactive
- not a one-off seminar
- accessible daily through multimedia and social networking support
- could be introduced by any teacher/educator
- evaluated the efficacy of video, booklet and SMS delivery of the intervention

The study not only evaluated the statistical changes but also recorded the individual student responses to the intervention, demonstrating its original and substantive contribution to the current body of literature surrounding the problems being experienced worldwide in the area of student mental health.

Bretag, Hayes, & Rohde (2009), Conley et al., (2013) and El Ansari et al., (2011) have shown that few interventions have been subject to the research process that is required to validate the implemented program, as research in the area of tertiary student mental health has largely been from a descriptive standpoint - establishing that there is a problem but not offering many solutions. Adopting a pathogenic perspective (the reasons for creating disease) to interpret the findings would require the researcher to focus on *why* there was a rising prevalence of mental health problems in first year tertiary students. Much of current literature has been from this perspective, providing excellent evidence and understanding around this problem. This study wished to contribute to this knowledge by documenting findings from the salutogenic perspective (the reasons for creating health), and sought to ascertain what positive impact, if any, the intervention had on participants' psychological wellbeing, life satisfaction and resilience and distress levels (salutogenesis is outlined in Chapter 2). The aim of this study was not to seek ways to eliminate stressors from the participants' lives, but to help them strengthen and create health whilst still being under these everyday stressors.

1.6 The Expected Outcomes of the Research

It was expected that the emotional fitness and resilience building intervention would have a positive impact on first year students - decreasing their distress levels and increasing their psychological wellbeing, life satisfaction and resilience levels. It was hoped that these positive changes would then influence the students' academic achievement and help them to enjoy a positive quality of life, thus enabling each student a greater opportunity to positively contribute to their world. These changes within the student may in turn reflect in decreasing the high attrition rates (34%) experienced by the university in the study.

The study generated empirical data determining the feasibility of incorporating an emotional fitness and resilience building intervention into an existing compulsory first year curriculum. It also allowed determination as to whether short/concise multimedia sessions combined with social networking could deliver sufficient information to impart successfully an important life skill. This provided valuable information, revolutionising the communication between the university and its students, particularly in respect to health promotion, demonstrating the intervention's transferability between tertiary institutions and establishing a method for future mental health promotion/prevention through implementing simple, cost-effective interventions.

1.7 Limitations of the Study

It is important to acknowledge that the study may be influenced by a number of limitations. The study took place in a regional university where student numbers were small. However, a large sample size was planned to cater for the deficiencies created by not only by the size of the university, but also for not being able to randomly assign students.

Self-reported data, which was used for the analysis, may contain several potential sources of bias that should be noted as limitations: selective memory (remembering or not remembering experiences or events that occurred at some point in the past) may have impacted the questionnaires and exaggeration (the act of representing outcomes or embellishing events as more significant than is actually suggested from other data) may have impacted the interviews. As the involvement in the intervention was voluntary, it would be difficult not to also encounter some self-selection bias. Limitations encountered during the study will be discussed in Chapter 13.3.2.

1.8 Conclusion

The chapter has illustrated that tertiary student mental health problems are significant and rising in prevalence and that research into emotional fitness and resilience building interventions in the first year of tertiary education needed to be investigated. It outlined the aims, significance, innovation and expected outcomes of the research, highlighting its relevance in addressing the problems being experienced worldwide in the area of student mental health. It also touched on the orientation of the study, which is salutogenic and will be outlined in detail in the next chapter.

The remainder of the study is divided into four sections (refer to Figure 1.). The **first section** establishes the salutogenic perspective of the study by defining salutogenesis in Chapter 2; exploring the literature in Chapter 3 from a pathogenic and salutogenic orientation; with Chapter 3 presenting the intervention, the aims of *Mytern*, and the salutogenic principles on which the intervention was based. The **second section** documents the research, beginning with the methodology and paradigm by which it was guided (Chapter 5). Chapter 6 presents the results from piloting the methods and intervention, highlighting the important modifications that were made to the main study as a result. The ultimate empirical methods and instruments chosen are then outlined in Chapter 7. The **third section** of the study presents the findings from the study. Chapter 8 addresses the analysis and results of the quantitative data. The analysis of the qualitative data is outlined in Chapter 9 before going on to presents the results of the initial round of interviews in Chapter 10, and the long term interviews in Chapter 11. The **final section of the study** merges the quantitative and qualitative results, discussing the findings from a salutogenic perspective (Chapter 12), and concludes (Chapter 13) with implications from the study and suggestions for future research. The salutogenic perspective adopted by the study will now be defined.

The impact of an emotional fitness and resilience-building intervention (Mytern) on the psychological wellbeing, life satisfaction, resilience and distress levels of first year university students.

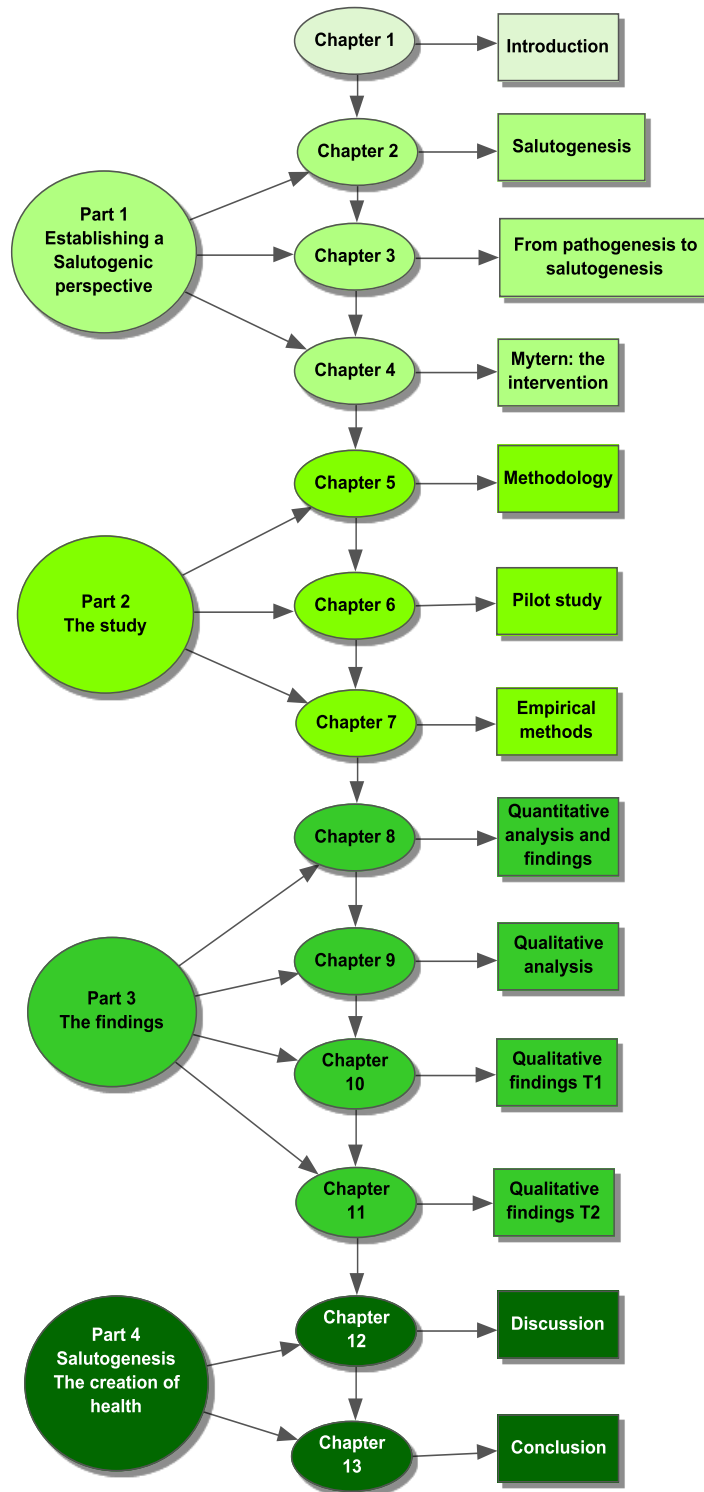


Figure 3. Chapter Map

Chapter 2 A Salutogenic Orientation

The aim of this chapter is to assist in establishing the orientation which is at the core of the study. The substantive theory of salutogenesis is outlined, demonstrating its influence on the intervention, paradigm, methodology, analysis and discussion. Definitions of concepts explored within the study are given, encompassing different aspects of wellbeing as well as constructs that are salutogenic in nature (i.e. considered to create health). The chapter concludes with a brief summary, before introducing the following chapter which illustrates the shift (within the literature) from pathogenesis to salutogenesis.

2.1 Evolution of Salutogenesis

The concept of positive health and well-being is not new. In 1948, the World Health Organisation (WHO) defined health as the ‘state of complete physical, mental and social well-being and not merely the absence of disease or infirmity’, which still stands today. Dunn (1957) elaborated on this, stating that wellness was a dynamic concept and not limited to the negative notion of the absence of disease. This notion of absence of disease and wellness was further advanced by Antonovsky (1979) when he began his search for the factors that facilitate health and well-being, regardless of circumstance, which he named salutogenesis.

Salutogenesis is when health is viewed as a resource for life, and actions are directed towards solutions (Eriksson, 2012). Beneath the salutogenic umbrella (see figure 4) lie several approaches to salutogenesis, its theories, and also the concepts with salutogenic dimensions. It is in adopting a salutogenic orientation, combined with a number of these salutogenic dimensions, on which the study is built. These dimensions include wellbeing, flourishing, resilience, and emotional intelligence. Health promotion is partly about people gaining control over their health determinants, thereby improving their health in order to be able to lead an active and productive life (Lindstrom, Eriksson, & Wikstrom, 2011), which is in line with salutogenesis.

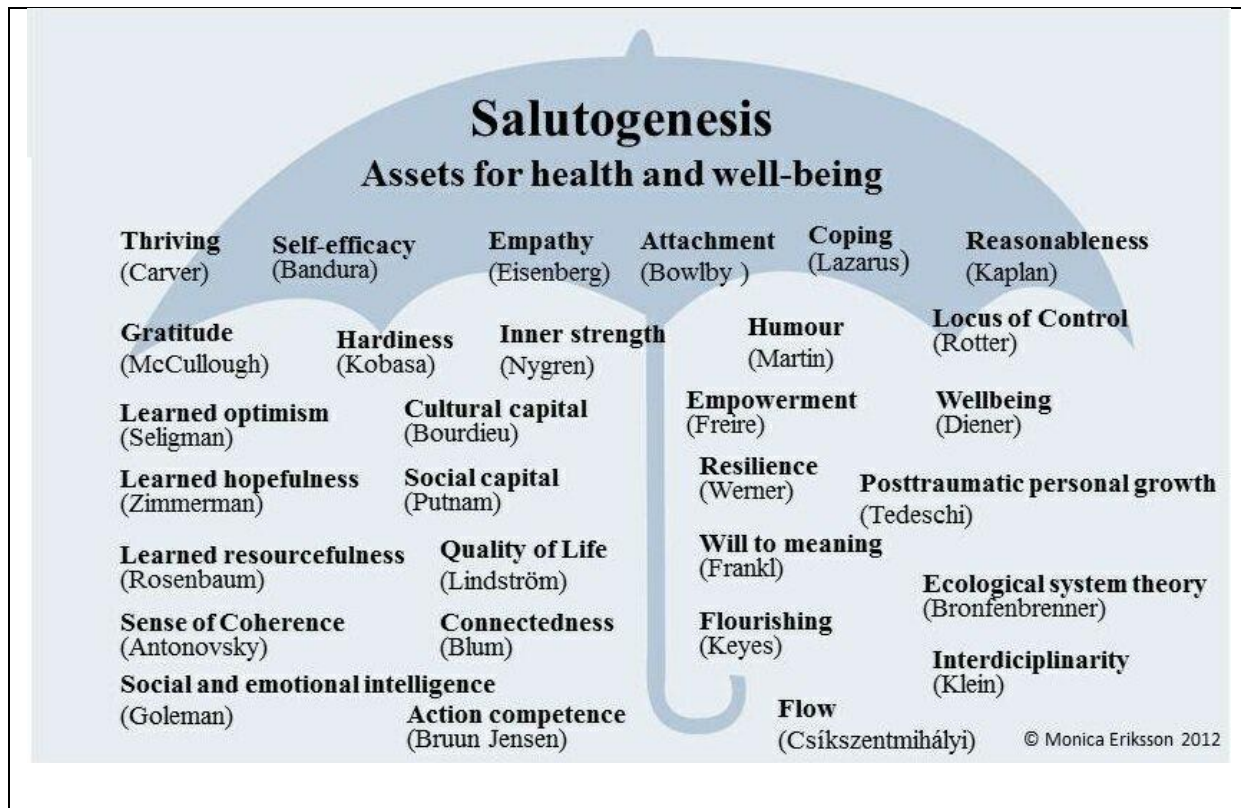


Figure 4. Different approaches to salutogenesis (Eriksson, 2012)

The philosophy which underpins salutogenesis is in line with the Ottawa Charter (1986), and may be seen as a framework for health promotion (Horsburgh & Ferguson, 2012) and constituting a major part of the substantive theory behind this study. Antonovsky argues that salutogenesis is not a theory that just focuses on keeping people well. He believes that ‘it derives from studying the strengths and the weaknesses of promotive, preventive, curative and rehabilitative ideas and practices, it is a theory of the health of that complex system, the human being’ (Antonovsky, 1996, p. 13).

2.2 A salutogenic Orientation

Embracing salutogenesis as an underlying orientation in this study can be shown to offer several advantages. As with health promotion, it is able to view the bigger picture. It focuses on moving individuals towards the positive end of the health continuum, whilst still acknowledging that there can be many reasons for changes in an individual’s health (Horsburgh & Ferguson, 2012).

Antonovsky contributed to the philosophical salutogenesis question by focussing on what creates health and the search for the origin of health, rather than to look at the causes of disease in the pathogenic direction (Lindström & Eriksson, 2005; Lindström & Eriksson,

2006). Using the metaphor of a river, he believed that 'curative medicine was devoted to those who are drowning; preventive medicine, to those in danger of being pushed into the river upstream' (p.13). But what, he asked, of health promotion?

Health promoters, Antonovsky believed, often fell into the trap of thinking that if a person was healthy, then all they had to do was to reduce the risk factors in order to remain so. This was again working from a pathogenic perspective; identifying the risks (pathogens) in order to reduce them. A salutogenic orientation, by contrast, compels us to adopt the approach of a continuum (Antonovsky, 1990).

As a result of his research, he created a health continuum along which a person could find themselves anywhere, rather than being limited to viewing the extreme positions of H- and H+ as two absolute conditions. Figure 5 shows how the negative end of the continuum is represented by H- (pathogenic - the creation of disease), whereas the positive end of the continuum, is represented by H+ (salutogenic- creation of health).

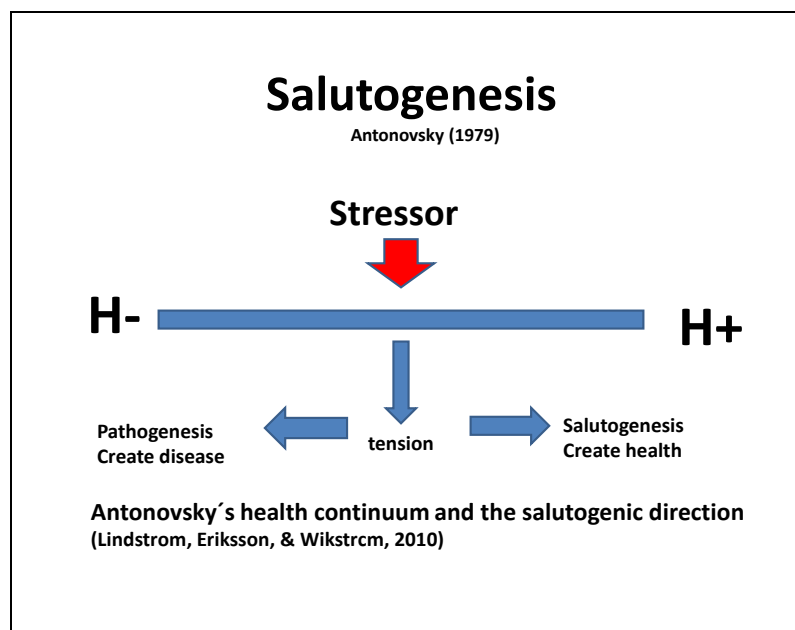


Figure 5. The salutogenic continuum

In 1979, Antonovsky argued that a salutogenic orientation would 'prove to be more powerful a guide for research and practice than the pathogenic orientation' (as cited in Antonovsky, 1996, p. 13). 'A salutogenic orientation, then, as the basis for health promotion, directs both research and action efforts to encompass *all* persons, wherever they are on the continuum, and to focus on salutary factors' (p.14).

Rather than taking on a pathogenic orientation and focussing on students with mental health problems, or who are at risk of developing them, this study adopted a salutogenic orientation. It dealt with a community of people (e.g. first year university students), providing skills that would create health, despite the stressors which each person experienced daily, acknowledging that they could be anywhere on the continuum. A study in Africa (Wilson & Mittelmark, 2013) outlined the practical consequences of adopting a salutogenic perspective when planning interventions, pointing out that they have the ability to increase an individual's resources, making them better able to handle the everyday stressors of life.

The African study added to the creation of the epidemiological evidence that surrounds interventions, which strengthen a person's ability to identify and use their own health resources, and how this is an important aspect of not only gaining health, but in also developing a healthier orientation to life (Lindström & Eriksson, 2010).

Therefore, through adopting a salutogenic orientation, the researcher was able to create a study which had a strong emphasis on the creation of health. Rather than viewing everything from a dichotomous perspective, aspects of the study were seen to reside anywhere along a continuum. (See Table 1)

Table 1 *Salutogenic Continuum*

Aspect of study	Continuum
Pragmatism	objectivity/subjectivity
Mixed methods	quantitative/ qualitative
Semi-structured interviews	structured/ unstructured
Themes that evolved from the thematic analysis	H- /H+ (dis-ease/ease)
Survey results	H- /H+ (dis-ease/ease)

Intervention(emotional aspect)	H- /H+ (dis-ease/ease)
Discussion	H- /H+ (dis-ease/ease)

Note: H = Health

Within salutogenesis, the focus is not on the problem, but on the solution and the creation of health. Therefore, a solution focused intervention, which aimed ‘to emphasise and build upon strengths and resilience, and to act proactively and preventatively’ (McAllister, 2010, p. 150) fitted perfectly into a salutogenic orientation. Thus, salutogenesis supported and guided the study, influencing the intervention; portraying and explaining the findings and assisting in the integration of the quantitative and qualitative data. (See Figure 6)

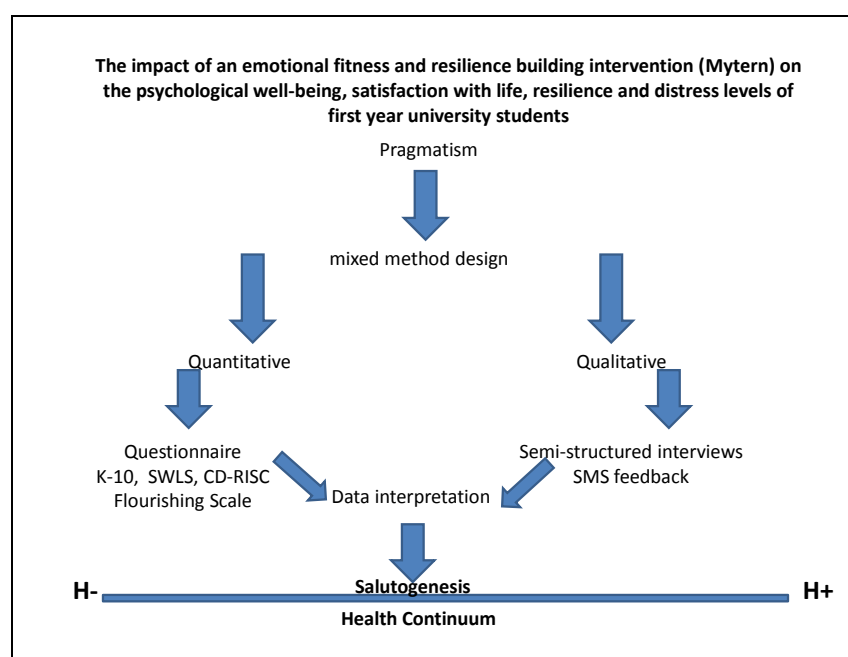


Figure 6. Adopting a salutogenic orientation

Adopting a pathogenic perspective to interpret the findings would have required the researcher to focus on *how many* students are experiencing psychological distress, and *why* there was a rising prevalence of mental health problems in first year tertiary students. Much of the current literature has been from this perspective, providing excellent evidence and understanding around this problem. This study wished to contribute to this knowledge by documenting findings from a salutogenic orientation, and sought to ascertain what positive impact, if any, the intervention had on participants’ psychological wellbeing, satisfaction

with life and resilience and distress levels. The aim of this study was not to seek ways to eliminate stressors from the participants' lives, but to help them strengthen and create health whilst still being under these everyday stressors.

Through the direction and focus provided by adopting a salutogenic orientation, the study was able to look at the whole student, centering on the positive gains that individuals made both collectively and individually, as a result of the intervention. However, a study is not only guided by its substantive theory, it is also influenced by the way in which key terms are defined within the study. This next section defines the major terminology used.

2.3 Definitions

Defining terminology is crucial if a shared understanding is to be achieved. This study examines the efficacy of mental health promotion in the form of an emotional fitness and resilience building intervention, and its impact on the mental wellbeing (including psychological wellbeing, life satisfaction and resilience levels) of first year student tertiary students. The interpretation of its contents was therefore influenced by the following definitions.

2.3.1 Wellbeing.

A recent attempt to define wellbeing (Dodge, Daly, Huyton, & Sanders, 2012) highlighted the complexity of such a task. The authors centred on the three key areas of: 'the idea of a set point for wellbeing; the inevitability of equilibrium/homeostasis; and the fluctuating state between challenges and resources' (p. 229). The new definition proposed was 'the balance point between an individual's resource pool and the challenges faced' (p. 230); aligning with the salutogenic principles of not eliminating stressors, but acquiring skills to maintain a healthy balance despite everyday stressors. Figure 7 illustrates a proposed balancing act required to achieve and maintain wellbeing.

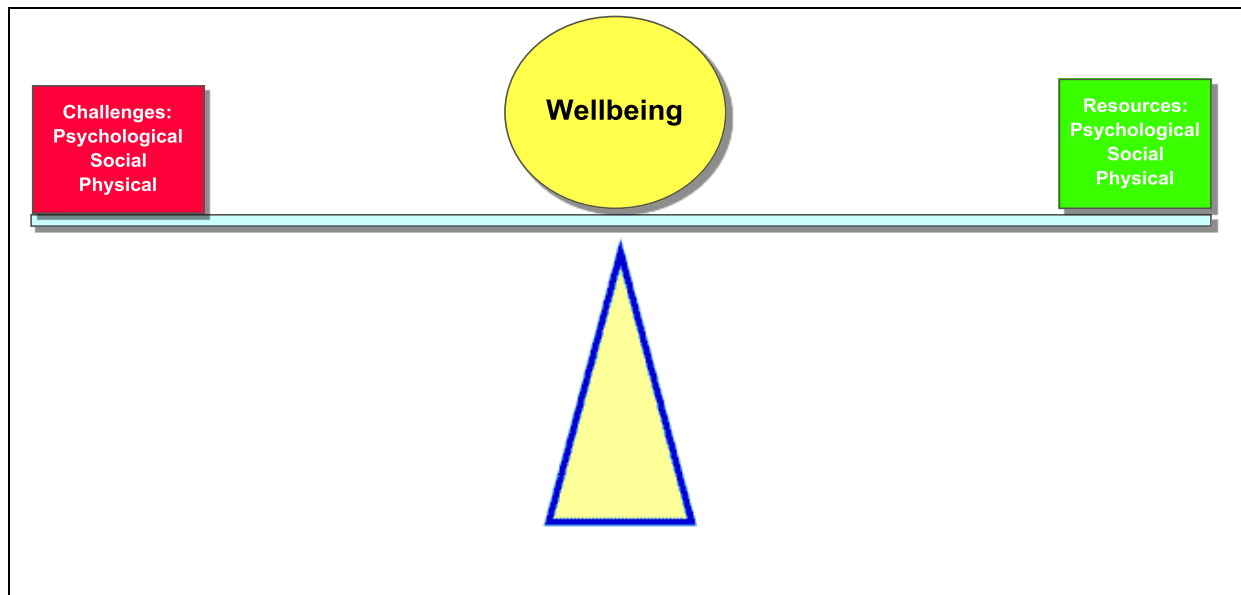


Figure 7. Definition of wellbeing – adapted from Dodge, et al., (2012)

2.3.2 Mental wellbeing.

In the past, mental health simply referred to the absence of a mental health disorder (Jahoda, 1959), without taking into account the mental wellness of the individual (M.E.P. Seligman & Csikszentmihalyi, 2000). However, the landscape of mental health is changing. The World Health Organisation (WHO) recently defined mental health as a ‘state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community’. The WHO constitution states: ‘Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity’ and that there can be “no health without mental health’ (October, 2011).

Mental health and wellbeing should no longer simply represent the absence of a mental disorder (Diener & Lucas, 2000; Keyes & Haidt, 2002). There is a growing body of research and practice exploring an alternative to this deficit mode, including the positive psychology and strengths movements, which look at health from a salutogenic perspective.

2.3.3 Wellbeing theorists/positive psychology.

In the field of psychology, Maslow pointed out as far back as 1954, that psychologists were focussing on the ‘darker side’ of mental health and only repairing what appeared to be wrong with the person. He believed that there needed to be a movement towards a more ‘positive psychology’- one that incorporated mental wellbeing. Maslow’s entreaty seemed

to fall on deaf ears until 1999, when Martin Seligman (the then American Psychological Association President), along with fellow psychologists including Ed Diener, Chris Peterson , Rick Snyder, Don Clifton, George Valliant, and Mihalyi Csikszentmihalyi, united to change the face of psychology. Instead of focussing on repairing the problems within an individual's life, these positive psychologists began to focus on building an individual's positive qualities (Seligman & Csikszentmihalyi, 2000), realising that these qualities could strengthen the average person's ability to cope with the contrasts of life, rather than waiting until they had succumbed to the pressure. This new movement, which began to focus on what could be possible, is not merely limited to psychology (Sheldon & King, 2001). It has been influential in the formation of the strengths focus movement in social work, nursing and education, all adding to the increasing body of knowledge surrounding wellbeing, with one of the major findings revealing the healing power (both mentally and physically) of wellbeing (Mathew & Paulose, 2011).

2.3.4 Psychological wellbeing.

Seligman has continued to expand the area of wellbeing theory through his many books, which have led him from *Learned Optimism* (Seligman, 2006) and *Authentic Happiness* (Seligman, 2002) to the latest concept of being able to Flourish (Seligman, 2011). Originally, he aligned positive psychology with happiness, creating an authentic happiness theory which consisted of positive emotion, engagement, and meaning. He was later to find that this theory omitted the essential elements of relationships and accomplishment; and that we were not here to pursue happiness, but wellbeing. Seligman formed the construct of, and theory for, wellbeing. His wellbeing theory represents an individual's ability to achieve happiness and to flourish through the measurable attributes of PERMA (Positive emotion, Engagement, Relationships, Meaning and Accomplishment). Each element contributes to wellbeing, but does not define it; is mostly pursued for its own sake; can be defined and measured independently; and contributes to an individual's overall wellbeing. Seligman believes that it is in using an individual's strengths to maximise all five elements, which truly defines wellbeing (Seligman, 2011). According to Catalino and Fredrickson (2011), a major contributing factor to a person's ability to flourish (psychological wellbeing) is their capacity to experience regular positive emotions, resulting in their ability to positively contribute to their world.

2.3.5 Positive emotions.

Research into the effects of positive emotions continues to increase (Fredrickson, 2013b). Studies to date have found that when injected with positive emotion, people are able to see the bigger picture, widening the scope of what they are scanning (Wadlinger & Isaacowitz, 2006). They are able to open their awareness, and as a result, broaden their outlook and take in more of their contextual surroundings (Schmitz, De Rosa, & Anderson, 2009; Wadlinger & Isaacowitz, 2006). Once vision is increased, people are able to come up with more possibilities (Fredrickson & Branigan, 2005) and possess higher levels of creativity (Rowe, Hirsh, & Anderson, 2007). Resilience can be built, enabling people to bounce back from adversity faster when experiencing positive emotions (Fredrickson, Tugade, Waugh, & Larkin, 2003). People are more likely to think about others, taking in their perspective, and are able to look at 'we' instead of 'me' (Waugh & Fredrickson, 2006). When people are feeling the warmth of positive emotions, racial barriers, cultural judgements and other barriers seem to decrease (Johnson & Fredrickson, 2005). In her latest book, Fredrickson (2013a) argues that positive emotions can become self-sustaining, increasing an individual's knowledge, resilience, health and ability to socialise. Utilising the generation of positive emotions within the intervention, the study hoped to find the effects of those emotions on the student's life satisfaction.

2.3.6 Life satisfaction.

Pavot and Diener (1993) define life satisfaction as a 'judgmental process, in which individuals assess the quality of their lives on the basis of their own unique criteria' (p. 164). Life satisfaction is considered to be a variable state, meaning that it does not capture a permanent trait of the respondent but rather something present and contextual (Hultell & Gustavsson, 2008).

Satisfaction with life, a core dimension of subjective well-being and a key measure of psychological health (Diener, 1984; Pavot & Diener, 2008), has also emerged as a strong predictor of other important outcomes. Along with other positive constructs, life satisfaction has predicted:

- lowered risk of all-cause mortality (the number of deaths in a population, relative to the total population, attributable to all causes)

- natural-cause mortality (the number of deaths in a population, relative to the total population, attributable to natural causes such as failed physical health)
- unnatural-cause mortality (the number of deaths in a population, relative to the total population, attributable to causes such as suicide, homicide, accidents, and other causes that are not directly attributable to failed physical health) in both younger and older persons (Xu & Roberts, 2010).

Similarly, with positive affect and other trait positive characteristics, life satisfaction has predicted lower risk of mortality among both healthy persons and persons with diseases after controlling for negative affect (Chida & Steptoe, 2008), and after controlling for demographic variables and depression (Collins, Gleib, & Goldman, 2009). Conversely, life dissatisfaction at baseline has predicted increased instances of suicide among Finnish men over a 20-year follow-up period (Koivumaa-Honkanen et al., 2005). Clearly, ascertaining the factors that augment life satisfaction is vital (Lightsey Jr & Boyraz, 2011).

2.3.7 Resilience.

One of the qualities that the wellbeing theorists, especially in the areas of health and education, focus on is the skill of resilience. Simply defined, resilience is the ability to keep going during very hard times and to rise above difficult situations, a process of adaptation to adversity (Newman 2005). Resilience is not only the ability to bounce back from adversities such as illness and depression (Rak & Patterson, 1996). It needs to be understood from the perspectives of both adaptive behaviour and emotional status and in examining the interactions and distinctions between the two. Resilience is made operational by cognitive and behavioural coping skills which are acquired through a developmental process of decision making (Fine, 1991).

Resilience can also be viewed from both a trait-like and state-like perspective. In the past, resilience has been portrayed as fixed and trait-like (Wagnild & Young, 1993). However, recent research has shown that resilience can be also viewed as state-like, which is open to development and can be enhanced by interventions (Connor & Davidson, 2003; McAllister & McKinnon, 2009); and can be learned by anyone (Newman, 2005) , which is the position taken within this study.

If resilience is to be thought of as a core life skill which can be taught, then students and faculty need to value it through embedding resilience interventions in the form of health promotion within the university experience (Stallman, 2011; Stallman & Shochet, 2009; Vivekananda et al., 2011).

2.3.8 Health promotion.

Health promotion is a health science that emphasises and explores how systems and societies maintain, promote and restore their wellbeing. A charter for action to achieve health for all by the year 2000 and beyond was written at the first International Conference on Health Promotion held in Ottawa, Canada in 1986. They defined health promotion as the process of enabling people to increase control over, and to improve, their health and that this promotion is not just the responsibility of the health sector, but goes beyond healthy life-styles to well-being. Health promotion supports personal and social development through providing information for health, education for health, and enhancing life skills. By doing so it increases the options available to people to exercise more control over their health and over their environment and to make choices conducive to health. From a positive psychology perspective, the ideas of Martin Seligman and Mihaly Csikszentmihalyi concurred with the Ottawa Charter, when they predicted in 1998 that “a psychology of positive human functioning will arise, which achieves a scientific understanding and effective interventions to build thriving in individuals, families, and communities” (Seligman & Csikszentmihalyi, 2000).

2.3.9 Change.

The definition (or interpretation) of the word ‘change’ is also warranted, as it is prominent in two of the research questions. When assessing the impact of the intervention from a quantitative perspective, it is the difference in a participant’s pre- and post-test scores that will indicate change. When assessing the impact of the intervention from a qualitative perspective, change will be left to the participant to define, indicating the change/s or lack of change/s that each participant has experienced as a result of the intervention. However, change can also be viewed as a stressor.

2.3.10 Stressor

It is important to note that within this study, a stressor is referred to as 'a stimulus or environmental condition in which the response demands exceed the adaptive capacity of the organism' (Koolhaas et al., 2011, p.1298) therefore requiring the adoption of a skill (represented here by the intervention *Mytern*) in order to be able to positively meet those extra demands.

In summary, the following definitions have been applied in this study:

salutogenesis: the creation of health

wellbeing: the balance point between an individual's resource pool and the challenges faced

psychological wellbeing and mental health: a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community

positive psychology: focuses on building an individual's positive qualities

positive emotions: add up to reshape your life for the better, making you more knowledgeable, more resilient, more socially integrated, and healthier.

resilience: the ability to keep going during very hard times and to rise above difficult situations; a process of adaptation to adversity

health promotion: emphasises and explores how systems and societies maintain, promote and restore their wellbeing

Through these definitions, a shared vision was established between researcher and reader, assisting in clarifying the direction of the study.

2.4 Conclusion

The chapter began with defining salutogenesis, emphasising the relevance of it being applied to the study of a health promotion intervention. Major terms and contrasts were

then defined. In summary, salutogenesis was able to play an essential role in guiding research, planning interventions, and, by accepting all positions on the health continuum as legitimate; afforded each student the ability to move towards the healthier end of the health continuum.

The following chapter contextualises the study within the literature. Beginning with a pathogenic orientation (the creation of dis-ease), it discusses the problem and reasons behind the rising prevalence of mental health problems in tertiary students, before launching into the salutogenic perspective; where it looks at the creation of health.

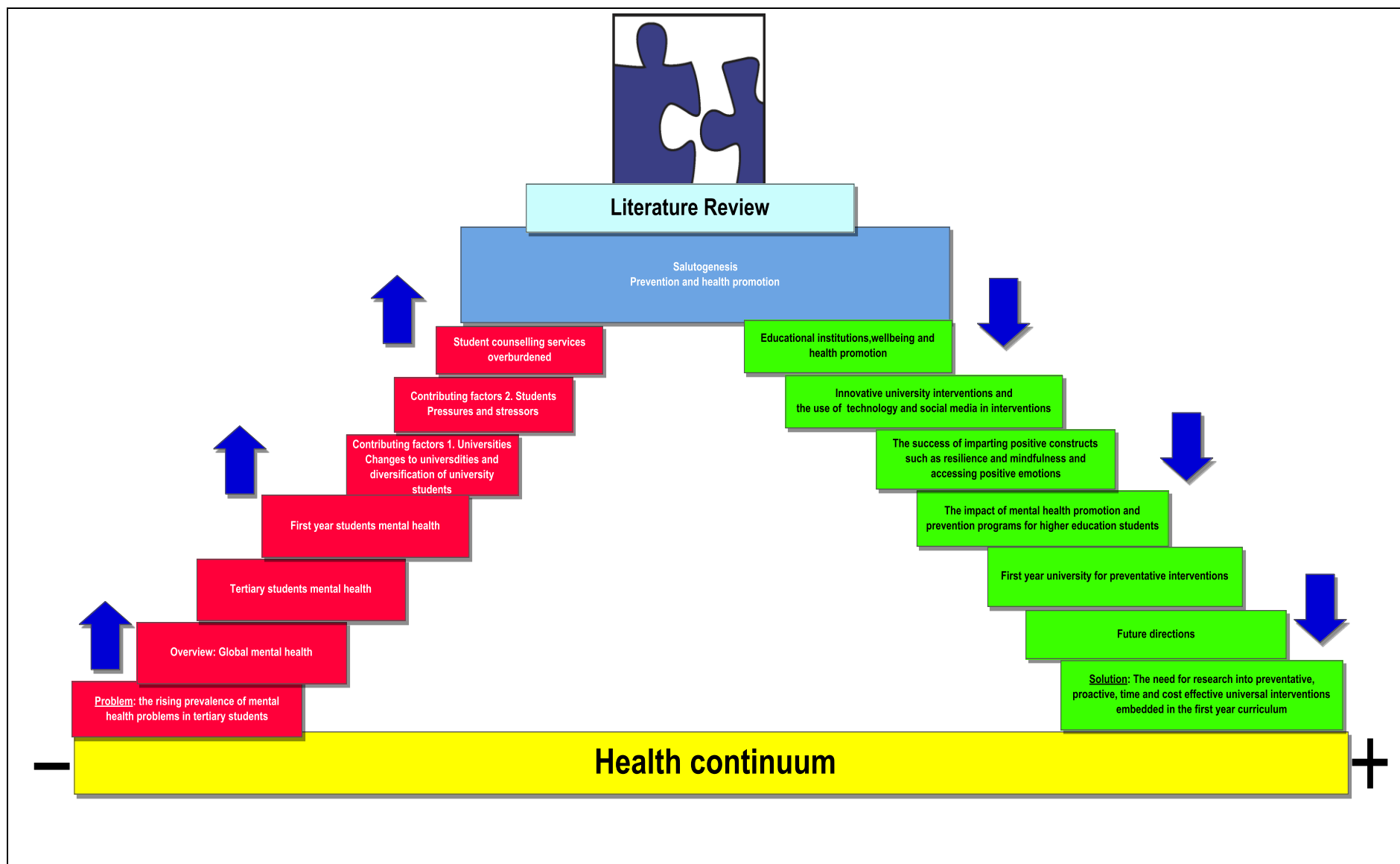


Figure 8. Representation of the literature on the health continuum

Chapter 3 From Pathogenesis to Sautogenesis: A Literature Review

This chapter reviews the current literature surrounding the growing mental health concerns both in Australia and throughout the world. The literature includes statistics that provide evidence and add weight to this concern, with predictions that these figures are only going to increase. Whilst the literature confirmed that the 16-24 age group was at particular risk of developing mental health problems, research supported the fact that tertiary education would be an excellent environment for the implementation of mental health intervention/prevention programs. Contributing factors to the rising mental health problems experienced by students at a tertiary level are discussed from a pathogenic perspective, laying the foundation for the salutogenic perspective. With the changing face of higher education and the impact that the rising mental health problems have had on student counseling services, this highlights the need for preventative rather than reactive measures. Attention is given to prevention and health promotion strategies, pointing out the deficit of empirically based research on mental health interventions in tertiary education, indicating first year university students as a positive focus for mental health intervention programs. From a salutogenic perspective, the skill of resilience and its association with positive emotions is explored as a tool for creating positive mental health within this student population. Future research directions found in the literature are presented, paving the way for the research project which has been generated by the findings of the literature review.

Section A: A Pathogenic Orientation

3.1 The Problem

Approximately 14% of the global burden of disease can be attributed to the chronically disabling nature of poor mental health (Prince et al., 2007). Since WHO and the World Bank conducted their analysis on the global burden of disease, not only have the economic consequences of poor mental health increased significantly, but the social consequences have also risen (Kastrup & Ramos, 2007). Adverse mental health can affect an individual's social interaction with family, friends, colleagues, and the broader community, impacting the areas of cognitive performance, income, self-esteem and thus impacting the wider

economy (Bitsika et al., 2010). Those experiencing poor mental health are 3 times more likely to report poor general health than the rest of the population (Stallman, 2008).

In the 2004 update of the Global Burden of Disease, the World Health Organisation found that depression was the leading cause of disability among all leading illnesses in middle and high income countries, with a global rating of third place (WHO, 2008). Experiencing depression and poor mental health cannot be underestimated. The depressed person can consider themselves worse off than someone with a chronic physical illness, which can give rise to a condition equivalent to as many as eight chronic medical conditions (Buchanan, 2012).

Poor mental health accounted for nearly 50% of the total burden of disease for young adults (16-24) in the United States (WHO, 2008). These statistics reflect a rising global concern regarding the mental health of young adults, as three quarters of lifetime mental disorders have their first onset by age 24 (Kessler et al., 2005). Over 50% of this age group are in tertiary education, with the elevated stress levels of these students being demonstrated by Stallman (2010 – refer to Appendix A), whose study revealed the majority of the student population in Australian Universities surveyed, had elevated levels of stress, compared to less than a third of the general population. According to Seligman et al., (2009) depression and anxiety were rampant, thus establishing a need for mental health interventions to be incorporated into the tertiary curriculum.

This review looks at mental health from various perspectives, with a focus on students in tertiary education and ways to increase their mental resilience, highlighting the need to implement resilience interventions within the first year tertiary cohort.

3.2 Aim

The aim of the review was to first establish the prevalence of poor mental health internationally, nationally and within tertiary education, positioning the study and research question within the current body of knowledge, with particular relevance to the first year cohort. This was done through first adopting a pathogenic perspective (helping to contextualize the salutogenic perspective) looking at the problem and the disease that it was creating. Through investigating interventions and strategies (particularly those addressing resilience) that have been either tested or recommended for application within

the tertiary population, the review also aimed to highlight the need for interventions such as *Mytern* to be researched. It also served to establish and authenticate the theoretical information which underlined the principles of the intervention, as well as informing the research design and methodology, clarifying a salutogenic orientation (Ravitch & Riggan, 2012).

3.3 Search Methods

An electronic literature search was performed using the key words related to the aim of this review. The initial bank of key words was created through identifying common key words extracted from the literature, and from a thesaurus, including ones associated with the relevant search engines. The words - 'mental health', 'first year', 'university' and 'resilience' - could then be expanded to generate alternative words.

1. Mental health: physiological morbidity, psychological capital, psychological wellbeing, resourcefulness, wellbeing, distress, depression, anxiety, stress, emotional wellness, resilience, mood, coping, daily hassles, major depressive disorders, burdens, demands, quality of life, health, self-rated health, perceived health
2. First year: freshmen, initial
3. University: college, tertiary, students, young adults
4. Resilience: hardiness, coping, adaptability, psychological resilience

It was then possible to produce search combinations appropriate to different countries, for example, 'freshmen' and 'college' which was appropriate for a North American search. Looking at the key words under an abstract also added to alternate words commonly used in the desired field.

The search engines utilised were Scopus, Eric, A+, PsycNET and Google scholar. The search was limited to peer reviewed articles, with articles being restricted to post 2000 to ensure relevancy; with the exception of a 1979 article, which established the concept of hardiness and was incorporated in the study; and two articles from 1999, outlining resilience strategies for teachers and carers. Articles based on commentary, discussion, opinion and editorials were excluded as they lacked the empirical statistics required for comparison.

Studies were included if they addressed mental health in general; mental health in tertiary education; mental health in youth; resilience; mental health/resilience interventions (especially if a primary aim of the experimental intervention was to prevent or evaluate mental health in tertiary students); and they met the aims of the review.

Once found, viewing the articles that had cited the article chosen, thus confirmed its academic relevance, also led to other articles of importance, as did viewing the articles related to the original search. By using the 'authors' and 'key words' search below the related documents, and through exploring the references below the abstract, the search was further expanded.

The initial literature search generated two hundred and fifty articles, of which one hundred of the most relevant studies were included, eliminating those that did not expand on the initial concepts found within the literature. Once the literature had been finalised, the overarching topic of global mental health was first explored.

3.4 Global Mental Health

Four out of the ten diseases with the highest burden are mental and emotional disorders, which have been found to affect all cultures, with one in four individuals worldwide experiencing one or more psychiatric and behavioural disorders in their lifetime (Kastrup & Ramos, 2007). Burden of disease is measured in Disability-Adjusted Life Year (DALY), which is calculated by the number of years lost due to ill-health, disability or early death (WHO, 2008). About one third of the total adult disability is attributed to poor mental health, with predictions that depression will become the second leading cause of mental illness by 2020 (Murray & Lopez, 1997; WHO, 2008).

Every year, 31% of the population in the USA is affected by poor mental health. Equally high numbers have been found in Europe (27%), where the number of people experiencing depression is estimated to be 20.8 million, with psychiatric conditions constituting 25% of the total disease burden (Chisholm et al., 2007; Kastrup & Ramos, 2007). These high statistics are not limited to the western world.

Although the economic growth in the Asia Pacific region has led to greater physical health, it is often without the accompanying mental health. The Asia Australia Mental Health Organisation (a consortium of St. Vincent's Mental Health and The University of Melbourne) stated that globalisation was creating extra pressure on families and individuals which could be adding to the massive increase of mental illness, making it the fastest growing burden of disease in our time (AAMHO, 2012). In a recent study conducted in China, the authors revealed that in middle-income countries (including China) mental disorders were already the most important causes of illness in men and women (Phillips et al., 2009).

Poor mental health is also a major cause of disability in Australia. In 2003, mental disorders were identified as the leading cause of healthy years of life lost due to disability and, in 2005, it was found to account for 13% of the burden of disease (Bacchi, 2009). In 2007, almost half (45%) of all Australians had experienced a mental disorder at some point in their lifetime (Ryan, Shochet, & Stallman, 2010 - refer to Appendix A); ABS, 2006).

With mental disorders being linked to many other health conditions, it becomes one of the most costly medical disorders to treat (Tomlinson et al., 2009). Financial resources in the area of mental health are scarce worldwide, and many countries are struggling to meet the increased demand. Often the allocation of costs is largely directed towards the running of mental hospital services, with treatment and prevention receiving less than 2% of the budget (Chisholm & Saxena, 2012). In Australia, expenditure on mental health services has increased by approximately 5.2% per year, while the annual cost of mental illness, including the cost of lost productivity and labour force participation, has been estimated at \$20 billion. (Bacchi, 2009). Young adults, the 16-24 age groups, appear to be particularly vulnerable to poor mental health, which the following section describes in detail; the documented mental health issues faced by tertiary students enrolled in Australian education and which are reflected around the world.

3.5 The Mental Health of Tertiary Students

Poor mental health is now a global concern, especially for young adults, as three quarters of lifetime mental disorders have their first onset by age 24 (WHO, 2008; Farrer et al., 2013 – refer to Appendix A; Kessler, et al., 2005). A recent report by The Royal College of Psychiatrists, UK (2011) concurred that this age group are at high risk of developing serious

mental illnesses. The Australian National Survey of Mental Health and Wellbeing (ABS, 2008) reported that the prevalence of 12-month mental disorder was higher in younger age groups. More than a quarter (26%) of people aged 16-24 had a 12-month mental disorder compared with 5.9% of those in the older age bracket. Over 50% of this group participated in tertiary education (Buchanan, 2012; Reavley, McCann, & Jorm, 2012a).

Stallman (2008), using the K10 (Kessler Psychological Distress Scale), found that 83.9% of the student population in three Australian universities surveyed had elevated levels of stress compared to 29% of the general population. Comparing the students who scored within the very high range (19.2%) to that of the general population (2%) was equally concerning.

Depression has been found to be the most prevalent mental health disorder within tertiary education (Buchanan, 2012), and its prevalence continues to rise (Hunt & Eisenberg, 2010). Alloy et al., (2006) found a high incidence of depression among students who had no previous history of depression before entering university, reporting that in the first three years of study, 16% of students experienced major depression and 45% experienced minor depression. Vivekananda et al., (2011 – refer to Appendix A) found that depression and anxiety were the most predominant cases being presented at counselling services. The high incidence and prevalence rates, along with the morbidity, mortality and costs of depression, support the notion that tertiary students represent a vulnerable, at-risk population (Buchanan, 2012).

A study conducted by Leahy et al., (2010) in South Australia found that tertiary students exhibited even higher distress levels in comparison with their peers, and were four times as likely to be diagnosed as being psychologically distressed, with 48% of the sampled students suffering from high distress levels, compared to 11% of their age matched peers in the general population (Leahy et al., 2010). However, it needs to be taken into consideration that the stress related to a job, which may entail evaluation by superiors and the attainment of goals, may be quite different to the stress experienced by students whose capacity is tested through continual assessment in multiple areas, in the form of tests and assignments, as well as being wageless, and out of their comfort zone of high school, work and family (Lyrakos, 2012). These high statistics, along with a growing body of research (Price, et al., 2006; Stallman, 2010; Stallman & Shochet, 2009; Vivekananda, et al., 2011; Wong, et al.,

2006), support the premise that tertiary students represent a high risk population for mental health issues (Ryan, Shochet & Stallman, 2010).

The burden of disease for university students experiencing anxiety and mood disorders is substantial when you consider that days out of role (where students are unable to work, study or manage their day to day activities) amount to 6 days for anxiety and 9 days for mood disorders over the 12 week semester (Andrews & Chong, 2011; Stallman, 2010 – refer to Appendix A). Days out of role (DOR) is likely to double with each increase in the level of distress, with students experiencing high levels of distress losing an average of 14.98 days over a 4 week period, compared to 1.7 days for students experiencing low levels of distress. Students indicating a serious mental illness reported a 23times higher rate of DOR than students without mental problems, resulting in some impairment for around 60% of the time (Stallman & Shochet, 2009).

The distress levels experienced by university students also appear to be increasing. In 2009, a study at an Australian University revealed that participating students displayed greater levels of distress than did their counterparts in a 2003 study (Andrews & Chong, 2011). The impact that these mental health problems can have on students is manifold, affecting a student's academic performance, retention, graduation rates and general quality of life and all aspects of their physical, emotional, cognitive and interpersonal functioning (Kitzrow, 2003). Lizzio and Wilson (2013b) argued that 'students' psychological needs may be particularly influential on their approach to assessment tasks' (p.392) inferring that poor psychological health may negatively impact a student's learning. In the annual American College Health Survey, students have consistently reported that stress has been the number one factor affecting their academic performance (Conley, Travers, & Bryant, 2013- refer to Appendix A). It also consumes energy, compounds the experience of stress, increases levels of smoking and alcohol consumption, and creates suicidal ideation and suicide (Buchanan, 2012). Students experiencing poor mental health also have the potential to affect others on campus, some of whom may include classmates, faculty and staff as well as those that they may share accommodation (Kitzrow, 2003). Moving out of home, as well as having to cope with the transition from secondary school, only adds to the stressors experienced by first year university students, making them a vulnerable cohort (Lobo, 2012).

3.5.1 First year university students

With the onset of significant mental health problems coinciding with first year of university, and the stressors and challenges faced by this cohort, it would appear that this group of students was particularly at risk (Cooke, Bewick, Barkham, Bradley, & Audin, 2006; Dyson & Renk, 2006; Nolan, Quinn, & MacCobb, 2011 – refer to Appendix A; Price, et al., 2006; Wong, et al., 2006). Many students find the transition to university to be extremely stressful, with 30% of college students in the US reporting feeling overwhelmed (Voelker, 2003) as they navigate their way through a changing environment of home, friends, relationships, support network, learning modes and routines, anonymity, diversity, finances, freedom, responsibility, and exposure to drugs and alcohol (Price, et al., 2006; Rowling, et al., 2005). Bouteyre, Maurel, & Bernaud (2007) collaborated on a French study which reported that 41% of the first year students surveyed had depressive symptoms whose levels were medically significant.

As a consequence of poor mental health, a high proportion of first year students are neither reaching their academic potential nor enjoying a positive quality of life, and often find themselves unable to positively contribute to their world (Wong, et al., 2006). With one in five students dropping out by the end of their first year (first year being twice as likely to drop out as their second and third year counterparts), incorporating support strategies within the first year curriculum appear to be not only needed, but crucial to a student's overall mental wellbeing (Coates & Ransom, 2011). Cooke, Berwick, Barkham, Bradley and Audin (2006) found that these elevated levels of stress continue to increase in second and third year, never returning to the base-line measured prior to the students attending university. With poor mental health having the potential to impact in so many areas of student and campus life, there are likely to be factors that have contributed to this change, some of which may be still unknown.

3.6 Universities, Changes, and the Diversification of the Student Population

In the past forty years, Australian higher education has undergone rapid and profound changes in the areas of funding, infrastructure, student diversity and globalization (Bosman, Coiacetto, & Dredge, 2011). In an article outlining the internationalisation of higher education in South Africa, Dolby (2010, p 4) stated that higher education is no longer 'a public good that serves and is funded by the state'. Universities, now seen more as private

enterprise, have to raise large quantities of their total budget. She cited marketisation, liberalisation and privatisation as components which stressed the corporate principles of accountability.

Meiras (2004) believes that in Australia it was the Overseas Student Policy in 1985, which was motivated by economic and political rationales, which had a significant impact on Australian Higher Education, along with the economic rationalism which was effecting not only education, but many levels of society worldwide. Meiras argued that the major change came when *The Jackson Report* (1984) viewed education as an export, which has now, along with the influence of the Overseas Student Policy, established Australia as the third largest provider of international education in the English-speaking countries (Meiras, 2004).

3.6.1 Funding

Universities have had to struggle with a decrease in public funding due to changes in government fiscal policy, with the commonwealth reducing their input from 90% to 40%. There has also been a decline in investment in infrastructure and research, along with an increase and diversity of the student population – where many universities registered a rise of 57% between 1984 and 1992 alone. As a consequence, universities have turned to the international student market to boost finances (Bosman, et al., 2011). In 2003, the government announced their *Backing Australia's Future* policy, outlining a ten year vision, injecting approximately \$10 billion into tertiary education; yet this has failed to resolve many of the overriding problems being encountered within this sector (Bosman, et al., 2011). Traditionally, universities have been located on one campus. Now universities may comprise multiple sites over an extended area, placing an increased pressure on both finances and resources (Royal College of Psychiatrists, 2011).

3.6.2 Diversification

Since the Whitlam and Hawke eras, and more recently the *Bradley Report* (2008), universities have become more egalitarian, turning from an elite system into a mass-like system. This has diversified the student intake to include different cultures, lower socio-economic backgrounds; international/LOTE students; first in family; mature age students; those from the newly created pathways into university; and those with learning, mental and physical disabilities (Bosman, et al., 2011; Kift, 2009; Kitzrow, 2003; Said, Kypri, & Bowman,

2013; Stallman, 2010). This diversification has put extra pressures on teaching staff and the course content and delivery, as educators have had to cope with students with differing literacy levels and learning capacities.

3.6.3 Globalisation

Globally, there are now countries that are realizing that universities are crucial assets. They are now beginning to be viewed as places of innovation and change which have the ability attract international talent and business opportunities, injecting a region, both socially and culturally, with renewed vigour (Boulton & Lucas, 2011).

Between 1984 and 1992, public expenditure declined in line with the Gross domestic product (GDP) (Bosman, et al., 2011). This funding crisis forced universities to look to the lucrative overseas market to try to attract the international students. Another major influence and pressure for Australian tertiary education to become global have been through the introduction of the 'Bologna Model' in Europe (O'Reilly, 2006). This model unites universities across the European Economic Community (EEC), allowing for a smoother transition between systems for both students and staff. To become a part of this system provides an opportunity for Australia to better align its frameworks with international standards and benchmarks, securing ties with both Europe and Asia (Currie, 2003). Between 1999 - 2010, all the effort of the Bologna Process members was targeted at creating the European Higher Education Area (EHEA). Therefore, the Bologna Process evolved into the EHEA, which became a reality when the *Budapest-Vienna Declaration* was made in March, 2010. As with any merging of systems, there have been differences in the academic standards that were set by individual countries, so integrating these differing standards has produced its own set of problems, which have currently not been completely resolved. The importance of becoming global also impacted Australian universities financially, as international students contribute substantially to the university economy.

Another influence in the globalisation of higher education has been the advent of the Emerging Global Model (EGM), whose focus is on research and the production of knowledge (Mohrman, Ma, & Baker, 2008) . This concept has increased pressure on all universities to conform to this model, even though it refers to only the top research universities in the world (Dolby, 2010). Currie (2003) points out that universities are becoming like

‘transnational companies’, forming global alliances so that they can deliver education on a global scale. Instead of focusing on local concerns, the emphasis is on external and global rankings.

The net result of the above changes is pushing Australian higher education into crisis (Bosman, Coiacetto, & Dredge, 2011). With a rise in economic rationalism and the development of a corporate ethos, and with many vice chancellors modelling themselves on CEOs, universities may be at risk of losing their traditional scholarly and professional values (Currie, 2003), with the burden of cost (not only financial) falling heavily on the shoulders of the Australian tertiary student.

3.7 Factors Contributing to the Rising Mental Health Problems of the Tertiary Student

Students attending university are increasingly becoming socially and culturally diverse, and are often more vulnerable than their working peers, as indicated in the previous statistics (see section 3.6). Many have come from a structured and closely supervised secondary education system and find themselves suddenly confronted with an environment that is largely self-directed. This is also often accompanied with a newly acquired freedom and an increased level of personal responsibility (Royal College of Psychiatrists, 2011). Many students rise to the challenge, but there is evidence of increasing numbers who are succumbing to these pressures, often resulting in poor mental health (Mikolajczyk, Maxwell, Naydenova, Meier, & El Ansari, 2008; Price, et al., 2006; Stallman, 2010; Vaez, Kristenson, & Laflamme, 2004; Vivekananda, et al., 2011; Wong, et al., 2006). These pressures can come from financial pressure ; relationship issues; academic pressure; family breakdown; exposure to risk taking like alcohol and drugs; competition; disruption to social support; time management; change from parental guidance to self guidance; international and LOTE students (Andrews & Chong, 2011; Kift & Nelson, 2005).

3.7.1 Financial pressure

Since the abolition of student grants and the introduction of student loans and tuition fees, financial pressures on the average student have increased dramatically (Cooke, et al., 2006). Often the student has part-time work on top of a full time study load, which is an added source of stress for an increasing percentage of the student cohort (Andrews &

Chong, 2011; Eisenberg, Gollust, Golberstein, & Hefner, 2007; Royal College of Psychiatrists, 2011). They found that students who were struggling financially had greater psychological stress, anxiety and depression than those with adequate finances. These pressures were a stand out risk factor for identifying poor mental health. Bitsika, Sharpley and Rubenstein, (2010 – refer to Appendix A) found that through having such a tight budget, the students everyday enjoyment was affected, reducing their ability to enjoy the extras in life, whilst continually worrying about how they would pay the next bill.

3.7.2 Relationships and social support issues

Social networks are often disrupted when students begin tertiary education, with many students finding it difficult to make friends and establish new relationships (Andrews & Chong, 2011). Bitsika et al., (2010) found that relationships were at the core of the stressors that a group of Australian tertiary students were experiencing. As a result of their study at university, the students experienced difficulties in their relationships with their partners, children, family and friends, often leading to marital and family breakdowns (Bitsika et al., 2010).

Although students' relationships were the most affected, and that most participants considered study had significantly changed them, some still found the increased demands of university life to be satisfying; and amidst the stress, they had been able to identify a new purpose in life (Bitsika et al., 2010).

3.7.3 Academic issues

University requires a lot of self-directed learning. Many students find the transition between the structured environment of school to the less formal structure of university (where they are required to manage their time and plan their own study routine) very challenging and stressful (Royal College of Psychiatrists, 2011; Kitzrow, 2003). It has been found that students 'who succeed on early university assessment are likely to experience enhanced self-efficacy, and those who do less well (for example, fail, just pass or who do worse than expected) are likely to experience a loss of personal and academic confidence' (Christie, Tett, Cree, Hounsell, & McCune, 2008, as cited in Lizzio & Wilson, 2013a, p. 109). Failure to achieve academic success often results in exacerbating levels of anxiety, depression and stress (Bitsika et al., 2010; Ruthig et al., 2009; Vaez & laflamme, 2008). The highly

competitive work environment along with the widening of university entrance requirements has increased the need for students to not only attain high marks at university, but also to demonstrate an involvement in other areas of university life, both recreationally and on a humanitarian level (Royal College of Psychiatrists, 2011). Stallman (2010) found that students with increasing levels of poor mental health achieved lower academic results, which appeared to be setting up a cycle of failure, thus leading to greater depression.

3.7.4 Low socio economic backgrounds

As university has turned from an elite system into a mass one, it has increased rates of students from low socio-economic backgrounds. Eisenberg, Gollust, Golberstein and Hefner (2007) indicated that students from low socio-economic and non-traditional backgrounds (including the rising numbers of first in the family) were more susceptible to developing depressive disorders than the general population. This susceptibility ran far deeper than simply genetics. It may be better explained through considering a combination of cultural marginalisation, a lack of social support; financial pressures; first in the family; and family pressures resulting from basic cultural differences.

3.7.5 Transition

Entering University coincides with a time when the average student is going through early or emerging adulthood, which many find both challenging and stressful (Dyson & Renk, 2006; Rowling, Weber, & Scanlon, 2005). The report released in the UK by the Royal College of Psychiatrists (2011) stated that experiencing failure and underachievement during this stage of transition can have long-term effects on self-esteem and the positive progress of the student's life. This concurs with the Australian study surrounding transition and loss; illustrating how patterns of life are disrupted (Rowling, Weber, & Scanlon, 2005). Changing relationships between friends, family and partners, increased financial pressure and moving away from home, were all major stressors identified within this population. The transition from late adolescence to adulthood was also a high risk time for the development of depression, self-harm, substance misuse, disturbances due to social disharmony and violence and negative outcomes which can include suicide, chronic illness and entrenched social disadvantage (Dyson & Renk, 2006; Price, et al., 2006; Rowling, et al., 2005)

3.7.6 Greater freedom and responsibility

Students also have to cope with a greater exposure to alcohol and other recreational drugs, which have the potential to contribute to poor mental health through disrupting sleep patterns and affecting academic performance (Andrews & Chong, 2011; Eisenberg, et al., 2007; Vivekananda, et al., 2011; Weitzman, 2004). Peer pressure also increases as students find themselves in situations where they are now able to exercise a greater freedom of choice, which can often lead to overuse (Kypri et al., 2009).

3.7.7 Mature age students

The widening of higher education accessibility has also seen a significant increase in the number of mature age students. Along with the demands of either full-time or part-time study, many of these students are also juggling multiple roles - as worker, parent, and carer - all of which carry with them their own specific stressors. With modulated courses, these students can also feel isolated, as progress through a particular course can vary, making it difficult to establish relationships with both staff and students (Royal College of Psychiatrists, 2011).

3.7.9 International students

Changes in public funding, along with a changing world, has influenced the numbers of international students attending Australian Universities (Currie, 2003). In 2005, 25% of the student population in Australia consisted of international students (Department of Education, Science and Training, 2005) who not only have to cope with a different language, traditions, cultures, customs and ways of thinking (Khawaja & Stallamn, 2011, Lyrakos, 2012), but also to contend with all the other pressures faced by any university student. Financially, many students need to find part time work to supplement their income, which is particularly challenging, if their English is not of a high standard (Royal College of Psychiatrists, 2011).

As a result, the mental health of these students is concerning, as these transitional stressors (shifting between familiar and unfamiliar learning environments) makes them a vulnerable cohort (Hellstén, 2002). As well as coping with all the differences, students also have the expectations and reasons for choosing international study to contend with. Many are looking for greater job opportunities and higher wages as a consequence of obtaining a

university degree, and the pressure from the families at home to achieve this can exacerbate the stress involved (Hellstén, 2002). Students may find socialising difficult due to their cultural or religious beliefs, as alcohol is often included in many social activities (Royal College of Psychiatrists, 2011). In a report related to a study in an Australian University, Rosenthal, Russell, Thomson (2008), found that most of the international students in their study had a positive experience, with only a few finding it detrimental to their wellbeing. However, the authors did stress the need to explore the issues surrounding the difficulties and distress experienced and the consequences of increased risk taking within this cohort. Wang, (2012) outlined the success of a program initiative at Melbourne University, which values international students' different learning experiences and celebrates their cultural differences, whilst educating both staff and students. It was found that this initiative provided 'support for international students' adaptation processes' (Wang, 2012, p 75).

As a consequence of the student population experiencing these factors, which are contributing to their poor mental health, rising numbers of students are seeking help through the university's student counselling services (Voelker, 2003).

3.8 Student Counselling Services

College campuses struggle with limited resources to address the increasing student mental health needs (Conley, Traves & Bryant, 2013). Therefore, counselling services, which once met the developmental and informational needs of the students, have since had to adapt to cater for the more severe psychological problems (Kitzrow, 2003). Stallman and Shochet (2009) and Vivekananda et al., (2011) explored the prevalence of mental health disorders within student cohorts seeking counselling in Australian Universities, identifying the increasing numbers and severity of the cases that were being presented. Andrews and Chong (2011) also found that the number of students requiring crisis intervention, along with ongoing support, was increasing and that future projection revealed substantial numbers of students could present with severe to extremely severe symptoms of depression. The International Association of Counselling Services recommends a ratio of one full time professional staff member to every 1,000-1,500 students (Stallman, 2012). However, counselling services in Australia experience a much higher ratio of 1:4,957 (Stallman, 2012). Australian Student Counselling services are also struggling to meet the

increased severity of their clients, as only a minority of the university counsellors have specialist training in mental health (Stallman & Shochet, 2009).

Prevalence of the rising severity and cases presenting at University counselling services is also reflected overseas. Similar figures are emerging in the UK, with student service managers and counsellors reporting an increase in the severity and numbers of clients (Royal College of Psychiatrists, 2011). In the latest U.S. National Survey of Counseling Center Directors (2011), the directors reported that 37.4% of their clients had severe psychological problems, with 91% reporting that the severity of cases continued to grow. The university counselling centres were struggling to cope with the increase in numbers, with 88% of directors reporting a concern for the welfare of all the students who ended up being on the waiting list. In response to the rising demand, 61% of the centres are training staff to be able to work with the difficult cases. Ninety-two per cent of the directors agreed that there was an increase in the number of students attending college on psychiatric medicine even before they come to university; and 26% providing more mandated suicide assessments. These findings supported the view of Kitzrow, who in 2003, believed that both universities and colleges were dealing with enormous challenges that had been created as a result of the changing mental health needs of students.

The stigma which students attach to mental health problems is also problematic (Lally et al., 2013 – refer to Appendix A). A recent study of how university students manage problematic symptoms, behaviours or an emerging or diagnosed mental disorder whilst studying (Wynaden, Wichmann, & Murray, 2013 – refer to Appendix A) found that the stigma of having a mental health problem remained a major factor that kept students from seeking help. The study revealed that reasons why students failed to seek help also included:

- 41.3% were unsure “whether their problems were serious enough to warrant consulting a health professional or even whether they had problems for which it was necessary to consult someone” (p.855);
- 18% had not “sought the assistance of a health professional because they felt they were able to deal with their problems on their own” (p. 856);

- 25.3% “had not sought help because they were afraid, anxious, embarrassed or ashamed to do so (p.856);

- Students also cited lack of time and cost of the treatment as barriers

The students experiencing the more serious problems such as depression and suicide are less likely to seek help, despite the fact that universities offer free health and counseling services. The increasing number of students avoiding seeking help emphasises the need to equip them with proactive strategies early on in their university life (the first year), in order to help prevent the escalating symptoms of stress. Studies have found that students are often more likely to seek informal help (Ryan, et al., 2010), indicating a need for providing health promotion strategies that are available for students to access in a more informal manner.

Stallman and Shochet (2009) found that the levels of stress in tertiary students built up during the year, whilst the five year study by Vivekananda (2011) found that particular cohorts within a counselling population (international, LOTE and disabled students) were more vulnerable to psychological risk. Both studies suggested the need for increased personal development for student counsellors in order to cope with the severity of the mental health disorders. This may help towards addressing emerging problems, but it does not address underlying causes. It is reactive rather than preventative. If students were able to recognise their increasing levels of stress and were equipped with strategies to avoid, manage or reframe it, then the number of students presenting with moderate to severe mental health problems may decrease. Over fourteen years ago Jorm et al. (1997) identified the need for raising the mental health literacy in the general population so that early symptoms could be recognised and appropriate action taken, with emphasis on individuals learning to self-manage their own mental health.

Section B: A Salutogenic Perspective

3.9 Prevention and Health Promotion

The World Health Organisation (WHO, 2008) stated that prevention is the only sustainable method for reducing the burden caused by mental health problems. In the past, mental

health simply referred to the absence of a mental health disorder (Jahoda, 1959 ; Seligman & Csikszentmihalyi, 2000), without taking into account the mental wellness of the individual. However, as with higher education, the landscape of mental health is also changing. The World Health Organisation recently defined mental health as a 'state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community'. The WHO constitution states that 'Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity," and that there can be "no health without mental health' (October, 2011). There is a growing body of research and practice exploring an alternative to this deficit mode, including the positive psychology and strengths movements (Seligman, Steen, Park, & Peterson, 2005).

In a discussion on positive psychology's initial foray into schools and a reflection on its progress, Clonan, Chafouleas, McDougal and Riley-Tillman (2004) paraphrased the work of Caplan outlining a three-tiered continuum. It is the first tier which may be relevant to universities as it addresses primary prevention, which is aimed at the entire population or subgroup, in order to reduce the risk of developing future difficulties.

Mrazek and Haggerty (1994) introduced a spectrum of prevention interventions which has since become a widely adopted model. The model classified the preventative interventions as universal (targeting everyone), selective (at risk individuals or sub-groups) and indicated (high-risk individuals); and outlined both treatment interventions (aimed to reduce future disorders) and maintenance interventions (including educational interventions aimed at decreasing the disorder).

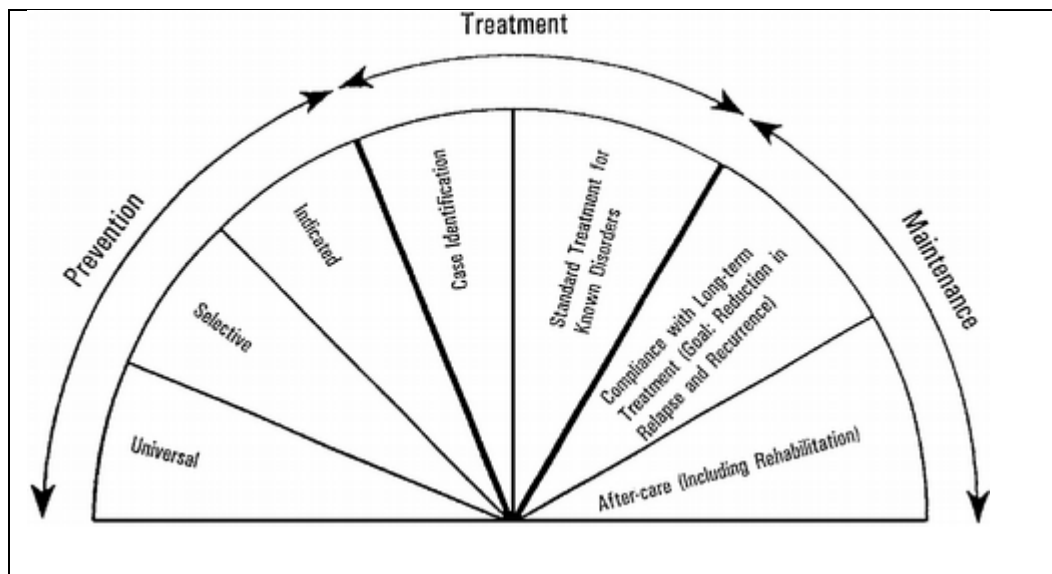


Figure 9. Health care spectrum (Mrazek and Haggerty, 1994)

Interventions implemented in universities could adopt the prevention phase of the above model (See Figure 9), resulting in a proactive rather than a reactive approach, and supporting the need for health promotion.

3.9.1 The Ottawa Charter for Health Promotion

In 1986, the first international conference on health promotion was held in Canada in response to the new global public health movement. Here, a charter was established, defining health promotion; situating health as a product of daily life; proposing core values and principles for public health action; and outlining three strategies and five action areas reaching beyond the boundaries of the health care sector (Potvin & Jones, 2011).

The charter defined health promotion as an educational process, undertaken by individuals and the health sector, creating resources for everyday living thus enabling an individual to assume control over their health. This may be achieved through understanding their aspirations, needs and environmental challenges (WHO, 1986).

The charter states that there are three requirements necessary to create a secure foundation in health. These are to advocate, enable and mediate, and that health promotion strategies and programmes should be 'adapted to the local needs and possibilities of individual countries and regions to take into account differing social, cultural and economic systems' (WHO, 1986).

Prevention and promotion appear to be the next step in response to the rising mental health problems in young adults worldwide, positioning educational institutions within the solution.

3.10 Educational Institutions and their Involvement in Prevention and Health Promotion

Greenberg (2010), in his paper outlining school-based universal prevention, believes that schools provide an excellent opportunity to influence societal change, as most children attend an educational institution for years at a time. This had led to schools becoming more involved in the prevention of mental disorders and the promotion of wellbeing (Greenberg, 2010). With the rising numbers of mental health problems in tertiary student populations, universities are also in an excellent position to become more involved in the prevention of mental disorders and the promotion of wellbeing (Price, et al., 2006; Stallman, 2008). From a positive education perspective, Seligman et al (2009, p 296) state that wellbeing should not only be promoted but should be taught as 'an antidote to depression, as a vehicle for increasing life satisfaction, and as an aid to better learning and more creative thinking. The authors believe that 'as most young people attend school, schools provide the opportunity to reach them and enhance their wellbeing on a wide scale' (p.296).

In 2006 in England, a group of Higher Education Institutions (HEIs) met to discuss and share current practice regarding adopting a 'healthy settings' approach. As a result, the English National Healthy Universities Network (ENHUN) was created, which now includes over sixty HEIs. They believe that 'higher education provides important opportunities for health improvement, and the 169 higher education institutions offer enormous potential as settings in and through which to promote public health' (Healthy Universities, 2009).

While Eisenberg et. al (2007), Wynaden et al., (2013) and Farrer et. al. (2013), argued that universities were in a wonderful position to promote mental health, Kitzrow (2003) emphasised the need for the role of prevention to be an institutional wide responsibility. Mental health promotion within tertiary education, in order to be effective, should not just provide information but aim to change behaviour and attitudes of both students and staff, which will in turn bring significant benefits to the institution (Crouch, Scarffe & Davies, 2006). This can be achieved through implementing a universal intervention- one which targets the entire population rather than just focussing on individuals who may be at risk

(Reavley & Jorm, 2010). When an intervention is applied to everyone, it helps to minimise any stigma that may be associated with individual participants. Universal interventions also have the advantage of covering more than one issue or problem at a time, but if it is too brief, may not have the lasting affect required (Greenberg, Domitrovich & Bumbarger, 1999). As 40% of depressed students do not seek treatment, with the symptoms themselves often impeding their ability to seek help, a university wide awareness program has the advantage of giving those at risk strategies to recognise and manage their own mental health issues, assisting them to minimise and control them more effectively (Andrews & Chong, 2011; Geisner, Neighbors, & Larimer, 2006; Lally, Conghaile, Quigley, Bainbridge, & McDonald, 2013).

3.10.1 PERMA and universities

Managing personal mental health issues begins with awareness, which was one of the aims of the positive psychology movement. Originally, Seligman (2002) aligned positive psychology with happiness, creating an authentic happiness theory which consisted of positive emotion, engagement, and meaning. He was later to find that this theory omitted the essential elements of relationships and accomplishment; and that we were not here to pursue happiness, but wellbeing. Seligman (2011) formed the construct of, and theory for, wellbeing. His wellbeing theory represents an individual's ability to achieve happiness and to flourish through the measurable attributes of PERMA (Positive emotion, Engagement, Relationships, Meaning and Accomplishment). Each element contributes to wellbeing, but does not define it; is mostly pursued for its own sake; can be defined and measured independently; and contributes to an individual's overall wellbeing. Seligman believes that it is in the use of an individual's strengths, to maximise all five elements, which truly defines wellbeing (Seligman, 2011).

Oades, Robinson, Green and Spence (2011) use Seligman's components of well-being (PERMA) as a framework for the cultivation of well-being within the university context. They believe that it is time that universities began adopting the principles of positive education, receiving guidance from the recent work conducted in both primary and secondary schools in this area. They stated that positive education, based on positive psychology principles, can 'increase positive emotions, meaning and engagement and decrease mental illness', such as 'stress, depression and anxiety', along with increases in the students' ability to learn

(Oades, Robinson, Green and Spence, 2011, p 432). They put forward the idea that ‘Positive Universities’ could be created through implementing their PERMA - based model which incorporates the five key aspects of university life which are :

- (1) classroom and formal learning environments,
- (2) social environments,
- (3) local community,
- (4) faculty and administrative work environments and
- (5) residential environments’ (Oades, Robinson, Green and Spence, 2011, p 432).

However, Oades et al (2011) pointed out that adopting and implementing such changes within tertiary institutions would require strong, committed leadership in a system that is already considered to be overloaded.

Tinto (1999) has also argued the need for positive change, and to engage in curriculum renewal that provides curriculum-embedded social support, and which may serve to contribute positively to a student’s mental health. Universities are in a unique position to promote strengths and skills that can assist students in dealing with the developmental challenges, role transitions, and stressors that they can typically faced, through effective interventions which needed to become systemic in higher education (Conley, Durlak, & Dickson, 2013 – refer to Appendix A).

3.11 Innovative University Interventions and Programs

The problems faced when implementing new strategies within an already overloaded tertiary curriculum are numerous (Stallman, 2011). Victoria University (Australia) and the University of Melbourne/Orygen Youth Health Research Centre worked together on a program to promote mental health literacy of students and staff (Victoria University, 2010). The extensive Mindwise study encompassed nine of the campuses - six of whom received the intervention, with the other three acting as control groups. The program involved an online presence with the Mindwise website, the distribution of factsheets & booklets, campus special events, student advisory group and student projects and Mental Health First

Aid training (including an e-learning CD). This study was on a grand scale (involving nine universities), as are many other innovations being investigated. However, some universities have found it more practical to commence with smaller interventions that are both time and cost effective.

Stallman (2011 - refer to Appendix A) researched the impact of embedding a ninety minute strength-focused, resilience-building seminar within an Australian university curriculum. The *Staying on track* seminar incorporated six building blocks - realistic expectations, balance, connectedness, positive self-talk, stress management and taking action - and was delivered to students enrolled in a first year psychology subject. Data was collected using a mixed method approach, via a questionnaire and personal reflective journals, indicating the appropriateness of using a mixed method design in assessing an embedded intervention within a university cohort. Reported outcomes were positive and revealed that 90% of the students endorsed at least one of the six building blocks as being useful, whilst 83.4% nominated at least one plan to make a positive change. However, one-off seminars can be limited, as those students who are absent may be precisely the ones who need to be exposed to the health strategies on which the intervention is focussed.

Another time and cost effective program was implemented in South Australia. Based on a clinical trial by Geisner, Neighbors and Larimer (2006), the Health and Counselling Service at Flinders University developed an intervention known as the *Mood Project*. Bretag et al. (2009 – refer to Appendix A) implemented the project involving 239 students who lived on campus. The program's focus was not on depression, but on developing the students ability to identify their mood, along with their ability to then utilise strategies (both existing and introduced) to manage their mood. A feedback letter was sent two weeks after the students had completed a survey during orientation week, giving the students their individual results along with the strategies their peers employed to improve their mood. A postcard was also sent with the feedback letter. Several of the students in the focus group reported that the postcard (which some lecturers stuck to their doors) had acted as a trigger to help them reflect daily on how they were feeling, and reported the intervention as having a positive impact within their daily routine. This study proved that even simple strategies such as a postcard can trigger positive reflection within students.

In Iran, Hasel, Abdolhoseini and Ganji (2011- refer to Appendix A) were interested in improving the psychological and physical health of college students, through conducting a 6 week intervention focussing on the qualities associated with hardiness. Kobasa first introduced the concept of hardiness in 1979 when he investigated the relationship between personality and disease (Kobasa, 1979). Kobasa believed that we cannot avoid the inherent stress of everyday life, so he wanted to discover the mediating factors that affected the way we react to stress.

As a result of Kobasa's study, personality hardiness has since evolved into a composite of commitment, control and challenge and the motivation to change stress into growth and opportunity (Maddi, 2006), and is a pathway to resilience under stress (Bonanno, 2004). In relation to overall health, Maddi (2006) argued that hardiness leads to vitality and enthusiasm, a decrease in 'physical "wear and tear" disorders (e.g., cardiovascular diseases, obesity, cancer, and Alzheimer's disease) and mental problems (e.g., depression, anxiety, and anger disorders)' (Maddi, 2006, p. 161).

With several studies indicating that hardiness can be taught, Hasel et al., (2011) were able to support this theory through conducting their six week educational intervention surrounding the qualities of hardiness. As a result of participating in the intervention, the students' level of hardiness increased and perceived stress levels decreased. Changes such as the ones found in the study are able to be sustained, as supported by a longitudinal study which reported sustained increased hardiness over 6 to 24 months following periodic training (Rowe, 1999). However, many of the studies reviewed do not contain the statistics that reflect the long term affects of an intervention, or whether sustained supervision when learning a new skill is required in order for it to be incorporated into a student's life. A recent review on the impact of controlled outcome research on universal mental health promotion prevention programs for higher education (Conley et al., 2013 – refer to Appendix A) found that successful interventions included sustained supervised practice. This highlights the need for the inclusion of sustained practice within the intervention in order for the skill to become embedded within the student's life. This information needs to be made clear before universities include interventions into their curriculum.

3.12 On-line Delivery for Interventions

The use of the internet as a mental health service delivery is becoming increasingly popular (Griffiths & Christensen, 2007), allowing psychoeducation and cognitive behaviour therapy to successfully enhance knowledge, thinking and effective treatments of depression and its symptoms (Christensen, Griffiths & Jorm, 2004). In a study exploring the potential of on-line mental health interventions, Ryan, Shochet and Stallman (2010) found an important implication of the study was that the online model was able to reach at risk students who would normally not seek help anywhere else. Maintaining anonymity when asking questions and seeking help online is less inhibiting and confronting, which those suffering from depression and anxiety may find more appealing (Lauder, Chester & Berk, 2007; Ryan et al., 2010). In a randomised trial evaluating the efficacy of an e-learning Mental Health First Aid program, Jorm, Kitchener, Fischer, and Cvetkovski (2010 – refer to Appendix A) found that this method of delivery was positive in destigmatising participants beliefs towards someone with a mental illness.

3.12.1 Open-access websites

Interactive open-access websites, such as *E-couch* (ANU, 2005a), *Moodgym* (ANU, 2005b), *Black Dog* (Black Dog Institute, 2002), *Bite Back* (Black Dog Institute, 2012), *Reach Out* (ReachOut, 1996), *Headspace* (NYMHF, 2006) and *TheDesk* (UQ, 2011), enable students to anonymously gather both information and tools to assist them in learning and coping with their own mental health. *E-couch* (ANU, 2005a) is a self-help resource which targets anxiety and depression through the use of cognitive, behaviour and interpersonal therapies. Sites such as *Black Dog* (Black Dog Institute, 2002), *Beyond Blue* (Beyond Blue, 2000), *DepressionNet* (DepressionNet, 2010) and *Sane Australia* (SANE Australia, 1986) provide information about depression and anxiety for practitioners as well as students. *Moodgym* (ANU, 2005b) also utilises cognitive behaviour therapy skills in a series of interactive modules to help prevent and cope with depression whereas *Biteback* (Black Dog Institute, 2012) aims to amplify positive emotions through providing various activities. In their mental fitness module, they incorporate quizzes and questionnaires to track mental fitness over time. These include such constructs as mindfulness, gratitude, happiness, and flow.

ReachOut (ReachOut, 1996), another on-line resource, has a mission to help young people lead happier lives, assisting them in taking control when they are going through tough

times/situations. To achieve this they use fact sheets, stories, forums and videos as tools on their website. There is a module on wellbeing which includes mental fitness, where they provide a focus on school, university and study pressures. *TheDesk* (UQ, 2011) also emphasises taking control, and is tailored to help Australian tertiary students be in control of their mental and physical health and wellbeing. It too provides online resources such as modules, tools, quizzes and advice for those students who choose not to access support services at their university.

A recent review of technologically-based interventions designed for tertiary students (Farrer, et al., 2013 – refer to Appendix A) assessed those interventions that targeted specific aspects of mental health, such as depression, anxiety and stress; and that were ‘designed to improve, reduce, or change symptoms relating to a mental disorder’ (p.5). Almost half of the 51 interventions reviewed produced at least one significant positive outcome when compared to the control group. The study concluded that ‘technological interventions targeting certain mental health and related problems offer promise for students in university settings’ (p. 14). However, none of the interventions evaluated dealt specifically with emotional health and fitness, and communication was limited to email and/or the internet.

On-line support, although easily accessible, is reliant on the student having the enthusiasm, self-motivation and concentration to complete modules and engage in questionnaires and quizzes. Lauder, Chester and Berk (2007) found that the initial uptake on the open-access websites was high, yet the retention rates needed to complete a module had been found to be as low as 1%. They discovered that, without a therapist present, the majority of users failed to complete the prescribed modules, therefore not benefitting from the resources and strategies provided.

3.13 Social Networking as a Means of Communication and Delivering an Intervention

Communication in the digital age has impacted the tertiary classroom in many ways, with several of these changes involving podcasts, wikis, blogs and social networking such as Facebook, Twitter and sms (Lodge, 2010). Students of the present generation are ‘always-on/never-off; always-connected and listening in isolation but somehow collaborating online;

in a dedicated, opted into, social space and always aware of each other' (Ashraf, 2007, p 343).

Lodge (2010) questioned whether we are utilising this communication within tertiary education in the best possible way. Today's students think and process information differently (Nelson, Kift & Harper, 2005; Prensky, 2001). According to Prensky (2001, p 4), as a result of their computer gaming experiences: 'Digital Natives crave *interactivity*—an immediate response to their each and every action.' This then has an impact on the way that they learn in the classroom. Johnson and Johnson (2004) believe that educators need to use what is commonly used to communicate in the social context of that student (computers and mobile phones), as the tools that they use determine how they learn.

With over 20 million subscribers and 94% of the population using the mobile phone, Australia has been one of the world leaders in its uptake (Abramson et al., 2009). Ninety-three percent of Australian youth (16-24) own and use a mobile phone, increasing their social inclusion and connectedness within their peer group (Walsh, 2008), making it an excellent form of communication on many levels. A study done in the United Kingdom several years ago involving 11-21 year olds (Haste, 2005 – refer to Appendix A) found that texting was the preferred form of communication for almost everything (for information, arranging meetings, showing appreciation and relationship issues, even flirting and breaking up), with nine out of ten texting daily, and over half of the sample texting more than five times a day. Since then, texting and mobile phone usage has increased enormously, indicating that the use of SMS in communicating with the first year university cohort may prove to be extremely relevant. This then augurs well as a form of communication to be used in the present study; delivering an intervention via SMS.

A study in Ireland trialled the use of text messaging between university students and their therapists (associated with the university mental health service). The messages were used to help manage their academic and social lives (Nolan, et al., 2011). Initially, therapists used the phone to arrange appointments with their students, but it soon became apparent that the mobile phone was an excellent means of building communication and support between the therapist and the student. Text messaging brought about a much quicker response than

emailing, which concurs with Haste's results where she found that less than a quarter of the sample used their email for communication (Haste, 2007).

The positive use of text messaging was again demonstrated in a study surrounding the use of SMS in the tertiary classroom. Santos (2010) found that the inclusion of SMS helped enhance the learning experience for those students within an undergraduate course delivered in the UAE (United Arab Emirates). Text messaging was successfully used to encourage the students to think about and explore topics outside course time. In a later study, Santos (2013) investigated the implementation of a quiz via personal mobile devices and its impact on student learning and institutional support. Ninety-three percent of the students used smartphones to answer the course related quiz, and found it stimulating to use their mobile device in this way.

Brett (2011) outlined the opportunities for text messaging in Higher Education Institutions, and suggested that students are well informed as to the rationale and benefits of incorporating the technology within the curriculum. However, he found that there was another component of text messaging which needed to be taken into consideration. When using such technology as the SMS (especially when it required a response and became interactive) it was found that the reason a lot of students failed to respond was due to financial reasons (Brett, 2011).

Lodge (2010) experimented with using various forms of communication within a first year university cohort to ascertain which channels of communication (ie, Facebook, twitter, email, etc) were effective. He believes that the more established forms of communication may reach the older students, but could bypass what he refers to as the 'Millennials' - the students who have grown up in the digital age and require alternate forms of communication. With the increasing diversity amongst first year student cohorts and the continual evolution in communication, it appears uncertain as to which methods of communication will work. The results showed that 94% of the students felt that social networking was a useful tool for collaboration between students, with 80.4% using social networking sites and 90.7% having Facebook profiles. Lodge also found that only 19.6% reported using the universities online learning management system, even though it was a subject requirement. Over a quarter of the students used social networking to get to know

other students in their class, with 65% stating that social networking was a useful tool for the university to communicate informal messages. The more formal messages should be left to the established methods of communication. Lodge suggests that reminders should be short and sharp, as anything over 1 or 2 lines won't be read.

With these new forms of communication becoming increasingly popular, and proving to be particularly successful at enhancing the learning experience outside the traditional classroom, it is important that these avenues are explored in the dissemination of information regarding student mental health.

3.13 .1 SMS and health promotion

With over 6 billion mobile phone subscribers and 75% of the world having access to a mobile phone, the opportunities to improve health care and health promotion is clearly apparent (Tomlinson, Rotheram-Borus, Swartz, & Tsai, 2013). Communicating skills and information to large populations becomes possible if it were to be done via SMS. In a report on global ITC facts and figures, they found that the total number of SMS sent globally tripled between 2007 and 2010, from an estimated 1.8 trillion to a staggering 6.1 trillion. Therefore, close to 200,000 text messages are sent every second (ITC, 2010). Compared to internet usage, twice the number of people use SMS (Shaw & Bosworth, 2012).

WHO (2008) stated that prevention is the only sustainable method for reducing the burden caused by mental health problems. Over thirteen years ago, Jorm et al. (1997) identified the need for raising the mental health literacy in the general population so that early symptoms could be recognised and appropriate action taken, with emphasis on individuals learning to self-manage their own mental health. Following the Ottawa Charter for Health Promotion, and based on implications from research (Pimentel & Cova, 2011; Potvin & Jones, 2011; Stallman, 2011), it appears that embedding mental health promotion programs within the curriculum is one of the more sustainable ways to address the current need in the Australian tertiary education sector. Research not only indicates the rising prevalence in mental health problems within the tertiary student cohort, it also illustrates that first year students are particularly vulnerable to developing mental health problems. This then highlights the importance of exploring novel ways to disseminate knowledge and skills to

the student population. As stated before, delivering such skills via SMS could prove to be the novel approach needed.

Mobile health or 'mHealth' refers to medical and public health practice supported by mobile devices (Tomlinson, et al., 2013). Usually in the form of an SMS or MMS, this support is used to 'improve point of service data collection, care delivery, and patient communication to the use of alternative wireless devices for real-time medication monitoring and adherence support' (p. 2). After reviewing studies which evaluated the use of SMS, it was found that text messaging was more effective when there was 'follow-up'; when the message were 'personally tailored'; and when the 'frequency, wording, and content' were seen to be 'highly relevant' (Tomlinson et al., 2013, p. 2) .

Most people carry their mobile phone everywhere, allowing for 'temporal synchronisation of the intervention delivery and allows the intervention to claim people's attention when it is most relevant' and contextual (Free et al., 2013, p. 2 – refer to Appendix A). Motivational messages can be sent, personalising the messages where necessary, yet personalisation did not seem to matter in an automated texting intervention for smoking cessation support which, when evaluated in the UK (Free et al., 2013), was found to be effective.

Shaw (2012 – refer to Appendix A) designed an intervention to help maintain weight loss based on SMS delivery. The SMS served as a daily reminder to help participants stay focused and keep them motivated to continue losing weight. Shaw found that the optimal SMS dosage was a minimum of one message per day delivered at approximately 8:00 A.M. As many participants reported weight loss as a daily struggle, it was important to deliver the message in the morning. Study's such as Shaw's (2012) suggest that technological tools such as this SMS intervention show promise in helping people sustain healthy behaviours that can lead to improved health outcomes.

Shaw and Bosworth (2012) reviewed the use of SMS in weight loss interventions, and found that the medium had 'distinct advantages in that it reaches across geographic and economic boundaries, can be delivered directly to people and is easy to use' and can 'serve as a cue to action' (p. 236). The use of SMS in promoting health and delivering preventative skills to

tertiary students is certainly an area which warrants exploration. The challenge is to discern what skills to impart.

3.14 Resilience

Resilience can be viewed as an 'asset-based' approach that can support tertiary students' mental health needs (Hartley, 2012). Hartley (2012) believes that in the context of university, if tertiary students use the protective factors that are the by-products of resilience, then all college students have the opportunity to achieve success. In a further study, Hartley (2013- refer to Appendix A) goes on to state that in today's challenging university environment, resilience is not only needed, but is critical. Although resilience has been defined in many ways over the last century, it is commonly believed to be the ability to bounce back after adversity (Connor & Davidson, 2003; Newman, 2005; Tsakalis & Sourlou, 2011; Tusaie & Dyer, 2004). Viewed from the perspective of wellbeing theorists, it is seen as a strength that can assist people in a positive way when adapting to life's changing and stressful circumstances (Maston & Reed, 2005). Tusaie and Dyer (2004) discuss the construct from both a physiological and psychological perspective, and that resilience can be extremely valuable when dealing with stressful life transitions - such as those experienced by the first year tertiary student.

The construct of psychological resilience was created through observation of individuals who grew through adversity, revealing that resilience was a dynamic process rather than static; one which constantly fluctuated through life and circumstance and should be viewed from a holistic perspective (Tusaie & Dyer, 2004). These individuals not only recovered, they experienced growth and strengthening (Ryan 2009). A debate has existed for a number of years surrounding the 'trait like' versus 'state like' aspects of resilience. However, recent research has supported the evidence that resilience is open to development (Bonnano, 2004; McAllister & Lowe, 2011) ; can be enhanced by interventions (Connor & Davidson, 2003; McAllister & McKinnon, 2009); and can be learnt by anyone (Newman, 2005; McAllister & McKinnon, 2009).

Jackson, Firtko and Edenborough (2007) found that vulnerability and adversity were common themes within the literature surrounding resilience, of which both may be encountered by a student in their first year of university. The authors believed that

individuals can strengthen personal resilience through ‘developing strategies for reducing their own vulnerability and the personal impact of adversity in the workplace’ (Jackson, et al., 2007 p. 5).

Richardson (2002) believed that with practice, resilience can provide hope and increased self-efficacy, bringing more control and order into a person’s life. Ong, Bergeman, Bisconti and Wallace (2006) argued that creating positive thoughts and emotions produces emotional resilience and, that through emotional resilience, positive mental health can be attained. Taking a meta-analytical approach to resilience, Lee et al., (2013) found that ‘enhancing the protective factors (e.g., self-efficacy, positive effect, and self-esteem) is more effective than reducing the risk factors (e.g., depression and anxiety) to improve resilience’ (p.275). This positive effect may be achieved through cultivating more positive emotions.

3.15 Positive Emotions

Positive emotions not only signal flourishing, or optimal well-being, but produce it, both in the present moment and in the long term. They are worth cultivating, ‘not just as end states in themselves but also as a means to achieving psychological growth and improved well-being over time’ (Fredrickson, 2001, p. 218). This is supported by Seligman (2008), who believes that positive emotions not only improve our mental health, but also serve as a protection from physical illness.

Emotions shape our lives and provide a backdrop to our everyday experiences. Through understanding the important role that emotions play in our lives, we can improve our long-term wellbeing by navigating through the bad times and capitalising on the good times (Algoe & Fredrickson, 2011). Tugade and Fredrickson (2004) believe that ‘positive emotionality’ is an important element in psychological resilience. They studied the relationship between positive emotions and the ability to bounce back from negative emotional experiences. The authors stated that positive emotions are wonderful tools which can be used to establish enhanced outcome in wellbeing; and Folkman and Moskowitz (2000), demonstrated that it is possible to predict psychological wellbeing and health through the amount to which one experiences positive emotion (Folkman & Moskowitz, 2000a).

3.15.1 Broaden and build theory

According to the 'broaden and build' theoretical model proposed by Fredrickson (2001), positive and negative emotions both play an important role in our adaptive functions – cognitively and physiologically. Fredrickson found that negative emotions narrow a person's momentary thought-action repertoire by preparing them to behave in a specific way (attack when angry, escape when afraid) which triggers cardiovascular reactivity. Whereas discrete positive emotions, (both high activation states such as joy, and low activation states such as contentment and interest), broaden one's thought-action repertoire, 'widening the array of the thoughts and actions that come to mind', subsequently building an individual's physical, intellectual and social resources (Fredrickson, 2001, p. 220). Fredrickson and Branigan (2005), in their experiments on thought-action repertoires, found that even brief positive emotions had long lasting beneficial consequences. Positive emotions also function as 'antidotes' and undo any cardiovascular after-effects of negative emotions and help produce beneficial outcomes in the coping process (Folkman & Moskowitz, 2000b; Tugade & Fredrickson, 2004), as they have both a protective and restorative function (Ong, Bergeman, Bisconti, & Wallace, 2006).

The term 'Emotional intelligence' is often used when referring to the ability to monitor thoughts. An individual high in emotional intelligence is able to 'pay attention to, use, understand, and manage emotions, and these skills serve adaptive functions that potentially benefit themselves and others' (Mayer, Salovey, & Caruso, 2008, p. 503). Tugade and Fredrickson (2004) believe that emotional intelligence plays a significant role in the lives of resilient people, as they are able to draw on the positive emotions in times of stress. Findings from one of their studies indicated that low resilient people can learn to regulate negative emotional experiences through engaging in positive appraisal- that is simply by looking at a task as a 'challenge', as opposed to a 'threat', thus scoring as high as a highly resilient person. To find positive meanings in a situation will illicit positive emotion, increasing the likelihood of finding positive meaning in future situations, building an individual's levels of resilience, and benefitting their physical and psychological wellbeing.

Algoe and Fredrickson (2011) found that the accumulation of people's emotions contributed to their mental and physical health, as each emotional experience pre-empted future thoughts, triggering either an upward or downward spiral. Therefore, to experience optimal

mental and physical health, a focus on increasing the frequency and duration of positive emotional experiences was desirable. The authors state that the self-generation of positive emotions 'triggers an expansion of personal and social resources which then leads to a reduction in symptoms of depression and increased satisfaction with life' (Algoe & Fredrickson, 2011, p. 36).

However, this does not imply that an individual wipes negative emotional experiences from their life. Frederickson and Losada (2005) suggested that maintaining a ratio of positive emotions, as compared to negative emotions at or above a ratio of 2.9:1 (or 3:1) would produce human 'flourishing'. The authors defined flourishing as 'living within an optimal range of human functioning, one that connotes goodness, generativity, growth, and resilience' (Frederickson & Losada, 2005, p. 678).

Self-generating positive emotion is a skill which can be learnt, and was confirmed when people were taught a loving kindness meditation (LKM), highlighting the importance of mindfulness which is a major component of meditation (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008). The evidence surrounding the efficacy of mindfulness shows that it can reduce stress and stress related medical symptoms, enhance positive emotions, and which in turn improves an individual's quality of life (Greeson, 2008).

3.16 Mindfulness

'Mindfulness' can be defined as 'a way of orienting oneself to the present moment' (Thompson & Waltz, 2007, p. 1875); or to 'pay attention to and acknowledge both one's inner experience and the outer world' (Greeson, 2008, p.14); and has been called 'a miracle in which we master and restore ourselves' (Keng, Smoski, & Robins, 2011, p.1041). It enables an individual to become aware of their thoughts and emotions and not judge them, helping to transform psychological distress into psychological wellbeing (Keng, et al., 2011).

The two main components of mindfulness are self-regulation of attention (involving sensations, thoughts or feelings) and then being able to intentionally switch from looking at or focussing on one aspect of an experience to another (Keng et al., 2011).

After reviewing the latest research on mindfulness, Greeson (2008) concluded that it had demonstrated the benefits that mindfulness can have on the mind, brain, body and

behaviour, enabling shifts in 'cognition, emotion, biology and behaviour', and helping us to 'realise greater health and wellbeing' (p. 15). Incorporated in a more recent review, Keng et al. (2011) discussed the success of Mindfulness-Based Cognitive Therapy (MBCT) which had been designed to prevent relapse in remitted depression, aiming to change the 'awareness of and relationship to thoughts and emotions' (p. 1046). This non-judgemental change in perspective is capable of transforming the negative patterns and associations to more positive and productive ones.

Catalino and Fredrickson (2011 – refer to Appendix A), after researching the effects of loving kindness meditation (LKM) predicted that mindfulness would contribute to an individual's ability to flourish. Therefore, mindfulness may serve to amplify the effects of building resilience and generating positive emotions. In light of the increasing prevalence of depression and other mental health problems being experienced by tertiary students, it seems plausible that interventions which increase an awareness of emotions, incorporate mindfulness, and teach strategies that build resilience and generate positive emotions, would be worth exploring.

3.17 The Impact of Mental Health Prevention and Promotion Interventions for Higher Education Students

As the studies that have been subject to review are limited in scope and numbers, it has been 'difficult to reach clear conclusions about the impact of mental health prevention and promotion interventions for higher education students' (Conley, Durlak & Dickson, 2013, p. 287). In the first review of universal mental health promotion and prevention programs for higher education students, Conley et al., (2013) found that after screening, only '83 interventions contained in 74 reports appearing between 1967 and the end of 2010' (p. 288). Most of the research that was included (65) was conducted in the last 20 years, with 63% conducted using 'undergraduates beyond the first year or from multiple years of study' (p. 288). The study found that the most successful were the skill-oriented interventions (especially those that incorporated mindfulness and cognitive behavioural therapy), and that their effectiveness was increased when they incorporated a form of supervised skills practice. Conley et al. (2013) also revealed that 'interventions with supervised skills practice were equally effective (51% to 65% of the time) at improving social and emotional skills, enhancing self-perceptions, and reducing emotional distress (including depression, anxiety,

and stress)' (p. 295). The authors argued that 'because emotional distress in the form of depression, anxiety, and general stress are 3 of the most common adjustment problems experienced by higher education students, current findings indicate the value of promotion programs offered in higher education' (p. 296). It was recommended that universities embed skill based interventions into the first year curriculum, as 'course offerings provide a promising format for delivering effective interventions' (p. 298). Conley et al., (2013) concluded that mental health promotion programs and interventions 'need to be integrated into the routine structure and programming of higher education institutions and to have support from students, staff, and administrators' (p. 297).

3.18 Lessons to be Learned

Few interventions have been subject to the research process that is required to validate an implemented program (Bretag, et al., 2009; Conley, et al., 2013; El Ansari et al., 2011). Although universities are increasingly implementing programs to address problems such as student stress, 'the lack of rigorous research evaluating their impact has been surprising' (Deckro, et al., 2002, p.282) .

Another important fact to consider is that many of the above interventions were developed, implemented and evaluated by either student counsellors (Bretag, et al., 2009) or psychologists (Stallman, 2011; Hasel et. al., 2011). This highlights a need for research into universal interventions that are implemented by those who are not specialists, broadening the application and uptake of health promotion within universities. Time-intensive programs, such as the two hour sessions over six weeks in the Iranian study (Hasel et. al. 2011), and those included in the review by Conely et al. (2013) which ranged from 1 to 35 hours, are also often impractical to implement in an already time-poor tertiary curriculum. Although there are limitations to a one-off intervention such a *Staying on Track*, and that not all students will take advantage of a program such as the one piloted at Flinders University, they add weight to the success of smaller interventions, highlighting the need for research into the simpler, more cost-effective programs.

3.19 First Year University Curriculum for Preventative Interventions

Cooke, Berwick, Barkham, Bradley and Audin (2006) found that these elevated levels of stress continue to increase in second and third year, never returning to the base-line

measured prior to the students attending university, which supports the theory that the first year university curriculum is highly appropriate for the embedding of health promotion and prevention strategies.

The need for preventative programs was also identified at the National Summit on the Mental Health of Tertiary Students (University of Melbourne, 2011), where it was recommended that resilience training be embedded in course design, as part of building mental health capacity in a proactive way. In the context of first year university students, the skill of resilience could be both learned and developed (McAllister & Lowe, 2011), enabling the students to sustain motivation and focus when faced with the challenges of transition and emerging adulthood (Stallman, 2011). There is now a large body of research advocating the need to incorporate resilience within educational curriculum (Miller, Nickerson, & Jimerson, 2009). Castleden, McKee, Murray and Leonardi (2011) describe resilience as the capacity of individuals or groups of people to cope with adversity and continue functioning. Smith, Tooley, Christopher & Kay (2010) found that in undergraduate students, their level of resilience was related to the health measures of optimism, social support, spirituality, purpose in life, and mood clarity. Resources such as hope, optimism and self-efficacy, combined with resilience, are now being identified as being core life skills, often referred to as an individual's psychological capital (Luthans, Yousseff, & Avolio, 2007). Luthans, Luthans and Jensen (2011), in a study involving undergraduate business student, demonstrated a direct correlation between the participants' psychological capital, their increased resilience levels and academic performance. If these resources are to be thought of as core life skills, as important as literacy and numeracy, then students and faculty need to value them. Thus, a move towards addressing the mental health problems amongst university students may be achieved through embedding resilience interventions within the first year university experience (Stallman, 2011; Stallman & Shochet, 2009; Vivekananda et al., 2011).

3.20 An Overview of Methodological Approaches to Mental Health Research in Tertiary Education

Methodological approaches that were adopted when assessing the impact of interventions in tertiary students were predominantly quantitative (Hasel, Abdolhoseini & Ganji, 2011; Ryan et al., 2010) with some mixed-method studies, two of which were conducted in

Australian universities (Bretag et al., 2009; Stallman, 2011). In a recent review evaluating the impact of controlled outcome research on universal mental health promotion prevention programs for higher education (Conley et al., 2013), one of the criteria was that each study (76 in total) included a control, so that all the studies were either random or quasi-experimental. Conley et al., (2013) reported that in-class interventions were more successful than workshops, and they recommended that interventions be systematic and have a longer term follow-up, as only 23 of the 83 interventions incorporated that in their study. It appears that it would be helpful to present results from both a quantitative and qualitative perspective, in order to add depth and breadth to the study of a preventative intervention (Bretag et al., 2009; Stallman, 2011).

3.21 Future Research Directions

The increasing prevalence of poor mental health within tertiary students is of international concern (Kitzrow, 2003; Stallman, 2008; Vivekananda, et al., 2011; Weitzman, 2004; Wong, et al., 2006). With first year university students representing a high risk population for mental health problems (Ryan et al., 2010, Dyson & Renk, 2006), more research is required in all aspects of college/tertiary mental health (Kay, 2010), especially in the areas of mental health promotion and prevention (Miller & Chung, 2009; Price, et al., 2006; Reavley, et al., 2012; Stallman, 2011). Miller and Chung (2009) believe that it is imperative that funding be allocated to research for intervention studies of depression in the college/university setting. Geisner, Neighbour and Larimer (2006) state that many approaches that have proven positive in the general population need to be evaluated with college students and 'given the prevalence rates, costs, and barriers to treatment, briefer interventions with easier access need to be designed and evaluated' (Geisner, et al., 2006). Vivekananda et al. (2011) indicate that further investigation into resilience factors is also warranted in order to improve student mental health.

In the field of education, Greenberg (2010) presented four future directions for research in the field of school-based prevention and health promotion and which also aligned with tertiary-based needs. These included: 'building the science of implementation and sustainability, building greater integration between educational policy and prevention, understanding factors influencing program integration with ongoing programming in

schools, and the continued development and refinement of new programs and models' (Greenberg, 2010, p.36).

Buchanan (2011) suggests that a standardised, effective depression–prevention intervention needed to be developed to cater for the diverse student populations which can be used across multiple college campuses and university settings. She encourages academics to develop 'standardized, effective evidenced-based strategies for the prevention of depression in the college student population and to increase awareness on the implications of this research' (Buchanan, 2011, p.27). Conley et al.,(2013) suggest that 'future research should continue to evaluate the benefits of both mindfulness and cognitive behavioral interventions for different student groups, as these were found to be the most successful interventions when implemented with tertiary students and followed up with supervised practice of the learned skill (Conley et al., 2013).

3.22 Conclusion

This chapter reviewed the current literature surrounding the growing mental health concerns both in Australia and throughout the world. Research revealed that the 16-24 age group was particularly at risk, recommending that health promotion and prevention be explored within university populations, embedding universal interventions in the first year curriculum, as prevalence and incidence rates amongst tertiary students reflect that interventions are lacking (Buchanan, 2011). Whilst contributing factors to the rising mental health problems experienced by students at a tertiary level were discussed, the inclusion of resilience, positive emotions and mindfulness in interventions was also explored in order to help counteract the impact of these influences. The literature review has demonstrated that it is research into 'novel and inexpensive interventions that build the specific elements of positive health' (Seligman, 2008, p. 16) which will help alleviate the rising prevalence of poor mental health amongst the tertiary student population. This highlights the need to invest in research on the implementation of these interventions (Tomlinson, et al., 2009), embedding them within the first year tertiary cohort (Stallman, 2011).

The current project is unique as it addresses the crisis and necessary responses that have emerged from this review of literature, which revealed that there was sufficient information around the problem, but not enough around focusing on practical solutions. It is designed:

- to be embedded in a compulsory first year course
- is both time and cost effective; is proactive rather than reactive
- is not a one off seminar
- is accessible daily through multimedia and social networking support
- be introduced by any teacher

The study thus demonstrates its original and substantive contribution to the current body of literature surrounding the problems being experienced worldwide in the area of student mental health. This review of the literature has contextualised the study, reinforcing that the research is both timely and necessary. It has established the conceptual framework and guided the final questions. Before proceeding on to explain the methods and methodology chosen for the research project, it is important to understand the principles underpinning the intervention, and the literature that supports their inclusion. The following chapter discusses the intervention from a salutogenic perspective, contextualizing it in the literature and the study. Although the intervention itself was developed prior to the study, the principles underpinning the skill were expanded upon as part of the research.

Chapter 4 *Mytern* The intervention

The chapter begins with the broad aims of *Mytern*, followed by a summary of the principles on which the intervention was based. The *Mytern* intervention was designed from a salutogenic perspective and based on psychological, physiological, biological and language principles, along with technology and its role in health promotion (keeping in mind the high level technological literacy within the first year tertiary cohort). Each of these principles is outlined in detail, linking them to the intervention and their relevance to a first year tertiary cohort. An explanation of the individual components of *Mytern* then follows, concluding the chapter with the implementation strategy for the main study. One key aim of this chapter is to demonstrate how *Mytern* is well grounded in empirical literature, providing it with a strong academic foundation.

4.1 Aims

The major aim of the intervention was to provide a resource which would help alleviate and transform the everyday stressors experienced by first year university students. *Mytern* was originally created in response to the increasing prevalence of mental health problems within secondary schools. As an emotional fitness and resilience building skill, *Mytern* was designed to assist people in changing emotional habits through building resources and learning to self-generate positive emotions despite prevalent circumstances. The intervention aimed not to eradicate stressors, but to educate students through the use of metaphor; that they are in control of their emotional state. Another aim was to introduce a strategy to change negative emotions, with the understanding that all emotions have their benefits (that is, the positive roads build health whereas the less positive roads build resilience). *Mytern* emphasised that if students continued along resilience-building roads for too long, their health would diminish/deteriorate. Coming from a salutogenic perspective, *Mytern* also aimed to educate the students to be able to transform every day stressors into experiences that would help create health from within.

4.2 Psychological Principles – Positive Psychology, Positive Emotions and Mindfulness

The psychological principles behind positive psychology (Seligman, Ernst, Gillham, Reivich & Linkins, 2009), positive emotions (Fredrickson, 2013) and mindfulness (Vago & Silbersweig, 2012), inform the intervention of *Mytern* in profound ways. The salutogenic perspective of

positive psychology recommends the promotion of mental health interventions as a buffer for both mental and physical illness (Fredrickson & Losada, 2005; Seligman, 2011). From a higher education perspective, the teaching of positive psychology principles can be applied as 'an antidote to depression, as a vehicle for increasing life satisfaction, and as an aid to better learning and more creative thinking' (Seligman, Ernst, Gillham, Reivich, & Linkins, 2009, p. 295). Generating positive emotions, as part of the positive psychology teachings, has the ability to enhance psychological wellbeing and functioning, and is associated with lowering levels of mental health problems (Bonanno & Keltner, 1997; Folkman & Moskowitz, 2000; Fredrickson, 1998, 2001; Lyubomirsky, Sheldon, & Schkade, 2005). Therefore, it is appropriate to introduce an intervention which promotes the generation of positive emotions into tertiary institutions where students are experiencing increased psychological distress (Stallman, 2012). The principle of mindfulness is what helps focus the student to be able to generate these positive emotions. Each of these principles will be outlined individually to emphasise their contribution to the intervention, *Mytern*.

4.2.1 Positive psychology

Positive psychology is a relatively new branch of psychology which views life from a salutogenic perspective. Instead of focussing on what is clinically wrong with someone, it focuses on the creation of health through the promotion of wellbeing. It has been defined as being 'an umbrella term for the study of positive emotions, positive character traits and enabling institutions' (Seligman, Steen, Park & Peterson, 2005, p.410). The *Mytern* intervention highlights positive emotions and aims to enhance the university experience for first year students, thus supporting tertiary institutions.

Positive psychology and mental health promotion, such as *Mytern*, go hand in hand (Kobau et al., 2011), as both seek to 'foster individual competencies, resources, and psychological strengths, and to strengthen community assets to prevent mental disorder and enhance wellbeing and quality of life for people and communities' (p.1). It is the synergy between positive psychology and public health which may help promote public health in innovative ways (i.e., through the intervention *Mytern*), impacting the health of the overall population (Kobau et al, 2011).

Research surrounding mental health and positive psychology (cross-sectional, experimental and longitudinal) demonstrates that positive emotions benefit ‘health, work, family and economic status’ (Kobau et al, 2011, p.1). According to Seligman (2008), mental health (such as positive emotions) is over and above the absence of mental illness, and predicts ‘lack of depression, higher achievement, and—intriguingly—better positive physical health’, with subjective wellbeing (as measured by positive emotions) protecting an individual from physical illness (p.7). Positive health buffers against both physical and mental illness. Therefore, it is recommended that positive health (such as positive emotions) should be taught in school as ‘an antidote to depression, as a vehicle for increasing life satisfaction, and as an aid to better learning and more creative thinking’ (Seligman, Ernst, Gillham, Reivich, & Linkins, 2009, p. 295). This then highlights university as presenting an ideal environment for such interventions as *Mytern*. **It is on this premise that *Mytern* was created, centering on the theory behind the generation of positive emotions and the consequence of improved physical and mental health.**

4.2.2 Positive emotions and the theory of ‘broaden and build’

Studying and understanding the effects of positive emotions has increased over the last 20 years with scientists, such as those at the University of Wisconsin’s HealthEmotions Research Institute, adopting a salutogenic perspective concerning their research. The institute has begun to ‘redirect their attention from problems that produce disease to brain systems that regulate positive emotions and their relationship to key physiological systems affecting health’ (Kalin, 2012). Following this salutogenic perspective, numerous studies have revealed that experiencing positive emotions has the ability to enhance psychological wellbeing and functioning, and is associated with lowering levels of mental health problems (Bonanno & Keltner, 1997; Folkman & Moskowitz, 2000; Fredrickson, 1998, 2001; Lyubomirsky et al., 2005). These assumptions are supported by Fredrickson, who is one of the major proponents of studying the science of emotions, in particular positive emotions. She believes that ‘when people learn to self-generate more frequent positive emotions, they launch themselves onto positive trajectories of growth’ (Fredrickson, 2013, p.32).

Fredrickson’s exploration into positive emotions began with her study surrounding the ‘undo hypothesis’ put forward by Levenson (1988). Realising that a new model would be

required when studying the effects of positive emotions (Fredrickson, 1998), Fredrickson also adopted a salutogenic perspective, asking such questions as:

- What if positive emotions could help to solve some of the problems that negative emotions generate?
- What if positive emotions could help people overcome negative emotions faster and build their resilience to future adversities? (Fredrickson, 2000, p. 2)

Understanding that positive emotions were not simply the absence of negative emotions, Fredrickson (2000) investigated various types of interventions that cultivated positive emotions (relaxation training, finding positive meaning, invoking empathy, amusement, or interest) and found that they all 'shared the ability to evoke positive emotions while alleviating negative emotions' (p.17). Other studies added to the premise of the 'undoing' effect of positive emotions. Tugade and Fredrickson (2004), in a three tiered study surrounding negative emotional arousal and finding positive meaning in negative circumstances, concluded that positive emotions "contribute to the ability for resilient individuals to physiologically recover from negative emotional arousal" (Tugade & Fredrickson, 2004, p.331). These acted as a resource "for regulating negative emotional experiences in daily life" (Fredrickson, 2013, p.12). The resources accumulated as a result of positive emotions were thought to be "more durable than the transient emotional states that led to their acquisition" (Fredrickson, 1998, p. 307).

Fredrickson's journey to ascertain the function of positive emotions, stimulated by criticism and guided by the logic of evolutionary theorists, eventually led her to conclude that the function of positive emotions was to 'build an individual's resources for survival' (Fredrickson, 2013, p.15). She recognised the joint role of both the positive and negative emotions. She aligned positive emotions with the discovery of 'new knowledge, new alliances and new skills', whereas negative emotions drove behaviour which 'saved life and limb' (p. 15). Both positive and negative emotions were subject to 'different time scales' (Fredrickson, 2009, p. 22). Fredrickson believed that our ancestors utilised negative emotions to narrow their focus in survival situations, concentrating resources to deal with the perceived threat. In contrast, positive emotions served to 'build our human ancestors resources, spurring on their development of assets, abilities and useful traits' (Fredrickson,

2013, p.15). From this realisation Fredrickson abandoned 'the framework used to understand the negative emotions' (Fredrickson, 2003, p. 331) and created her own 'broaden and build' theory, stating that over time, positive emotions had the ability to expand an individual's personal resources, contributing to their level of wellbeing (Catalino & Fredrickson, 2011).

Research into the effects of positive emotions continues to increase (Fredrickson, 2013). Studies to date have found that when imbued with positive emotions, people are able to widen the scope of what they are scanning (Wadlinger & Isaacowitz, 2006). They are able to open their awareness, and as a result, broaden their outlook and take in more of their contextual surroundings (Schmitz, et al., 2009; Wadlinger & Isaacowitz, 2006). Once vision is increased, people are able to come up with more possibilities (Fredrickson & Branigan, 2005) and possess higher levels of creativity (Rowe, et al., 2007). Resilience can be built, enabling people to bounce back from adversity faster when experiencing positive emotions (Fredrickson, et al., 2003). People are more likely to think about others, taking in their perspective, and are able to look at 'we' instead of 'me' (Waugh & Fredrickson, 2006). When people are feeling the warmth of positive emotions, racial barriers and cultural judgements seem to decrease (Johnson & Fredrickson, 2005), and where positive growth can become self-sustaining (Fredrickson, 2013a).

Generating positive emotions to create upward spirals and self-sustaining trajectories of growth constitutes the basis of the *Mytern* intervention. Although positive emotions are fleeting, Fredrickson (2013) recognises that they accumulate and compound over time in 'ways that incrementally build people's enduring resources' (p. 25). Introducing *Mytern* to students, allows for the testing of the build hypothesis, as the daily SMS may serve as a frequent recurrence of a positive emotional experience. Part of this experience is to direct the student's attention to how they are feeling at that moment, and what they are thinking. The principle of mindfulness was deemed to assist in that redirection.

4.2.3 Mindfulness

Mindfulness has many definitions. Thompson and Waltz (2005) refer to mindfulness as 'a way of orienting one's self to the present moment' (p.1875). Kabat-Zinn (2005) defined mindfulness as "moment-to-moment, non-judgemental awareness, cultivated by paying

attention in a specific way, that is, in the present moment, and as non-reactively, as non judgementally, and as openheartedly as possible” (p. 108).

To increase understanding of mindfulness, Vago and Silbersweig (2012) proposed a framework focussed on ‘self-processing and the underlying neural systems involved in Self-Awareness, -Regulation, and -Transcendence (S-ART)’ (p.2). When outlining their framework, Vago and Silbersweig (2012) argue that the mental training which accompanies mindfulness assists in developing a ‘meta-awareness of self (self-awareness), an ability to effectively manage or alter one’s responses and impulses (self-regulation), and the development of a positive relationship between self and other that transcends self-focused needs and increases prosocial characteristics (self-transcendence)’ p.2. **The intervention *Mytern* uses self-awareness, self-regulation self-transcendence, beginning with the constant use of their GPS (Global Positioning System).**

Several lines of research are converging on the idea that emotion regulation is an essential component of mental health and that problems of regulation are associated with a variety of forms of psychopathology (Cicchetti, Ackerman, & Izard, 1995; Davidson, 2000; Gross, 1998, as cited in Hayes & Feldman, 2004, p. 255). It is mindfulness that may assist in cultivating emotional balance and help change habitual patterns (Kabat-Zinn, 1990). Therefore, mindfulness, along with may be referred to as attention training, were both incorporated into the SMS.

Being able to regulate attention is a critical component of the emotion regulatory process (Wadlinger & Isaacowitz, 2011). Kalin (2012) argues that through understanding emotions and their regulation, a significant difference can be made for people with mental illness, as well as for stress-related and emotion-related physical problems. A primary strategy of emotion regulation, Wadlinger and Isaacowitz (2011) argue, is that of engaging in attentional distraction, which involves a shift in attention. This requires shifting the attention from one aspect of a situation that may be negative, to another more positive aspect of the same situation, or by thinking of something else altogether. This shifting of attention is central to the *Mytern* PET (Personal Emotional Tool) which acts as a distraction from the negative thoughts that have created the negative emotion. Osaka, Yaoi, Minamoto and Osaka (2013) discovered that negative emotions were associated with

amygdala activation and disturbed attentional control, whereas positive emotions promoted the attentional control system to direct effective attention. Therefore, through applying the skill of *Mytern*, becoming mindful of their GPS, accessing their PET, and being able to regulate attention in a positive way, may have positive effects on student concentration and attention.

The aim of the *Mytern* SMS was for the participants to trigger this orientation and moment to moment non-judgmental awareness, through the daily use of their GPS. This everyday mindfulness is a skill which can be learnt, practised and applied to daily life (Thompson & Waltz, 2007) helping them to ascertain: what road they were on; what thought they were thinking that enabled them to drive down that road; the choice of a suitable PET; culminating in the ability to steer down a different road. In an undergraduate study (Frewen, Evans, Maraj, Dozois, & Partridge, 2008), found that mindfulness helped lower the frequency of negative thoughts that arose automatically, strengthening the students ability to change those thoughts.

Changing thought also has the ability to effect and change the pathways that patterns of negative thinking have created in the brain. In order to cater for all types of learning and multiple intelligences within the student population (discussed later in the chapter) it was important to include in the intervention the physiological and biological principles that would enact these changes.

4.3 Physiological/Biological Principles

The core principle of the repetition of positive emotions and their ability to accumulate aligns with ‘findings in affective neuroscience related to experience-dependent plasticity in the neural circuitry of emotions’ (Garland, et al, 2010, p. 852). Garland et al (2010) speculate that ‘upward spirals may be partially mediated by affective plasticity in the brain’ (p. 852) which is now referred to as neuroplasticity or brain plasticity. Neuroplasticity, along with the role that neuropeptides play as the molecules of emotion, help to illustrate how interventions such as *Mytern* can enhance wellbeing from a physiological/biological perspective.

4.3.1 Neuroplasticity

Up until the 1990's, it was thought that the brain's plasticity was limited to early childhood, but as a result of scientific research, it is now known that the 'brain retains its plasticity throughout life' (Merzenich, 2007, p. 42). The human brain has a large degree of plasticity, giving it the capacity to adapt to changing demands by altering its structure (Lövdén, Bäckman, Lindenberger, Schaefer, & Schmiedek, 2010; Lövdén, Wenger, Mårtensson, Lindenberger, & Bäckman, 2013). This plasticity is not an 'occasional state of the nervous system; instead, it is the normal ongoing state of the nervous system throughout the life span' (p.379) and is a mandatory consequence of all neural activity, including mental practice (Pascual-Leone, Amedi, Fregni, & Merabet, 2005). Garland et al (2010) believe that recurrent mental practices that take you beyond previously established limits, are associated with 'the development of potentiated synaptic connections and new neural growth' (p.852).

Through retaining this plasticity, the brain is able to learn new skills and form new neural pathways irrespective of age (Merzenich, 2007). During skill acquisition, Merzenich argues, the brain progressively 'specializes' by 'modifying the effective wiring that supports more-successful practice attempts' (p. 42) which is the basis of learning. Even in later life it is possible to direct the brain plasticity by progressively training it out of 'earlier maladaptive learning that can have serious—sometimes devastating—consequences for the person in the form of dyslexia, schizophrenia, depression, and so on' (Merzenich, 2007, p.42).

The notion that brain plasticity is not restricted to the young is also supported by Garland and Howard (2009). They believe that the adult brain is capable of establishing new neural connections and forming new neurons in response to skill acquisition. Supporting this theory in a later article, Garland, Fredrickson, Kring, Johnson, Meyer and Penn (2010) reported that these plastic changes had been documented in adults who had been exposed to stimulating learning experiences.

Citing a number of empirical studies (Holzel et al., 2008; Lazar et al., 2005; Luders, Toga, Lepore, & Gaser, 2009), Garland et al (2010) believe that positive states of mind can be intentionally induced, stimulating 'structural alterations in brain areas that appear to instantiate positive emotions and emotional stability' (p. 853).

Although empirical research in this area is only in its initial stage, Garland et al (2010) argue that there is enough evidence to warrant support that experiencing repeated positive emotions stimulate neuro-biological changes that may endure, as 'repeated induction of positive emotional states may gradually shift negative affective styles and potentially lead to the development of lasting positive dispositional traits' (p.854). **This shift embodies/reflects the principles of *Mytern*, where participants learn a skill which will gradually take them from a negative affective style to the development of lasting dispositional traits.** It is during these shifts that changes to the production of certain chemicals in the brain have been detected. These chemicals, in the form of neuropeptides, have been termed the 'molecules of emotion' (Pert, 1997).

4.3.2 Neuropeptides

In exploratory research, Sylwester (1994) drew attention to the importance of understanding the 'molecules (peptides) that carry emotional information' and the 'body and brain structures that activate and regulate emotions' (p. 61). Sylwester used the metaphor of visualising emotions as the glue that 'integrates our body and brain', and peptide molecules 'as the physical manifestation of the process' (p.61) and how important this is to learning. A peptide is a short polymer chain that is made by linking together amino acid molecules, and is the messengers of our emotional system (Pert, 1997; Sylwester, 1994).

Pert (1997) found that peptides existed in all parts of the brain, not only in the hypothalamus. Peptides also appeared in the cortex, the part of the brain where higher functions are controlled, and in the limbic system, or the emotional brain. As a result of understanding the distribution of these chemicals throughout the nervous system, Pert (1997) began to theorize about peptides being the molecules of emotion.

The relationship with emotion has also been documented in regard to the production of stress neuropeptides, which are released upon emotional responses which affect the whole-body, rather than being merely cognitive. These neuropeptides can be released in response to stressors, defined as 'a stimulus or environmental condition in which the response demands exceed the adaptive capacity of the organism' (Koolhaas et al., 2011, p.1298). Serotonin is an extensively studied neurotransmitter and is associated with the mood change and anti-depressive effects experienced after physical exercise (Jonsdottir, 2000).

Research on the association between various polymorphisms and depression supports the idea that serotonin plays a role, not only in the treatment of depression but also in susceptibility to depression and suicide p. 394 (Young, 2007). **Therefore, promoting physical exercise was also included in the *Mytern* mini-manual (outlined in section 4.6.2) given to students as part of the intervention.**

Realising that emotions and bodily sensations were ‘intricately intertwined in a bidirectional network in which each can alter the other’ (p.142), Pert surmised that this process, although ‘unconscious’ [*sic*] (p.142), could be brought to a conscious level through intention, thus controlling the body’s responses and its interaction with emotion. By introducing positive emotions, more peptides associated with positive emotions could be produced, changing the ligand that flooded a receptor, and affecting the choice of neuronal circuitry that would be used (Pert, 1997). This would in turn affect the number of receptors produced for that particular peptide, enabling easy access for the electrical impulse (produced by the positive emotion) to travel across the cell membrane.

Introducing a conscious awareness of what emotion an individual may be experiencing, through the skill promoted by *Mytern*, creates the possibility of affecting the body at a cellular and chemical level, producing peptides that will result in a healthier bidirectional network. Therefore, it was important that the students understood such complex principles as neuroplasticity and the production of peptides. In order to convey these concepts, **the language of *Mytern* had to be clear enough to cater for all students who attend a tertiary institution.**

4.4 Language Principles

The principle of metaphor was adopted to enhance tertiary students’ understanding of the principles behind *Mytern*. Utilising an everyday metaphor that was applicable to a wide range of students (through age and gender) was chosen, involving driving, steering wheels, GPS and roads.

4.4.1 Metaphor

From a very early age, children are introduced to the use of metaphors within stories as a form of indirect, imaginative and implied communication. A metaphor is an imagistic linguistic device, used to give meaning to the unfamiliar by using that which is familiar.

Metaphors communicate experiences, processes and outcomes in order to facilitate greater problem solving and coping skills within the reader/listener (Burns, 2005). As adults, the world of storytelling and metaphor continue to educate us through books, movies and television, governing our ways of perceiving, naming, and acting in the world, whether we are aware of this phenomenon or not.

Cognitive linguists believe that we incorporate conceptual metaphors continuously and unconsciously in our everyday lives, through understanding one idea in terms of another (Lachaud, 2013). Conceptual metaphors are defined as 'mental devices for thinking and communicating about abstract conceptual domains in terms of concrete, or at least different, conceptual domains (substitution)' (p. 12). Lachaud (2013) believes that conceptual metaphors increase the speed of thoughts and intuitive communication, producing a richer and deeper understanding and is a keystone mechanism in meaning elaboration.

The use of metaphor, as advocated by Lakoff and Johnson (1980), is well situated to help transform the complex information underpinning *Mytern* (i.e. neuroplasticity) into simpler and more accessible concepts. Adopting the everyday concept of driving enables the metaphor to link unfamiliar concepts (having control of our emotions) to familiar ones (driving, roads and steering wheel) in a unique and creative way, offering students avenues to deepen their understanding (Jensen, 2006).

An excerpt from the student's *Mytern* Mini Manual is included to illustrate the use of metaphor to impart the skill:

Mytern is an emotional fitness skill designed to increase your mental and emotional fitness. The skill is based around the metaphor that you are the driver, only you have control of the steering wheel, and all the roads that you drive down represent your thoughts and emotions. Less positive thoughts and feelings (such as failure, worthlessness, jealousy, depression, and stress) lead you down roads which are less positive to your body causing high petrol consumption and wear and tear. Positive thoughts and feelings (such as happiness, success, love, and appreciation) take you down roads that are positive to your body, causing low petrol consumption which

makes your body stronger. As you are the only one in charge of your steering wheel, it is only YOU who can take responsibility for the road that you are on and the emotion that you are feeling. (p.8)

Having established the major principles behind the intervention *Mytern*, it was then important to investigate relevant methods of communicating these principles to a student population. With the incredible rate at which the use of technology is expanding (Zingale, 2013), **it was deemed appropriate to incorporate the use of technology in the dissemination of the intervention.**

4.5 Use of Technology for Health Promotion

Research relating to health care communication in America found that the younger age group in particular (18-29) were significantly participating in blogging and social networking. This participation was then linked with health dissemination (Chou, Hunt, Beckjord, Moser, & Hesse, 2009). According to Infographic Labs (cited in Zingale, 2013), Twitter and Facebook continue to expand exponentially, as new accounts with Twitter are opened at a rate of approximately 11 per second, averaging around one million new accounts per day worldwide along with Facebook users sharing more than 100 billion connections collectively. With billions of users worldwide accessing Facebook, Twitter, Pinterest, and LinkedIn (which is a total expected to rise), social networking represents 'an exciting platform to deliver health promotion messages, and in turn, modify health behaviour' (MacKert, Kim, Guadagno, & Donovan-Kicken, 2012, p. 94).

The majority of students are part of the new millennium (net.gen or dot.com) which has blurred social-study-work boundaries, and has motivated students to become good at multitasking and hyperlinked online interactions (Nelson, Kift, & Harper, 2005). A study in Ireland trialled the use of text messaging in a mental health service for university students; helping them to manage their academic and social lives (Nolan, et al., 2011). Initially, therapists used the phone to arrange appointments with their students, but it soon became apparent that the mobile phone was an excellent means of building communication and support between the therapist and the student. Text messaging brought about a much quicker response than emailing, which concurs with Haste's results where she found that less than a quarter of the sample used their email for communication (Haste, 2005).

The positive use of text messaging was again demonstrated in a study surrounding the use of SMS in the tertiary classroom. Santos (2010) found that the inclusion of SMS helped enhance the learning experience for those students within an undergraduate course delivered in the UAE (United Arab Emirates). Text messaging was successfully used to encourage the students to think about and explore topics outside course time.

Brett (2011) outlines the opportunities for text messaging in Higher Education Institutions, and suggests that students are well informed as to the rationale and benefits of incorporating the technology within the curriculum. Another component of text messaging that needed to be taken into consideration when using such technology was that when the messaging required a response and became interactive, it was found that many students failed to respond due to financial reasons (Brett, 2011).

Utilising SMS as part of the intervention brought an immediate form of communication to *Mytern*. It was not only embedding it in the curriculum, but embedding it into their lives. Students were informed from the outset that the free service was not a counselling service; the texts were there for support and required no reply. The service was deliberately designed to require only minimal action from a student's perspective, which was to anonymously sign up. It was then up to them whether or not they read or acted upon the individual text. To cease the service, the students simple had to text 'stop'.

4.6 Combining the Principles into the Highways, Bushbashing and Neuroplasticity of *Mytern*

Once the basic principles of *Mytern* had been established, the components of the intervention were then carefully composed. Each section had to be applicable to the first year student, communicating the skill in as clear, precise and concise form as possible.

4.6.1 Content and components of *Mytern* (DVD, Mini booklet and SMS)

The content and components of the intervention were guided by Gardner's theory of multiple intelligences (Gardner, 1993). Gardner's theory takes a pluralistic view of the mind, recognising that there are many 'different and discrete facets of cognition, acknowledging that people have different cognitive strengths and contrasting cognitive styles' (Gardner, 1993, p.6). It is interesting to note that Gardner (1993) speculates as to the advancements neuroscientists and educationalists may have made by the year 2013. He ends by stating

that if 'there is a wider acceptance of the notion that intelligence deserves to be pluralised, I will be pleased indeed' (p. 252). This pluralism is acknowledged in this research by its inclusion in informing the compilation of the intervention. Gardner presented seven different forms of intelligence (taken from Lane, 2000, p.3).

1. 'Visual-Spatial - think in terms of physical space, as do architects and sailors. Very aware of their environments. They like to draw, do jigsaw puzzles, read maps, and daydream. They can be taught through drawings, verbal and physical imagery. Tools include models, graphics, charts, photographs, drawings, 3-D modelling, video, videoconferencing, television, multimedia, texts with pictures/charts/graphs
2. Bodily-kinesthetic - use the body effectively, like a dancer or a surgeon. Keen sense of body awareness. They like movement, making things, touching. They communicate well through body language and be taught through physical activity, hands-on learning, acting out, role playing. Tools include equipment and real objects.
3. Musical - show sensitivity to rhythm and sound. They love music, but they are also sensitive to sounds in their environments. They may study better with music in the background. They can be taught by turning lessons into lyrics, speaking rhythmically, tapping out time. Tools include musical instruments, music, radio, stereo, CD-ROM, multimedia.
4. Interpersonal - understanding, interacting with others. These students learn through interaction. They have many friends, empathy for others, street smarts. They can be taught through group activities, seminars, dialogues. Tools include the telephone, audio conferencing, time and attention from the instructor, video conferencing, writing, computer conferencing, E-mail.
5. Intrapersonal - understanding one's own interests, goals. These learners tend to shy away from others. They're in tune with their inner feelings; they have wisdom, intuition and motivation, as well as a strong will, confidence and opinions. They can be taught through independent study and introspection. Tools include books, creative materials, diaries, privacy and time. They are the most independent of the learners.
6. Linguistic - using words effectively. These learners have highly developed auditory skills and often think in words. They like reading, playing word games, making up

poetry or stories. They can be taught by encouraging them to say and see words, read books together. Tools include computers, games, multimedia, books, tape recorders, and lecture.

7. Logical -Mathematical - reasoning, calculating. Think conceptually, abstractly and are able to see and explore patterns and relationships. They like to experiment, solve puzzles, ask cosmic questions. They can be taught through logic games, investigations, and mysteries. They need to learn and form concepts before they can deal with details' (Lane, 2000. p.3).

The multiple intelligences that were utilised in the *Mytern* intervention are outlined in Table 2.

Table 2 *Gardner's Forms of Multiple Intelligence and Mytern*

Gardner's forms of intelligence	Application within <i>Mytern</i>
Visual-spatial	The tutorial DVD and mini booklet
Musical	multimedia - tutorial DVD – the music had to be deleted from the final DVD as it was seen to be a distraction. Students felt that the rhythm of the voice was sufficient
Interpersonal	SMS- showing appreciation for others via text, verbal, email
Intrapersonal	SMS- self-reflection and learning to understanding one's own interests, goals
Linguistic	SMS- metaphor- using words effectively
Logic-mathematical	The inclusion of neuroplasticity and neuropeptides in the mini booklet. The logic and reasoning behind the SMS

4.6.2. Individual components

The individual components comprised of a DVD, a *Mytern* mini-manual and a daily *Mytern* SMS. The following section outlines the components in greater detail.

4.6.2.1 *Mytern* DVD

As a result of the pilot study, a time limit of 5 minutes for the in-tutorial DVD was given (outlined further in Chapter 5). Therefore it was important to centre on delivering the maximum amount of information in a minimal amount of time. A theme was chosen that would reflect the experiences of all the students. It was presented via a slide show depicting two USC students, and was photographed at the university so students could identify with such places as the library and café etc. The scenario chosen presented a conversation between a male and female student after they had just found out that they had 4 assignments due in the same week. Both students reacted in different ways – one verbally complaining and panicking while the other became silent. It then followed the application of the *Mytern* skill by each of the students, demonstrating how the students could apply the skill to similar situations. Within the slideshow, students were offered the opportunity to join a free texting service which would help reinforce the skill shown. (See Appendix A for PowerPoint of tutorial)

4.6.2.2 *Mytern* Mini Manual/Booklet

The booklet was formatted so that its presentation was different. A smaller size (A7) was chosen for appeal and convenience, and was also less obtrusive. The mini booklet had an index so the students could instantly turn to the information that was most relevant to them at the time. The following are excerpts from the mini booklet (actual copy provided in back cover and in Appendix B).

Is *Mytern* for everyone?

(An excerpt from the booklet)

How often do you allow someone else's bad mood to affect how you feel? How often do you let circumstances control how you feel? Pressure at work; failure at things; putting on weight; not enough money; not enough friends...the list goes on. *Mytern* teaches that you may not be able to change the circumstances, but you ALWAYS have the option to change the way you feel. (p.3)

How do I use *Mytern*?

(This is illustrated through giving an example from the booklet)

Example: You are given negative feedback about your assignment from your tutor.

Step 1: Red Light: GPS Emotion = failure, worthlessness, disappointment, giving up

Step 2: Caution Light: PET: Change focus. You need to look at a photo, video, listen to music, strong enough to change your direction and get perspective.

Step 3: Green Light: TERN: The comments are about you and not your work .Writing assignments is about growing and increasing your knowledge, so any feedback is constructive. (p. 37)

The Benefits of *Mytern* and Positive Emotion

(An excerpt from the booklet)

Positive emotions generated through applying the skill of *Mytern* have both a protective and restorative function, contributing to your mental and physical health. When you are emotionally fit, you choose to think a better thought. This then produces a positive reaction in the body. You end up experiencing:

better problem-solving skills , improved concentration, faster wound healing, greater empathy, better interpersonal relationships, better responses in the face of threat, increased meaning in life, increased success, increased abundance, increased mental health, increased physical health and longer lives. (p.27)

The booklet outlines the skill and demonstrates how it works. It also links the learning to the students' real life situation, and gives example scenarios on how to cope with certain situations. In essences, it is teaching the student how to take control, and ultimately responsibility, for how they think and feel.

Mytern is a skill, and a skill requires supervised practice in order to be embedded into daily life (Conley, et al., 2013). **Instead of having to attend classes, students received a daily *Mytern* SMS, creating a virtual or cyber supervisor, prompting them to apply the skill every day.**

4.6.2.3 *Mytern* SMS

The SMS tool, having already presented as being a successful instrument of communication with tertiary students (Nolan, et al., 2011), was designed to become the virtual supervisor of the daily practice of *Mytern*. Students were offered the free service of receiving a daily *Mytern* text that would reinforce the skill, knowing that they could exit at any time. The timing of the SMS was based on the behaviourist approaches to psychology, which have shown that intermittent reinforcement is the most powerful. Therefore the SMS were sent out at random times during the day to discourage a dependency or expectation that the texts would come at a certain time. The texts were written to engender both intrapersonal and interpersonal skills, incorporating four self-reflective texts and one interpersonal text per week. The SMS was only sent on weekdays, with the weekend being SMS free; allowing time for the students to begin to incorporate the skill automatically into their lives. As discussed earlier (Chapters 1.4 and 4.5), it was a way to not only embed the skill in the curriculum, but into the student's lives. (See Appendix C for list of *Mytern* SMS).

A *Mytern* Facebook page was also incorporated into the initial design, where the daily text and inspirational videos were posted. The pilot study revealed that this form of daily practice wasn't nearly as successful as the daily *Mytern* SMS, so was not incorporated into the main study. (See Chapter 6.5)

4.7 Outline of the implementation of *Mytern* in the Main Study

During the first tutorial of semester 2, students from a compulsory first year course (COR109 Communication and Thought) were introduced via a 4 minute DVD to the intervention *Mytern*. (See Appendix A for complete DVD). They were each offered a copy of the Mini *Mytern* Manual which outlined the skill and also gave examples of how to apply it. They were also given the opportunity to elect to receive the daily *Mytern* SMS service. (See Table 3)

Table 3 *Intervention Timetable*

Week	<i>Mytern</i> Component
2	Tutorial: DVD (4min), Mini <i>Mytern</i> Manual, opportunity to receive <i>Mytern</i> SMS by texting ' <i>Mytern</i> ' to the mobile number given in the DVD and in the booklet
2-10	<i>Mytern</i> SMS: Mon-Fri available for those students who elected to receive them. This service can be ceased by replying 'stop' to the <i>Mytern</i> text.

4.8 Conclusion

This chapter has outlined relevant principles conducive to a salutogenic standpoint that could be useful in assisting higher education students to focus on maintaining their mental health and wellbeing. The way in which each component of *Mytern* reflected these principles was discussed, as well as the relevance of adopting a form of social media as part of the intervention's delivery. The implementation of the intervention was outlined, illustrating how it was embedded into a compulsory first year course.

The aim of *Mytern* was to build the resource of being in control of emotions. The 'build' hypothesis, as part of the broaden and build theory, Fredrickson felt was unable to be tested within a brief laboratory study. It required the 'frequent recurrence of positive emotional experiences' (p. 25), allowing participants the opportunity for these resources to accrue.

Introducing *Mytern* to a university population allows for the testing of the build hypothesis (Chapter 4.2.2), as the daily SMS may serve as a frequent recurrence of a positive emotional stimulus/experience. It is also important to evaluate the impact that such an intervention has on the psychological wellbeing and distress levels of first year students. The following chapter explains the methodology and paradigm that were chosen to best answer the research question.

Chapter 5 Methodology, Paradigm and Initial Methods

With the literature indicating the rising prevalence of mental health problems amongst the tertiary student population, researching emotional fitness and resilience interventions becomes not only extremely relevant, but also necessary. While interventions have been developed, none have focused on embedding emotional fitness and resilience building skills into the first year curriculum. Therefore, it is vital that the new intervention *Mytern* be researched. The next three chapters provide the scaffolding for the design and implementation of the research. The current chapter outlines the methodology, paradigm and method adopted by the study; Chapter 6 presents the pilot study and its results, demonstrating the profound impact that the pilot study had on the main study; and Chapter 7 discusses the final empirical methods adopted for the main study.

This chapter illustrates how the themes found in the literature review were translated into the research project; guiding the research questions and hypotheses and the methodology that were employed in the study. It outlines the research methodology and situates the study within the appropriate research method, revealing how a pragmatic paradigm informed the choice of a mixed methodology.

5.1 Research Question

Through developing questions possibilities are generated, expanding the topic through the process of probing and exploration (Punch, 2009). The general research question for this project was first established as a result of the major themes that emerged from the literature, which was:

What is the impact of an emotional fitness and resilience building intervention (*Mytern*) on the psychological wellbeing, life satisfaction, resilience and distress levels of first year university students?

Based on the literature, directional hypotheses were chosen, predicting an outcome of change as a consequence of the intervention (Creswell, 2003). Hypotheses and research

guiding questions are presented in Chapter 1.2.2. Omerod (2006) believes that what is required in pragmatic research is the application of 'intelligent inquiry, the self-correcting method of experimentally testing hypotheses created and refined from our previous experience' (p.901). The quantitative component of this study tested directional hypotheses; predicting that the intervention *Mytern* would have a positive impact on students psychological wellbeing, satisfaction with life, resilience and distress levels. As philosophical ideas influence the practice of research and explain why a researcher chooses a particular method, it is essential to identify the paradigm underpinning the research (Creswell, 2003). The paradigm for this research was pragmatism.

5.2 Pragmatism – the Paradigm Underpinning the Research

A paradigm represents the beliefs that influence the researcher in what should be studied; how it should be studied; and how it should be interpreted (Bryman, 2008). The researcher chose a pragmatic approach, based on the set of assumptions about the social world and the techniques and topics for inquiring into that world (Punch, 2009). This approach to the research embraced the freedom and flexibility that pragmatism affords, enabling the research to view the research question from two different perspectives: an objective and subjective one. Pragmatism offers rigor, relevance and thoroughness to research, regardless of what particular methodology is selected; recognising the importance of theory 'as a means of explaining and predicting phenomena, while subjecting it to the test of practice and time in order to determine its usefulness or value' (Goles & Hirschheim, 2000, p. 269).

5.2.1 What is pragmatism?

Pragmatism, in terms of a research paradigm, stems from the work of Peirce, James and Dewey (Cherryholmes, 1992 as cited in Robson, 2002), who took the philosophical position of truth being 'what works' (Robson, 2002). They believed that if it were feasible to use a mixed method approach to produce a worthwhile study, then that is what should be used. Pragmatists reject the notion that pure scientific method can access the 'truth' about the real world. Along with the rejecting of the notion of dualism (Joas & Knobl, 2009), they also believe that common sense and practicalities are important components to be considered (Denzin & Lincoln, 2005), thus reinforcing the notion of truth being defined as what works (Robson, 2002).

Therefore, pragmatists view knowledge as an instrument or tool for organising experience, as well as maintaining a concern for the union of both theory and practice (Schwandt, 2007). Pragmatism can follow both logic and the senses, taking into account even the smallest of personal experiences (Campbell, 2007). This allows the researcher to follow the logic of numbers as well as listen to the voices of individuals, strengthening the research design and its ability to better address the research questions and hypotheses of the study. James sees pragmatism as the combination of a scientific loyalty to facts and a willingness to understand them, as well as respecting human values, whether religious or romantic (Campbell, 2007). Thus pragmatism is a philosophy that is richer than the one-sided approaches of the traditional empirical and religious philosophies (Campbell, 2007).

Omerod (2006) defines pragmatism as ‘being practical, getting things done, doing things a step at a time, not allowing the best to be the enemy of the good, taking account of others’ views, not being hung up on unattainable principles and yielding on some issues in order to make progress on others’ (p.894). He also defines it as a way of acting, and believes that action is essential in pragmatism, which, when guided by purpose and knowledge, is the way to change existence.

Actions and their consequences are central to the development and clarification of ideas (Goldkuhn, 2012). Pragmatism is strongly associated with action and change and the interplay between knowledge and action, which Goldkuhn (2012) believes ‘makes it appropriate as a basis for research approaches intervening into the world and not merely observing the world’ (p.136). Omerod (2006) agrees that pragmatism advocates action and change, and that this change can be brought about by experimental testing when there is no logical or watertight argument, stating that ‘the weight of evidence can be used to judge whether to adopt a certain belief as true’ (p.906). Omerod’s discussion on judging the weight of evidence is reflected in a statement made by Dewey, who declares that ‘in order to discover the meaning of the idea [we must] ask for its consequences’ (Dewey, 1948, 1920 original as cited in Johnson and Onwuegbuzie, 2004, p.17).

5.2.2 Why choose pragmatism?

A pragmatic approach to the study was chosen, driven by the study’s aims, objectives and research questions (Arthur, Waring, Coe & Hedges, 2012). Adopting a pragmatic approach

opened the doors to multiple methods (Muijs, 2011), different worldviews and different assumptions (Robson, 2002), as well as different forms of data collection and analysis (Sotirios & Sarantakos, 2005). The freedom within the pragmatic approach (Creswell, 2007) allowed the researcher to use mixed method and mixed model designs; study what was of interest and value; study it in different ways deemed appropriate; and to utilize the results in ways that can bring about positive consequences within the researchers' value system (Tashakkori & Teddlie, 2003). Thus, pragmatism implied a mixing of data collection methods and of data analysis procedures within the research process (Creswell, 2003).

Acquiring knowledge is viewed by pragmatists on a continuum (See Figure 10), with objectivity and subjectivity at either end, enabling the researcher to adopt the most suitable approach and methodology, using both quantitative and qualitative tools, to best answer the research question (Goles & Hirschheim, 2000).

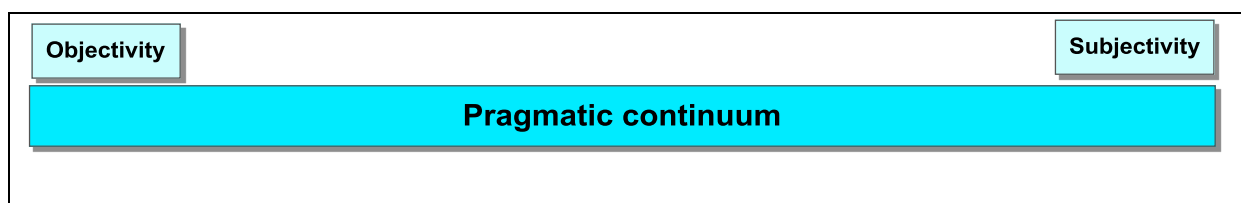


Figure 10. The pragmatic continuum

Omerdod (2006) takes this further and argues that pragmatist philosophers can sometimes be depicted as falling into one of two groups. The subjectivists, who answer the question of what works from a personal perspective, fall into the first group. The second, the objectivists, adopt a more impersonal approach to what works, choosing to view it from an efficient and effective standpoint. However, Dewey introduces a third perspective – one which incorporates both subjectivity and objectivity.

This supports the flexibility of the philosophy, as it is able to incorporate those who make a stand anywhere on the continuum between objectivity and subjectivity. However, to embody pragmatism, such dualism needs to be avoided (as all forms of thought must be considered), be self-reflective and self-critical and understand that even our own ideas are subject to change (Omerod, 2006).

5.2.2.1 Dewey's interpretation

This study leans towards Dewey's interpretation of pragmatism, straddling the two extremes, and answering the research question both impersonally (survey) and personally (participant's voice). Dewey defines the concept of inquiry as the 'controlled or directed transformation of an indeterminate situation into one that is so determinate in its constituents, distinctions and relations as to convert the elements of original situation into a unified whole' (Dewey, 1938, p. 108 as cited in Goldkuhn, 2012, p. 139). It is the transformation of the daily stressors of the first year students' life into the creation of health (salutogenesis) that is valued and at the heart of the study.

Taking an 'explicitly value-oriented approach to research' (Johnson and Onwuegbuzie, 2004, p.17) pragmatism values and desires outcomes. Pertinent to this study, whose aim was to positively impact student's psychological wellbeing, life satisfaction, resilience and distress levels, was valuing objectivity and subjectivity to obtain these outcomes. Surveys were used to document any changes experienced by the students. Interviews were used to listen to and record the values of the participants, uncovering their dominant and changing values. Value was also attributed to the different components of the intervention and its delivery.

What the pragmatic researcher studies is guided by their personal value systems, searching for philosophical assumptions, methodology, or information which is useful and that will assist in producing the desired or anticipated results (Goles & Hirschheim, 2000). Within this study, the intervention *Mytern* represents the action, and the impact reflects its consequences. Driving this action is the researcher's interest and enthusiasm in the inquiry, which is a central issue in pragmatism; the key idea being to create knowledge in the interest of change and improvement (Goldkuhn, 2012). Addressing the mental health of students, their emotional fitness and resilience, has been the researchers driving force for many years, and is the driving force behind this study. It was Dewey's interpretation of pragmatism, answering the research question both impersonally (survey) and personally (participant's voice), which guided the research to bring about a result that would advocate action and change.

5.2.2.2 Pragmatism and evaluating interventions

Over twenty years ago, Fishman (1991), a psychologist, argued for the adoption of a pragmatic paradigm when evaluating a program or intervention, as he believed that it emphasized the 'predominance of problem solution and practical program building' (p.357) within the 'context of particular organizations, cultures, and historical times' (p.358) . He stated that in the 'pragmatic paradigm, a conceptually coherent program is designed to address a significant social or psychological problem within a naturalistic, real-world setting, in a manner that is feasible, effective, and efficient' (p. 356). The present study aligned with Fishman's criteria, as it sought to address the rising prevalence of mental health problems within a first year university cohort within a real world setting; implementing an intervention that was both feasible and efficient, with a goal of being both useful and valuable.

The word useful, according to Goles and Hirscheim (2000), is intermingled with value, which is dependent on the beliefs and interpretations of the researcher regarding a shared purpose with the community of study. The shared purpose of this study centres on reducing psychological distress and increasing the psychological wellness, life satisfaction and resilience of first year students. When discussing the major values of pragmatism, Campbell (2007) builds on the importance of community. He highlights the emphasis pragmatism places on community as being a source of wellbeing whilst focussing on efforts to enact long-term improvement, which exemplifies the philosophy behind the current study.

In an interview about ethics and pragmatism (Ormerod, 2007) Rorty expressed the view that pragmatism needs to avoid adherence to fixed principles; be based on issues relevant to the situation faced by a particular community; as well as being forward looking. The current study avoided fixed principles by adopting a mixed methodology; was based on an issue relevant to the situation faced by first year university students (the rising prevalence of mental health problems); and was forward looking by introducing a preventative intervention which could positively effect this situation.

Effectiveness of the research can be viewed as establishing that the results work with respect to the 'specific problem that the researcher seeks resolution of' (Mertens, 2010 p 36). Pragmatism places the research problem at the centre of the study (Creswell, 2007),

constructing the methods around the research question in an effort to understand the problem from both an objective and subjective perspective (Denzin & Lincoln, 2005; Mackenzie & Knipe, 2006). Improving first year students' psychological wellbeing, satisfaction with life and resilience and lowering their psychological distress levels is at the centre of the research, and assessing the intervention's ability to positively impact these dependent variables will demonstrate the interventions' efficacy, thus working towards addressing the rising prevalence of mental health problems in first year university students.

5.2.2.3 *In summary*

This discussion has incorporated and presented many of the underlying beliefs of pragmatism (see Table 4). Through adopting mixed methods, the study rejects dualism. It accepts that knowledge is constructed based on reality, and that the pluralism of methods is to determine what part of the interventions is successful in impacting student's psychological wellbeing and distress levels. Combining the rhetoric of the statistical data with that of the rich and substantial descriptions from the interviews, respecting both nomological (ability to generalise) and ideographic (individual) knowledge, created a more complete picture of what worked and why. The homeostatic process of belief, doubt, inquiry, modified belief, new enquiry was demonstrated in the pilot study, where process, instruments and intervention were tested and modified. The substantive theory of salutogenesis, the values of altruism, empowerment and liberation, were integrated to form the set of philosophical assumptions underpinning this research.

Table 4 *Underlying Belief Systems of the Pragmatist Paradigm and Distinguishing Characteristics (adapted from Onwuegbuzie, et al., 2009, p. 123)*

Ontology	Multiple realities (i.e. subjective, objective, intersubjective); rejects traditional dualisms (e.g. subjectivism vs. objectivism; facts vs. values); high regard for the reality and influence of the inner world of human experience in action; current truth, meaning and knowledge are tentative and changing
Epistemology	Knowledge is both constructed and based on the reality of the world we experience and live in; justification comes via warranted assertability
Methodology	Thoughtful/ dialectical eclecticism and pluralism of methods and perspectives; determine what works and solves individual and social problems
Rhetorical	Use of both impersonal passive voice and technical terminology, as well as rich and thick (empathic) description
Nature of knowledge	Intersubjectivity, emic and etic viewpoints; respect for nomological and ideographic knowledge;
Knowledge accumulation	Follows dynamic homeostatic process of belief, doubt, inquiry, modified belief, new doubt, new inquiry, in an infinite loop, where the person or researcher (and research community) constantly tries to improve upon past understandings in a way that fits and works in the world in which he or she operates; internal statistical generalization; analytical generalization; case-to-case transfer; naturalistic generalization
Goodness or quality criteria	Reliability, internal validity, external validity, objectivity; Trustworthiness, dependability, confirmability, transferability; authenticity

Values (i.e. Axiology)	Takes an explicitly value-oriented approach to research that is derived from cultural values; specifically endorses shared values such as democracy, freedom, equality and progress.
Ethics	Extrinsic and intrinsic; justification comes in the form of warranted assertability
Inquirer posture	Offers the pragmatic method for solving traditional philosophical dualisms as well as for making methodological choices
Training	Qualitative, quantitative, mixed research; substantive theories; values of altruism, empowerment and liberation
Qualitative and quantitative analysis	All forms of qualitative analyses . All forms of descriptive and inferential statistics

Campbell (2007) proposes that the purpose of philosophy is to address the problems of life whilst challenging purely intellectual solutions to these problems, citing the life problems experienced by James (metaphysical), Peirce (scientific) and Dewey (social).

It is the social problems related to mental health that this study addresses and it was the aim of the research to produce a study that had breadth and depth, and was able to explore the problem from both a general and specific perspective. Therefore, the research incorporated the dual lenses of a mixed methodology; combining the broader picture generated by the statistical data, with the deeper interpretations of the individual student, meeting the criteria of pragmatism.

5.3 Mixed Methods

With the use of mixed methods increasing in the area of social science, the researcher recognised that if ‘all methods of data collection have limitations, the use of multiple methods can neutralize or cancel out some of the disadvantages of certain methods’ (Creswell, Plano Clark, Gutmann, & Hanson, 2003, p. 164). Mixed methods allowed the research to draw from both qualitative and quantitative assumptions, thus looking at *what* effect the intervention had and *how* that effect was achieved. It enabled the study to gather both quantitative and qualitative data, which helped reflect a broader and a deeper understanding of the problem, rather than simply seeing it from a single perspective.

Johnson and Onwuegbuzie (2004) argue that mixed methods research be the third research paradigm in educational research. They state that ‘the goal of mixed method research is not to replace either qual or quant, but to draw from the strengths and minimise the weaknesses of both in single research studies across studies’ (p.14). Locating mixed method studies at the centre of a research paradigm continuum (See Figure 11); with qualitative one end and quantitative the other (Johnson & Onwuegbuzie, 2004); aligned with the use of the continuum throughout the study.

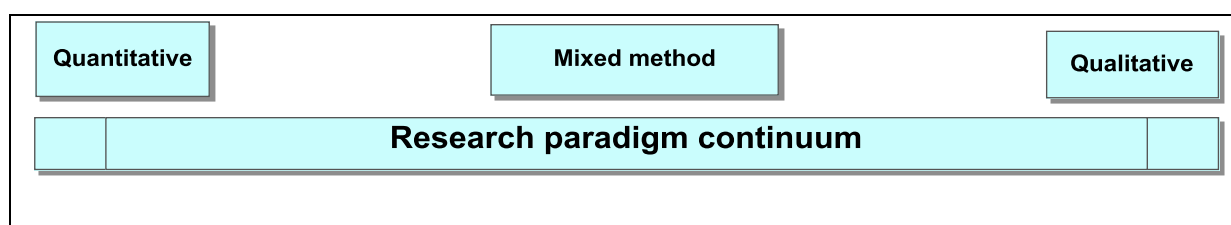


Figure 11. Research paradigm continuum (Johnson & Onwuegbuzie, 2004)

Mixing methodologies has the capacity to create both a broad and a deep understanding of the problem (Creswell, 2012; Greene, 2007). Quantitative methods will be able to test the study’s theories and hypotheses, creating generalisations through large sampling, as well as bringing objectivity to the research (Punch, 2009). Using questionnaires as the quantitative instrument of measure enables the study to paint a broad picture of the psychological well-being, satisfaction with life, resilience and distress levels of first year tertiary students, providing the statistics that will reflect the impact of the intervention over a large population. Experimental research is not well suited to provide an explanation of the results which is why qualitative methods were employed (de Vaus, 2009). Utilising the interviews

and text feedback as the qualitative measure will provide the study with individual student perspectives, recording their responses to various aspects of the intervention, their level of perceived personal agency within *Mytern*, and the interventions transferability into their daily life.

5.3.1 Reasons for choosing mixed methods.

Greene, Caracelli and Graham (1989; as cited in Onwuegbuzie, et al., 2009) outlined five purposes for mixed method evaluations; with pragmatist researchers being in a position to adopt one or more. In contrast, Small (2011) subsumes these into two categories- confirmation or complementarity. Confirmation is defined as being motivated by the 'wish to verify the findings derived from one type of data with those derived from another' (p. 63); whereas the strength behind complementarity 'lies in the ability of one type to compensate for the weaknesses of the other' (p.64). Small (2011) argues that confirmation is sometimes seen as a poor reason to mix research, as different data produced different types of knowledge, therefore cannot verify each other. In this study, the different types of data were seen to be complimentary rather than confirmatory. For this study, four of the purposes (outlined in Table 5) were chosen to help justify the relevance of adopting a mixed method approach.

Table 5 *Purposes for Mixed Method Evaluation (adapted from Onwuegbuzie, et al., 2009, p. 129)*

Purpose	Explanation
Tri-angulation	the findings from the quantitative would converge with those of the qualitative when compared
Complimentary	the qualitative data from the second interview would be able to enhance and clarify the results from the first interview ; as would the quantitative data *
Development	the quantitative results would help to inform the qualitative results
Expansion	by using mixed methods, the knowledge surrounding student mental health, salutogenesis and preventative interventions would be expanded

Both quantitative and qualitative data was collected within the same timeframe, with each one addressing a different yet complimentary aspect of the research questions (Leedy & Ormrod, 2013). The reason that mixed methods was deemed to be the most appropriate choice, was that the study intended to not only assess the impact of an emotional fitness and resilience building intervention on first year students psychological wellbeing, satisfaction with life, resilience and distress levels statistically, but to also record the changes experienced by individual students as a result of the intervention.

5.4 Research Design

Research design may be referred to as a roadmap (Tashakkori & Teddlie, 2003), one which can be confusing to the novice researcher as ‘there are a plethora of designs in existence’ (Leech & Onwuegbuzie, 2009, p. 266). Giving the design a specific name can be seen to be important as it conveys rigor, provides guidance to other researchers, and can assist with the selection of a reviewer (Creswell et al., 2003). There are four factors which helped the

researcher to determine the type of mixed methods design for the study. These factors addressed how the data collection was to be implemented; the emphasis the study placed on qualitative and quantitative; the timing of the integration; and the study's ability to enact transformation (Creswell et al., 2003).

The possibilities for theory to be both verified and generated were incorporated within the study. Using a quasi experimental model with hypotheses and questionnaires, the study aimed to verify existing theory that the constructs of emotional fitness and resilience are able to be taught and can have an effect on an individual's distress levels. In accordance with experimental theory, the null hypothesis was taken into consideration. Through feedback received from texting and additionally conducting semi-structured interviews, the study also hoped to generate theory as to why an emotional fitness and resilience building intervention may succeed or fail (Punch, 2009). Therefore, the design chosen for the research had to reflect the dynamics that were already inherent within the study, providing the room to both validate and generate theory, as well as being able to bring about transformation and change in first year tertiary students.

As stated (also in Chapter One), the study adopted a mixed method design. Four authors influenced the choice of research design for this study: Creswell (2013), Leech and Onwuegbuzie (2009) and Guest (2012). The first influence was from Creswell's (2013) transformative mixed method design, incorporating a convergent approach in order to best answer the question posed. The framework of the transformative mixed method design was thought to provide an orienting lens, informing the 'overall purpose of the study, the research questions, the data collection, and the outcome of the study' (Creswell, 2013, p. 546). The intent of the transformative framework was to address a social issue for a vulnerable group (which in this case involved the rising mental health problems of first year tertiary students) and to engage in research that brings about change. This appeared to reflect the aim of the study, which was to transform the psychological wellbeing, satisfaction with life, resilience and distress levels of the students; enacting this change through the implementation of the intervention, *Mytern*. Creswell (2013) proposes that at the conclusion of a transformational study, the 'researcher calls for change that will address the social issue faced by the group under study' (Creswell, 2013, p. 546) reflecting the intent of this study.

Another design format that was explored and which influenced the study was a partially mixed concurrent dominant status design, presented by Leech and Onwuegbuzie (2009). This involved conducting a study 'with two facets that occur concurrently, such that either facet has the greater emphasis' (p. 269). This reflected the format of the main study, where the quantitative and qualitative data collection ran concurrently; the qualitative component assumed the dominant status; were analysed separately; before finally being compared and inferences made. Leech and Onwuegbuzie (2009) also suggested that if none of their eight examples fitted a study, researchers could design their own typologies, creating 'designs that effectively address their research objectives, purposes, and questions' (p. 274).

Rather than creating a new typology, Guest (2012), having outlined the advantages of existing typologies, proposed an alternative unit of reference to describe mixed methods research. He proposed 'a shift in focus from the entire study to the point of interface between two data sets'; defining 'interface' as 'any point in a study where two or more data sets are mixed or connected in some way' (p.146). From existing mixed methods typologies, Guest summarises the common descriptive dimensions, which he emphasises are not exhaustive. These include:

- Timing of the interface between data sets (e.g., simultaneous or successive)
- Purpose of the interface between data sets (e.g., inform, explain, triangulate)
- Theoretical orientation (e.g., inductive vs. deductive, interpretive, feminist)
- Purpose of the research (e.g., advocacy, applied, theoretical)
- Number of points of interface or degree of integration (e.g., fully or partially integrated/ mixed, single, or multistrand)
- Relative importance of qualitative data and quantitative data (weighting) (p. 146)

Of these six dimensions, Guest argues that the first two dimensions, timing and purpose of the integration, are sufficient as they have the descriptive power to portray the diversity of the mixed method design. He believes that 'most scholars would define mixed methods research as the integration of quantitative and qualitative data within a single study or program. It follows that we should use those dimensions that are most germane to that definition.' (p. 147). Guest goes on to state that the theoretical orientation, purpose of the research and the degree of integration refer to the overall study, rather than to points of

interface within the study. He also points out that the weighting of the data sets is not determined in the design phase, but during the interpretation and discussion phase, suggesting that it is the reader largely determines the importance of the data.

The design chosen (see Figure 12) reflects aspects of the three designs discussed, where it;

- addresses a social issue of a vulnerable group to bring about change (Creswell, 2013)
- has two facets occurring concurrently and analysed separately (Leech and Onwuegbuzie, 2009)
- highlighting the interface between the timing and purpose between datasets with the weighting (if any) to be determined during the interpretation and discussion phase (Guest, 2012)

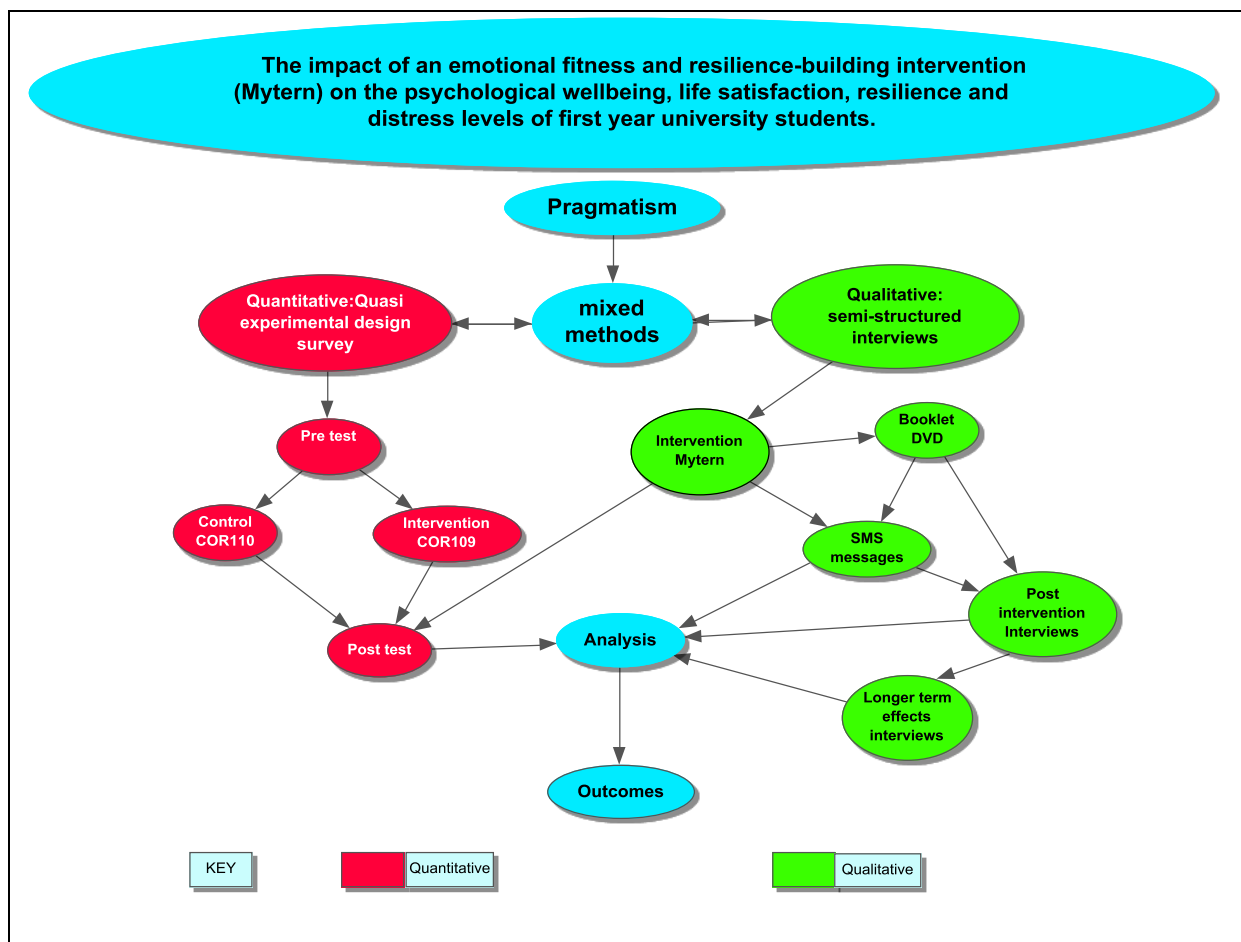


Figure 12. Research design

It is in the structure of the research design that demonstrates the study's internal validity, enabling the researcher to draw unambiguous conclusions from their results (de Vaus, 2009). The current study used two comparable groups as the intervention and control, each from a compulsory first year course comprising students from all faculties, to try to eliminate alternative explanations to the findings. This inclusion of the two groups also aimed to add to the external validity of the study, where the results could be generalised and applied to other first year university cohorts. The comparison of these groups also provided a frame of reference within the study to try to make sense of the findings. The control could be compared with the intervention group; as well as combining the effects of other independent variables experienced within each group. The purpose of research design was to also improve the quality of the causal inferences (de Vaus, 2009). It is possible to infer that the intervention had an impact on the students' distress and psychological wellbeing, satisfaction with life and resilience levels, therefore causal relationships must be inferred rather than observed. It is only through choosing appropriate methodologies and methods that these inferences can be studied.

Two of the reasons for integrating the results from the semi-structured interviews and SMS feedback with the statistical data was that it assisted in producing a deeper understanding of the problem which had been successfully used in research on student mental health, (Price, et al., 2006; Stallman, 2011). By choosing a quasi experimental approach with a concurrent design, the questionnaires were able to inform the rich questions that were required for the semi-structured interviews; while the texting (SMS) responses were able to generate feedback throughout the intervention, producing a research design that was not only suited to the problem chosen, but was also flexible, balanced and able to support significant and innovative research. (See Figure 13)

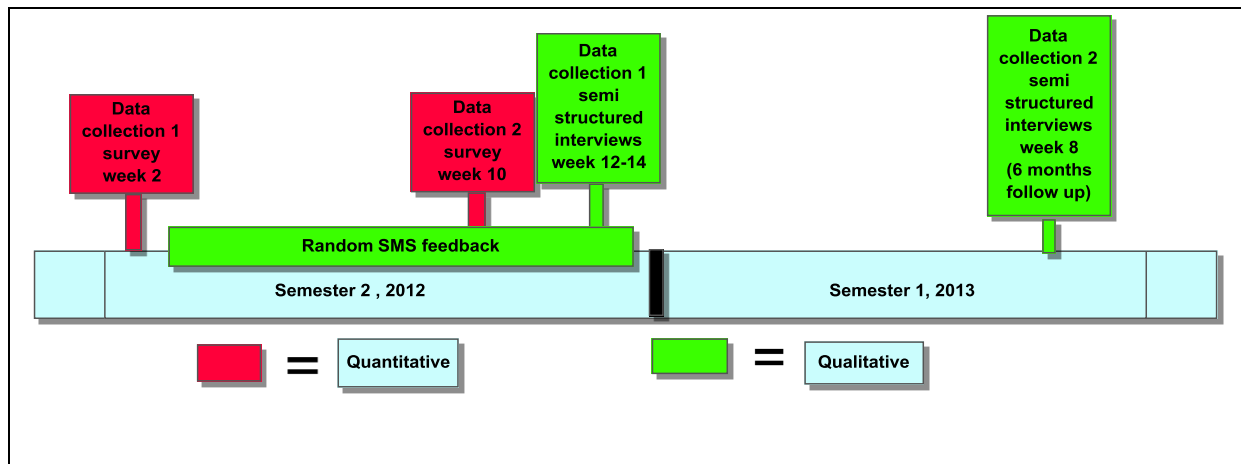


Figure 13. Research design: timing of quantitative and qualitative aspects

Figure 14 represents the pre-specified and unfolding aspects of the study (Punch, 1998). The pre-specified end of the continuum represents those areas of the study that were informed by literature or developed prior to the intervention. The unfolding end of the continuum represents the areas of the study that were unknown and revealed as data was collected and analysed. Although the research question and guiding questions were developed prior to the intervention, there was a developing aspect to the wording of the qualitative questions, which was clarified prior to data collection 2 (the interviews).

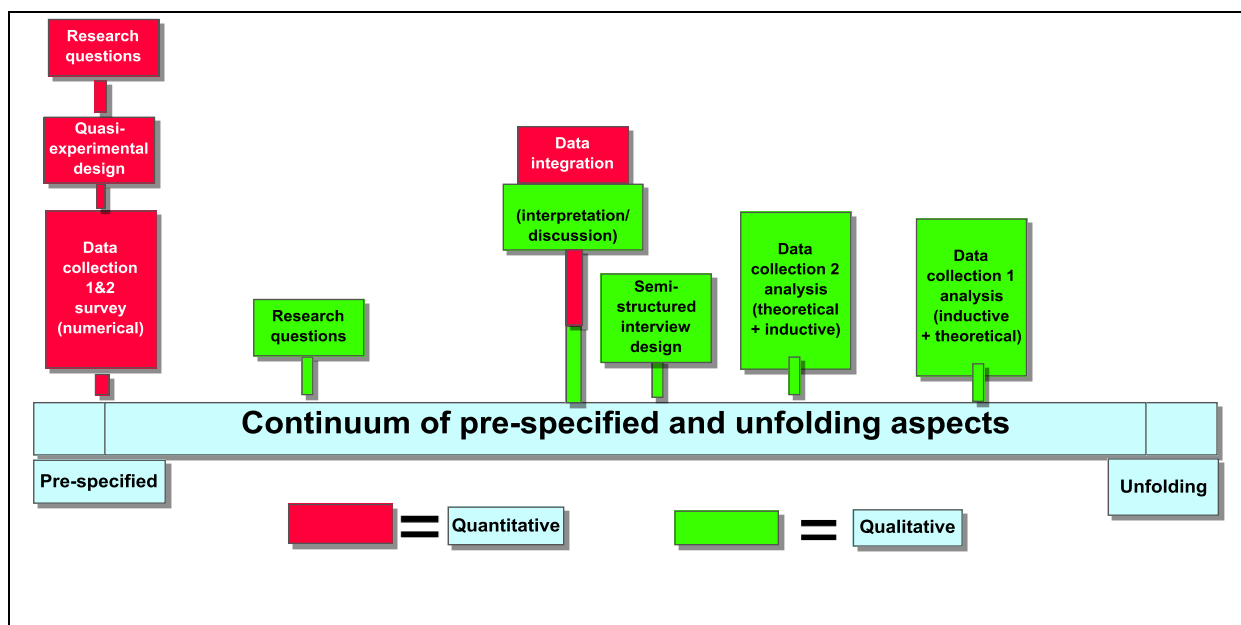


Figure 14. The pre-specified and unfolding aspects of the research

Gaining an understanding of the relevant characteristics of qualitative and quantitative research, along with their strengths and weaknesses, enables the researcher to mix or

combine strategies. This then leads to a research strategy that utilises the complementary strengths of quantitative and qualitative methods, producing a product that is 'superior to monomethod studies' (Johnson & Onwuegbuzie, 2004, p. 18).

5.4.1 Quantitative design

Quantitative research produces quantifiable, reliable data which usually can be generalised to a larger population, representing the objective end of the pragmatic continuum (Johnson & Onwuegbuzie, 2004). It has an objectivist conception of social reality and is deductive in nature (Bryman, 2008). Quantitative analysis allowed the researcher to test the directional hypotheses; predicting that the measured variable increases /decreases as a result of the intervention *Mytern*, as well as constructing a situation that eliminates the confounding influence of many variables, allowing the intervention to more credibly establish cause-and-effect relationships. The research results are relatively independent of the researcher (e.g., statistical significance), with the quantitative approach being recognised as an established method within the research area of the prevalence of rising mental health problems in tertiary students. A major reason for incorporating the quantitative approach was to produce solid data from a large first year population in order to generalise beyond the sample to the larger population of first year university students.

Improving first year students' mental health through building emotional fitness and resilience was at the centre of the research, and assessing the intervention's ability to positively impact students' psychological wellbeing, satisfaction with life, resilience and distress levels, demonstrated the interventions' effectiveness. The quantitative perspective incorporated rigorous data collecting methods; reflecting the pragmatic approach of not seeing the statistical evidence as being absolute. The data collected surrounding the impact of the intervention on students' psychological wellbeing, satisfaction with life, resilience and distress levels provided a strength and authenticity within the study that only solid statistics could deliver.

A quasi-experimental design was chosen to illustrate the potential causal impact the intervention had on the participants, detecting if there were any differences over time and between groups. The reason for adopting a quasi-experimental design as opposed to a true experimental design was that the groups to be used in the experiment were not randomly

assigned, but deliberately chosen. Using purposeful homogeneous sampling, students from a compulsory first year subject received the intervention, with another first year cohort from a compulsory course representing the control group. This non-equivalent group design is most commonly used in social research; adopting the structure of the pre-test/post-test experiment, but with deliberate selection of the participants (Creswell, 2013; Punch, 2009).

The research tested the hypothesis that the students who received the *Mytern* intervention would have higher levels of psychological wellbeing, satisfaction with life, resilience and lower levels of psychological distress than the control group. Questionnaires were used to gather empirical data relating to the mental health of the students pre and post intervention. The objectivity, scientific rigor (Creswell, 2007) and ethical adherence (Mertens, 2010) used within this approach, brought greater authenticity to the study.

5.4.2 Qualitative design

In a mixed methods study, it is the qualitative research that can provide explanations relating to the topic in question, representing the subjective end of the pragmatic continuum (Johnson & Onwuegbuzie, 2004). Miles and Huberman (1994) advocate the strong potential of qualitative research in testing hypotheses, and that it can also be confirmatory or complimentary, seeking to 'test or further explicate a conceptualization' (p.17). The qualitative component of this study was seen to help triangulate and complement the hypotheses supported in the quantitative analysis, adding depth and meaning to the quantitative findings, helping to analyse and develop in detail the concepts generated from the data collected. This was achieved by exploring the participants lived experiences through semi-structured interviews and SMS feedback, capturing the 'deep meaning of experience in the participant's own words' (Marshall & Rossman, 2011, p. 93). In contrast to the subjective experiences, a greater understanding of the phenomenon was achieved by focusing on the bigger picture, creating a more holistic view (Ary, Jacobs, & Sorenson, 2010).

In qualitative research, selections of cases and contexts can be guided by the participants potential to contribute to forming new insights, connections and understandings to the study (Arthur, Waring, Coe, & Hedges, 2012). Local groundedness was achieved through collecting data close to the situation (within the university), providing 'thick descriptions'

within that context, and locating the participants meaning and perceptions pertaining to the impact of the intervention (Miles & Huberman, 1994).

A qualitative perspective brings subjective meaning and understanding to the study, basing knowledge and meaning on the individual's interpretation, thus guiding the individual's behaviour and conduct (Hay, 2011). Knowledge and meaning are taken from the social world which Silverman (1970) believes is built upon subjective and shared meaning. The idea is to then 'work with these subjective meanings already there in the social world; that is to acknowledge their existence, to reconstruct them, to understand them, to avoid distorting them, to use them as building-blocks in theorizing' (Goldkuhl, 2011, p 138).

5.5 Conclusion

This chapter has outlined the research methodology and has situated the study within the appropriate research method. The philosophical paradigm of pragmatism was proposed, creating an overarching philosophy behind the methodological choices made within the study. Reasons were given for the adoption of a mixed method design, highlighting how it would strengthen the study. The quantitative and qualitative aspects of the study were discussed, setting the stage for the discussion of the instruments and methods used in the main study. However, prior to finalising these aspects of the study, a pilot study was conducted to test the proposed methods and instruments. The profound impact that the pilot study had on the main study is outlined in the following chapter, before discussing in Chapter 7 the method and instruments that were finally adopted and utilised.

Chapter 6 Pilot Study

A pilot study was used to simulate the conditions of the proposed main study, allowing the researcher to test the techniques and tools in the field, where participants could provide valuable feedback (Arthur, et al., 2012). Testing the major components of the study increased the chances of producing clearer findings, reduced unanticipated problems and indicated whether the research protocol was realistic and feasible, whilst also determining the interventions acceptability in the pilot sample (Lancaster, Dodd & Williamson, 2004). It also established whether the sampling frame and technique were effective, assessing the likely success of proposed recruitment approaches and identified logistical problems which might occur using the proposed methods (Teijlingen van, Rennie, Hundley, & Graham, 2001). It must be noted that due to the small sample size, the objectives of the pilot study focused was on the feasibility and logistics of the intervention and the data collection method, rather than data analysis. The major reason for including a report of the pilot study in the thesis was because it became an integral part in shaping many aspects of the main study.

6.1 Chapter Format

Lancaster, Dodd & Williamson (2004) have argued that pilot studies play an important role in health research, encouraging methodological rigour and ensuring that the work is scientifically valid. Pilot studies can also highlight the practical problems faced by the researcher(s) which may involve balancing optimal research methods under the combined pressure of time, ethical considerations and the influence of stakeholders (Teijlingen van, et al., 2001). The purpose of this chapter is to report on the pilot study, which was an integral part of the research process. The aim was to test the proposed design of the *Mytern* intervention, refining the techniques and tools to be used to enhance the likely success of the main study (Arthur, et al., 2012; Thabane et al., 2010). The chapter also describes changes to research methods made after reflecting on the outcomes of the pilot study.

According to Thabane et al (2010) pilot studies generally focus on four areas: (1) process- assess the feasibility of the steps that need to take place as part of the main study; (2) resources- assess time and budget problems that may be associated with the main study; (3) management- manage any potential human and data optimization problems; and (4)

scientific - assess of treatment safety, determination of dose levels and response, and estimation of treatment effect and its variance. (p.2 - 3) This chapter consists of two major sections following the structure above (the Methods and the Discussion section) before concluding with the modifications implemented as a result of the pilot study.

6.2 Pilot Study Design

A concurrent mixed method design (Creswell & Plano Clark, 2011), using a triangulative approach, was adopted for the pilot study. “The function of a research design is to ensure that the evidence obtained enables us to answer the initial question as unambiguously as possible” (de Vaus, 2001, p. 9). The framework provided an orienting lens, informing the ‘overall purpose of the study, the research questions, the data collection, and the outcome of the study’ (Creswell, 2013, p. 546). The reason that mixed methods was deemed to be the most appropriate choice was that the study intended to: assess the acceptability the intervention *Mytern* (by both staff and students) through student focus groups and staff feedback; ascertain the applicability of the instruments to be used in the full study, through trialling them in tutorials; to include the most appropriate content and timing for the tutorial DVD through trialling alternative presentations: and to assess the most appropriate form of social media delivery. These objectives can be summarised as:

1. What is the acceptability of the intervention *Mytern*?
2. Are the instruments to be used in the main study applicable/appropriate?
3. Are focus groups more applicable than semi-structured interviews?
4. What is the most appropriate content/timing for the tutorial DVD?
5. What is the best form of social media to use to communicate with the students?

Thus, mixing methodologies gave the pilot study the capacity to create both a broad and deep understanding of the problems that may be encountered in the main study (Creswell, 2012; Greene, 2007).

6.3 The Intervention Adapted for the Pilot Study

The intervention *Mytern* (the details of which are outlined in Chapter 4) was adapted for the pilot study, in order to assess its individual components and their impact on the first year students.

6.3.1 Components of the *Mytern* Pilot intervention

6.3.1.1 Tutorial

Students were introduced to *Mytern* via a twenty minute tutorial. The tutorial explained the skill of *Mytern* and the reasoning behind it, which included concept of neuroplasticity and the influence of neuropeptides. It also illustrated how to apply the skill to everyday situations such as stress, excessive workload, relationship problems, motivation and self doubt. (See Appendix D)

6.3.1.2 Facebook

The pilot study included online communication and support through the creation of a *Mytern* Facebook page. Participants were invited to join a secure online community, with the knowledge that whatever they posted on the page would be visible only to those registered in the program. The aim of the Facebook site was to facilitate communication and sharing around the principles of *Mytern*, where inspirational videos could be uploaded and participants could post successful *Mytern* scenarios. The page was initially seen to provide support and anecdotal rather than empirical evidence, as the internet often skewed communication through masking the visible products of interaction such as body language and mannerisms (Markham, 2004). (See Appendix E)

6.3.1.3 SMS

Throughout the pilot study it became apparent that the Facebook page was not being utilised, so other forms of delivery that could reinforce the skill for the students on a more regular basis needed to be found. As most of the students had mobile phones, it was decided to trial a *Mytern* SMS service. This service entailed receiving a text for 30 days. The participants could indicate the frequency that they received the texts once a day, twice a day, once a week, or twice a week. The impact of text messaging (SMS) was assessed through a combination of the immediate responses to the text messages and from the

information provided via the focus group made up of students from the intervention tutorials. (See Appendix F)

Section 1: Piloting the Intervention

6.4 Method

Conducting a pilot study enabled the testing of the methods that were to be adopted in the main study. The pilot study is described through four areas (process, resources, management and scientific) as proposed by Thabane et al. (2010).

6.4.1 Process: assess the feasibility of the steps that need to take place as part of the main study.

The process of the pilot study involved assessing the mechanics of the intervention. The pilot trialled:

- the acquisition of a suitable course with homogeneous participants
- *the content of the intervention's booklet and DVD*
- *and timing of the intervention's delivery.*

6.4.1.1 Acquiring a suitable course and participants for the pilot.

There was an initial assumption that acquiring time to implement the research within the research environment of a university would not be an issue. However, it soon became apparent that embedding research within a first year tertiary course was problematic. It revealed that the research process was a constant balancing act based on costs and benefits considerations associated with the course co-ordinators, tutors, students and the researcher. Receiving approval for the project and reaching the point of being able to implement the study proved to be a much harder task than initially anticipated.

6.4.1.2 Costs versus benefits.

As a result of introducing something new to an already established program, it became increasingly apparent that a process that assessed the relation between the cost of the undertaking and the value of the resulting benefits to those involved needed to be taken into consideration, as some of the attitudes to empirical research encountered within the university setting were unexpected. Even research that may yield obvious benefits may have significant costs in terms of time and money (Israel & Hay, 2006). Thus, the costs and

benefits of embedding the intervention within a first year course needed to be considered and addressed when describing the intervention to the course co-ordinators, the tutors and the students. Costs and benefits also came into play with regards to the intervention itself, as the following indicates.

Three layers of potential barriers reflecting the costs of implementing the intervention were identified from the conversations with course coordinators:

1. adding something new to an already full curriculum
2. having to deliver something new and having to assimilate a new concept
3. sacrificing time

The majority of course co-ordinators approached felt that their course content was already overloaded, with no room for further additions. This was where the first encounter with the cost-benefit consideration became apparent. The time taken from the regular course content was seen by course co-ordinators as a cost which outweighed any benefit, even though the subject matter did align with what was already within the curriculum. When it was suggested to one course coordinator that the intervention need only be implemented in a few tutorials, he responded that only involving the students in some tutorials would disadvantage other students, discriminating between those who received it and those who didn't. Interestingly, it was the intervention group who were seen to be disadvantaged as the implementation of the originally proposed intervention (one presentation) would mean losing valuable tutorial time.

Another course co-ordinator strongly believed that that this was not an area that the university should be responsible for, but one that should be addressed by the individual student outside university time. The students shouldn't be 'mollycoddled' and 'spoon fed', but should develop their own resilience their own way. In the previous era, before widened access and concerns for diversity, this attitude might have been acceptable, but these days, educators need to be assisted to appreciate that diversity now includes people with mental illness, learning disabilities, and physical disabilities, and there is increased need for such support, not decreased, and that everyone at university needs to feel equipped to respond.

Nonetheless, a course was eventually identified where there was agreement to pilot the intervention. The course co-ordinator felt that the benefits of embedding a resilience-building intervention within this course supported his philosophy of educating the whole student, would enhance the course content, and would outweigh the cost of time. The course was within Health Promotion, and existing course content was relevant to the intervention. Eleven tutorial groups (6 intervention and 5 control) were available for the pilot including between 15-20 students per group.

6.4.1.3 Investigating the most appropriate content/timing for the tutorial DVD.

The interaction with course co-coordinators led to the realisation that the research needed to be presented to the tutors in a manner which demonstrated that the benefits would outweigh the costs.

Thus, when approaching tutors, it needed to be demonstrated that the benefits would be immediate to both students and tutors, outweighing the costs. After discussion with tutors within the Health Promotion course, it was decided that the maximum time that could be allocated within a tutorial for the delivery of the intervention was 20 minutes. In order to be able to implement the intervention, the three potential barriers outlined above were addressed.

1. It was demonstrated that although the content was new, it would enhance the course content through illustrating a concept that was being taught at that time.
2. The researcher introduced and delivered the intervention to all the tutorials, alleviating the tutors having to 'learn and deliver something new'.
3. Initially it was proposed that the intervention group receive two presentations- one commencing the intervention, with a follow up to reinforce the skill mid intervention. This proved impractical to implement. In the end, there was one 20 minute presentation at the beginning of the intervention which consisted of a PowerPoint and a set script delivered by the researcher in order to maintain consistency, which satisfied the tutors.

Student reaction to the inclusion of the research into one of their courses also had to be taken into account. The students needed to feel that the presentation was relevant to the course content and would enhance their chances of successfully answering their next assignment. Their feelings towards course overload reflected those of their course co-ordinators and tutors, reinforcing the need to demonstrate the relevance of the intervention.

As a result of co-ordinator and tutor feedback prior to the project implementation, the intervention presentation needed to be adjusted. Again costs and benefits had to be weighed. The cost to the presentation was in time and content, but these losses were outweighed by the benefits of being able to deliver an intervention which was easy to comprehend within the time allocated. Initially the presentation included brain physiology, the emotional brain, neuroplasticity, neuropeptides, emotional states, mental health and emotional fitness. This was then followed by the introduction of the intervention, *Mytern* (Chapter 4), based on a metaphor (see Chapter 4.4.1). Steps required implementing the skill and examples of when and how to use the skill were then given. At the end of the presentation students were invited to receive motivational quotes and videos via Facebook and SMS.

Having addressed the three major potential barriers to conducting the intervention and adjusted the content of the tutorial, the researcher felt that the benefits outweighed the costs. Resources could now be examined, again taking into account cost/benefit considerations.

6.4.2 Resources: assess time and budget problems that may be associated with the main study.

Course co-ordinators, tutors, students and data collection instruments were all important resources to consider. However, the major resource that the study required was time and it soon became apparent that this resource was the major factor to be considered, for without being allocated the appropriate time, the intervention could not take place. Financial resources for the pilot were taken into consideration but did not pose a problem, as the intervention did not require resources to be printed or reproduced. In view of what emerged from the pilot study, financial resources did become more of a focus.

6.4.2.1 Time

As alluded to above, time taken away from the tutorial session was not the only major problem when organising the intervention. The first time hurdle was faced when trying to meet with first year course co-ordinators. They perceived that they simply did not have the time to spare.

Once the course was finally chosen and agreed to, the next time hurdle faced was in briefing the tutors involved. This had to be done at the beginning of one of their tutorials whilst waiting for the students to arrive. As the intervention was given solely by the researcher, the role of the tutor only involved the allocation of the appropriate timing within their tutorial.

Two timing issues were then highlighted within the tutorial. The first was the length of the questionnaire and the second was the length of the intervention delivery. Both of these were modified as a result of the pilot study, as it was seen that in order to maximise the return on the resources, time had to be reduced.

6.4.3 Management: manage any potential human and data management problems.

Pilot studies allow for the unfolding of any human and data management problems, allowing for modifications to be made, to minimise risks in the main study (Thabane et al., 2010) so the management of a study can be imperative to its ultimate success. The human organisation problems involved first year course co-ordinators, tutors and students, for without their consent; the intervention would not be possible. Data problems involved the instruments to be used; surrounding their length and content. The management of time also became apparent as a critical issue to address.

6.4.3.1 Managing course co-ordinators and tutors.

With the intervention needing to be embedded within an existing course and time having been listed as a valuable resource, course co-ordinators needed to be convinced that the benefits of the intervention would outweigh the costs involved; that involvement in the research project was not only going to be a valuable/positive use of time, but would also enhance their course content. Therefore, research into the course content and its links with the intervention was imperative. This proved to be just as important when approaching the

tutors. They too needed to be convinced of the intervention's value, and to be informed as to precisely the time that would be devoted to the intervention (both questionnaire and delivery) during the tutorial.

6.4.3.2 Managing students.

It was important to make clear to the students at the outset the relevance of the intervention to the course that they were taking. They didn't want to waste time being engaged in something that was not going to assist them in answering the next assignment. The questions within the questionnaire also needed to be easily answered, without requiring the students to ponder for too long. For the questionnaires to be of value, students were required to answer both pre and post questionnaires in order to solicit comparative scores, and to be able to see the relevance of the type of questions that they were being asked.

6.4.3.3 Managing ethics.

It was anticipated that there would be a low risk of psychological harm (anguish, distress, emotional distress) whilst answering the questionnaires and/or being interviewed. (See Appendix T for ethics approval). As the recruitment process was voluntary in relation to both the questionnaires and interviews, and potential participants were carefully informed about the area of research, it was anticipated that the participants would feel comfortable. Semi-structured interviews were included in the initial ethics application, but due to time constraints, focus groups were conducted. Talking about matters relating to distress is often found to be cathartic and therapeutic rather than provocative (Reavley, McCann, & Jorm, 2012b), but as the pilot study revealed, this would be better achieved in a one-on-one interview situation.

Students were informed by the researcher at the beginning of the tutorial about the study. This was done both verbally and in written form prior to the students being given the opportunity to volunteer for the data collection (see Appendix G for Research Project Information Sheet for intervention and control groups). They were also provided with the opportunity to ask questions about the study and about their involvement in the study. Students were then directed to the consent form where again they were given the opportunity to ask questions. The researcher pointed out that there were two requests for

their participation on the form- one to participate in the questionnaire, the other to participate in an interview, which was consequently changed to the focus group, and that they were under no obligation to sign the first one or both. Once all the students were happy with the information, those who volunteered to participate were handed the questionnaire with the consent form attached. Those students not wishing to participate were in no way made to feel uncomfortable about their decision.

6.4.3.4 Managing instruments.

The time taken within the tutorial was crucial to the questionnaires being filled out successfully. If tutors didn't allocate the set time, then questionnaires would be incomplete or finished with little thought given to the answers. The delivery of the intervention was also given in the same two hour tutorial, pushing the time taken out to approximately 30 minutes. As this was a one-off presentation, it was hoped that it wouldn't be seen as an inconvenience by either the tutors or the students.

The management of the pre and post test was decided in consultation with the course co-ordinator. The pre test would be completed in the tutorial of week 4, when the course content best aligned with the intervention. The post test was to be completed in the tutorial of week 12. The data collection instruments were then addressed, optimising their appropriateness and subsequent inclusion in the main study.

6.4.4 Scientific: assessment of treatment safety, determination of dose levels and response, and estimation of treatment effect and its variance.

Data collection via questionnaires, focus groups and SMS feedback was used to assess the intervention's safety, determining dose levels and estimation of treatment effect and its variance (Thabane et al., 2010). The questionnaires were used to detect any change over time in the areas of positive psychological capital (resilience, hope, self-efficacy, and optimism) and distress levels. Focus groups were used to record student responses to the intervention

6.4.4.1 Quantitative data collection.

As in-class questionnaires were reported as being one of the most efficient approaches to data gathering on a large scale (Punch, 2009), this format was used in the pilot study for the

quantitative data gathering. A quasi-experimental design was adopted, with the experimental group consisting largely of first year students. This was a necessary criterion as the full study centred around the impact that the intervention may have on first year students. The control group were studying the same course but consisted of a range of first, second and third year students. Although the spread of year levels was not ideal, it was the only way that a control group could be organised which met similar criteria to that of the intervention group. After considerable investigation, the questionnaires chosen for the pilot study were K10 and Psycap, as they measured the appropriate constructs and were concise, which suited the time constraints (See Chapter 7.2.1 for details surrounding the two instruments and Appendix H for student questionnaire).

The pilot study also tested both criterion validity (incorporating predictive validity where the questionnaire predicts outcomes that would theoretically be expected) and concurrent validity (making less stringent assumptions) of both questionnaires when used in the specific intervention and control population (results discussed in 6.5.4.1).

Initially the questionnaire was going to be administered on three separate occasions: Week 1-before the intervention, Week 6 - mid intervention and Week 10 - at the conclusion of the intervention, but due to time constraints and a full curriculum, it was only administered pre and post intervention.

6.4.4.2 Qualitative data collection.

As well as piloting the questionnaires, the research also required the students' individual reactions. This was trialled through social networking via Facebook, texting and focus groups, to help increase the knowledge surrounding health promotion interventions in tertiary education.

6.4.4.2.1 *Focus groups.*

Focus groups were included in order to gain collective views and opinions about *Mytern* and to gauge multiple perspectives, where the individual opinion was seen to be as valuable as the group opinion. Originally, as stated in the ethics management, the researcher intended conducting interviews. However, due to the students' high workload and lack of time, it was felt that focus groups would be more appropriate. (See Appendix I for Project Information Sheet and Appendix J for interview guiding questions). Individuals may enjoy the debate

within a group, fleshing out ideas and enhancing the depth of the feedback (Arthur, Waring, Coe & Hedges, 2012). A focus group also allows for the group to take on a life of its own, independent to the researcher's predictions, providing valuable feedback regarding the intervention (Arthur, et al., 2012).

However, Hopkins (2007) believes that people are reluctant to share in-depth personal experiences in a focus group, resulting in shallow or poor quality data and reducing the quality of the study. Conflicts, confidentiality and an inexperienced moderator may also be issues which can detract from the quality of data received in a focus group (Arthur, et al., 2012). Ethical dilemmas of confidentiality and informed consent can also be particular to focus groups, as all participants hear what is said by others, even if they don't share it outside the group. However, this limitation may be overcome by providing more detailed information sheets (Tolich, 2009).

Section 2: Evaluating the pilot

6.5 Results and Discussion

The pilot study was conducted to test the proposed design of the *Mytern* intervention, refine the techniques and tools to be used to enhance the likelihood of success of the main study (Arthur, et al., 2012; Thabane et al., 2010). Each component of the research design was assessed and as a result, modifications were made, which will be examined under the four areas used within the methods section: process, resources, management and science.

6.5.1 Process.

Although the findings regarding the recruitment of tutors and participants were significant, it was the impact that the pilot study had on the delivery style and content of the intervention that was profound. It was in the balancing of the cost benefit considerations that highlighted the areas of which greatest change/adjustment were needed.

6.5.1.1 Finalising a Suitable Course and Participants for the pilot.

The tutorials and sample size for the pilot proved to be sufficient to refine the techniques and tools to be used in the main study. The pilot study highlighted the importance of the timing of the in-class questionnaire. The pre-intervention questionnaire was done in week 4 of Semester 1, where attendance was high. In all, including both intervention (81) and

control (79) groups, 160 students were surveyed. The post-intervention questionnaire was held in week 12 where attendance was extremely low, and only 50 students attended the 11 tutorials and were surveyed (see Table 6).

Table 6 *Control and Experimental Groups*

	Control Group	Experimental Group
Sample	100	110
Pre test	79	81
Post test	22	28

In order to test the hypotheses, data was required both pre and post intervention to provide a comparison between the students' distress and Psycap levels. Unfortunately Psycap failed to demonstrate criterion and concurrent validity (discussed in 6.5.4.1), revealing that the questionnaire was problematic. With the combination of insufficient numbers and inaccurate data, it would have been deemed inappropriate to analyse the data. Therefore, it was imperative that the survey weeks for the full study were investigated, in order to guarantee a worthwhile data set for analysis in the main study.

6.5.1.2 Modifications to the delivery and content of the *Mytern* intervention.

The first three tutorials were held one after the other and contained much scientific information. It was during these tutorials that it was observed that most of the students weren't interested in understanding the physiological side of the intervention. A lot of the more detailed information was eliminated in the second tutorial, and refined even more for the third. There was also a resistance within the students when the terminology 'mental health' was used, as there appeared to be negative connotations associated with their use. As a result of these observations, the terminology was modified for the following day's tutorials, eliminating detail and substituting more user friendly terminology.

More everyday examples were included for the students to connect with which made a substantial difference. Two tutorials received the modified format which had a greater impact than the day before- but still there appeared to be something missing. Fortunately, the last tutorial was cancelled due to the heavy rain, which provided another week to think about and modify the tutorial. This chain of events reinforced the importance of conducting

a pilot study and the positive influence that it can have on the greater success of the main study.

Two hundred students (including some of the students who filled out the questionnaires in the tutorials) were addressed in a lecture associated with the course, asking for volunteers for a focus group. The same resistance to the words 'mental health' was observed and it was only the students who felt that they had a problem who volunteered for the focus group (which was 9 students out of 200 attending the lecture). This highlighted the fact that the way in which the intervention was being introduced to the students did not translate as a universal skill for everyone, but as a strategy for those 'suffering from mental health problems'. As this skill was designed as a universal intervention, the language used seemed to be paramount to making the skill relevant to the average student.

The focus needed to be changed. *Mytern* became a mental fitness rather than a mental health technique. A personal trainer was included in the strategy with the expectation of reaching more students. However, there still appeared to be resistance to this terminology.

As a result of the experiences in the tutorials and the lectures, it was apparent that alternatives to the terms 'mental health' and 'mental fitness' needed to be found. *Mytern* evolved into an emotional fitness skill applicable to everyone; not just focussed on those with mental health problems which the students appear to have construed from the use of the previous terminology.

Having altered the presentation, it was first trialled with the focus groups that had been formed out of the 9 volunteers. The first group consisted of two mature age students, one of which had suffered from depression most of her life. The new model of the presentation was delivered and it went over extremely well. Both students connected with the skill and felt they had received enough instruction to be able to apply the skill in their own life. The second of the focus groups consisted of three young students who also found it easy to connect with the skill of *Mytern* and were confident that it was useful and relevant and could be applied to their everyday life.

After delivering the new tutorial, the students connected with the way in which the skill was presented. They were given the tools to apply the skill in a much more user friendly way. A

week after the original presentation, the students filled out an evaluation form. Despite the limitations of the original format, the comprehension and understanding of the skill was reflected in the questionnaire. (See Appendix K for evaluation of tutorial).

- 100% of the respondents indicated that the skill was easy to understand,
- 100% believed that the skill would improve their health,
- 91% felt that they had gained new knowledge and
- 95.5% recognised that they knew enough to apply the skill in daily life.

As a result of the pilot study, the intervention delivery evolved into a DVD. In order to reduce the timing and adjust the content of the intervention, costs and benefits associated with these changes also had to be taken into account. This will be outlined in the section relating to the intervention DVD in the main study.

6.5.2 Resources.

The pilot study highlighted that the major resource required for the study was time. Therefore, any contact with course co-ordinators and tutors in the main study needed to be reduced, and the information conveyed both concise and easily comprehended.

With the main study requiring a much larger sample than the pilot study, a greater number of tutors would also be involved. As the pilot revealed, it would be unrealistic to arrange individual meetings with each tutor. Therefore, it would be most practical to address all the tutors at once, eliminating the need for individual meetings and ensuring that all tutors receive the same information.

The problems encountered in the pilot study accentuated that the time resource may be of concern to most universities when trying to conduct research, especially when looking to embed an intervention within an existing course, as all tutors and lecturers involved believed that they were extremely 'time poor'.

6.5.3 Management.

The pilot study highlighted major implications for the main study concerning the management of the participants and instruments. As discussed earlier, in order for the

research project to be embedded within a first year course, course co-ordinators, tutors and students all needed to be able to understand that the benefits of the intervention outweighed the costs involved.

6.5.3.1 Modifications to the Management of Course co-ordinators, Tutors, Students and Instruments.

Although the tutors and students understood that the intervention had been linked with the course, it was still viewed by some as 'setting aside thirty minutes' from the regular course. The pilot revealed that the time taken to fill out the questionnaire was far too long, and coupled with the intervention delivery, resulted in too great a time cost for both tutors and students.

The university where the research was undertaken is also aware of the time cost that research can have on the curriculum. A new policy has been introduced requiring researchers to apply for approval prior to surveying any students. The consequence of the pilot study meant that the questionnaire in the main study would need to be time efficient, easy to comprehend and easy to answer.

6.5.4 Science.

The pilot study's assessment of the intervention's effect and variance, dose levels and safety helped guide the methods used in the main study. Questionnaires were changed and the reasons behind conducting focus groups and/or interviews were evaluated. As a consequence of students' feedback, the dose of SMS quotes was also established. Students were not given a choice as to how many times a week they received an SMS as it was decided that once a day, Monday to Friday, was the optimal dose.

6.5.4.1 *Instruments.*

The questionnaires (K-10 and Psycap) had already established their construct validity, as they both included a number of different questions surrounding the one concept, acknowledging the number of different dimensions within that particular concept. K-10 proved to be reliable and consistent and demonstrated sound criterion and concurrent validity. However, due to its large number of questions and its cumbersome layout, Psycap failed to demonstrate criterion and concurrent validity, as many of the students appeared to

simply allocate their ticks in the simplest way possible; ticking the top grouping in the Likert scale in answer to every question. Therefore, a new questionnaire had to be found to replace Psycap, and as stated above; one which was time efficient and easy to comprehend.

6.5.4.2 Focus Group and SMS Feedback.

The inclusion of a focus group instead of interviews proved to be extremely positive and reinforced the importance of choosing a mixed method study as opposed to an exclusively quantitative one, especially when dealing with a skill that involved assessing emotions. It was during the focus group sessions where valuable feedback from the participants was obtained and discussed. However, it is important to note that if one-on-one interviews had been conducted, more sensitive information may have been revealed. Therefore, it was deduced that the inclusion of interviews instead of focus groups (as was originally chosen) in the full study may prove more productive, providing participants with a private and confidential environment in which to share in-depth reactions to the intervention.

The initial focus group evaluated the impact of the new tutorial format, reflecting the ease with which the skill might be understood. Discussion was general as personal experiences were not required, only personal interpretations of the tutorial delivery and its consequent impact.

The post intervention focus group evaluated the impact of the daily text message service. Here more personal experiences were addressed, with particular examples being given to illustrate the influence of the texts. It was during this session that the importance of only holding one-on-one interviews in the full study was highlighted. One of the participants was particularly vocal and extrovert which had an obvious impact on the other members of the group. Even though they were all given equal time to speak, her dominant and eccentric personality still had a profound influence on the others. Valuable personal information from one participant failed to be explored as confidentiality was obviously an issue for them, which was ascertained after the conclusion of the group during general conversation with that particular participant. As this form of data would be invaluable in the full study, it appeared crucial to eliminate focus groups and replace them with semi-structured interviews.

Despite the focus groups discussed inadequacies, the feedback was still extremely positive and reflected the value of the inclusion of the SMS messages. The participants felt that it was the daily/weekly reminder that had the most impact, and represented the major reason for the skill's uptake and success, which provided valuable feedback for the main study.

(See Appendix L for quotes from focus group participants).

The use of the *Mytern* Facebook page was minimal, as it was discovered through the focus groups that students had neither the motivation nor the time to access the page. Consequently, the Facebook page was not included in the main study.

However, the feedback via the focus group and via SMS was extremely positive regarding the daily text messages. (See Appendix M for SMS examples). This positive feedback was the major reason for the incorporation of the daily SMS within the full study. It was also decided to not include the option of text frequency. The service would be offered once a day (week days only) until the participant sent a text message requesting 'stop'. The reason for this was that the focus group participants felt that it was the regularity of the texts that played a major role in *Mytern*'s success. Therefore, the optimum dose for the daily SMS was established for the main study.

6.6 Conclusion

In this pilot study, the feasibility of the major components of the main study was trialled; the main objectives being to answer each research question. The pilot study successfully tested the proposed design of the research project/*Mytern* intervention, refining the techniques and tools to be used, in order to enhance the likelihood of the success of the main study. Using the rationale of process, resources, management and scientific proved to be an extremely useful framework in which to structure sections of the study.

The importance of cost and benefit considerations became apparent when trying to embed the intervention into an existing curriculum, emphasising the need to take into account everyone's perspective before presenting the research study. Time emerged as an important but scarce resource, which when used, needed to be of benefit to all concerned. It was realised that acquiring time to implement the research project within the research environment of a university was a major issue that required much time and effort.

The pilot revealed that Psycap was inapplicable to the study and that a new questionnaire had to be found to replace Psycap as stated above; one which was time efficient and easy to comprehend. However, the use of K-10 was confirmed as being highly appropriate and was included in the main study.

Focus groups were found to be excellent for general feedback, but proved to be less productive when seeking more personal reactions to the intervention. Therefore, semi-structured interviews would replace the function of the focus group in the main study, providing participants with a private and confidential environment in which to share in-depth reactions to the intervention.

Content and timing of the tutorial delivery was altered and refined, conforming to the various demands and expectations of course co-ordinators, tutors and students.

Instruments were trialled, establishing the appropriateness of incorporating the K-10 and highlighting the inadequacies of the Psycap, thus eliminating it from the main study.

The participants of the SMS trial felt that it was the daily/weekly text reminder that had the most profound impact. Therefore, the daily SMS represented the major reason for the intervention's uptake and success, not Facebook, which provided valuable feedback for the main study.

This Pilot study highlighted the practical problems faced by the researcher which involved balancing optimal research methods under the combined pressure of time, ethical considerations and the influence of stakeholders. The pilot study was able to determine the interventions acceptability in the pilot sample; the outcome being that it would be feasible to continue with the intervention, but with modifications. Analysis of the qualitative and quantitative data was not one of the objectives of the pilot study.

The information that was gained emphasised the importance and the valuable contribution that a pilot study can make to the greater success of a main study. The next chapter outlines the final methods and instruments which were adopted and utilised in the main study.

Chapter 7 Empirical Methods

Having outlined the methodology, paradigms and methods, this chapter aims to introduce the process adopted for the data collection, and the forms of analysis used for each. The location of the study and its participants give context to the research, before discussing the timing of the data collection and the instruments and methods used. Reasons for choosing the surveys that would best answer the research questions are given, along with their validity and reliability. The inclusion of semi-structured interviews, their development and the participants involved, is addressed. The analysis of the quantitative and qualitative data is outlined, prior to summarising the structure behind the pilot and main study. The chapter concludes with importance of ethical considerations.

7.1 Research Setting

The study took place at an Australian regional university where approximately 8,000 students were enrolled; of which approximately half were the first in their family to attend university. Program enrolments mostly involved undergraduates (81%), followed by non-award (9%) and postgraduate coursework (8%), with higher degree by research students numbering 2%. As it was a small but growing university, the two major faculties covered a range of disciplines, under which over 90% of enrolments fell: Faculty of Arts and Business (41%) and the Faculty of Science, Health, Education and Engineering (50%).

7.1.1 University student population

The average age of the students was 26, of which 44% were under 21 years of age. Nearly 70% of the student population comprised of permanent local residents. The small number of international students (10%) mainly came from Germany, United States, Norway, France and Sweden. Of all the student population, 99% chose to study on-campus.

7.1.2 Participants in the study

Participants came from two compulsory first year courses:

- Intervention: COR109 (Communication and Thought - approximately 600 students)
- Control: COR110 (Innovation, Creativity and Entrepreneurship - approximately 700 students).

These courses were chosen as they attracted students from each faculty and comprised a high percentage of first year students (over 80%).

7.2 Data Collection

Greenwood and Terry (2012) suggest that mixing methods is advantageous to researchers in the health sciences, allowing research questions to be addressed with greater flexibility.

Through integration a more complex and complete data analysis can be achieved which is vital for the internal coherence of the results. Generally the purpose for the appropriate mixing of data is to ensure that data sets support each other in data analysis and interpretation (p. 102).

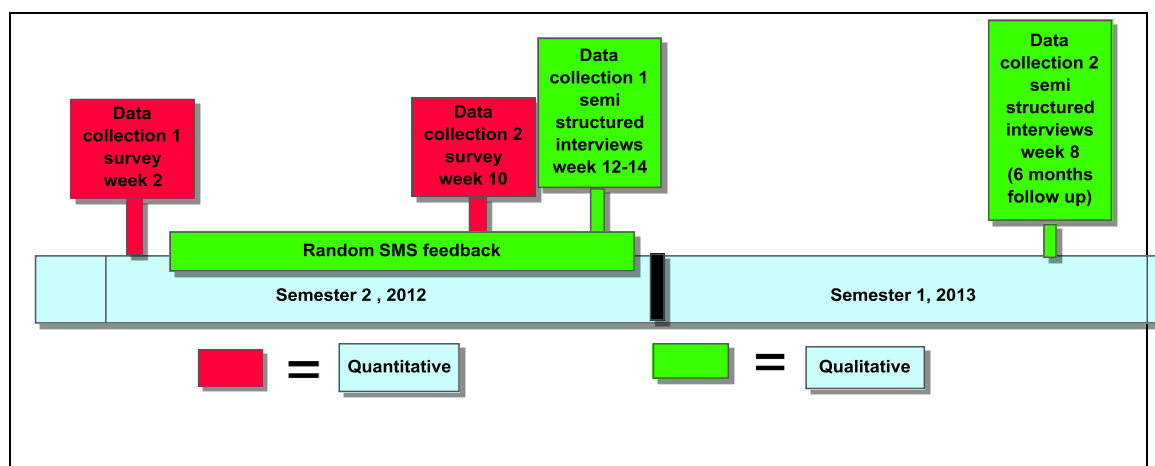


Figure 15. Concurrent design of data collection

Although sections of the data appear to have been collected sequentially, the aim was to compare both forms of data to search for congruent findings. Adopting a concurrent design allowed for the identified themes that emerged from the qualitative data to be compared to the statistical results of the quantitative data (Creswell et al., 2003).

7.2.1 Quantitative instruments.

Past research in this area identified the different types of data that had been gathered and the most reliable instruments that had been used (Price, et al., 2006; Stallman, 2010; Vivekananda, et al., 2011; Wong, et al., 2006). In-class questionnaires were reported as being one of the most efficient approaches to data gathering on a large scale, so Phase 1 of the study used this instrument for the quantitative data gathering. The initial questionnaires chosen for the study, K10 and Psycap, not only measured the outcomes chosen for the

study, but both questionnaires had been used in studies involving undergraduates, enabling easy comparison at the conclusion of the study. Within these studies, K-10 and Psycap had proven to be both consistent and reliable (Luthans et al., 2011; Stallman, 2011). Content validity was verified by piloting the study in Semester 1, 2012. The pilot study proved the content and face validity of the K-10, but highlighted the inadequacies of using the Psycap, as this questionnaire proved to be too long to be incorporated in a tutorial. The pilot study also tested both criterion validity (incorporating predictive validity where the questionnaire predicts outcomes that would theoretically be expected) and concurrent validity (making less stringent assumptions). Due to its large number of questions and its cumbersome layout, Psycap failed to demonstrate criterion and concurrent validity, as many of the students simply allocated a number randomly without giving it too much thought. The questionnaires had already established their construct validity, as they both included a number of different questions surrounding the one concept, acknowledging the number of different dimensions within that particular concept.

As a consequence of the poor performance of the Psycap in the pilot study, three alternative questionnaires were chosen: Flourishing (FS- psychological wellbeing), Satisfaction With Life Scale (SWLS) and CD-RISC (resilience). These individual questionnaires assessed similar constructs as the Psycap with greater efficiency. The scoring and efficacy of each questionnaire was taken into consideration before adopting them for use in the main study. Although Psycap was not used in the main study, it is still included here to illustrate the reasons for its inclusion in the pilot study. Utilising questionnaires that measure subjective well-being such as K-10, Psycap, FS, SWLS, and CD-RISC, has been shown to be an important area of research which can be instrumental in helping to improve the lives of individuals (Bendayan, Blanca, Fernandez-Baena, Escobar, & Trianes, 2013). Measuring subjective wellbeing is also in accordance with the salutogenic perspective of what makes people healthy in relation to their own values (Hultell & Petter Gustavsson, 2008).

7.2.1.1 Scoring and efficacy of the K-10 Questionnaire (K-10).

The K10 (Kessler Psychological Distress Scale) was developed for use in the USA National Health Interview Survey (Kessler et al, 2005) and has been used in Australian general health population surveys by the Australian Bureau of Statistics. It has also been utilised in other Australian mental health studies on tertiary students (Stallman, 2008; Stallman & Shochet,

2009) making the present study's results not only directly comparable to other tertiary institutions, but to the general population as well. The K-10 questionnaire consists of a 10 item scale and had been found to be a good predictor of mental illness and psychological distress. (See Appendix N)

The cut-off scores for the K10 used for the *2000 Health and Wellbeing Survey* (conducted in Western Australia) and the *ABS 2001 National Health Survey Summary of Results Publication* (ABS, 2001) were used for the purpose of this study (See Table 7). This approach to reporting K10 results used four levels of psychological distress to indicate prevalence and severity.

Table 7 *K-10 Cut-off Scores*

K10 cut-off scores used in 2000 Health and Wellbeing Survey and the 2001 National Health Survey to estimate the prevalence of levels of psychological distress.

K10 score	Level of psychological distress
10 - 15	Low
16 - 21	Moderate
22 - 29	High
30 - 50	Very High

("Information Paper: The Use of the Kessler Psychological Distress Scale in ABS Health Surveys, Australia, 2001," 2003)

A study which involved 254 Australian university students (Ryan et al., 2010) reported a mean score of 20.24 ± 6.14 for the K-10, which was used as a comparison for the present study. (See Chapter 8.3.6, Table 18)

7.2.1.2 Scoring and efficacy of the Psycap questionnaire (Psycap).

The Psycap questionnaire had been used as a measure of the higher order construct of psychological capital, indicated by the components of hope, optimism, self-efficacy, and resilience. (See Appendix O). Confirmatory factor analyses in the study by Luthans et al., (2007) provided the initial support for a 24-item PsyCap measure. Model comparisons showed that this PsyCap could be represented as a higher-order factor indicated by the four facets.

The four constructs making up the Psycap questionnaire were established from the extensive theoretical and research foundation work in positive psychology as outlined by Luthans et al., (2007, p. 566). The first construct of efficacy was defined by Bandura (2001) as a person's belief in their own abilities to carry out a particular task. Optimism, the second construct, was defined by Seligman (1998) as the attributes and explanatory style that we adopt in response to situations and events. The third construct of hope, which, according to Snyder, Irving and Anderson (1991) is a positive motivational state. Resilience makes up the last of the four constructs and takes on the common definition of being a person's ability to bounce back when faced with adversity (Luthans, 2002). Psycap results were tallied and entered into the SPSS data analysis package to obtain results for each of the four elements (efficacy, optimism, hope and resilience) as well as an overall Psycap score.

7.2.1.3 Scoring and efficacy of the Flourishing Scale (FS).

The Flourishing scale tested for an overall psychological well-being score through assessing major aspects of social-psychological functioning (see Appendix P). The scale addressed social relationships (both inter and intra personal); engagement in a meaningful and purposeful life; self-respect and optimism; as well as feelings of being competent and capable (Diener et al., 2010).

The Flourishing Scale consists of eight items describing important aspects of human functioning ranging from positive relationships, to feelings of competence, to having meaning and purpose in life. Each item of the FS is answered on a 1–7 scale, producing scores that can range from 8 (Strong Disagreement with all items) to 56 (Strong Agreement with all items). High scores signify that respondents view themselves in positive terms in important areas of functioning. The authors explain that although the scale does not

separately provide measures of facets of well-being, it does yield an overview of positive functioning across diverse domains that are widely believed to be important (p. 146).

The Flourishing Scale statistics reveal that the basic psychometric properties are positive. It has shown high reliability and high convergence with similar scales, and has proved itself to be a good assessment of overall self-reported psychological well-being. The Flourishing Scale has *Mean (SD)* 44.97; a Cronbach's alpha of 0.87; Temporal stability of 0.71; and a scale range of 8-56. The means established in different locations in the USA are presented in Table 17, Chapter 8.4.4.

A recent study (Silva & Caetano, 2013) further validated the Flourishing Scale, advocating its ability to enhance theoretical and methodological research into well-being. The authors found that the factor loading of the items on the underlying construct did not differ systematically across both samples under study and that the scale showed a very good internal consistency reliability ($\alpha = 0.83$). Silva and Caetano (2013) also analysed the convergent validity of the scale, finding the 'FS scores were highly and positively correlated with these measures, supporting the convergent validity of the scale. Overall, the Flourishing Scale is adequate to assess psychological well-being, and particularly if a brief scale is necessary' (p. 477).

The flourishing scale (FS) assesses major aspects of social-psychological functioning from the respondent's own point of view (Diener, et al., 2010), enhancing 'theoretical and methodological research into wellbeing' (Silva & Caetano, 2013, p. 470). Therefore, it is well placed to be used to assess change over time in the area of psychological wellbeing.

7.2.1.4 Scoring and efficacy of Satisfaction With Life Scale (SWLS).

The SWLS is an established measure of life satisfaction and the most commonly administered one since 1985 (Bendayan, et al., 2013), and can be seen to demonstrate important psychological strength that helps to facilitate adaptive development (Antaramian et al., 2008). It is this subjective wellbeing, which can be 'instrumental in helping to improve the lives of individuals' (Bendayan et al., 2013, p. 36). (See Appendix Q)

SWLS has demonstrated good psychometric characteristics (Pavot & Diener, 1993), is a short scale (only 5 items) and is used as a global measure of life satisfaction. In a recent study, the

scale showed good internal consistency ($\alpha = .71$) and, the corrected item-factor correlations were appropriate, with correlations higher than .30 (Bendayan, et al., 2013). As the items are global in nature, it allows respondents to 'make their own judgements while weighing up the various domains in their life and then concluding with a response which they feel best describes them' (Kirby, Williams, Thomas, & Hill, 2013, p. 1359). SWLS scores were shown to be predictably associated with other measures of subjective well-being, were not affected by sex, age, educational level, health insurance status or social desirability, and demonstrated positive reliability, construct validity and internal reliability (Arrindell, Meeuwensen, & Huyse, 1991). The five items are rated on a scale from 1 (strongly disagree) to 7 (strongly agree). The summing up of each question yields a global score for life satisfaction. Scores may range from 5 to 35, with higher scores corresponding to greater life satisfaction.

Table 8 *SWLS Scoring*

Score	Satisfaction Level
30 – 35	Highly satisfied
25- 29	Satisfied
20 – 24	Slightly satisfied
15 – 19	Slightly below average in life satisfaction
10 – 14	Dissatisfied
5 – 9	Extremely Dissatisfied

Significance was indicated in a score fluctuation of: 23.53 to 25.87 ($p=0.031$, $N=15,1$ tailed paired t-test for means) (Alwan et al., 2006). However, most studies only obtained one score. These university student cohort results are presented in the Table 17, Chapter 8.3.5.

Pavot and Diener (2008) state that life satisfaction is made up of a number of components, some of which include social relationships, work/school, self (religious or spiritual life, learning and growth and leisure), and health, and that there is no one recipe. Most individuals are cognisant of what influences their satisfaction levels, with the two key ingredients being social relationships and heading towards one's goals (Diener, 2006). In

summary on understanding the SWLS scores, it is important that people feel a connection with something larger than themselves (Pavot and Diener, 2008).

SWLS has demonstrated sensitivity to be useful to detect change in life satisfaction during the course of clinical intervention, and is appropriately used to 'measuring change in subjective wellbeing and intervention outcomes' (Pavot & Diener, 1993, p. 170), aligning with objectives of this study.

7.2.1.5 Scoring and efficacy of the CD-RISC.

The Connor Davidson scale for resilience (CD-RISC 10) comprising of 10 questions, has demonstrated its validity in studies involving tertiary students (Campbell, Svenson, & Jarvis, 1992; Hartley, 2012). A study by Campbell-Sills & Stein (2007) evaluated the reduction of the five factor CD-RISC 25 item scale to a one factor 10 item scale, having found that the original CD-RISC was unstable. (See Appendix R). They believed that the 10-item CD-RISC captured the core features of resilience, and their analysis was able to support the reliability and construct validity of the new measure, along with its excellent psychometric properties. The 10-item one-factor CD-RISC demonstrated a Cronbach's alpha of .85, factor loadings of .39-.74, and showed strong goodness of fit for both the classroom participants and from those seeking assistance from campus mental health offices (Campbell-Sills & Stein, 2007).

Using the CD-RISC 10, Wrenn et al., (2011) found a median score of 34 (range 0-40). The same group reported a median score of 30 in 233 PTSD cases among inner city primary care patients who had been exposed to trauma, compared to a median score of 35 in the non-PTSD group, a significant difference ($p < 0.0001$). Resilience levels in various college and university populations were also studied using the CD-RISC 10 (presented in Table 19, Chapter 8.3.7), deeming it appropriate for inclusion in the main study.

7.2.2 Qualitative methods.

Data was collected through conducting semi-structured interviews with voluntary participants from the SMS component of the intervention, coupled with students' feedback via SMS.

7.2.2.1 Interview development.

In qualitative research, interviews are probably the most frequent method of data collection; with the ability to yield a great deal of information as well as insight (Bryman, 2008; Leedy & Ormond, 2013; Punch, 2009). The type of interview that a researcher chooses influences both the practical and managerial aspects of the interview (Punch, 2009). As the research required answers to specific questions whilst leaving room for the interviewee to lead the interview in other directions, a semi-structured approach was chosen.

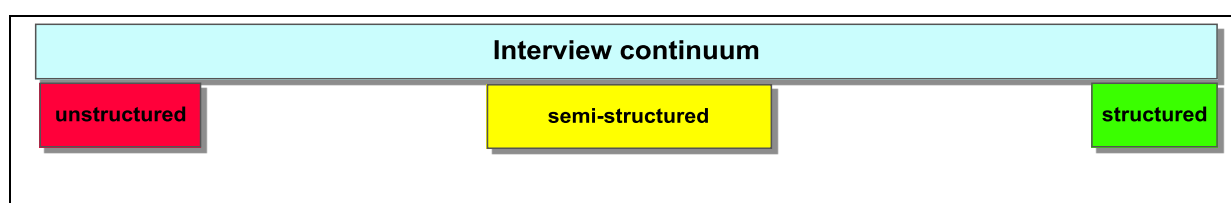


Figure 16. Interview continuum. Adapted from Punch, 2009, p. 145

Being at the centre of Punch's (2009) interview continuum (Figure 16), a semi-structured approach gave room for freedom, flexibility and adaptability; a cornerstone of pragmatism. A question sheet assisted each interview in being consistent; covering the same/similar topics; and guiding the researcher away from leading questions.

The interview questions were aligned with the research questions (Creswell, 2013; Leedy & Ormrod, 2013), and a blank interview sheet (other than the questions) was taken to each new interview. (See Table 8)

Table 9 *Research and Interview Questions* - adapted from Leedy & Ormond, 2013, p.155

Research Questions	Interview questions
RQ1. What is the impact of an emotional fitness and resilience building intervention on the psychological wellbeing, life satisfaction, resilience and distress levels of first year university students?	How would you describe your experience with <i>Mytern</i> ? (not inferring any change or guiding the interviewee in a particular direction) (Leedy & Ormrod, 2013)
RQ2. What other factors may influence the	(demographic data)

psychological wellbeing, satisfaction with life, resilience and distress levels of first year students who have participated in the <i>Mytern</i> intervention?	(not specifically asked – relied on experiences outlined in the interview)
RQ3. Does the delivery of the intervention (mini manual, video-based or SMS) impact the psychological wellbeing, satisfaction with life resilience and distress levels in first year university students?	<p>What did you think of the DVD in the tutorial?</p> <p>What sort of impact did it have?</p> <p>Did you read the mini manual? Did you offer it to anyone else?</p> <p>Why did you choose to be part of the SMS trial?</p> <p>What was the impact of the text messages?</p> <p>What do you think is the ideal time to receive the text messages?</p>
RQ4. Has change occurred in the students who participated in the intervention <i>Mytern</i> ?	<p>Have you noticed any change that may have occurred in you or your life since you participated in the intervention <i>Mytern</i>?</p> <p>Were there other factors that may have had any influence on this change?</p> <p>Do you believe that it has changed the way you think and feel about yours and other people's emotions?</p>
RQ5. If change did occur as a result of the intervention <i>Mytern</i> , what made this	How have you applied the skill in your life?

change take place?	(provide examples).
	How did you apply the skill to your uni life? (provide examples).
	Have you thought the skill to anyone else? How would you teach the skill to someone else? Should the <i>Mytern</i> program be introduced in other classes? Why? Orientation?

A detailed interview protocol was developed and administered at the conclusion of the *Mytern* SMS trial (see Table 10). The first section of the interview asked about participant's reaction *Mytern* generally and whether they were aware of any changes that may have taken place as a result of the intervention. The second section explored the student's response to the initial DVD presentation and the *Mytern* Mini Manual. This was followed by third section with questions relating to the SMS's and the extent of their impact. The fourth section asked students if they had passed the skill onto others and prompted them to provide examples. The final section asked for changes and recommendations to the intervention, giving students the opportunity to provide both positive and negative feedback for the study. This format was first trialled with a supervisor who was also receiving the SMS, so was familiar with the intervention. It was not his answers that were of interest, but the researcher's ability to interview and the appropriateness of the questions. At the conclusion of the interviews within the study, participants were able to ask any questions relating to the intervention. The interviews were recorded with the permission of the participants, transcribed and taken back to the participant for qualification/ authentication.

Table 10 *Interview Questions T1 (time 1)*

1. <i>Mytern</i> generally	How would you describe your experience
----------------------------	--

with *Mytern*?

What did you particularly like or dislike about the *Mytern* program?

Do you believe that it has changed the way you think and feel about yours and other people's emotions?

Has change occurred in the students who participated in the intervention *Mytern*?

If change did occur as a result of the intervention *Mytern*, when did this change take place?

What other factors may influence the resilience and distress levels of first year students who have participated in the *Mytern* intervention?)

2. Presentation- DVD, mini manual

What did you think of the DVD in the tutorial? What sort of impact did it have?

Did you read the mini manual? Did you offer it to anyone else?

3. SMS

Why did you choose to be part of the SMS trial?

What was the impact of the text messages?

What do you think is the ideal time to receive the text messages?

4. Passing it on

How have you applied the skill in your life? (Provide some examples).

	Did you apply the skill to your uni life? (Provide some examples).	Have you thought the skill to anyone else? How would you teach the skill to someone else? Should the <i>Mytern</i> program be introduced in other classes? Why? Orientation?
5. Change/recommendations	Are there any changes that you would like to recommend regarding any aspect of the intervention?	

7.2.2.2 Interview participants and sampling.

Purposive sampling was used to best answer the research questions (to assess the impact of the intervention) and provide maximum chance for any relationship to be observed, targeting first year students who had received the *Mytern* SMS (Punch, 2009). The goal of purposive sampling was not necessarily to represent the population, but to understand a specific phenomenon (Creswell, 2003), which in this case is the impact of the *Mytern* SMS on first year students. An SMS was sent out to those COR109 *Mytern* SMS participants who had indicated at the beginning of the intervention that they would be willing to be interviewed. After seeking the approval of the participants, it was decided that the interview would take place in one of the interview rooms in the library, which was central, sound proof and where each participant felt secure. The interviews, lasting from 30-40 minutes, were recorded on a Livescribe Pen™, which was then uploaded onto the computer and transcribed verbatim, ready for analysis.

7.2.2.3 Long term interviews.

The students who had participated in the first round of interviews (held 4 weeks after the intervention concluded) were contacted 6 months later. During this interview, the questions were much more structure and specific (see Table 11), and aimed at exploring whether the participants were still practising the skill and/or receiving the SMS. Although they were structured, there was still room to explore responses that appeared significant (Bryman, 2008). Major themes that had been generated from the first interview provided content

specific a priori codes (Schwandt, 2007); used for developing the questions and assisting the initial analysis. The duration of the long term interviews were between 10 and 20 minutes.

Table 11 *Question Sheet for the Long Term Interviews*

Receiving <i>Mytern</i> SMS	Question
	1. Have you still been receiving the <i>Mytern</i> SMS texts? Yes-go to quest. 2 No- go to quest. 11
Yes	2. Have you had a break from them, or have you stayed on them continuously?
Yes	3. Do you feel that you still need to receive the texts? Why?
<u>Yes</u>	4. Have your reactions to the texts changed over time? In what way?
<u>Yes</u>	5. Do you think your skill to tern has strengthened ? Does it continue to grow, or has it reached a plateau?
<u>Yes</u>	6. Do you use the skill outside the text time or do you feel dependent on the text to apply the skill?
<u>Yes</u>	7. Do you see it as a dependency or a support ?
<u>Yes</u>	8. What helps make the SMS effective?
<u>Yes</u>	9. Have you forward the text to anyone or shared the skill ? Why do you think this would help them? How did feel when you did it?

<u>Yes</u>	10. How long would you like to continue receiving the texts? Why? Why not?
<u>No</u>	11. Do you think your skill to turn has strengthened ? Does it continue to grow, or has it reached a plateau, even though you are not receiving the texts?
<u>No</u>	12. Would you see it as a dependency or a support if you received the <i>Mytern</i> SMS again?
<u>No</u>	13. Have you taught the skill to anyone else since you have ceased receiving the SMS?
<u>No</u>	14. Would you like to start receiving the texts again? Why? Why not?

7.3 Data Analysis

7.3.1 Quantitative data analysis.

The data analysis was guided by the following research hypotheses and questions:

H1 That the students who receive the *Mytern* intervention will have higher levels of psychological wellbeing, life satisfaction, resilience than the control group.

H2 That the students who receive the *Mytern* intervention will have lower levels of psychological distress than the control group.

RGQ1 Is there a relationship between psychological wellbeing, life satisfaction, resilience and distress levels in first year university students?

RGQ1 What other factors (demographics) may influence the psychological wellbeing, life satisfaction, resilience and distress levels of first year students who have participated in the *Mytern* intervention?

7.3.1.2 Cleaning up the data and detecting outliers.

Data was first screened for missing data, students other than first years, and outliers.

Criteria for exclusion involved removing participants:

1. who were not in their first year of university, as the study centred around the impact of the intervention *Mytern* on first year university students
2. who may have been enrolled in both courses (COR109 and COR110)- this was unlikely but possible
3. who had given themselves all high marks or low marks (ticked all the first or last column on all four scales). This was seen to indicate a lack of forethought, generating results that may not correctly reflect the participant's true state, thus representing extreme scores that may skew/influence the final results

After excluding 17 of the 107 pre and post participants (those who were not in first year), potential outliers of the remaining 90 participants were detected by looking at the distribution through creating a histogram, and generating the percentiles and outliers for each set of data/scores. Values representing the 25th and 75th percentile were created to input into the formula used for the outlier labelling rule.

Tukey (1977, as cited in Banerjee & Iglewicz, 2007) introduced a graphical procedure called a boxplot for summarizing univariate data, which included a simple rule for 'flagging observations as outliers' (p. 251). Outliers are values which lie outside the following formula (g was originally 1.5):

$$(Q1 - g(Q3 - Q1), Q3 + g(Q3 - Q1))$$

Banerjee & Iglewicz (2007) discuss how Hoaglin and Iglewicz (1987) used simulation to convert the 'boxplot outlier labeling rule' to a 'formal outlier identification testing procedure', and to 'find the value of g as a function of n, which satisfies $B(g, n) = \alpha$ '. That value of g was close to 2.2 for $B(g, n) = 0.95$ and sample sizes between 20 and 300' (Banerjee & Iglewicz, 2007, p. 252). Due to the formula's successful use with small sample sizes, it was adopted (with the modified g of 2.2) for this study.

7.3.1.3 Descriptive statistics: a Comparison of demographic and baseline statistics.

A one-way between subjects ANOVA (Analysis of Variance) was conducted to compare baseline demographics and scores, to ascertain if there were significant differences between groups (Stallman, 2008). If one or more of the basic assumptions of an ANOVA are violated, then results can become 'overly conservative or liberal' (Parra-Frutos, 2013, p. 1270). The Brown-Forsythe test was applied to help control for Type 1 errors, as it is a useful test when the variances across the different groups (as in this study) are not equal (Parra-Frutos, 2013). These results are displayed in Table 16 (Chapter 8.3) showing that the *p*-values from both the Brown-Forsythe tests were not significantly different to those calculated in the ANOVA. Whilst the Scheffe test indicated where the differences lay between the groups, the results were more conservative than those produced by the Tukey HSD test. Therefore, a Tukey HSD (honestly significant difference) was chosen to follow the ANOVA to ascertain more accurately, where these differences (if any) lay. As the group sizes were unequal, the harmonic mean of the group sizes was used. Although it is not usual to write up results that have found no statistically significant differences, in this case it was deemed important to do so, as the differences that were highlighted may have impacted on the final results.

7.3.1.4 Hypotheses testing

Descriptives for baseline and post test scores were first produced to get a feel for the data and then differences were calculated. A paired t-test was then carried out to see if the hypothesis was supported (i.e. if the intervention had created significant change within IA and ISMS groups) and whether the difference was sampling error or due to the influence of the intervention. (Refer to Chapter 8.4 and 8.5)

A one-way ANOVA was used to comparing the means of the three groups and detect differences, as multiple t-tests can produce Type I errors; checking that the results were not just the result of normal variances or error in measurement of the data and controlled the familywise error (Muijs, 2011). This then reduced the probability of incorrectly rejecting the null hypothesis for any of the pairwise comparisons.

An important assumption of ANOVA is the homogeneity of variance (Page, Braver, & Mackinnon, 2003) so the Levene's test was used to test the homogeneity of variance by

testing the null hypothesis; where the differences experienced by each group was the same. The Brown-Forsythe test and Welch tests were also used, as the use of the Levene test when variances are not equal has been questioned (Glass & Hopkins, 1996). The Brown-Forsythe test is more robust than the Levene's test, as it uses the deviations from the median rather than the mean; helps to control for Type 1 errors; and is a useful test when the variances across the different groups (as in this study) are not equal (Parra-Frutos, 2013). With the ISMS group having such a large variance when compared to the other two groups, both the Browns-Forsythe and the Welsh's *F* test were used to ascertain homogeneity; again due to the large variance (Field, 2013).

Planned contrasts are chosen over post hoc tests when directional hypotheses are involved. As both hypotheses were directional (that scores will either increase or decrease as a result of the intervention), planned contrasts were applied (Field, 2013). Planned contrasts were then conducted to test the relevant hypotheses that were predicted a priori, helping to control the familywise error (Page, et al., 2003). Two contrasts were investigated: Contrast 1: C vs. IA & ISMS; and Contrast 2: IA vs. ISMS. (See Figure 17)

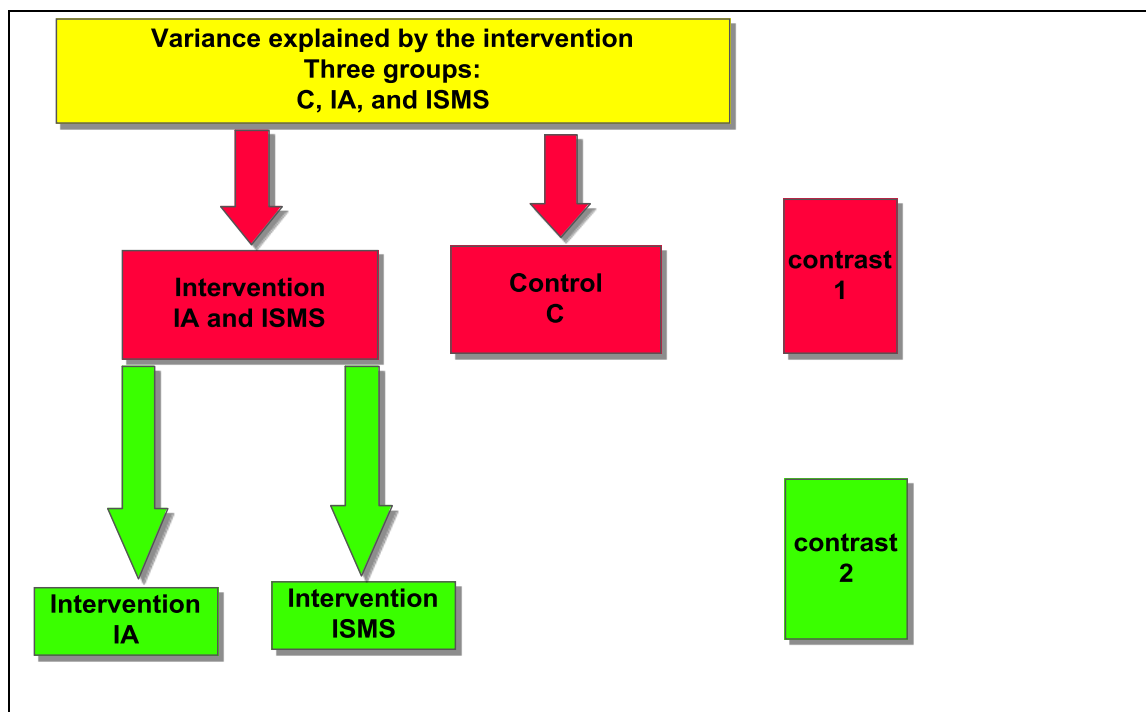


Figure 17: Planned contrasts

7.3.1.5 Correlations.

Scatterplots were used to explore the linear relationships between hypothesised results before deciding on which correlation test to apply. For a positive correlation, FS difference and SWLS difference were chosen; and for a negative correlation, CD-RISC difference and K-10 difference were used. As neither scatterplot demonstrated a strong linear correlation (see Figure 8), it was decided to run a non-parametric equivalent; the Kendall's tau. This is a non-parametric test which is appropriate for small data sets, and is a better estimate of the correlation in the population than Spearman's rho (Field, 2013). (See Chapter 8.6)

7.3.2 Qualitative data analysis.

The aim of the interviews was to listen to the voices of individual participants, recording their personal reactions to the intervention. This included both their reaction and suggestions to the physical components of the intervention (the blog, booklet, DVD and SMS), other factors that may influence student's psychological wellbeing, satisfaction with life, resilience and distress levels, as well as any change that may have occurred as a result of the intervention. The following research questions guided the data analysis:

RGQ2. What other factors may influence the psychological wellbeing, satisfaction with life, resilience and distress levels of first year students who have participated in the *Mytern* intervention?

RGQ3. Does the delivery of the intervention (mini manual, video-based or SMS) impact the psychological wellbeing, satisfaction with life resilience and distress levels in first year university students?

RGQ4. Has change occurred in the students who participated in the intervention *Mytern*?

RGQ5. If change did occur as a result of the intervention *Mytern*, what made this change take place?

As outline earlier (Chapter 5.2), pragmatism was adopted as the worldview for this research. With pragmatism comes the flexibility to adopt the best methods necessary to answer the research question. In order to provide a more 'detailed and nuanced account of one particular theme, or group of themes, within the data' (Braun and Clarke, 2006, p.83), a

thematic approach towards the qualitative data analysis was chosen. Braun and Clarke (2006) argue that thematic analysis also possesses the flexibility of pragmatism, as it is not wedded to any pre-existing theoretical framework; has the potential to provide a rich and detailed, yet complex account of data; can reflect reality and unpick or unravel the surface of 'reality'; and should be considered a foundation method for qualitative analysis. Not only does pragmatism support the adoption of thematic analysis within the study, the interpretivist perspective also combines well, as it is concerned with issues of 'human choice and meaning' creating an interpretive description that taps thematic 'patterns' and 'commonalities' (Erickson, 1984). In order to bring rigor to thematic analysis, Braun and Clarke (2006) devised a 6 phase matrix (see Table 13) which provided the framework for the qualitative data analysis. The analysis will be outlined in detail in Chapter 9.

Table 12 *Phases of thematic analysis*

Phase	Process
1. Familiarisation	Transcribed data. Immersion. Read and reread data, making initial notes on LHS of transcript.
2. Generating initial codes	Initial codes (136) were written on the RHS of the transcript, highlighting interesting features. These codes were then entered onto an Excel spreadsheet against the relevant participant
3. Searching for themes	Codes were then collated into potential themes gathering all data relevant to each potential theme.
4. Reviewing themes	Themes were checked to see if they worked in relation to the coded extracts and the entire data set, generating a thematic map of the analysis
5. Defining and	Ongoing analysis to refine the specifics of each theme, and the

naming themes	overall story that the analysis tells, generating clear definitions and names for each theme
6. Producing the report	Final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis

Creswell (2007) presents a data analysis spiral which is similar to the thematic approach chosen, as it involves organising the data, perusing the data in order to become familiar; identifying general categories and themes; before integrating it into a final report.

Thematic analysis was adopted for both the initial interviews and the long term interviews. However, the approaches were different as each data set was driven by slightly different aims. The initial interviews predominantly used inductive coding (with some theoretical coding based on the literature), as the aim was for the codes to be generated from the data (see Chapter 9.2 – 9.6). The long term interviews were driven by the interview questions, so were coded for specific questions (see Chapter 9.7). Therefore a more theoretical approach was taken, leaving room for emergent inductive themes (Braun & Clarke, 2006). As the thematic analysis was quite extensive, it has been presented fully in Chapter 9.

7.4 Pilot Study

In order to test the validity of the project, a pilot study was conducted in Semester One, 2012 (see Chapter 6). In keeping with a quasi-experimental approach, a non-equivalent control group design was followed (Robson, 2002), where eleven tutorial groups from a core Health Promotion course participated on a voluntary basis in the study (six intervention and five control groups). The inclusion of similar control groups helped to control the threats to internal validity such as history, selection, and maturation (Robson, 2002). Purposeful homogeneous sampling, which sets quasi experimental apart from experimental design, was adopted as the study required the specific participation of the naturally occurring treatment and control group of university students within the same course (Punch, 2009). To avoid extraneous variable influences, covariates (such as age, gender, first in family, course of

study) were anticipated and catered for within the questionnaire design. Details of the pilot study were outlined in the Chapter 6.

7.5 Main Study

On the basis of the pilot study and its outcomes, the final design of the main study was modified before its implementation during Semester 2, 2012. The main study involved approximately 1500 participants from two compulsory first year courses; 800 students (27 tutorials) in the intervention group and 700 students in the control group. (See Appendix S for Project Information Sheets – intervention and control). As not all of the 27 tutors in the intervention group attended the pre-course meeting, 16 were given a ten minute workshop (delivered by the researcher) outlining the *Mytern* program. They were encouraged to apply the skill themselves, and given the chance to be involved in the study as well. This involved taking the pre- and post-test, along with applying the skill of *Mytern* throughout the Semester. The inclusion of a similar control group helped to control the threats to internal validity such as history, selection, and maturation (Robson, 2002). The students in the control group were given the choice of participating in the study through answering an in-lecture questionnaire during their week two and week 10 lectures.

As *Mytern* was embedded within the curriculum, all students within the compulsory first year course received the skills included in the program. The DVD shown in the intervention tutorials was created to align with the course content; based on communication and thought. Students attending the first tutorial in week 2 (week 1 was a lecture) completed the pre-test questionnaire before receiving a 4 minute tutorial via DVD on the application of *Mytern*, as well as being offered a *Mytern* Mini Manual outlining various aspects of the skill. However, their involvement in the study aspect of the program was purely voluntary. Participants who agreed to take part in the study were asked to code their questionnaires using the first two letters of their name and their mother's name, followed by their birth year. As there were two rounds of questionnaires (pre and post intervention), it was important that the respondents chose a code that they would remember, as their results need to be compared and analysed. Using a code devised by the participants implies that the researcher was not able to identify individuals within the study, thus ensuring the anonymity of the participants. The initial consent form included consent for their participation in the questionnaire, their mobile number if they wished to receive the daily

SMS, and also consent for participation in a semi-structured interview at the conclusion of the study.

7.6 Ethics

A major component of the study was seeking ethics approval, which was given for both the pilot study and full study (see Appendix T). Any amendment to the initial research proposal and ethics application that emerged as a result of the pilot study was submitted to the ethics department, where approval was sought prior to the changes being implemented.

Ethical considerations were paramount in a study which involved the reflection of the thought processes of its participants. Therefore, over and above the ethical guidelines prescribed by the university which included informed consent, respect, privacy and confidentiality, the Australian Psychological Society's (APS) code of ethics (APS, 2013) was also taken into consideration. The Code is built on three general ethical principles which include respect for the rights and dignity of people and peoples, propriety and integrity.

It was anticipated that there would be a low risk of psychological harm (anguish, distress, emotional distress) whilst answering the questionnaires and/or being interviewed. As the recruitment process was voluntary in relation to both the questionnaires and interviews, and potential participants were carefully informed about the area of research, it was anticipated that the participants would feel comfortable. There was a possibility that participants may have become upset or distressed in regard to their personal experiences or situation as a result of answering the questions devised for the interviews and focus groups. Although the possibility was slight, it still had to be taken into consideration, so the following measures were considered:

1. All interviews were conducted at a location where the participant felt secure (a room in the library) and time of the participant's own choice. This was designed to ensure that the interviewee is as relaxed and comfortable as possible, in surroundings that they know best within the university.

2. It was emphasised that participants were free to withdraw at any stage of the questionnaire or interview process, especially if it was making them feel uncomfortable.

Also, they were also be informed that they could later withdraw any or all of the information collected during either process.

3. All interviews were conducted by the researcher who had considerable experience dealing with clients with high stress levels having run a stress management clinic. The researcher had also been involved in creating and delivering a Personal Development Program for Year 11 and 12 students at an Anglican College. Should any distress arise, they were able to direct any distressed person to the student services and counselling available at USC.

4. Should any distress arise as a result of the questionnaire, again the distressed person would be directed to the student services and counselling available at USC.

Under the APS general principle of integrity, an ethical issue arose out of the pilot study. One of the participants, in reply to her daily text message, texted back her feeling of powerlessness regarding her son's sickness and that she was a bit fed up. Knowing the importance of not getting involved on a personal level, I took advice and texted back asking if she knew where to go in the university if she needed someone to talk to- directing her to the student services and counselling available at USC. She texted back saying that she was fine and that she was 'just venting'.

The data collected from the study (questionnaires, transcripts, CD's) was kept in a secure, locked filing cabinet off campus for the duration of the study, and for a following five years in accordance with the General Retention and Disposal Schedule for Queensland Universities (Queensland State Archives), when they will be destroyed. The benefits that this research would bring to the development of preventative measures that help students self-manage their stress levels were believed to far outweigh the risk taken within this study.

Having outlined the methodology, paradigms and methods, this chapter aims to introduce the methods adopted for the data collection, and the forms of analysis used for each. The research setting and its participants give context to the research, before discussing the timing of the data collection and the instruments and methods used. Reasons for choosing the surveys that would best answer the research questions are given, along with their validity and reliability. The inclusion of semi-structured interviews, their development and

the participants involved, is addressed. The analysis of the quantitative and qualitative data is outlined, prior to summarising the structure behind the pilot and main study. The chapter concludes with importance of ethical considerations.

7.7 Conclusion

This chapter presented the data collection and analysis methods for the quantitative and qualitative data. It revealed how the instruments chosen would help answer the hypotheses and demonstrated how the semi-structured interviews would add depth to the study. The pilot and main studies were outlined, before highlighting the importance of ethical considerations. The following chapter outlines the first aspect of the third section of the thesis, which presents the findings from the study. Chapter 8 addresses the analysis and results of the quantitative data. The analysis of the qualitative data is outlined in Chapter 9 before going on to presents the results of the initial round of interviews in Chapter 10, and the long term interviews in Chapter 11.

Chapter 8 Quantitative Analysis and Results

With modifications made to the intervention as a result of the pilot study, the main study was then carried out. The next four chapters will present the data analysis and results from that study. The first of these chapters will be concerned with the quantitative analysis and data resulting from the data collected from the surveys [FS (Flourishing Scale), SWLS (Satisfaction With Life Scale), CD-RISC (resilience scale) and K-10 (psychological distress scale)]. Participants in the study as well as outliers will be discussed before comparing baseline scores and demographics of the three groups (see 8.1 for group allocation). Having established the baseline data, the first of the hypotheses is presented, along with the associated analysis and results. The second hypothesis is then addressed before going on to answer two of the appropriate guiding research questions relating to demographic and scale correlates.

8.1 Participants

Two compulsory first-year courses/subjects, incorporating students from every faculty, were selected for the study; COR110 (Innovation, Creativity and Entrepreneurship) as the control and COR109 (Communication and Thought) as the intervention group. Out of a potential 700 students in the control group, those who completed the questionnaires numbered 120 pre-test; with 54 completing both pre and post-test. The completion rate for the intervention group was equally low. Out of a cohort of 600 students, 250 completed the pre-test; with only 53 completing both the pre and post tests (See Table 13). As the primary aim of the study was to measure change over time, only the participants who completed both the pre and post-tests ($n = 107$) were included in the analysis. (See Appendix V for final results).

Table 13 *Control and Experimental Sample Groups*

	Control Group	Experimental Group
Sample	700	600
Pre test	120	250
Post test	54	53

The results were divided into three different groups, as there were three separate influences/effects. The first group represented the control group, who received no

intervention and were from the COR110 course (C). The second and third groups formed the experimental group. The second group consisted of students who had attended the tutorial, seen the DVD and received the booklet in COR109, but had not signed up for the SMS (IA). The third group were the participants who had attended the tutorial, seen the DVD and received the booklet in COR109, and also elected to receive the daily *Mytern* SMS (ISMS). These will be referred to as:

1. C=Control
2. IA= Intervention consisting of DVD and booklet)
3. ISMS=Intervention consisting of DVD, booklet, and daily *Mytern* SMS

8.2 Cleaning up the Data and Detecting Outliers

Data was first screened for missing data, students other than first years, and outliers. Criteria for exclusion involved removing participants is explained in Chapter 7.

After screening the data, 17 of the 107 pre and post participants were excluded. The reason for all 17 exclusions was that they didn't meet the first criteria of being in first year. The other 2 criteria were not present in the data.

Potential outliers of the remaining 90 participants were detected by looking at the distribution through creating a histogram, and generating the percentiles and outliers for each set of data/scores. Values representing the 25th and 75th percentile were created to input into the formula used for the outlier labelling rule (see Chapter 7.3.1.2).

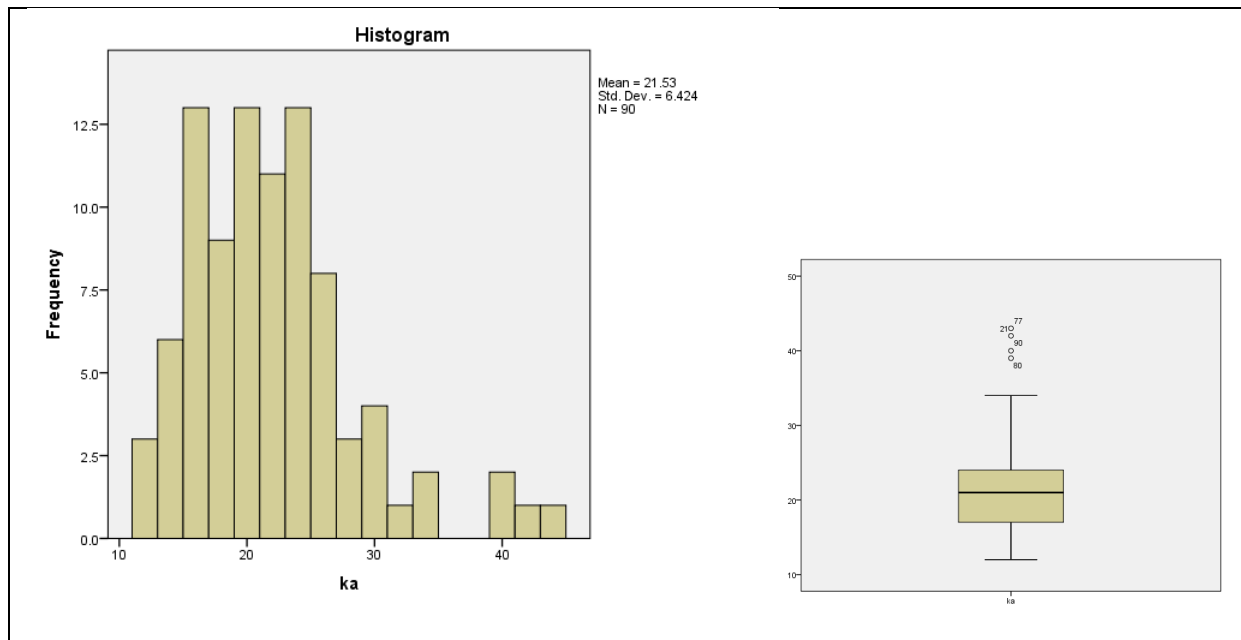


Figure 18. K-10 T1 indicating outliers

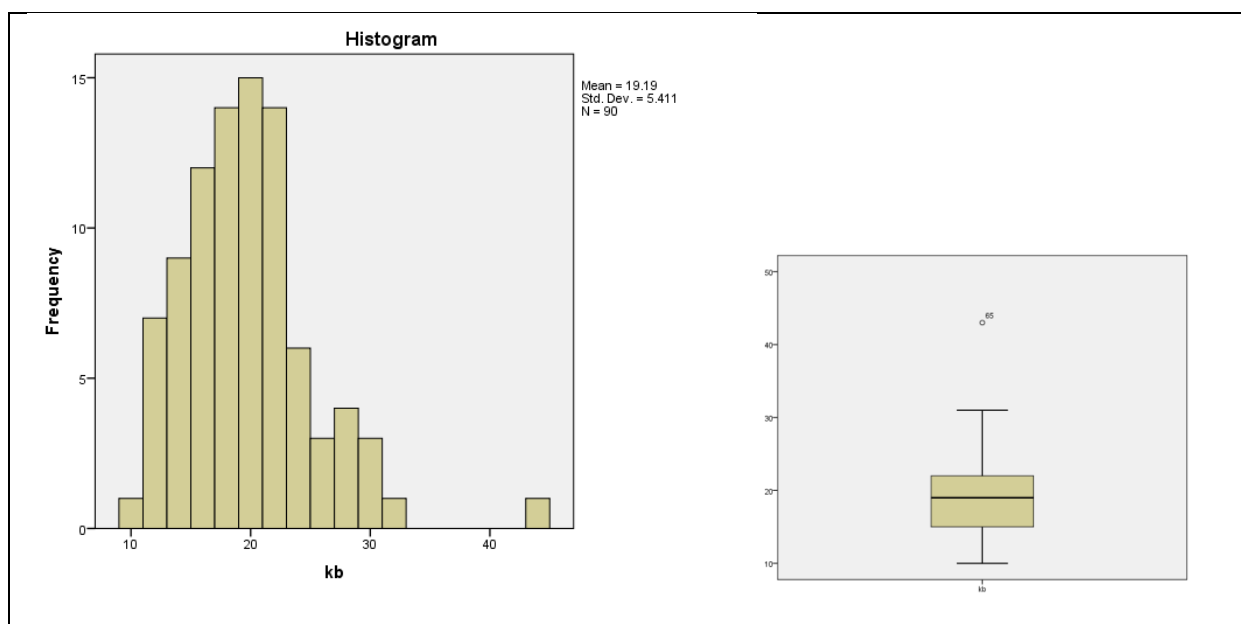


Figure 19. K-10 T2 indicating outliers

As a result of applying the formula to all pre and post scores, the only outliers found were in the K-10 T1 and T2 scores: ID77(43), ID21(42) in T1; ID65(43) in T2 (Table 7.1). (See Table 14)

Table 14 *Outlier Parameters*

	T1		T2	
FS	17.6	(>44.6, <25)	13.75	(>65, <28.25)
SWLS	17.6	(>44.6, <1.4)	17.6	(>46.6, <3.4)
K-10	16.5	(>40.75, <.25)	15.4	(>37.4, <.6)
	2 outliers 42,43		1 outlier 43	
CD-RISC	18.15	(>48.4, <3.85)	15.4	(>45.65, <9.6)

In checking the T1 scores for ID21, ID65 and ID77, the calculation for each test was correct, indicating that those students may have been experiencing high levels of distress at the time of being surveyed. A decision was made to keep them in, as it was felt that these students were representative of university student populations (Pimentel & Cova, 2011; Reavley & Jorm, 2010; Stallman, 2008, 2010; Stallman & Shochet, 2009; Vaez & Laflamme, 2008; Wong, et al., 2006), and the impact that it made on the results when they were excluded was not seen to be significant (see Table 15).

Table 15 *K-10 Scores With and Without Outliers*

K-10	Outliers included: Grand <i>M/SD</i>	Outliers excluded: Grand <i>M/SD</i>
Baseline score	21.53 (± 6.4)	21.06 (± 5.6)
Post test score	19.19 (± 5.4)	18.92 (± 4.8)

8.3 Descriptive Statistics: A Comparison of Demographic and Baseline Statistics

A one-way between subjects ANOVA was conducted to compare baseline demographics and scores, to ascertain if there were significant differences between groups (Stallman, 2008). If one or more of the basic assumptions of an ANOVA are violated, then results can become 'overly conservative or liberal' (Parra-Frutos, 2013, p. 1270). The Brown-Forsythe test was applied to help control for Type 1 errors, as it is a useful test when the variances across the

different groups (as in this study) are not equal (Parra-Frutos, 2013). These results are displayed in Table 16, showing that the p -values from both the Brown-Forsythe tests were not significantly different to those calculated in the ANOVA. Whilst the Scheffe test indicated where the differences lay between the groups, the results were more conservative than those produced by the Tukey HSD test. Therefore, a Tukey HSD (honestly significant difference) was chosen to follow the ANOVA to ascertain more accurately, where these differences (if any) lay. As the group sizes were unequal, the harmonic mean of the group sizes was used. Although it is not usual to write up results that have found no statistically significant differences, in this case it was deemed important to do so, as the differences that were highlighted may have impacted on the final results.

Table 16 *Mean, SD and p-values of Demographics and Scores of All Groups at Baseline*

Variable	C		IA		ISMS		Between groups	
	$n=42$		$n=29$		$n=19$		p value	
	M	SD	M	SD	M	SD	ANOVA/ Browns Forsythe	
Age	22	± 6.3	21	± 11.7	25.7	± 11.9	0.62	0.11
Gender	F= 57%		F=65%		F=58%		0.76	0.76
	M=43%		M=35%		M=42%			
FIF (first in family)	60%		41%		47%		0.31	0.31
FS (T1)	47.09	± 6.06	46.00	± 4.97	43.42	± 6.3	0.08	0.08
SWLS (T1)	23.71	± 5.17	22.86	± 5.57	20.74 ± 6.97		0.2	0.23
K-10 (T1)	21.17	± 6.12	20.13	± 4.72	24.21	± 8.5	0.1	0.15
CD-RISC (T1)	27.24	± 6.18	27.59	± 4.54	26.00 ± 5.41		0.61	0.58
FS- Flourishing Scale, K-10 Distress, SWLS Life satisfaction, CD-RISC Resilience: (T1) baselines score								

8.3.1 Age.

There was no significant differences of mean age at the $p < .05$ level between the three groups [$F(2, 87) = 2.873, p = 0.062$]. Post hoc comparisons using the Tukey HSD test also indicated that FIF was not significant. The means for the individual groups were: C ($M=21.86, SD=6.3$); IA ($M=27.17, SD=11.7$); ISMS ($M=-25.79, SD=11.9$). However, the difference between C and IA was approaching significant ($p=.063$). Although the results indicated that the groups were not significantly different in age, it must be noted that the means of both the IA and ISMS were higher than C. The SD also indicated a large variance in age in both these groups. These differences may have influenced the final results.

8.3.2 First in Family (FIF).

There was no significant differences in FIF at the $p < .05$ level between the three groups [$F(2, 87) = 1.189, p = 0.309$]. Post hoc comparisons using the Tukey HSD test also indicated that FIF was not significant. The means for the individual groups were: control ($M= .60, SD=.49$) intervention ($M=.41, SD=.50$) SMS group ($M=-.47, SD=.51$). Although the results indicated that the groups were not significantly different in FIF, it must be noted that the control group had a greater percent of FIF than the intervention and SMS groups, which may have influenced the results.

8.3.3 Gender.

There was no significant difference in gender at the $p < .05$ level between the three groups [$F(2, 87) = .265, p = 0.768$]. Post hoc comparisons using the Tukey HSD test also indicated that gender was not significant. The means for the individual groups were: control ($M= .43$ (male), $SD=.50$) intervention ($M=.34$ (male), $SD=.48$) SMS group ($M=.42$ (male), $SD=.50$). Although the results indicated that the groups were not significantly different in gender, it must be noted that the intervention group had a smaller percentage of males than in the control and SMS groups, which may have influenced the results.

8.3.4 Flourishing Scale (FS) baseline.

A one-way between subjects ANOVA was conducted to compare the difference in baseline FS scores, indicating a participant's level of flourishing. There was no significant difference in FS scores at the $p < .05$ level between the three groups [$F(2, 87) = 2.599, p = 0.08$]. Post hoc comparisons using the Tukey HSD test also indicated that the difference in the FS scores was

not significant. The means for the individual groups were: control ($M= 47.07$, $SD=6.0$) intervention ($M=46.00$, $SD=4.9$) SMS group ($M=43.42$, $SD=6.3$). Although the results indicated that the groups were not significantly different in baseline FS scores, it must be noted that ISMS was lower than both C and IA. The difference between IA and ISMS (Tukey HSD) was also approaching significant ($p= .064$) which may have influenced the results. When compared with other university cohort studies in the USA and Singapore, the grand mean and SD at baseline for FS was similar. (See Table 17)

Table 17 *Comparison of Baseline FS with Descriptive Statistics for Flourishing Scale by Location with College Populations (Diener, et al., 2010)*

Location	N	M	SD
Singapore	181	42.6	6.4
East Carolina	168	48.1	4.9
Virginia	116	43.2	7.8
New Jersey	86	46.6	5.0
Illinois	74	45.6	6.4
California	64	43.8	6.0
Present study	90	45.96	5.8

8.3.5 Satisfaction with Life Scale (SWLS) baseline.

A one-way between subjects ANOVA was conducted to compare the differences in baseline SWLS scores, indicating the participant's level of life satisfaction. There was no significant difference in SWLS scores at the $p<.05$ level between the three groups [$F(2, 87) = 1.638$, $p = 0.20$]. Using the Scheffe test, contrasts between the three groups were investigated, indicating that the $p = 0.20$ again represented the difference between C and ISMS groups. Post hoc comparisons using the Tukey HSD test also indicated that the differences in the SWLS scores were not significant. The means for the individual groups were: C ($M= 23.71$,

$SD=5.7$); IA ($M=22.86$, $SD=5.5$); ISMS ($M=20.74$, $SD=6.9$). Although the results indicated that the groups were not significantly different in baseline SWLS scores, it needs to be noted that ISMS were again lower than both C and IA, which may have influenced the results. When compared with other university cohort studies around the world, the grand mean and SD at baseline for SWLS was similar (See Table 18).

Table 18 *Comparison of Baseline SWLS with Descriptive Statistics for the Satisfaction With Life Scale by Location with College Populations (Pavot & Diener, 2008).*

Location	<i>N</i>	<i>M</i>	<i>SD</i>
Spanish university students	161	24.4	5.6
Japanese college students	78	21.0	5.5
Korean college students	205	20.4	4.9
African American college students (USA)	114	22.4	6.4
Female college students (USA)	150	24.2	6.5
French Canadian college students	144	25.4	5.8
Present study	90	22.81	5.99

8.3.6 Psychological distress (K-10) baseline.

A one-way between subjects ANOVA was conducted to compare the differences in baseline K-10 scores, indicating participant's level of psychological distress. There was no significant difference in K-10 scores at the $p<.05$ level between the three groups [$F(2, 87) = 2.310$, $p = .105$]. Using the Scheffe test, contrasts between the three groups were investigated, indicating that the $p = 0.1$ represented the difference between IA and ISMS groups. Post hoc

comparisons using the Tukey HSD test also indicated that the difference in the K-10 scores was not significant. The means for the individual groups were: C ($M= 21.17$, $SD=6.1$); IA ($M=20.31$, $SD=4.7$); ISMS ($M=24.21$, $SD=6.4$). Although the results indicated that the groups were not significantly different in baseline K-10 scores, it should be noted that the ISMS group was higher (indicating that the participants were experiencing greater psychological distress) than both C and IA. Also, the difference between IA and ISMS (Tukey HSD) was approaching significant ($p= .098$) which may have influenced the results.

When compared with other Australian university cohort studies and the general population of Australia, the grand mean at baseline for K-10 was similar (Table 19). Investigating the individual group results it is the ISMS group that stands out as having the highest distress levels, with 21% experiencing very high levels, as opposed to 5% and 7% in the other groups. Although the ISMS group may seem extreme, in another study of Australian tertiary students (Stallman, 2010) involving 6,479 participants, a similar percentage were found to be in the very high range (19.2%).

Table 19 *K-10 Comparison of Baseline Scores Using the Cut-offs that were Used in an Australian Study Involving Tertiary Students (Stallman, 2010)*

Group	K-10 Baseline data M/SD	0-15 (low)	16- 21(moderate)	22-29 (high)	30-50(very high)
C	21.17±6.12	19%	38%	38%	5%
			76% (moderate-high)		
IA	20.13±4.72	7%	52%	34%	7%
			86% (moderate-high)		
ISMS	24.21±8.5	11%	33%	35%	21%
			68% (moderate-high)		

Combined groups	21.53±6.4	13%	42%	36%	9%
(C,IA and ISMS)	78%(moderate-high)				
Published data	*20.24±6.14	*24.4%	*65% (moderate-high)		*10.6%
(tertiary student population)		**16.1	**64.7 % (moderate-high)		**19.2%
Published data	***14.2	***68%	***29%	***3%	
(general population)					

*(Ryan, et al., 2010) **(Stallman, 2010) *** (Andrews & Slade, 2001)

8.3.7 Resilience scale (CD-RISC) baseline.

A one-way between subjects ANOVA was conducted to compare the difference in baseline CD-RISC scores indicating a participant's level of resilience. There was no significant difference in CD-RISC scores at the $p < .05$ level between the three groups [$F(2, 87) = .498, p = 0.609$]. Post hoc comparisons using the Tukey HSD test also indicated that the difference in the CD-RISC scores was not significant. The means for the individual groups were: C ($M = 27.24, SD = 6.1$) IA ($M = 27.59, SD = 4.5$) ISMS ($M = 26.00, SD = 5.4$). Although the results indicated that the groups were not significantly different in baseline CD-RISC scores, it should be noted that ISMS were again lower (this time marginally) than both C and IA, which may have influenced the results.

When compared with other university cohort studies around the world, the grand mean and *SD* at baseline for CD-RISC was similar (See Table 20).

Table 20 *Comparison of baseline CD-RISC with descriptive statistics for the CD-RISC by location with college populations*

Location	<i>N</i>	<i>M</i>	<i>SD</i>
USA College undergraduates (Campbell-Sills et al., 2007)	131	27.2	5.8
Canadian Psychology students (Shlomi, 2010)	220	28.0	5.7
Spanish university first year students mean age 20.1 (18-30) Notario-Pacheco et al (2011)	681	27.4	6.4
Present study	90	27.09	5.5

Having established that the baseline scores and demographics for the three different groups weren't significantly different, the impact of the intervention was then analysed. However, it is important to note that there were areas where a difference was detected, as outlined in Table 21.

Table 21 *Summary of Differences Detected in Baseline Scores and Demographics*

Age:	Means; C (21) and IA (27); IA and ISMS SD was high (11)
FIF	C had greater percentage of FIF
Gender	IA had a smaller percentage of males
FS, SWLS, CD-RISC	scores were lowest in ISMS
K-10	scores were highest in ISMS

Having compared the baseline scores and demographic statistics of each group, the hypotheses were then investigated. Assessing the impact of the intervention involved a comparison of each groups' overall change, detecting whether students levels of

psychological wellbeing, life satisfaction, resilience had increased, remained the same or decreased; thus addressing the first hypothesis. Any change in psychological distress is discussed when hypothesis 2 is addressed.

8.4 Hypothesis 1

This section was guided by the first hypothesis: that the students who receive the *Mytern* intervention will have higher levels of psychological wellbeing, life satisfaction, and resilience than the control group. Descriptives for baseline and post test scores were first produced to get a feel for the data and then differences were calculated.

A paired t-test was then carried out to see if the hypothesis was supported (i.e. if the intervention had created significant change within IA and ISMS groups) and whether the difference was sampling error or due to the influence of the intervention.

The section is organised in scales (FS, SWLS, and CD-RISC), so that an overall picture of the changes experienced by each group within that scale can be portrayed and compared.

A one-way ANOVA was used to comparing the means of the three groups and detect differences, as multiple t-tests can produce Type I errors; thus checking that the results were not just the result of normal variances or error in measurement of the data, controlling the familywise error (Muijs, 2011). This then reduced the probability of incorrectly rejecting the null hypothesis for any of the pairwise comparisons.

An important assumption of ANOVA is the homogeneity of variance (Page, et al., 2003) consequently the Levene's test was used to test the homogeneity of variance by testing the null hypothesis; that the difference experienced by each group was the same. The Brown-Forsythe test or Brown-Forsythe F-ratio (1974) and Welch tests were also used, as the use of the Levene test when variances are not equal has been questioned (Glass & Hopkins, 1996). The Brown-Forsythe test is more robust than the Levene's test, as it uses the deviations from the median rather than the mean; helps to control for Type 1 errors; and is a useful test when the variances across the different groups (as in this study) are not equal (Parra-Frutos, 2013). With the ISMS group having such a large variance when compared to the other two groups, both the Browns-Forsythe and the Welsh's *F* test were used to ascertain homogeneity (Field, 2013).

Planned contrasts are chosen over post hoc tests when directional hypotheses are involved. As both hypotheses were directional (that scores will either increase or decrease as a result of the intervention), planned contrasts were applied (Field, 2013). They were conducted to test the relevant hypotheses that were predicted a priori, helping to control the familywise error (Page, et al., 2003). Two contrasts were investigated: Contrast 1: C vs. IA & ISMS; Contrast 2: IA vs. ISMS. (See Figure 20)

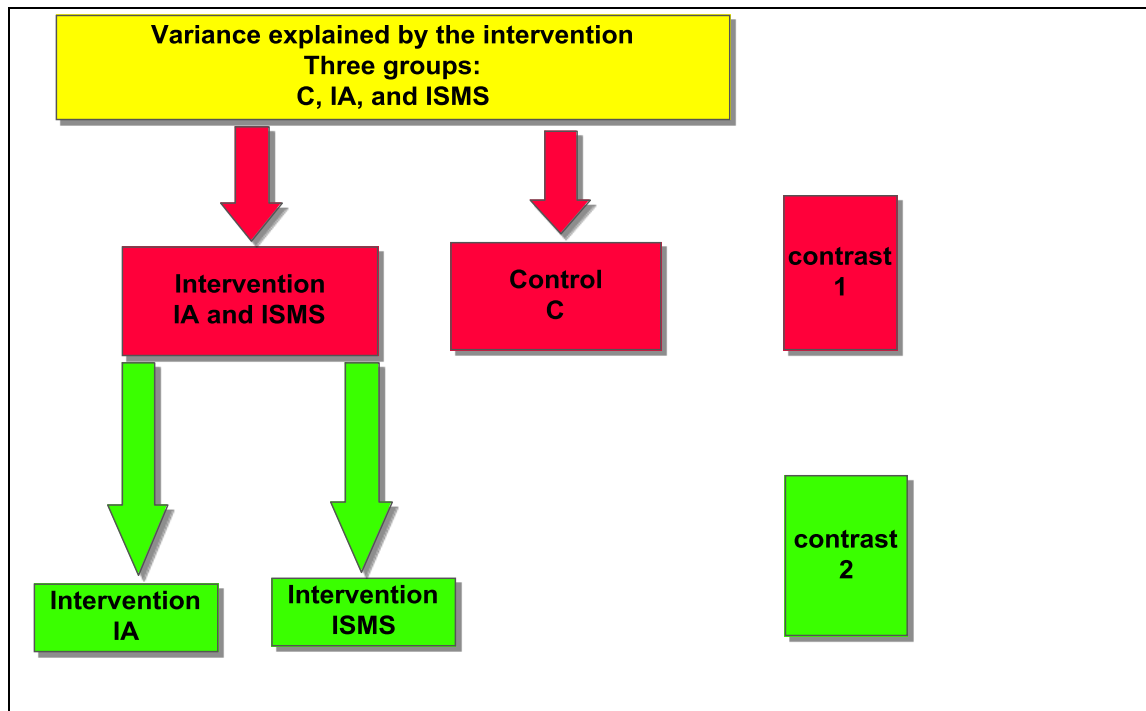


Figure 20. Planned contrasts

8.4.1 Differences in Flourishing Scale (FS).

A one-way analysis of variance (ANOVA) was conducted to evaluate the relationship between the intervention and the change in FS, determining whether there were any significant differences between the means of three groups; testing the null hypothesis. The independent variable (the intervention) included three levels: C, IA and ISMS. The dependent variable was the difference calculated between baseline and post test scores. The ANOVA [$F=7.9$; $p = .001$], indicated a significant difference between at least two of the groups therefore accepting the alternative hypothesis.

Levene's test for homogeneity of variance was $F(2,87)=1.1$, $p=.336$. As the p -value was $>.05$, it appeared that homogeneity of variance was assumed. However, small sample sizes can

limit the Levene's power to detect differences, therefore the smallest and largest variances were compared (Field, 2013):

$$IA (4.34^2 = 18.83)$$

$$ISMS (5.86^2 = 34.33)$$

The ratio of these values is $34.33 / 18.83 = 1.8$ with the largest variance being nearly twice the size of the smallest variance. Therefore, with the differences in group size and variation which limit the power of the Levene's test, it may be judicious to assume that the homogeneity of variance was violated and calculate the Brown's–Forsythe and Welch's F-ratio.

As shown, the assumption of homogeneity of variance was violated; therefore the Browns-Forsythe F-ratio was reported. There was a significant effect of the intervention on the flourishing scores, $F(2, 51.4) = 7.0, p = .002$. Similarly, with the outcomes of the Welch F-ratio, there was a significant effect of on the flourishing scores, $F(2, 42.7) = 5.6, p = .007$.

The two planned comparisons revealed that there was significant difference between the control group and the intervention group (C vs. IA & ISMS) and significant difference between IA and ISMS, for both assumed and not assumed equal variances (see Table 22).

Table 22 *Contrast Tests FS Difference*

Contrast			Value of Contrast	Std. Error	t	df	Sig. (2-tailed)
fdiff	Assume equal variances	C/IA&ISMS	5.76	2.026	2.844	87	.006*
		IA/ISMS	4.43	1.400	3.162	87	.002*
	Does not assume equal variances	C/IA&ISMS	5.76	2.084	2.765	66.471	.007*
		IA/ISMS	4.43	1.569	2.821	30.701	.008*

*Significant at $p < .05$

The changes that each group experienced were displayed on the salutogenic health continuum (see Figure 21). The differences that were recorded in the C ($0.64 \pm 4.44; p = .354$) and IA ($1.31 \pm 4.34; p = .115$) groups were insignificant at $p > .05$; therefore was consistent with assuming the null hypothesis.

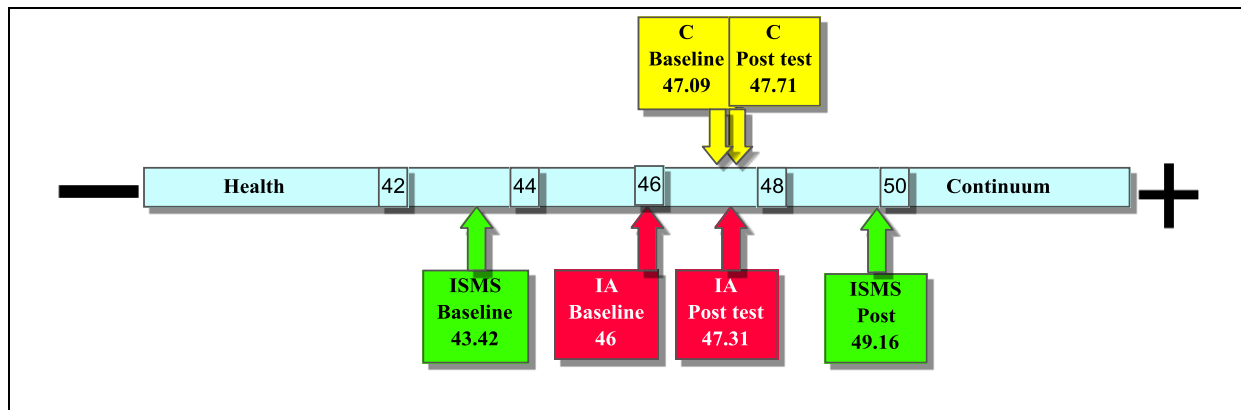


Figure 21. FS Baseline and post test results represented on the health continuum

However, the change within the ISMS (5.74 ± 5.86 ; $p = .000$) was significant, therefore the alternative hypothesis was accepted. This result indicates that the intervention which included the DVD, mini-manual and daily SMS had a significant positive impact on the ISMS flourishing scores, whereas the intervention which included the DVD and mini-manual did not. (See Table 23)

Table 23 FS differences with SE (standard error) and CI (confidence interval)

Difference	Control	Intervention	SMS	p -value
SE	Mean/SD/ p -value ^a	Mean/SD/ p -value ^a	Mean/SD/ p -value ^a	between Groups
CI				
FS diff	0.64 ± 4.44 $p = .354^a$	1.31 ± 4.34 $p = .115^a$	5.74 ± 5.86 $p = .000^{*a}$	$.001^b$ $.002^c$
Standard Error (SE)	.686	.807	1.346	
95% Confidence Interval for Mean	Lower Bound	-.74	-.34	2.91
	Upper Bound	2.03	2.96	8.56

^a differences within group (t-test) ^b differences between groups (one-way ANOVA) ^c Brown-Forsythe p -value; FS = Flourishing Scale

8.4.2 Differences in Satisfaction With Life Scale (SWLS).

A one-way analysis of variance (ANOVA) was conducted to evaluate the relationship between the intervention and the change in FS, determining whether there were any significant differences between the means of three groups; testing the null hypothesis. The independent variable (the intervention) included three levels: C, IA and ISMS. The dependent variable was the difference calculated between baseline and post test scores. The ANOVA [$F=8.9$; $p = 000$], indicated a significant difference between at least two of the groups therefore accepting the alternative hypothesis.

Levene's test for homogeneity of variance was $F(2,87)=1.43$, $p=.244$

As the p -value was $>.05$, it appeared that homogeneity of variance was assumed. However, with the sample size being small which limits the Levene's power to detect differences, the smallest and largest variances were compared (Field, 2013):

$$IA (3.41^2 = 11.62)$$

$$ISMS (5.16^2 = 26.62)$$

The ratio of these values is $26.62/11.62 = 2.3$ with the largest variance being more than twice the size of the smallest variance. With differences in group size and variation limiting the power of the Levene's test, it was prudent to assume that the homogeneity of variance was violated and therefore the Brown's–Forsythe and Welch's F -ratio was calculated.

As shown, the assumption of homogeneity of variance was violated; therefore the Brown's–Forsythe F -ratio is reported. There was a significant effect of the intervention on the life satisfaction scores, $F(2, 54.6) = 8.6$, $p=.001$. Similarly, with the outcomes of the Welch F -ratio, there was a significant effect on the life satisfaction scores, $F(2/44.3)=6.8$, $p=.003$.

The two planned comparisons revealed that there was significant difference between the control group and the intervention group (C vs. IA & ISMS) and significant difference between IA and ISMS, for both assumed and not assumed equal variances (see Table 24).

Table 24 Contrast Tests for SWLS Differences

Contrast			Value of Contrast	Std. Error	t	df	Sig. (2-tailed)
SWLS diff	Assume equal variances	C/IA&ISMS	6.35	1.890	3.361	87	.001
		IA/ISMS	3.94	1.306	3.017	87	.003
	Does not assume equal variances	C/IA&ISMS	6.35	1.972	3.220	68.392	.002
		IA/ISMS	3.94	1.345	2.930	28.299	.007

The changes that each group experienced were displayed on the salutogenic health continuum (see Figure 22). The differences that were recorded in the C (0.38 ± 4.67 ; $p = .600$) group was insignificant at $p > .05$; therefore was consistent with assuming the null hypothesis.

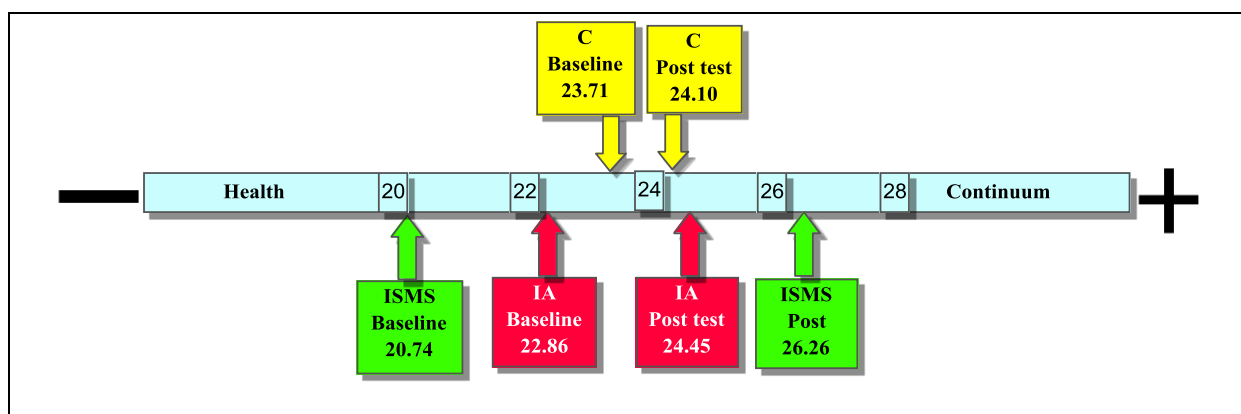


Figure 22. SWLS Baseline and post test results represented on the health continuum

The change within the IA (1.59 ± 3.41 ; $p = .010$) and ISMS (5.53 ± 5.16 ; $p = .000$) was significant, therefore the alternative hypothesis was accepted. Although both were significant, the results indicated that the intervention which included the DVD, mini-manual and daily SMS had a greater positive impact on the ISMS life satisfaction scores ($p = .000$), than the intervention which included the DVD and mini-manual ($p = .010$). (See Table 25)

Table 25 SWLS Differences with SE (standard error) and CI (confidence interval)

Difference	Control	Intervention	SMS	p-value between Group significant difference
SE	Mean/SD/	Mean/SD/	Mean/SD/	
CI	p-value ^a	p-value ^a	p-value ^a	
SWLS diff	0.38±4.67 p=.600 ^a	1.59±3.41 p=.010* ^a	5.53±5.16 p=.000* ^a	.000 ^b .001 ^c
Standard Error (SE)	.721	.635	1.186	
95% Confidence Interval for Mean	Lower Bound	-1.08	.29	3.04
	Upper Bound	1.84	2.89	8.02

^a differences within group (t-test) ^b differences between groups (one-way ANOVA) ^c Brown-Forsythe p-value ;SWLS Satisfaction With Life Scale

8.4.3 Differences in resilience scale (CD-RISC).

A one-way analysis of variance was conducted to evaluate the relationship between the intervention and the change in FS, determining whether there were any significant differences between the means of three groups; testing the null hypothesis. The independent variable (the intervention) included three levels: C, IA and ISMS. The dependent variable was the difference calculated between baseline and post test scores. The ANOVA was significant, [F =3.5; p = 033], indicating a significant difference between at least two of the groups and accepting the alternative hypothesis.

Levene's test for homogeneity of variance was $F(2, 87) = .021, p = .979$

As the p-value was $>.05$, it appeared that homogeneity of variance was assumed. However, with the sample size being small (limiting the Levene's power to detect differences) the smallest and largest variance were compared (Field, 2013):

$$\text{ISMS } (3.77^2 = 14.21)$$

$$\text{C } (4.54^2 = 20.61)$$

The ratio of these values is $20.61/14.21 = 1.45$. Although the largest variance is less than twice the size of the smallest variance; due to the differences in group size and variation which limit the power of the Levene's test, it may be judicious to assume that the homogeneity of variance was violated and calculate the Brown's–Forsythe and Welch's *F*-ratio.

As shown, the assumption of homogeneity of variance was violated; therefore the Brown's-Forsythe *F*-ratio is reported. There was a significant effect of the intervention on the resilience scores, $F(2/76.63) = 3.84$, $p = .026$. Similarly, with the outcomes of the Welch *F*-ratio, there was a significant effect on the resilience scores, $F(2/48.61) = 3.96$, $p = .025$.

The two planned comparisons revealed that there was significant difference between the control group and the intervention group (C vs. IA & ISMS) and significant difference between IA and ISMS, for both assumed and not assumed equal variances (see Table 26).

Table 26 *Contrast Tests for CD-RISC Difference*

Contrast			Value of Contrast	Std. Error	t	df	Sig. (2-tailed)
CD-RISC diff	Assume equal variances	C/IA&ISMS	3.33	1.778	1.875	87	.064
		IA/ISMS	2.64	1.229	2.144	87	.035
	Does not assume equal variances	C/IA&ISMS	3.33	1.793	1.860	76.971	.067
		IA/ISMS	2.64	1.118	2.356	38.913	.024

The changes that each group experienced were displayed on the salutogenic health continuum (see Figure 23). The differences that were recorded in the C (0.86 ± 4.54 ; $p = .228$) and the IA (1.21 ± 3.81 ; $p = .099$) group was insignificant at $p > .05$; therefore was consistent with assuming the null hypothesis.

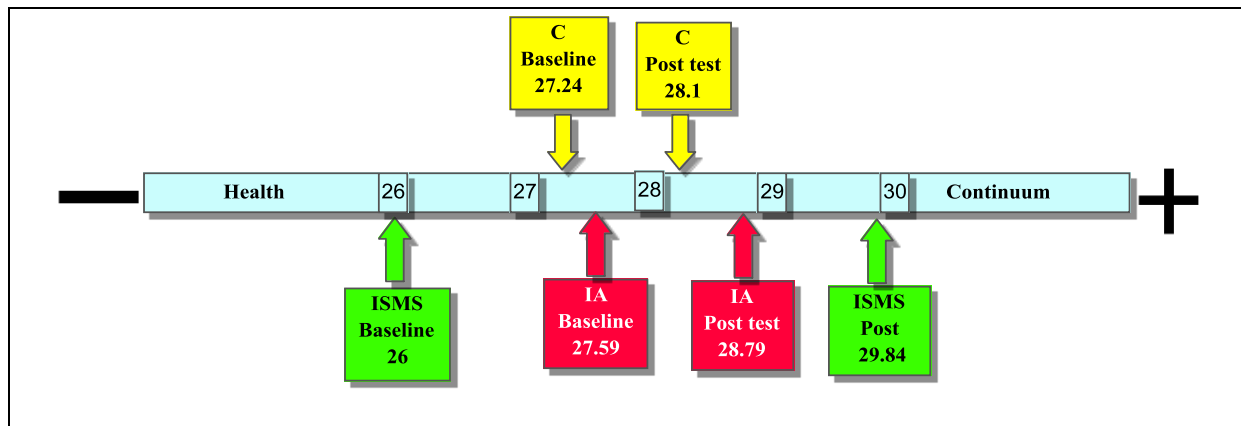


Figure 23. CD-RISC Baseline and post test results represented on the health continuum

However, the change within the ISMS (3.84 ± 3.77 ; $p=.000$) was significant, therefore the alternative hypothesis was accepted. Again, the result indicates that the intervention which included the DVD, mini-manual and daily SMS had a significant positive impact on the ISMS resilience scores, whereas the intervention which included the DVD and mini-manual did not. (See Table 27)

Table 27 CD-RISC T1, T2, and differences with SE (standard error) and CI (confidence interval)

Difference	Control	Intervention	SMS	<i>p</i> -value between Group significant difference
SE	Mean/SD/	Mean/SD/	Mean/SD/	
CI	<i>p</i> -value ^a	<i>p</i> -value ^a	<i>p</i> -value ^a	
CD-RISC diff	0.86 ± 4.54 $p=.228^a$	1.21 ± 3.81 $p=.099^a$	3.84 ± 3.77 $p=.000^{*a}$	$.033^b$ $.026^c$
Standard Error (SE)	.701	-.56	2.27	
95% Confidence Interval for Mean	Lower Bound	.708	-.24	2.66
	Upper Bound	.866	2.02	5.66

^a differences within group (t-test) ^b differences between groups (one-way ANOVA) ^c Brown-Forsythe *p*-value ; CD-RISC Resilience

8.5 Hypothesis 2: Differences in K-10

This section will be guided by the second hypothesis: that the students who receive the *Mytern* intervention will have lower levels of psychological distress than the control group. A one-way analysis of variance was conducted to evaluate the relationship between the intervention and the change in K-10, determining whether there were any significant differences between the means of three groups; testing the null hypothesis. The independent variable (the intervention) included three levels: C, IA and ISMS. The dependent variable was the difference calculated between baseline and post test scores. The ANOVA was significant, [$F = 6.4$; $p = .002$], indicating a significant difference between at least two of the groups and accepting the alternative hypothesis.

Levene's test for homogeneity of variance was $F(2/87) = .994$, $p = .374$

As the p -value was $>.05$, it appeared that homogeneity of variance was assumed. However, with the sample size being small, the smallest and largest variances were compared (Field, 2013):

$$IA (4.79^2 = 22.94)$$

$$ISMS (7.18^2 = 51.55)$$

The ratio of these values is $51.55/22.94 = 2.25$. Due to differences in group size and variation limiting the power of the Levene's test, it was safer to assume that the homogeneity of variance was violated and calculate the Brown's-Forsythe and Welch's F -ratio.

The assumption of homogeneity of variance was violated; therefore the Brown's-Forsythe F -ratio is reported. There was a significant effect of the intervention on the psychological distress scores, $F(2, 48.38) = 5.74$, $p = .006$. The assumption of homogeneity of variance was violated; therefore the Welch F -ratio is reported. There was a significant effect of the intervention on the psychological distress scores, $F(2, 42.79) = 4.43$, $p = .018$.

As the p -value was $>.05$, it appeared that homogeneity of variance was assumed. However, with the sample size being small which limits the Levene's power to detect differences, the smallest and largest variance were compared (Field, 2013):

$$ISMS (3.77^2 = 14.21)$$

$$C (4.54^2 = 20.61)$$

The ratio of these values is $20.61/14.21 = 1.45$. Although the largest variance is less than twice the size of the smallest variance; due to the differences in group size and variation

which limit the power of the Levene's test, it may be safer to assume that the homogeneity of variance was violated and calculate the Brown's–Forsythe and Welch's *F*-ratio.

The assumption of homogeneity of variance was violated; therefore the Browns-Forsythe *F*-ratio is reported. There was a significant effect of the intervention on the flourishing scores,

$F(2/76.63)=3.84, p=.026$. The assumption of homogeneity of variance was violated; therefore the Welch *F*-ratio is reported. There was a significant effect of the intervention on the flourishing scores, $F(2/48.61)=3.96, p=.025$.

The two planned comparisons revealed that there was significant difference between the control group and the intervention group (C vs. IA & ISMS) and significant difference between IA and ISMS, for both assumed and non assumed equal variances (see Table 28).

Table 28 *K-10 Contrast Tests Differences*

Contrast			Value of Contrast	Std. Error	t	df	Sig. (2-tailed)
K-10 diff	Assume equal variances	C/IA&ISMS	-4.83	2.408	-2.005	87	.048
		IA/ISMS	-5.40	1.664	-3.247	87	.002
	Does not assume equal variances	C/IA&ISMS	-4.83	2.506	-1.927	63.670	.059
		IA/ISMS	-5.40	1.873	-2.885	28.485	.007

The changes that each group experienced were displayed on the salutogenic health continuum; which is reversed as the lower score represents reduced distress levels (see Figure 24). The differences that were recorded in the C ($-1.36 \pm 5.39; p=.111$) and the IA ($-1.07 \pm 4.79; p=.240$) group was insignificant at $p>.05$; therefore was consistent with assuming the null hypothesis.

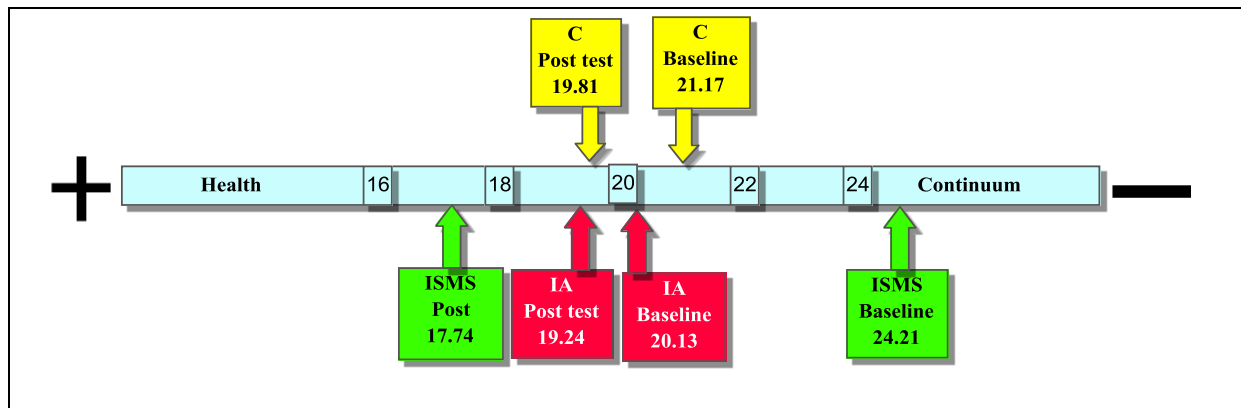


Figure 24. K-10 Baseline and post test results represented on the health continuum

However, the change within the ISMS (-6.47 ± 7.18 ; $p=.001$) was significant, therefore the alternative hypothesis was accepted. Again, the result indicates that the intervention which included the DVD, mini-manual and daily SMS had a significant positive impact on the ISMS resilience scores, whereas the intervention which included the DVD and mini-manual did not. (See Table 29)

Table 29 K-10 T1, T2, and differences with SE (standard error) and CI (confidence interval)

T1 & T2		Control	Interventio n	SMS	<i>p</i> -value between group
differences		Mean/SD/ -value ^a	Mean/SD/ <i>p</i> -value ^a	Mean/SD/ -value ^a	unadjusted
K-10 difference		-1.36±5.39 <i>p</i> =.111 ^a	-1.07±4.79 <i>p</i> =.240 ^a	-6.47±7.18 <i>p</i> =.001 ^a	.000 ^b .001 ^c
Standard Error (SE)		.833	.890	1.648	
95% Confide nce Interval for Mean	Lower Bound	-3.04	-2.89	-9.94	
	Upper Bound	.32	.76	-3.01	

^a differences within group (t-test) ^b differences between groups (one-way ANOVA) ^c Brown-Forsythe *p*-value ; K-10 = Psychological Distress

8.6 Demographic Correlates

This section is guided by RGQ1: what other factors (demographics) may influence the psychological wellbeing, life satisfaction, resilience and distress levels of first year students who have participated in the *Mytern* intervention?

An independent T-test was performed for the variables FIF (First In Family) and gender; and a one way ANOVA was used to establish the influence that age may have had on the results. The quantitative data indicated the influence of the demographics on the results; none of which were significant enough to impact the overall score. Correlations were performed on the whole group and the individual groups. As the results were similar, only the whole group baseline results are reported here.

FIF: In each of the four questionnaires, FIF did not significantly impact the scores.

In the FS there was a non-significant influence of FIF in the score for no (M=46.93, SD=5.88) and yes (M=45.02, SD=5.82); $t(88) = 1.54, p = .125$

In the SWLS there was a non-significant influence of FIF in the score for no (M=23.91, SD=6.02) and yes (M=21.76, SD=5.84); $t(88) = 1.71, p = .089$

In the K-10 there was a non-significant influence of FIF in the score for no (M=20.70, SD=5.66) and yes (M=22.33, SD=7.05); $t(88) = -1.20, p = .233$

In the CD-RISC there was a non-significant influence of FIF in the score for no (M=27.57, SD=5.61) and yes (M=26.63, SD=5.43); $t(88) = .81, p = .423$

Gender: In each of the four questionnaires, gender did not significantly impact the scores.

In the FS there was a non-significant influence of gender in the score for females (M=46.15, SD=6.26) and males (M=45.67, SD=5.37); $t(88) = .378, p = .707$

In the SWLS there was a non-significant influence of gender in the score for females (M=22.43, SD=6.01) and males (M=23.39, SD=5.95); $t(88) = -.745, p = .459$

In the K-10 there was a non-significant influence of gender in the score for females (M=22.43, SD=7.05) and males (M=20.19, SD=5.14); $t(88) = 1.63, p = .107$

In the CD-RISC there was a non-significant influence of gender in the score for females (M=26.74, SD=5.83) and males (M=27.61, SD=5.04); $t(88) = -.732, p = .446$

Age: Age did not significantly impact each of the scores of the four surveys. (see Table 30)

Table 30 *Impact of Age on Scores*

FS: $F(21, 68)=1.089, p=.381$

SWLS: $F(21,68)=1.241, p=.248$

K-10: $F(21,68)=.873, p=.667$

CD-RISC: $F(21,68)=1.182, p=.295$

However, even when age was separated into groupings, it was difficult to ascertain the impact on the scores due to the discrepancy of the numbers within each age group. There were only 18 participants over 30, which were not considered to be a sufficient enough representation of those age groups to correlate the impact of age groups to the different scores. Therefore age was not divided into separate groupings. However, the impact that age may have had on each of the test scores is represented in Table 31.

Table 31 *Overall Baseline Descriptive According to Age Group*

Age group	FS	SWLS	K-10	CD-RISC
18-20 n=53	44.83 (±5.94)	23.06(±5.73)	21.98(±6.79)	26.04(±5.13)
21-29 n=19	47.11(±6.28)	23.63(±6.87)	21.11(±5.89)	28.63(±6.23)
30-39 n=6	47.17(±4.79)	20.50(±3.56)	21.67(±4.80)	25.17(±5.23)
40-54 n=12	48.50(±4.79)	21.58(±6.82)	20.17(±6.71)	30.25(±4.77)

8.7 Correlations Between Constructs

This section is guided by RGQ2: Is there a relationship between psychological wellbeing, life satisfaction, resilience and distress levels in first year university students?

Positive emotions signal flourishing and optimal well-being and the accumulation of people's emotions contribute to their mental and physical health (Algoe and Fredrickson, 2011). In regard to resilience, Richardson (2002) believes that with practice, resilience can provide hope and increased self-efficacy, bringing more control and order into a person's

life. These constructs appear to support each other, so it was hypothesised that flourishing (FS), life satisfaction (SWLS) and resilience levels (CD-RISC) would be positively correlated, whereas distress (K-10) would be negatively correlated.

Scatterplots were used to explore the linear relationships between hypothesised results before deciding on which correlation test to apply (see Figure 25). For a positive correlation, FS difference and SWLS difference were chosen; and for a negative correlation, SWLS difference and K-10 difference were used. As neither scatterplot demonstrated a strong linear correlation, it was decided to run a non-parametric equivalent; the Kendall's tau. This is a non-parametric test which is appropriate for small data sets, and is a better estimate of the correlation in the population than Spearman's rho (Field, 2013). Correlations are reported on the baseline results from the group as a whole, as when they were performed on the post test as well as the individual groups, results were similar.

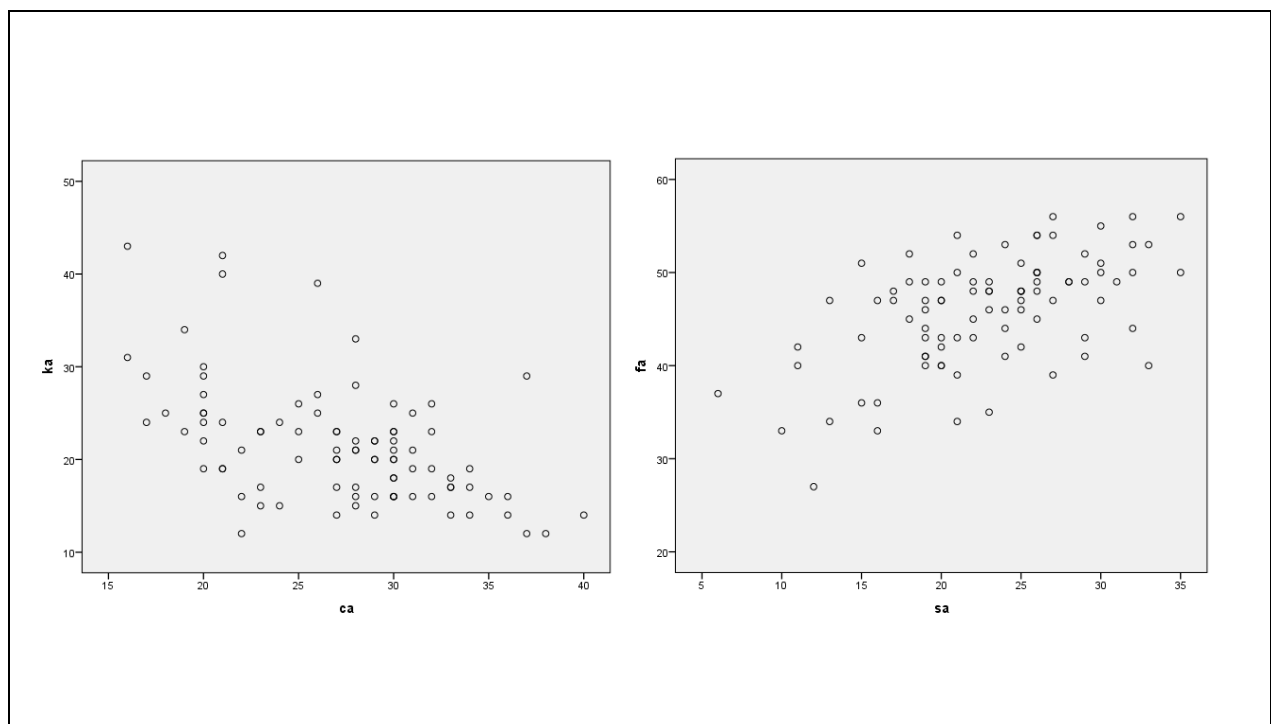


Figure 25. Scatterplots to determine linear relationship (K-10, CD-RISC) and (FS and SWLS)

8.7.1 Positive correlations.

As predicted, positive correlations existed between FS, SWLS and CD-RISC (Table 32) with each one being significant:

- psychological wellbeing (FS) and life satisfaction (SWLS) - $r(90) = +.389, p < .001$

- psychological wellbeing (FS) and resilience (CD-RISC) - $r(90) = +.286, p < .001$
- life satisfaction (SWLS) and resilience (CD-RISC) - $r(90) = +.205, p = .003$

When a partial correlation was performed and controlled for K-10, the correlation between psychological wellbeing (FS) and life satisfaction (SWLS) strengthened from a medium effect, to a stronger effect $r(87) = .484, p < .001$, one-tailed. However, the other two sets of correlations weakened. It is interesting to note that in both correlations, CD-RISC (resilience) was involved. The correlation between psychological wellbeing (FS) and resilience (CD-RISC) slightly weakened, $r(87) = +.257, p = .008$, one-tailed; whereas the correlation between life satisfaction (SWLS) and resilience (CD-RISC) experienced a greater change progressing from a significant correlation to one which was non-significant $r(87) = +.080, p < .229$, one-tailed (significance level going from $p = .003$ to $p = .229$). The other partial correlations did not show significant changes when controlled for other influences (see Table 32).

Table 32 *Positive Correlations*

Scales	Positive correlations	Partial correlation when controlled for:
FS and SWLS	$r = .389, p = .000$	$r = .484, p = .000$ (K-10)
		$r = .503, p = .000$ (CD-RISC)
FS and CD-RISC	$r = .286, p = .000$	$r = .257, p = .008$ (K-10)
		$r = .227, p = .004$ (SWLS)
SWLS and CD-RISC	$r = .205, p = .003$	$r = .080, p = .229$ (K-10)
		$r = .098, p = .180$ (FS)

8.7.1 Negative correlations.

As predicted, negative correlations were found between K-10 and the three other scales (FS, SWLS and CD-RISC) indicating that when psychological distress levels rise, psychological wellbeing and life satisfaction and resilience levels are lowered (Table 33). The correlations were:

- psychological distress (K-10) and psychological wellbeing (FS) - $r(90) = -.183, p = .007$

- psychological distress (K-10) and resilience (CD-RISC) - $r(90) = -.258, p < .001$
- psychological distress (K-10) and life satisfaction (SWLS) - $r(90) = -.394, p < .001$

When a partial correlation was performed (Table 32) between psychological distress (K-10) and wellbeing (FS) and controlled for life satisfaction (SWLS), the negative correlation went from being significant $r(90) = -.183, p = .007$, one tailed to non-significant $r(87) = -.122, p = .127$. The other partial correlations did not show significant changes when controlled for other influences.

Table 33 *Negative Correlations*

Scales	Negative correlations	Partial correlation when controlled for:
	$n=90$	$n=87$
K-10 and FS	$r = -.183, p = .007$	$r = -.169, p = .057$ (CD-RISC) $r = -.122, p = .127$ (SWLS)
K-10 and CD-RISC	$r = -.258, p = .000$	$r = -.453, p = .000$ (FS) $r = -.460, p = .000$ (SWLS)
K-10 and SWLS	$r = -.394, p = .000$	$r = -.344, p = .000$ (CD-RISC)

As predicted prior to correlation (hence one tailed), the constructs of flourishing (FS), life satisfaction (SWLS) and resilience levels (CD-RISC) were positively correlated, whereas distress (K-10) was found to be negatively correlated to the other constructs.

8.8 Grand Means

In order to gain an overall picture of the changes experienced by the individual groups and the group as a whole, the data was collated and presented in summary tables (Table 34 and 35)

Table 34 *Summary table: differences within and between groups*

T1 & T2	C	IA	ISMS	<i>p</i> -value between Group significant difference
differences	<i>M/SD/</i> <i>p</i> -value ^a	<i>M/SD/</i> <i>p</i> -value ^a	<i>M/SD/</i> <i>p</i> -value ^a	
FS T1	47.09±6.06	46.00±4.97	43.42±6.3	
FS T2	47.71±4.88	47.31±5.38	49.16±4.86	
FS difference	0.64±4.44 <i>p</i> =.354 ^a	1.31±4.34 <i>p</i> =.115 ^a	5.74±5.86 <i>p</i> =.000* ^a	.001 ^b .002 ^c
SWLS T1	23.71±5.17	22.86±5.57	20.74±6.97	
SWLS T2	24.10±6.22	24.45±6.08	26.26±5.45	
SWLS difference	0.38±4.67 <i>p</i> =.600 ^a	1.59±3.41 <i>p</i> =.010* ^a	5.53±5.16 <i>p</i> =.000* ^a	.000 ^b .001 ^c
CD-RISC T1	27.24±6.18	27.59±4.54	26.00±5.41	
CD-RISC T2	28.10±6.81	28.79±5.36	29.84±4.90	
CD-RISC difference	0.86±4.54 <i>p</i> =.228 ^a	1.21±3.81 <i>p</i> =.099 ^a	3.84±3.77 <i>p</i> =.000* ^a	.033 ^b .026 ^c
K-10 T1	21.17±6.12	20.13±4.72	24.21±8.5	
K-10 T2	19.81±5.27	19.24±6.19	17.74±4.33	
K-10 difference	-1.36±5.39 <i>p</i> =.111 ^a	-1.07±4.79 <i>p</i> =.240 ^a	-6.47±7.18 <i>p</i> =.001 ^a	.002 ^b

*significant at $p < .05$; ^a paired samples (t-test) ^b differences between groups (one-way

ANOVA *p*-value); ^c Brown-Forsythe *p*-value

baseline scores; T2 = post test scores

Flourishing, K-10 Distress, SWLS Life satisfaction, CD-RISC Resilience

T1 =

FS-

The individual groups (Table 34) reflect the magnitude of the changes experienced within each group. As stated previously, the ISMS group began with the lowest wellbeing, life satisfaction and resilience scores and the highest distress levels, so were in a position to experience the greatest change. When looking at these scores in comparison with the grand means of previous studies, it is interesting to note that the ISMS post scores were higher in FS, SWLS and CD-RISC and lower in K-10, than other tertiary cohorts. (See Table 35)

Table 35 *Summary Table Comparing Baseline and Post Test Grand Means*

Scale	Overall/grand mean SD n=90	ISMS post scores	Published data	
			mean	SD
FS pre	45.96 (±5.8)		42.92 ± 6.10 ^a	
		49.16±4.86	44.51±4.86 ^{a a}	
FS post	47.98 (±5.0)		44.97 (±6.56)	
	22.81 (±5.99)		24.48 ± 5.14 ^b	
SWLS pre	24.67 (±6.0)	26.26±5.45	25.0 (±4.58)	
SWLS post				
	21.53 (±6.4)		20.24 ±6.14 ^e	
K-10 pre	19.19 (±5.4)	17.74±4.33		
K-10 post				
	27.09 (±5.5)		31.8 ±5.4 ^c	
CD-RISC pre	28.69 (±5.98)	29.84±4.90	27.2±5.8 ^d	
CD-RISC post	21.53 (±6.4)		M=27.4 SD=6.4	

All data presented as Mean ± SD; ^a general population (Silva & Caetano, 2013); ^{a a} undergraduate students (Silva & Caetano, 2013); ^b undergraduate students (Abdel-Khalek,

2013); ^c general population (Campbell-Sills & Stein, 2007); ^d undergraduate students (Campbell-Sills, Forde, & Stein, 2009); ^e undergraduate students (Ryan et al., 2010)

8.9 Conclusion

This chapter has presented the analysis and results from the quantitative data, reflecting the impact that the intervention had on first year students' psychological wellbeing, life satisfaction, resilience and distress levels, through changes detected in survey results. A null hypothesis was confirmed for both hypotheses for the C (control) and IA (Intervention, DVD and mini-manual) groups, as the difference detected was not seen to be significant enough to impact their scores. However, the ISMS group confirmed the alternative hypotheses, as the changes detected in their scores reflected a significant positive impact on all measured constructs (psychological wellbeing, life satisfaction, resilience and distress levels).

The salutogenic changes to the ISMS group may have been influenced by the limited response rate; discrepancies between the size of the groups; and the fact that the ISMS group began with the lowest scores, placing them in a position to experience the greatest change. However, through adopting a mixed-methodology, these results do not stand alone; the qualitative results also need to be taken into consideration. The next three chapters present the qualitative aspects of the study; the analysis and the results of the two semi-structured interviews; before merging the quantitative and qualitative results.

Chapter 9 Qualitative Analysis

This chapter outlines the process undergone in order to analyse the data obtained from the semi-structured interviews (outlined in Chapter 7.3.2). After reiterating the guiding research questions, the thematic approach adopted for the analysis is discussed. The chapter then presents how the data is then analysed following the six phase thematic analysis, with mind maps illustrating the transition from codes to themes. It is then shown how the data was split and positioned at either end of the salutogenic health continuum, demonstrating both negative and positive influences. The themes on the health continuum were then merged (positive and negative influences) indicating how the candidate themes were subsumed into the final themes. This was followed by the analysis of the long term interviews; concluding the chapter with the final phase; producing the report.

9.1 Aim of the Qualitative Data

The aim of the interviews was to listen to the voices of individual participants, recording their personal reactions to the intervention. This included both their reaction and suggestions to the physical components of the intervention (the blog, booklet, DVD and SMS), other factors that may influence student's psychological wellbeing, satisfaction with life, resilience and distress levels, as well as any change that may have occurred as a result of the intervention. The following research questions (with the primary research question reiterated) guided the data analysis:

1. Primary research question: What is the impact of an emotional fitness and resilience building intervention (*Mytern*) on the psychological wellbeing, life satisfaction, resilience and distress levels of first year university students?
2. RGQ2. What other factors may influence the psychological wellbeing, satisfaction with life, resilience and distress levels of first year students who have participated in the *Mytern* intervention?
3. RGQ3. Does the delivery of the intervention (mini manual, video-based or SMS) impact the psychological wellbeing, satisfaction with life resilience and distress levels in first year university students?

4.RGQ4. Has change (defined in Chapter 2.3.9) occurred in the students who participated in the intervention *Mytern*?

5.RGQ5. If change (defined in Chapter 2.3.9) did occur as a result of the intervention *Mytern*, what made this change take place?

As outlined in Chapter 5, pragmatism was adopted as the worldview for this research. With pragmatism comes the flexibility to adopt the best methods necessary to answer the research question. In order to provide a more 'detailed and nuanced account of one particular theme, or group of themes, within the data' (Braun and Clarke, 2006, p.83), a thematic approach towards the qualitative data analysis was chosen. Braun and Clarke (2006) argue that thematic analysis also possesses the flexibility of pragmatism, as it is not wedded to any pre-existing theoretical framework; has the potential to provide a rich and detailed, yet complex account of data; can reflect reality and unpick or unravel the surface of reality; and should be considered a foundation method for qualitative analysis. This view is supported by Creswell et al., (2003) where they state that 'in qualitative research, the inquiry is more exploratory, with a strong emphasis on description and with a thematic focus on understanding a central phenomenon' (p. 174).

In order to bring rigor to thematic analysis, Braun and Clarke (2006) devised a 6 phase matrix which provided the framework for the qualitative data analysis. (See Table 36)

Table 36 *Phases of Thematic Analysis*

Phase	Process
1. Familiarisation	Transcribed data. Immersion. Read and reread data, making initial notes on LHS of transcript.
2. Generating initial codes	Initial codes (136) were written on the RHS of the transcript, highlighting interesting features. These codes were then entered onto an Excel spreadsheet against

	the relevant participant
3. Searching for themes	Codes were then collated into potential themes gathering all data relevant to each potential theme.
4. Reviewing themes	Themes were checked to see if they worked in relation to the coded extracts and the entire data set, generating a thematic map of the analysis
5. Defining and naming themes	Ongoing analysis to refine the specifics of each theme, and the overall story that the analysis tells, generating clear definitions and names for each theme
6. Producing the report	Final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis

Two thematic approaches were utilised for the two separate interviews, as each data set was driven by slightly different aims. The initial interviews used inductive coding, as the aim was for the codes to be generated from the data. The long term interviews were driven by the interview questions, so were coded for specific questions. Therefore, a more theoretical approach was taken Braun & Clarke, 2006). Each analysis was guided by the six phases presented by Braun and Clarke (2006).

9.2 Phase 1: Familiarisation

Transcription was the first step towards becoming familiar with the data. Verbatim transcription not only deepened the understanding of the data through heightened consciousness of content and context, but also was seen as the first stage of analysis (Evers, 2011). Lapadat & Lindsay (as cited in Braun & Clarke, 2006) view transcription as an

interpretative act where meanings can be created, 'rather than simply a mechanical act of putting spoken sounds on paper' (p. 88). This familiarisation provided the foundation for the rest of the analysis (Braun & Clarke, 2006). The transcripts were tested against the taped interviews for accuracy. It was here that a mistake was found when transcribing Phoenix's interview. He was a Chinese student whose accent was strong. When checked, his statement referring to the SMS being relevant to eastern country students went from a negative statement (isn't) to a positive statement (is), emphasising the importance to test for accuracy. *'Oh just a suggestion is this way isn't better to pay more attention eastern country student.'* As a result of the reading, initial notes/memos were written on the left hand side (LHS) of the transcript, capturing thoughts regarding codes which were stimulated by the text. For example, while transcribing Sam's interview, she alluded to the theme of mindfulness, so 'mindfulness?' was written on the LHS of the transcript, to be looked at in more detail at a later date.

Mindfulness? Just the text. It just reminds me just to stop for a minute and take a look at what you're doing and remind yourself why you're doing it, instead of just stressing about it thinking, why did I do this, why did I choose this subject? Why am I, I should just leave now. Just got to stop and just take a look why you did it. Weigh the pros and cons and the text remind you of doing that.

The tentative theme of mindfulness was also added to other transcripts during this stage. Once this familiarisation was completed, initial codes were generated and written on the individual transcripts.

9.3 Phase 2: Generating Initial Codes

This involved reading through the transcripts and coding the features that stood out. Here the researcher's interpretation of the participant's meaning needed to seek an empathetic understanding rather than explanation (Bryman, 2008). The initial coding was done manually on the individual transcripts where the data had been positioned in the centre of the page, leaving room either side for memos on the left and codes on the right. Therefore, words that conveyed the overall meaning/theme of a sentence/line or particular feature were written on the right hand side (RHS) of the transcript, and notes associated with these

codes were written on the LHS. Equal attention was given to each data item that appeared to form a pattern or theme across the data set (Braun & Clarke, 2006).

According to Schwandt (2007), coding can be accomplished through one, or a combination of, three types of coding;

1. a priori (content specific)
2. a priori (non-content specific)
3. a more grounded, inductive approach (context sensitive).

Although all three approaches were utilised, the majority of codes emerged from applying the grounded more inductive approach, working with the actual language of the participants. Content specific a priori codes (Schwandt, 2007) acquired from the literature, the topic and theoretical interest included resilience, anxiety and depression. Non-content specific a priori codes were developed from reactions of participants to the DVD, booklet and SMS, where it was noticed that many of the words/codes emerging were in relation to the impact of the SMS. As the intervention was based on emotional fitness and the research question was to ascertain its impact, and also to identify other influential factors on the psychological wellbeing, life satisfaction, resilience and distress levels of first year students, it was not surprising that a lot of the initial coding centred on words/situations associated with emotion and how the participants felt, supporting the coding approaches outlined by Schwandt (2007). Boyatzis (as cited in Braun & Clarke, 2006, p. 88) refers to these codes as identifying 'the most basic segment, or element, of the raw data or information that can be assessed in a meaningful way regarding the phenomenon'.

It was important to code for as many potential themes as possible. Many words were used frequently, both within and across interviews. Words such as '*somebody*' and '*someone*' were used by 6 out of the 10 participants in reference to the SMS, with Chris using it 4 times, indicating '*somebody*' and '*someone*' was important to them (Ryan & Bernard, 2003).

The one hundred and thirty-three codes generated were entered onto an Excel™ spreadsheet, and the initial ideas, themes or codes that were identified within the transcript were entered against each participant (O'Neill, 2012). This enabled an overview of the lower order codes which had been attributed to each participant, along with the codes that were

common to all participants. (See Appendix V for an example of the initial codes, with the colours indicating codes that were common to 5 or more participants). This method enabled easy identification of codes that were common to participants; facilitating tentative themes.

9.4 Phase 3: Searching for Themes

Thematic categories are used to describe, compare and explain (Ryan & Bernard, 2003).

Ryan and Bernard argue that if researchers fail to identify important categories during the exploratory phase of their research, what is to be said of later descriptive and confirmatory phases? (Ryan & Bernard, 2003, p. 86) The third phase of Braun & Clarke's (2006) matrix involved the collating of codes and refocusing the analysis into potential themes. The transcripts were imported into NVivo, which was used as an organisational tool in the analysis. The first step was to look at the codes in relation to the specific questions asked in the interview that referred to the four components of the intervention. This formed a thematic category based on non-content a priori codes, which included the codes associated with the delivery of the intervention: *Mytern* Booklet, DVD and SMS. Nodes were created within NVivo where participants' responses that had been coded to these questions were entered, constructing a general overview regarding the delivery of the intervention. It is interesting to note that the first question of the interview was to '*describe your experience with Mytern?*', not focussing on any one aspect of the intervention, yet all 10 participants responded in reference to the SMS component (see Table 37). Having coded the individual reactions to the components of the intervention and recorded the participants' suggestions, it was revealed that out of the three forms of delivery, it was the SMS that stood out as having had the greatest impact on the participants. Therefore, when talking about the impact of *Mytern*, the interviewees were referring to the SMS component of the intervention.

Table 37 Participants' Response to Mytern Experience

It's definitely helped with, if I've just been studying or anything and then you get the random message and it's just like, okay, and it kind of refocuses and then...(Chris)

At first I was really uncertain because I didn't know what it was or what it was for (the SMS), but it's really good. Positive, very positive. I can't recommend it enough. I've told a lot of people about it and just to help them.(Sam)

It was really positive. It really wakes you up if you're having a bad day. That afternoon you get that message and it's, yep okay, let's turn. It really does actually help you turn. Yes. (Ash)

I found, you know, they were fantastic in that they just - those SMSs just pulled me up every now and again I thought, oh yes. I find now that I'm starting to do it automatically, like if I'm starting to feel stressed and sick and thinking, oh god. I think, hang on. No, been wonderful, where's my GPS? What am I doing? What's going on? It's really good. I found it really, really useful for me, even just in my everyday life. (Charlie)

I enjoyed its serendipity - you're thinking like this and a text would come along and go, oh yes, how true. So to me it was a reminder, a reminder of where I wanted to be, because I think we all do a little bit of work on ourselves and enjoy that. It was just that little reminder, because you get so caught up in your - in the way you're thinking and to have that little reminder to step out of that and go, no, I understand what I'm doing here but I need to start thinking more positive about something, yeah. (Alexis)

Repetition is often an easy place to begin when identifying themes (Ryan & Bernard, 2003). Referring to the Excel™ coded spreadsheet for guidance, the next step involved looking at the codes that had been assigned to the majority of participants (50% +). Under the guidance of the research questions, along with adopting a salutogenic perspective, codes were grouped at either the negative or positive end of the health continuum. (See Table 38)

Table 38 *Codes Assigned to Over Fifty per cent of Participants*

Negative	Positive
alone	anonymity/anonymous
assignments/workload	beneficial/helped
frustrated	change
isolation	choice
pressure	Connection
stress/stressing	control
	friend
	personal
	perspective
	positive change/outlook
	relevant/appropriate
	reminder
	support
	timing

A thematic map was then created based on Table 38. At this stage the influencing factors that contributed to creating health (salutogenic: moving towards the + end of the health continuum) outnumber the factors that appeared to be capable of causing disease (pathogenic), with the majority reflecting the impact of the SMS. (See Figure 26)

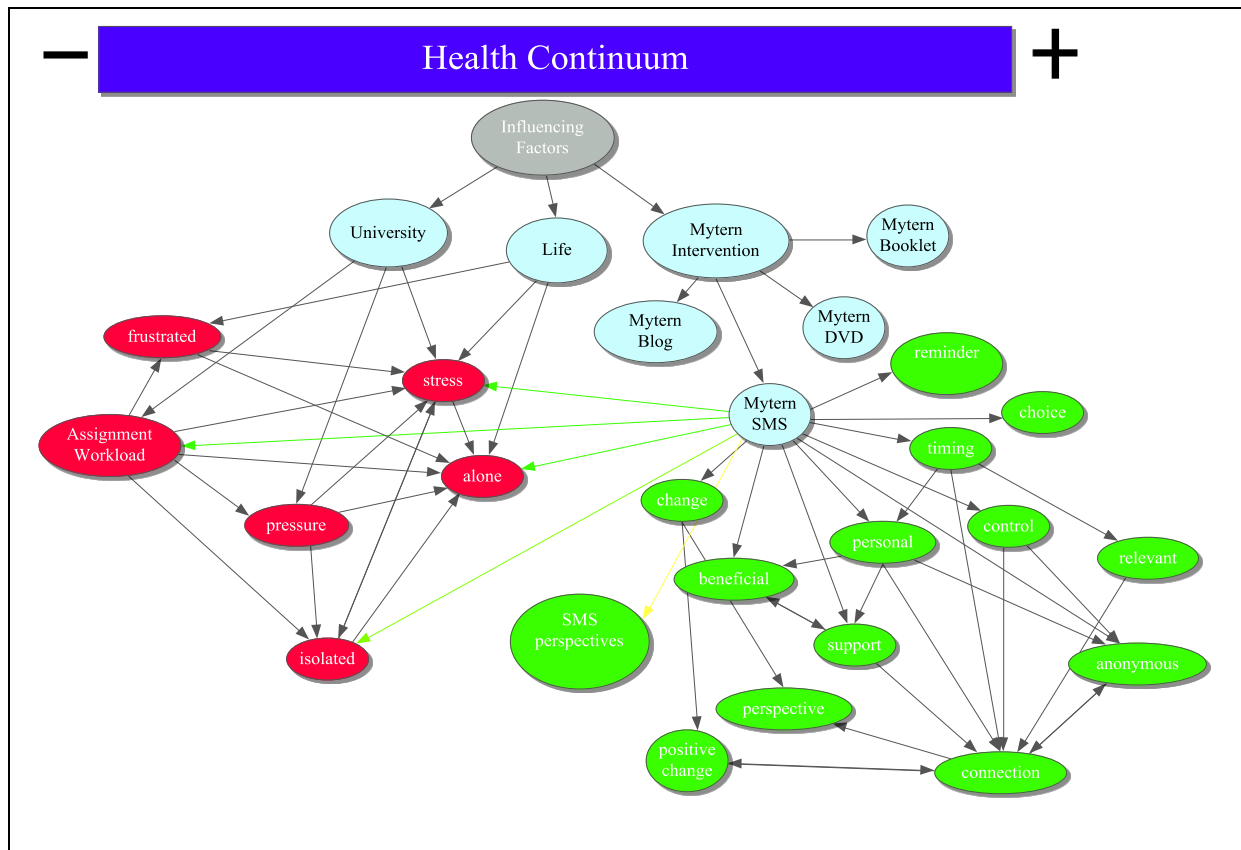


Figure 26. Initial 50%+ codes from salutogenic perspective

The remainder of the 135 codes on the Excel™ code sheet were then explored, identifying how the different codes could be combined to form a larger theme. Each code was entered onto the thematic map, exploring potential relationships between codes, themes, and different levels of themes. Here the codes and potential themes were divided into their salutogenic direction (either + or -) for ease of analysis, remaining aware that the codes would form main themes, become sub-themes or be discarded altogether (Braun & Clarke, 2006).

The negative end of the continuum was guided by the second research question: What other factors may influence the psychological wellbeing, satisfaction with life, resilience and distress levels of first year students who have participated in the *Mytern* intervention? Both positive and negative aspects of the question were expected, but it was the negative factors that were expressed by the participants. Exploration began using the major codes (50%+) of stress, assignments/workload, frustration, pressure, alone and isolated forming the skeleton of the thematic map (see Figure 27). The remaining codes were then placed within the map, forming connections around the emerging themes. Codes associated with assignments and

workload were subsumed under the theme of ‘work perspectives’, which included the codes of ‘consumed’, ‘draining’, ‘freaked out’, ‘insane’, ‘inundated’, ‘overwhelmed’, and ‘procrastination’. It was immediately apparent that the codes identified through their repetition (Ryan & Bernard, 2003) were linked to many of the minor codes, forming emergent themes. For example, eight out of ten participants mentioned stress, which was linked to ten other codes (bullied, abuse, international student, pressure, assignments/workload, frustrated, alone, isolated, anxiety, first year experience), indicating its emergence as a major theme. However, it was important to be aware that repetition did not necessarily mean that a code would eventually become a major one, emphasising that minor codes at this stage also needed to be given equal emphasis (Braun & Clarke, 2006), as ‘some themes are broad and sweeping constructs that link many different kinds of expressions’ whilst ‘other themes are more focused and link very specific kinds of expressions’ (Ryan & Bernard, 2003, p. 88). For example, the theme of bullying, which began as a minor code (discussed by 2 participants), emerged during the latter stages of analysis as being a major factor in influencing a student’s psychological wellbeing, satisfaction with life, resilience and distress levels and adding weight to the final theme.

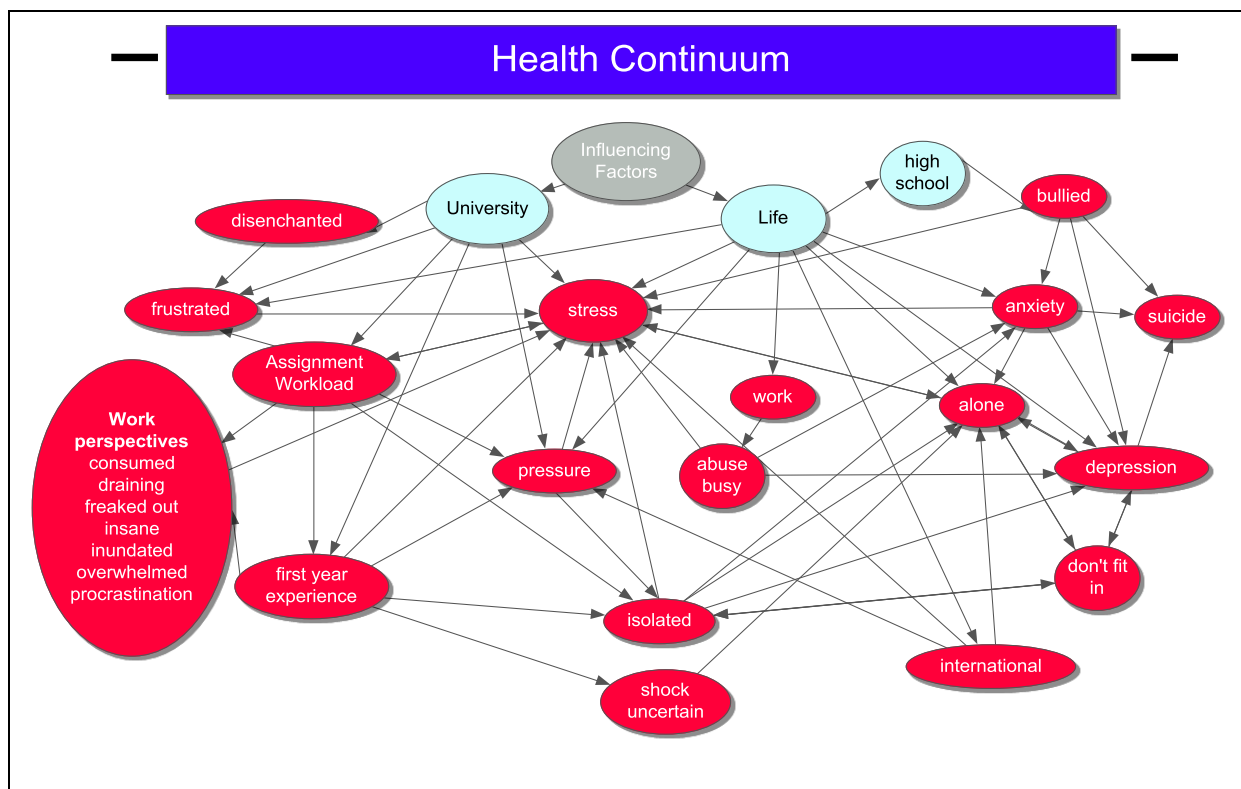


Figure 27. Exploring initial codes and themes (negative end of the continuum)

The positive end of the continuum was guided by the research questions: Has change occurred in the students who participated in the intervention *Mytern*? If change did occur as a result of the intervention *Mytern*, what made this change take place? Explored of the data again commenced using the major codes to form the initial skeleton of the thematic map. Due to the volume of codes under this section, some associated words were grouped together forming a sub-theme, and linked to a common theme. For example, the words associated directly with the SMS were grouped under:

- 'text perspectives' (no hassle, in your face, look forward to, convenient, random, recommended, serendipity, re-read, continuous, automatic, don't stop)
 - the effect that the SMS created was called 'text effects' (calm, brightness, boost, confidence, faith, encouragement, freedom, grounds you, hang on, life changing, inspirational, mindset, brilliant, fantastic,)
 - the special support that the SMS gave was 'comfort' (cherish, treasure, soothing, relief)
 - the SMS also helped with 'direction' (focus, goal, on track, external compass)
- (See Figure 28)

At this stage, nothing was abandoned, as it was in the next stage where all extracts would be looked at in detail to ascertain their relevance and importance (Braun & Clarke, 2006).

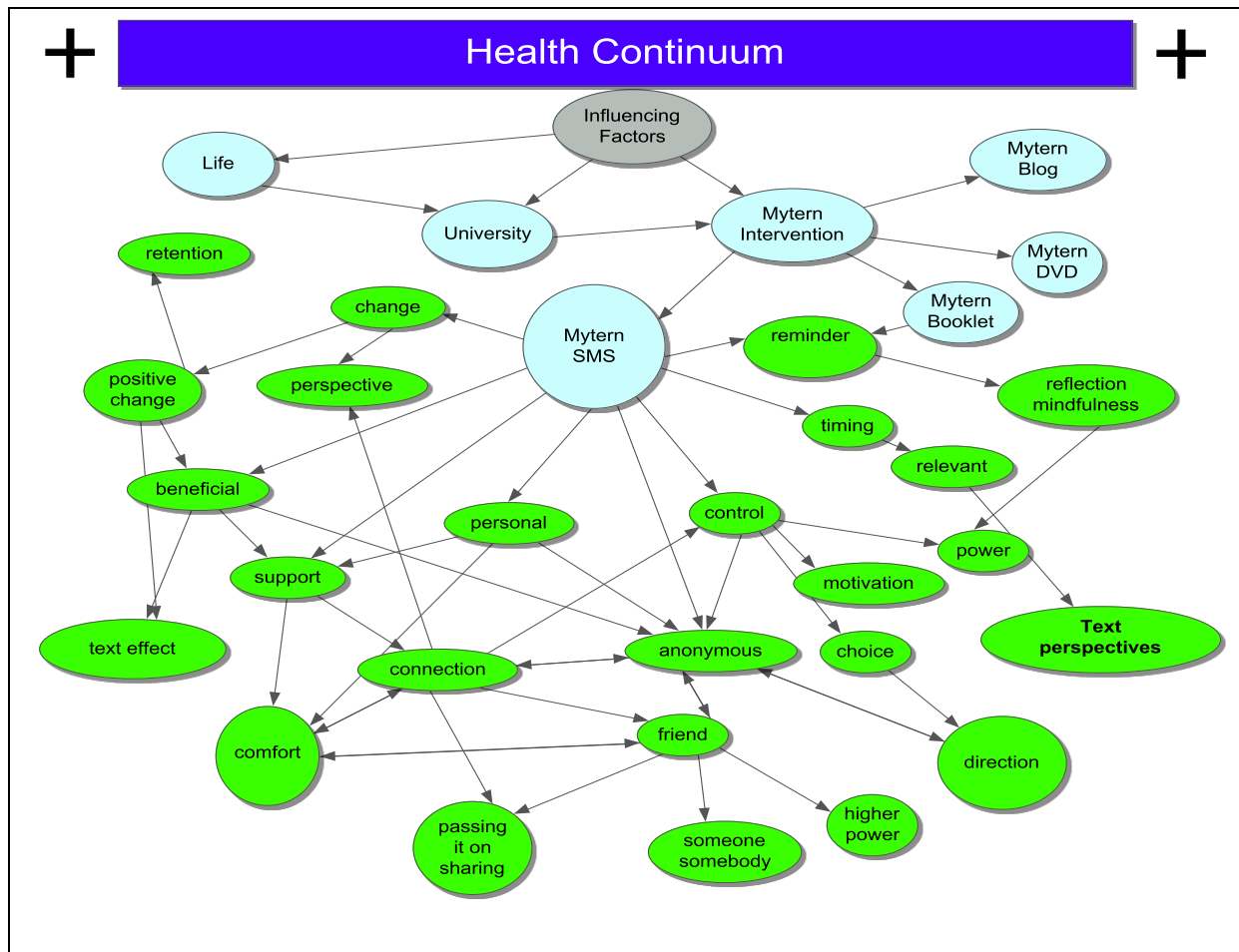


Figure 28. Exploring initial codes and themes (positive end of the continuum)

9.5 Phase 4: Reviewing Themes

This stage involved reviewing and refining the established candidate themes and consisted of two analytical levels. The first level reviewed the coded extracts collated for each theme, looking for coherent patterns. This level could be achieved whilst still keeping the negative and positive ends of the continuum separate, de-cluttering the thematic map and allowing for greater ease in analysis, helping to ensure that no theme was omitted. Once coherent patterns were identified, the second level of analysis was implemented, which combined the themes from both ends of the continuum. The combined themes were then reviewed and refined in relation to the entire data set (Braun & Clarke, 2006).

9.5.1 Level 1- Negative end of the continuum.

The negative end of the continuum was first reviewed, reading the extracts associated with the candidate themes of 'depression', 'anxiety', 'isolation', 'alone', 'frustration', 'suicide', 'stress', and 'anonymity', with a number being refined into sub-themes (indicated in

brackets) of a larger theme: 'assignment/workload' (work perspectives), 'first year experience' (shock, uncertain), 'bullied' (high school), 'pressure' (international). An example of reviewing and refining was connected to the candidate theme of 'international', which included a quote from Phoenix, and was coded in reference to the pressure of being an international student (See Appendix V : Excel code spreadsheet). However, when reviewed, it was decided that the pressure he was feeling may have been culturally specific rather than relating to all international students, so would be more accurately represented under the theme of pressure. *We have a lot of pressure to do good when we are here, from family back home. Always comparing. Big pressure.* (Phoenix)

This process of reviewing and refinement involved the absorption of many of the candidate themes into larger themes. Isolation and alone were subsumed into the one theme of social isolation. When reviewing the extracts, the common pattern which emerged related to a lack of support and the participants 'disconnection socially; therefore so the theme of social isolation better reflected the voice of the participants. This will be further discussed in chapter 10.

The sub-themes of 'disenchantment', 'frustration' to do with university and 'work perspectives' were subsumed into the theme of 'assignments/workload', as they contained participants' reactions and emotions relating to the amount of work and assignments that they received. First year experience was absorbed by two themes: 'stress' and 'social isolation', guided by statements such as *'It's like having a hot shower and jumping out into the cold snow outside'* (Sam) where shock was subsumed under stress and *'because I'm used to being in Sydney where I know everybody - coming to uni was like, I don't know anyone, I don't want to be here'* (Ash), where 'alone' was subsumed under 'social isolation'. As coherent patterns were identified from the abstracts, other themes became sub-themes: 'work', 'abuse' and 'international' were subsumed under 'stress' and 'pressure'; 'don't fit in' was subsumed under 'social isolation'; and 'high school' was subsumed under 'bullied'. Adopting the interpretivist perspective during the analysis guided the researcher to ensure that the extracts and consequent themes best reflected the voices of the participants. The outcome of this refinement process, after having read and re-read the extracts and established their adequate capture of the associated theme, can be seen in the thematic map presented in Figure 29.

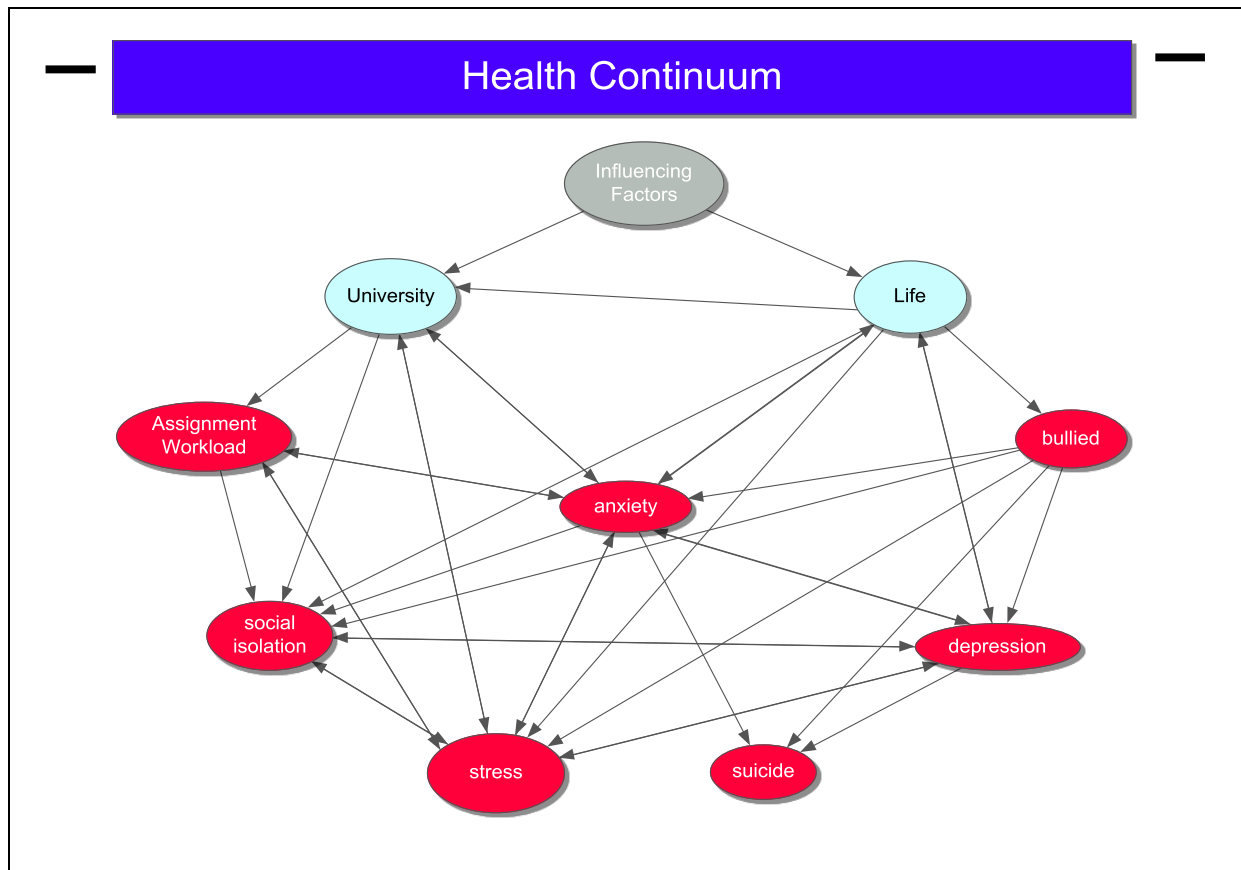


Figure 29. Candidate thematic map (negative end of the health continuum)

9.5.2 Level 1 – Positive end of the continuum.

As there had been so many codes that were at the positive end of the continuum, it was necessary to refine and consolidate these into more precise themes. Each group of extracts associated with the candidate themes were read and coherent patterns were identified where applicable. Many of these themes were subsumed under larger, more representative themes. (See Table 39)

Table 39 *Major Themes and Sub-themes(1)*

Theme	Control	Positive Change	Mindfulness	Support	Connection
Sub	choice	beneficial,	reflection	brilliant,	personal
Themes	direction	change	reminder	fantastic,	friend
	focus	perception	in your face	no hassle,	someone
		perspective		effective	

goal	bigger picture	look forward	somebody
		to	
on track	anger		passing it
	management	convenient,	on
external		random	
compass	calm, de-		
	stressing	recommended	
	brightness,	serendipity,	
	boost	re-read	
	confidence,	continuous,	
	faith	automatic	
	encouragement	don't stop,	
		comfort	
	freedom		
	grounds you	cherish,	
		treasure	
	hang on	need,	
	life changing	soothing	
	inspirational,	relief	
	mindset		

The themes that remained the same were those of power, motivation, stress release and retention. A new theme was created, bringing the themes of anonymous, metaphor, generative (was passing it on), looking forward to, together under the heading of associated text perspectives. The outcome of this refinement process, after having read and re-read the extracts and established their adequate capture of the associated theme, can be seen in the thematic map presented in Figure 30.

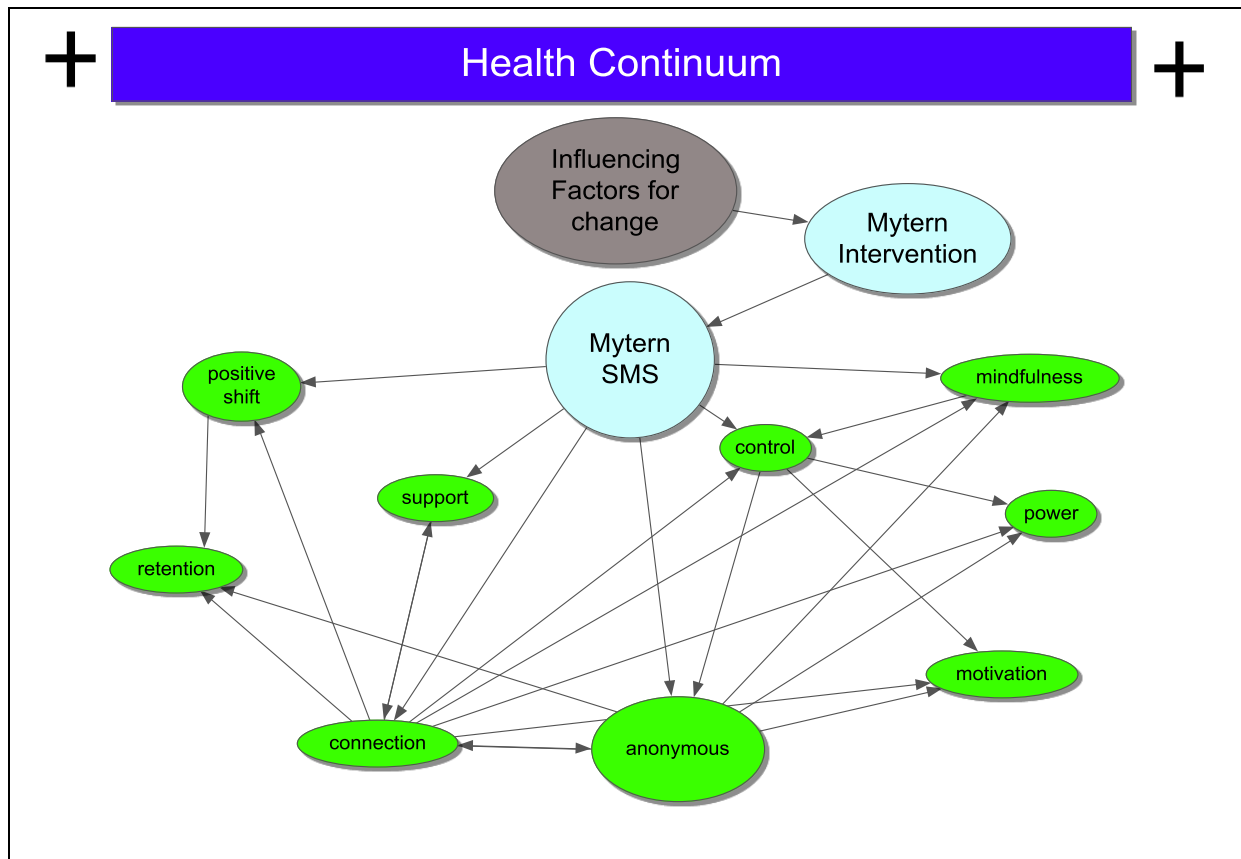


Figure 30. Candidate thematic map (positive end of the health continuum)

9.5.3 Level 2: The complete health continuum.

Once the candidate thematic map of both positive and negative ends of the health continuum were combined (see Figure 31), the validity of the individual themes was considered in relation to the entire data set, questioning whether the themes chosen reflected the meanings evident in the data set as a whole (Braun & Clarke, 2006). Again, the researcher's interpretation of the participant's meaning needed to continue to seek an empathetic understanding rather than just an explanation (Bryman, 2008). The entire data set was re-read, validating the themes and adding any additional data that may have been missed during earlier coding. It was during this phase that an un-coded quote transcribed from a video was identified; one which reflected a profound view relating to the impact of the SMS:

It's a reminder; it's a helping hand; it's the light at the end of the tunnel. It's a way out from all the bad thoughts; the bad things. It's a way out from when life is taking you down the wrong road. It takes you down the good one. (Sam)

This emphasised the need to validate chosen themes through continually re-reading the complete data set as well as maintaining the flexibility to be able to incorporate new emerging themes at any stage throughout the analysis process.

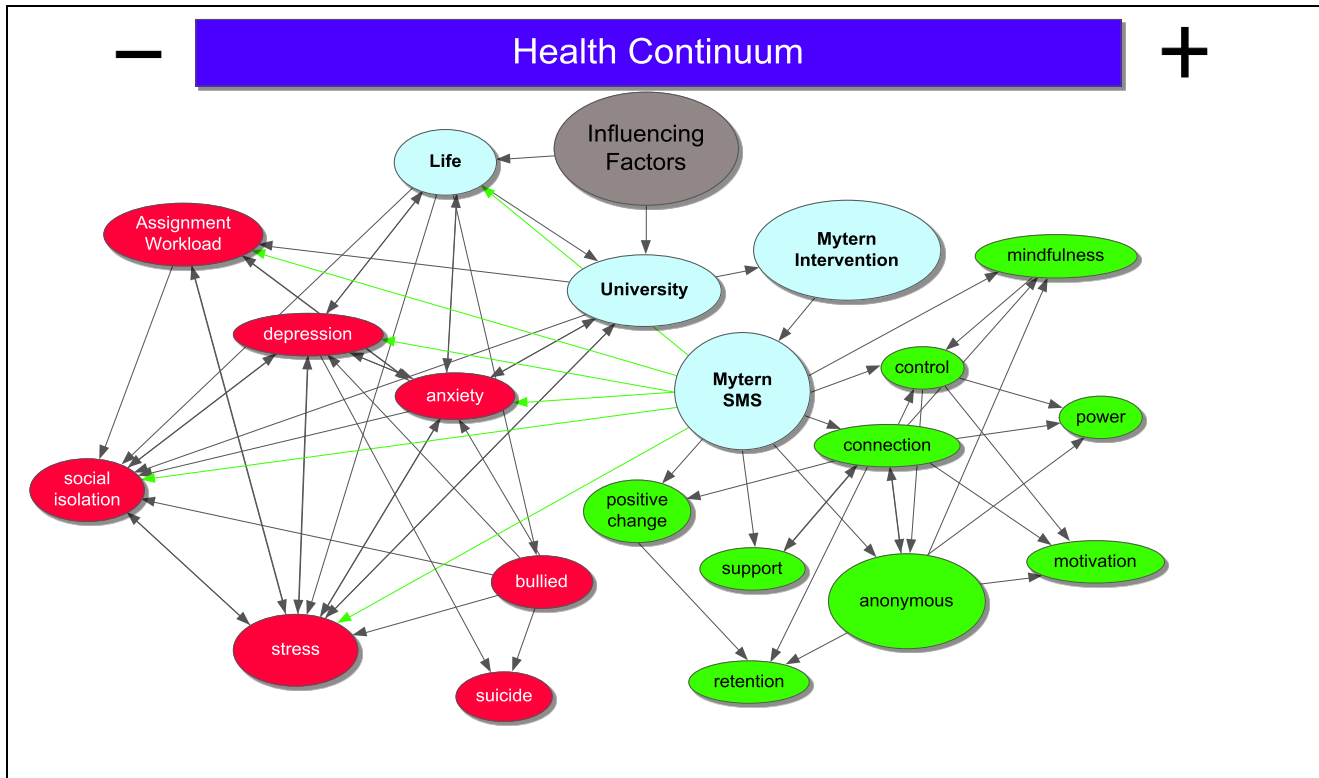


Figure 31. Influencing factors with combined themes – positive and negative

9.6 Phase 5: Defining and naming themes

This phase involved defining and refining the themes, identifying the essence of what each theme was about, and what was of interest about them and why (Braun & Clarke, 2006). A detailed analysis was written for each of the themes found in Figure 31 (see Chapter 10). After having expounded on each theme, it was here that the themes were refined even further. The research questions were again referred to, assessing whether the themes were not only representative of the data, but were also relevant to the research questions. As a result, ‘anonymity’, ‘connection’, ‘social isolation’ and ‘stress’ emerged as the major themes, subsuming the other themes, creating a deeper understanding of the influencing factors on both ends of the continuum (see Table 40). For example, ‘power’, ‘motivation’ and ‘control’ were subsumed under ‘connection’, as the participants indicated that it was the connection that first brought about their ability to control their thoughts, for without this connection they may not have been motivated to take that control. Charlie reflected this in her

statement: 'I think that the thing about the texts is knowing that there's **someone** out there saying, come on guys, you can do this. You're in charge.' (Charlie)

Table 40 Major Themes and Sub-themes (2)

Theme	Anonymity	Connection	Social isolation	Stress
Sub themes		support	bullied	assignments
		power	suicide	workload
		positive	depression	anxiety
		change	anxiety	depression
		stress		
		release	workload	
		retention		
		mindfulness		
		control		
		motivation		
		generative		
		metaphor		
		look forward to		

As a result, a final mindmap was created (See Figure 32), representing the four major themes and their subthemes. The importance of these major themes in relation to the influencing factors and reasons for change are discussed in Chapter 12. The names of the themes were revised so that they were more precise and concise; giving a sense of what the theme was about. Participants gave examples of stress coming from both university and life situations, so the theme of 'stress' was expanded to include the words 'university and life'.

Anonymity became a major theme, as the majority of participants expressed that their reaction to the SMS would have been less powerful if they were not from an anonymous source. (It may have been the unconditional aspect that was also important; even though they didn't respond, the SMS kept coming. All they had to do was to text 'Mytern' or 'stop'. The 'unconditionality' aspect of the SMS will be discussed in Chapter 12). In refining the themes of 'support', 'power', 'positive change', 'retention', 'mindfulness', 'control', 'motivation', generative, 'metaphor', and 'look forward to', the connection to the SMS emerged as a common pattern underpinning each of the themes. Looking beyond explanation to the understanding behind the words, without having formed a connection with the SMS, the participants wouldn't have felt the support or been given the power and motivation to feel supported or to change. The SMS would have been merely words. Again, this will be discussed further in Chapter 12. The words 'general' and 'social' were then added to the major theme of connection, to reflect the sub-themes more accurately.

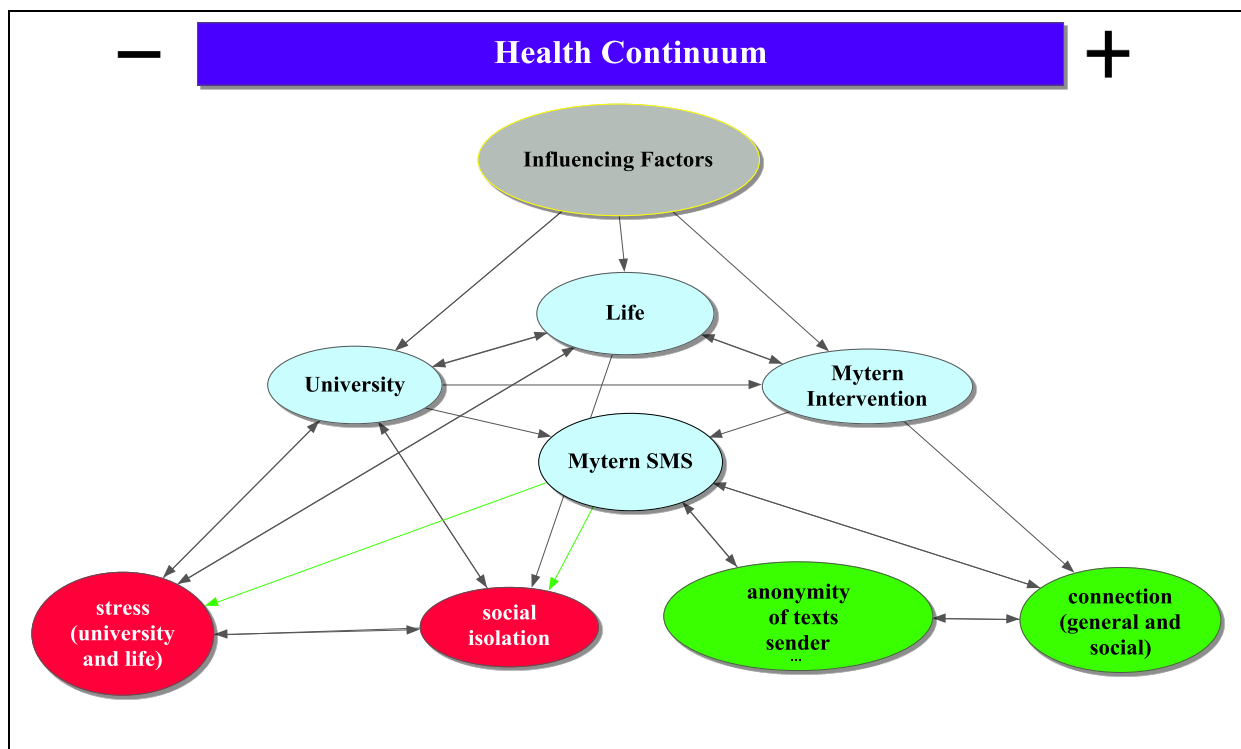


Figure 32. Refined themes and sub-themes

9.7 Longer Term Effects of *Mytern* Intervention and SMS

Longer term effects were analysed separately, as the interviews were conducted after the initial analysis had been completed. Seven of the ten participants were interviewed six months after the conclusion of the intervention to ascertain the long term effects of the skill.

The same analysis matrix was used to analyse the shorter interviews, which were more focussed and specific than the initial interview (see Chapter 7.3.2).

9.7.1 Phase 1: Familiarisation.

As with the initial interview, transcription was the first step towards becoming familiar with the data, providing the foundation for the rest of the analysis. Once transcribed verbatim, the transcripts were again tested against the taped interviews for accuracy. Tentative codes were written on the LHS of the scripts, to be looked at and compared with other interview transcripts.

9.7.2 Phase 2: Generating initial codes.

A theoretical thematic analysis, rather than the inductive approach used in the initial interview was adopted, as it was driven by the researcher's analytic interest in the long term effects of the intervention (Braun and Clarke, 2006). Content specific a priori coding (Schwandt, 2007), was used to initiate codes for the long term interview analysis (see Chapter 7.4.2). The questions that were asked during the interviews were shorter, more specific, and were based on the themes that had emerged from the initial interviews. Therefore the information gathered reflected most of the chosen codes. A grounded, more inductive approach was also used to mine the data for any emerging codes that may not have been anticipated.

9.7.3 Phase 3: Searching for themes.

The first step in the collating of codes and refocusing the analysis into potential themes involved importing the transcripts into NVivo, which again was used as an organisational tool in the analysis. The codes were then looked at in relation to the specific questions asked in the interview that were based on the themes found in the initial interview. For example, 'someone' and 'somebody' were coded under the theme of 'connection' in the initial interviews. Again, these words were used in relation to the SMS; Ash mentioned that when receiving the SMS, it was like 'someone out there has cared - they're there for me'. The theme of connection that had been predicted was again emerging. Nodes were created within NVivo to reflect the participants' responses on the transcript that had been coded to these emerging themes. Each transcript, along with the text within each node, was checked and compared

9.7.4: Reviewing themes.

As the themes were driven by the questions, this stage (which involved reviewing and refining the established candidate themes) was used to review themes that had already been established, ensuring that the coherent patterns were present across interviews.

9.7.5: Defining and naming themes.

This phase involved defining and refining the themes, identifying the essence of what each theme was about, and what was of interest about them and why (Braun & Clarke, 2006). A detailed analysis was written for each of the themes found in Figure 33 (see Chapter 11). The research questions and interview questions were again referred to, assessing whether the themes were not only representative of the data, but were also relevant to the research questions. As a result, 'anonymity', 'connection', 'strengthening', 'positive changes', 'generative', 'support', 'embedded', emerged as the major themes, creating a deeper understanding of the impact of the intervention *Mytern* after 6 months. The final themes are represented in Figure 33.

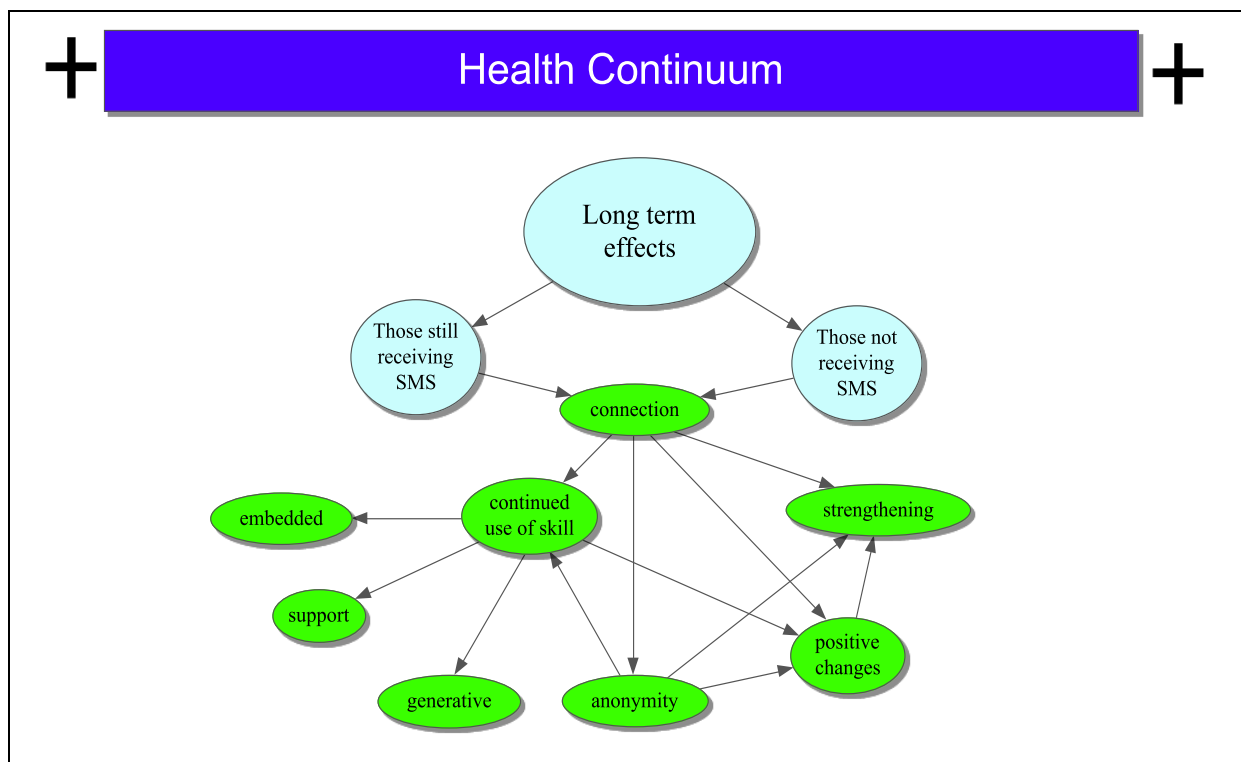


Figure 33. Final thematic map for long term effects

9.8 Phase 6: Producing the report

After finalising the overall themes and sub-themes, the results were written up, providing a 'concise, coherent, logical, non-repetitive and interesting account of the story the data told – within and across themes' (Braun & Clarke, 2006, p. 93). A set of questions was used to validate each theme, giving a clear sense of the thematic map. These included:

'What does this theme mean?'

'What are the assumptions underpinning it?'

'What are the implications of this theme?'

'What conditions are likely to have given rise to it?'

'Why do people talk about this thing in this particular way (as opposed to other ways)?'

'What is the overall story the different themes reveal about the topic?'

(Braun & Clarke, 2006, p. 94)

Once written, a fifteen point checklist (see Table 41) was applied to the analysis, ensuring that an appropriate level of analysis had been achieved.

Table 41 *Fifteen-point Checklist of Criteria for Good Thematic Analysis*

Process No.	Criteria
Transcription 1	The data have been transcribed to an appropriate level of detail, and the transcripts have been checked against the tapes for 'accuracy'.
Coding 2	Each data item has been given equal attention in the coding process.
Coding 3	Themes have not been generated from a few vivid examples (an anecdotal approach), but instead the coding process has been thorough, inclusive and comprehensive.
Coding 4	All relevant extracts for all each theme have been collated.

Coding 5	Themes have been checked against each other and back to the original data set.
Coding 6	Themes are internally coherent, consistent, and distinctive.
Analysis 7	Data have been analysed, interpreted, made sense of, rather than just paraphrased or described.
Analysis 8	Analysis and data match each other and the extracts illustrate the analytic claims.
Analysis 9	Analysis tells a convincing and well-organized story about the data and topic.
Analysis 10	A good balance between analytic narrative and illustrative extracts is provided.
Overall 11	Enough time has been allocated to complete all phases of the analysis adequately without rushing a phase or giving it a once-over-lightly.
Written report 12	The assumptions about, and specific approach to, thematic analysis are clearly explicated.
Written report 13	There is a good fit between what you claim you do, and what you show you have done (i.e. described method and reported analysis are consistent).
Written report 14	The language and concepts used in the report are consistent with the epistemological position of the analysis.
Written report 15	The researcher is positioned as active in the research process; themes do not just 'emerge'.

9.9 Conclusion

After highlighting the research questions that helped guide the analysis, this chapter has illustrated how a 6 phase thematic analysis assisted in identifying emergent codes and themes from the semi-structured interviews. Using the health continuum to help guide the analysis to best answer the research question, it was revealed how the data was positioned at either end of the continuum as either a negative or positive influence. It was also demonstrated how the emergent themes were ultimately subsumed into the four final themes. The analysis of the long term interviews was also outlined, reinforcing some of the themes found in the initial interviews. The following chapter outlines the findings generated from the analysis; again illustrating influencing factors and themes on the salutogenic health continuum.

Chapter 10 Qualitative Findings T1 (Time 1)

This chapter provides the findings from the analysis of the qualitative data that form part of the overall, mixed methods approach to the research. Through adopting a qualitative perspective (Chapter 5.4.2), semi-structured interviews (Chapter 7.4.2) were conducted; the purpose of which was to hear the voice of the students and to best answer the research question. After first summarising the characteristics of the participants involved, and guided by the relevant research questions, this chapter will outline the results of the thematic data analysis in Chapter 9. The findings will be presented under the themes identified during that analysis, exploring the data and giving depth and meaning by; first outlining the factors that negatively influenced the participants psychological wellbeing, satisfaction with life, resilience and distress levels, followed by the how/why the intervention positively influenced or impacted the participants. The honesty of the participants, especially when revealing their personal stories, was illuminating. The results that emerged, represented as accurately as possible, the voices of the participants as interpreted through the perspective of the researcher. Many of the included quotes are verbatim; as paraphrasing appeared to dilute the voice of the participant. The chapter concludes with a summary of the data obtained via SMS, and paves the way for the long term interviews to follow.

10.1 Participants

In the previous chapter, it was identified that the SMS component of *Mytern* appeared to be the major component which had a significant impact on the psychological, wellbeing, life satisfaction, resilience and psychological distress levels of the first year participants. Guided by the outcomes obtained from the quantitative results, and the research questions referring to why changes took place, it was the SMS participants who were chosen to be interviewed. One hundred and sixty undergraduate students participated as volunteers in the *Mytern* SMS trial which provided daily reinforcement for the emotional fitness and resilience building skill, *Mytern*. Participants' ages ranged from 17-61 (F = 60% and M = 40%) with over 85% of the participants being from the first year cohort. Fifty-three percent of the participants were the first in their family (FIF) to attend university, reflecting the FIF percentages of the university as a whole. These data had been collected at the point of participation.

In week 12, participants who had volunteered to participate in an interview on the original consent form were invited to organise an interview time. Ten students agreed to be interviewed, which was considered a representative sample of the whole group.

Participants' ages ranged from 18 - 61 consisting of three eighteen year olds, with the others being 19, 20, 28, 32, 47, and 48 respectively. Eight of the ten were first in family, with only one international student speaking a language other than English. The three male and seven female students were all enrolled in a compulsory first year course.

10.2 Salutogenic Influences

Adopting a pathogenic orientation to interpret the qualitative findings would require the researcher to focus on why the participants were depressed, stressed, anxious and even suicidal. Much of current literature has been from this perspective, providing excellent evidence and understanding around the rising prevalence of mental health problems in tertiary students. The results from this study outlined below confirm/support these findings. However, through adopting a salutogenic approach, this study seeks to ascertain what positive impact, if any, the intervention has had on participants psychological wellbeing, satisfaction with life and resilience levels, analyzing the qualitative data collected; detecting the creation of health within the students. The aim of this study is not to seek ways to eliminate stressors from the participants' lives, but to help them strengthen and create health whilst still being under these everyday stressors. Therefore, the analysis adopted a salutogenic perspective, where themes were placed on the health continuum. The factors that were seen to negatively influence the psychological wellbeing, satisfaction with life, resilience and distress levels of the participants were placed at the negative end of the continuum, whilst the factors that influenced positive change were placed at the positive end of the health continuum. (See Figure 34)

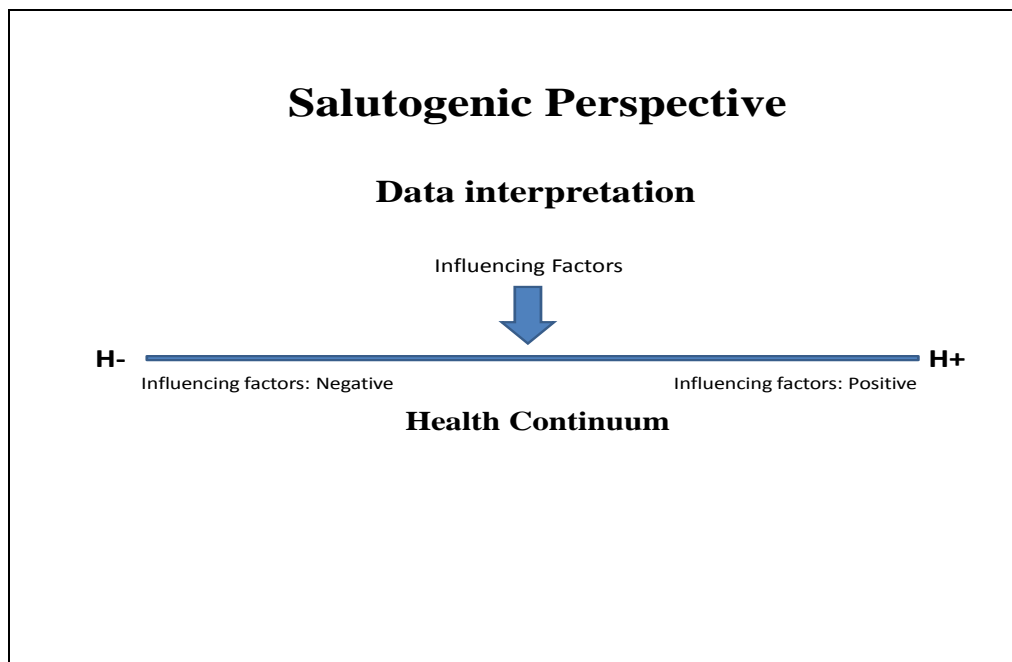


Figure 34. Salutogenic perspective

The analysis is presented in two sections (influential factors – negative and influential factors – positive) before combining both positive and negative influences to form an overall picture of the results. The themes that emerged from the analysis are represented in Figure 35.

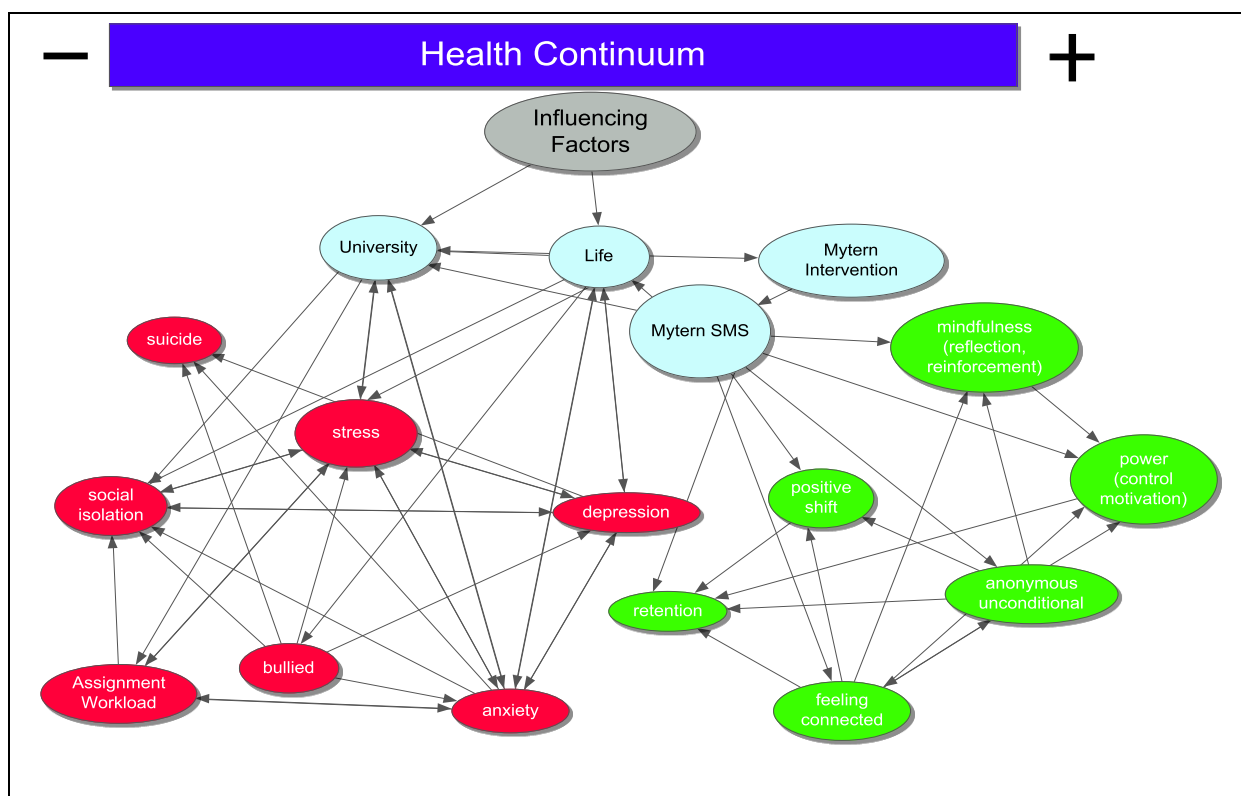


Figure 35. Thematic map of positive and negative influential factors

10.3 Influential Factors: Negative

This section outlines the negative influential factors which emerged from the data whose analysis was guided by the second research question: What other factors may influence the psychological wellbeing, satisfaction with life, resilience and distress levels of first year students who have participated in the *Mytern* intervention? (See Chapter 1.1.2). The influential factors, which stemmed from both university and life, were identified and coded at the negative end of the health continuum (see Figure 29).

There were 5 major influential factors which emerged from the analysis that appeared to negatively impact the participants' psychological wellbeing, satisfaction with life, resilience and distress levels. Of these themes, 'isolated' and 'stress' were the most common/repeated. (See Table 42)

Table 42 *Influential Factors: Negative*

Influential Factors:	Students who commented /10	Number of references in text
Negative		
Anxiety and Depression (illness)	4/10	8
Suicide	3/10	5
Past bullying	2/10	3
Stress (workload/life)	8/10	28
Isolated	9/10	12

Many first year tertiary students rise to the challenge of finding themselves suddenly confronted with an environment that is largely self-directed, and often accompanied with a

newly acquired freedom, an increased level of personal responsibility, as well as academic and personal pressures.

However, there is evidence of increasing numbers who are succumbing to these pressures, often resulting in poor mental health. The major negative influences on the participants' psychological wellbeing, satisfaction with life, resilience and distress levels were found to come from both university pressures and life situations and circumstances. It wasn't only first year experience, financial pressures, workload or transition that created the emergent themes; it was also the emotional states and situations that arose from these, which told the story of the negative influential factors. Many of the challenges that the students faced seemed to come from within (feeling alone, hating themselves, not fitting in, feeling overwhelmed, isolated and not in control) and these appeared to manifest in negative emotional states such as feelings of anxiety and depression, with some even progressing to attempting suicide. The extent of the students' emotional fragility was unexpected.

10.3.1 Anxiety, bullying, depression and suicide.

First year students can arrive at university with conditions that have arisen as a result of their prior experiences, as well as experiences of loss in the context of change (Rowling, Weber, & Scanlon, 2005); with students referring to anxiety; being bullied at school; their suicide attempt(s) and also sharing their story of depression. The majority of these students demonstrated their emotional fragility and their feeling of powerlessness to change circumstances. One student, Ash, spoke of the anxiety that she had suffered as a result of being bullied at school and her subsequent suicide attempt, reflecting the depth of some of the students' emotional problems.

I actually tried to commit suicide six months ago, well yeah, just under six months ago now. My friends and boys I guess.....I don't talk to my mother. The stress with everything and it's just a lot and just couldn't be bothered any more. It was just like, I've had enough, I don't want to deal with anything. (Ash)

Ash had come to a point in her life where she 'was in a pretty dark place; couldn't be bothered anymore; was at really rock bottom'. She mentioned her friends, boys and not talking to her mother as some of the stressors that she was encountering at the

time. Another student who spoke of her suicide attempt also used the words *'rock bottom'* and *'dark'*. Sam talked about how *'everything just seemed really dark and really down'*, adding that she was *'dead'* and *'numb every day'*. As a result of these feelings, she said that she *'even tried to off myself a few times and it didn't work'*. Both Ash and Sam had reached that *'dark place'*. However, it was circumstances from their past that had also played a part in their emotional state.

10.3.2 The influence of past bullying.

Having shared their experiences of their suicide attempts, Ash and Sam then spoke of the difficulties that they both had encountered at school as a result of being bullied. They felt that they had been unfairly judged, and still couldn't understand why it had happened to them. As Ash stated, *'I never did anything wrong, I'm not a person to harm someone or hurt them in anyway'*. The pain they had experienced from the bullying was still palpable, and reflected the depth of the hurt that they still carried, and was transferred to the researcher as Ash explained how the bullying had affected her at the time.

High school was a stressful time for me especially because – I was really bullied...I never did anything wrong, I'm not a person to harm someone or hurt them in anyway. So it was really you know, I ended up with anxiety as well back in high school to the point where I vomited for two weeks straight and lost about 10 kilos, hair was falling out, constantly shook, like a lot of things. (Ash)

Sam's comments also reflected the extent of the hurt and the feeling of isolation, when she spoke of how *'I was bullied when I was in school relentlessly. I was pretty much at the end of every insult. I didn't have many friends or anything'*. She shared how she is now a person who has *'social anxiety'* who gets *'really nervous all the time'*. These experiences appear to have had a detrimental effect on these student's emotional states which had the potential to negatively impact their psychological wellbeing, satisfaction with life, resilience and distress levels.

Rory, a mature age student, expressed his passion about providing support for students who were thinking of suicide or who were depressed, insinuating that he had

been in a similar situation. It must have been of concern to him as he had been thinking about support issues the night before the interview, and felt that the last thing anyone wanted to do in that situation was to talk about it. He implied that he would rather talk to someone who had also been in that situation and could share their experience; something that he was willing to do.

I was thinking of an app or a website last night for people - for both people that are thinking of suicide or depressed and then other people on the other side of the fence, like me, that have had it their whole life and then been through it, to help explain things. Bang, immediate, as opposed to Lifeline. I don't really want to talk to someone, because I'm ringing up saying, why do I have to ring up and talk to you? That's what's doing my head in. (Rory)

It was the mutual support that Rory felt was important, which could be achieved through receiving the SMS, as well as having seminars and support groups: *'So it'd be good to have a blend of those two, of someone you haven't met yet and someone you do know and support each other'*. He also added that *'I've had several breakdowns - to not - because I don't understand that I don't - well I don't fit in'*, implying that he understood what it was like to feel isolated or *'don't fit in'*, and illustrated the ramifications of that isolation (breakdown).

It was Charlie who highlighted the added stress and anxiety that financial pressure can have on someone who is already *'struggling'*. Charlie was diagnosed with major depression at the age of 24 and has *'struggled with it all my life'*. Being *'financially strapped'* she found that it caused *'another reason for my anxiety'*, adding to the pressure to what she felt came with being a mature age student.

Although the numbers within this study (and comments) were small, they still reflected the growing concern surrounding depression and anxiety within tertiary students. These students demonstrated the extent to which levels of depression and anxiety can affect them both emotionally and physically. It is these feelings of anxiety and depression, along with financial pressures, that can add to the already high stress levels experienced by university students. Jamie, a mature age student, expressed what a number of students alluded to as

being part of their expectations of university life. *'I mean, we all get stressed. We're doing university, we get stressed.'*

10.3.3 Stress.

Eight of the interviewees spoke about the levels of stress that they had experienced. Participants weren't specifically asked about stress, yet they chose to bring it up in the conversation. As a consequence, it emerged as one of two major themes within the negative influential factors. The stress was not just coming from workloads and academic challenges, but also from their personal lives. Participants explained stress as a *'race against time'*, the *'frustration'* of not knowing what to do or how to do it, and the *'pressure'* to do well.

Charlie explained what it meant to be stressed in relation to university. When assignments were due, or presentations, she felt like there was always *'a race against time'*, and that caused a stress that she says *'attacks her physically'*. In her panic to finish, she forgets about her body, then *'gets a physical racing feeling in myself and I feel as though I can't breathe'*. She feels *'that she is totally out of control and can't catch up'*. Once that happens, she then finds it difficult to concentrate on her work, so she *'falls behind'*.

As a result of increasing tertiary fees and other financial pressures, many students have to work as well as study in order to survive. This can bring its own degree of stress, as Sam illustrates:

When I was at work and I'd just been abused by a customer and one of my bosses was breathing down my neck and I was stressing out. I didn't need the stress of people constantly abusing me. I was a cashier and I worked in fruit and veg as well and just you get people coming up to you and expecting you to know everything about the store, the price of like one peanut or something. You don't know off the top of your head. You're just doing your job and they don't understand that and I didn't need that stress. (Sam)

Along with the stress that Sam had experienced at work, she also expressed the stresses and challenges of being a first year university student:

Yeah you don't know what to expect and everything is just so different. It's like having a hot shower and jumping out into the cold snow outside. It's so different and just - you're struggling trying to find your way around and you don't have any support, you don't know anyone, you don't know what you're supposed to do. (Sam)

As Sam demonstrated, the combination of stress experienced at both work and university can lead a student to feel overwhelmed. The word 'stress' was used by the majority of the participants, either referring to themselves or, as Jamie did, to other students. Jamie commented on the stressors that she sees the younger ones facing:

They particularly get stressed about a lot of things, so their income is low, they're trying to balance work, and study, and a social life, and a love life, and all of that stuff. (Jamie)

It was interesting that Jamie commented on how she saw others stressed, as she was the one who used the word 'stress' the most, appearing ten times in her interview:

*...because you end up really **stressed**; I do tend to get a bit **stressed**; I mean, we all get **stressed**. We're doing university, we get **stressed**; But they particularly get **stressed** about a lot of things; Well, the problem with this semester I've had a lot more **stresses**; So this semester was a lot more **stressful** than last semester on the whole; At times when I was feeling really **stressful** this semester; I know a couple of the younger people that have been very **stressed**; There are weekends and people get **stressed**. (Jamie)*

The frequent use of the word implied that the theme of stress must be salient in her mind. Charlie, a mature age student, experienced a lot of stress throughout her work life, which she feels has now hampers her ability to handle stress well at university. She also repeated the word, using stress six times, but in contrast to Jamie, applied the word entirely to her own feelings of stress:

*I'm starting to feel **stressed** and sick and thinking, oh god; I get **stressed** very easily because I've had quite a **stressful** work life, and as I've got older it's got*

worse; I just get **stressed** so much quicker and so much more easily, more anxious; Probably afternoon is when I get more **stressed**; you **stress** out at the weekend just getting your assignments done. (Charlie)

Charlie's references to stress also indicated the prominent role that it plays in her life, indicating a conviction that this would only worsen, as she aged. However, Phoenix, an international student from China, offered a totally different perspective on stress. He loved it and saw it as motivational: *'On stress? I'm not that person who is fear of stress. I love stress'*. However, he expressed the pressures of having to cope with a different language, traditions, cultures, customs and ways of thinking, along with all the other pressures faced by any university student. He felt that the Chinese students were all under a lot of pressure and stress due to the high expectations from those at home. *'We have a lot of pressure to do good when we are here, from family back home. Always comparing. Big pressure'*. Here Phoenix made a distinction between stress and pressure; the positive aspect of stress as a motivation to work and the negative pressures of expectations from home. Chris also didn't see stress as a huge negative, but felt that the frustration he felt which led to stress was acceptable. *'I get frustrated and it's like okay..... Everyone's stressed at different times'*.

In contrast to Phoenix and Chris, Sage and Alexis referred to *'immense stress'* and being *'over-stressed'* and *'all the pressure'* when relating to the workload at university. In reference to Jamie's statement: *'I mean, we all get stressed. We're doing university, we get stressed'*, implies that it is almost an expectation that stress will be a part of your life when you attend university. Ash demonstrated that stress doesn't have to come from one source. She felt that the *'stress really puts you off a lot'* at university, whilst in her personal life she was feeling *'stress with everything'*.

Student comments showed that attending university for the first time, having to work, and having to shoulder expectations from home (such as the Chinese students) can add to the levels of stress that they experience. This stress may then lead to having a negative influence on health, as Charlie declared; it *'attacks her physically'*. This theme, as well as the next theme of isolation, stood out from all the other themes. Up to nine out of the ten

students expressed incidents or feelings relating to both, which gave rise to the question of whether these two themes were related?

10.3.4 Isolation- workload, first year experience, cultural.

The other major theme emerging as a negative influential factor was the students' feeling of 'isolation', 'lack of support' and 'not fitting in', which a few of them found to be emotionally challenging. Many students were not accustomed to the solitary life of university study, and expressed it in such ways as 'being isolated', 'the worst time', whilst others felt the isolation generally in their life, 'well I don't fit in' and being 'culturally different'.

Alexis found the study aspect of university to be very isolating because you '*feel so alone sometimes in your studies, especially when you're at home all day*'. Charlie also felt this isolation in relation to the workload from university, especially at the weekends, which she felt was '*the worst time. You haven't got your mates to talk to and stuff*'. Sage felt that the isolation was exacerbated when it was '*one of those days when no one text you*'.

As the workload increased throughout the semester, students had to spend more time on their own trying to complete their assignments. Half the students found this combination overwhelming. Jamie summed up what the students expressed as far as the increased workload was concerned.

Probably when my last anatomy exam was on and I had a major physiology assessment due, and a major - another subject I had a major assessment due. I was feeling really inundated and just - I was feeling like every moment of my waking day was just consumed with assessments... I think even older people who have been at university for two or three years, it can get pretty inundating.
(Jamie)

However, Chris didn't feel the isolation from too much work; he felt it from not having close friends with him at university. '*There's not really somebody that I could just go to and talk to*'. The transition to a new environment can often disrupt social networks with many students find it difficult to make friends and establish new ones, as Chris had experienced. Sam also felt alone when she spoke about her experiences as a first year student: '*you're struggling trying to find your way around and you don't have any support, you don't know*

anyone, you don't know what you're supposed to do'. Ash experienced the same feeling of isolation when first coming to the university, and found that she had to resist the temptation to just leave.

Not knowing anybody, no familiar faces and all the rest of it. It's like I'd come to uni - because I'm used to being in Sydney where I know everybody - coming to uni was like, I don't know anyone, I don't want to be here. (Ash)

Chris, Sam and Ash have indicated that university can make you feel alone. However, it is not always university that can bring about this feeling, as Rory and Phoenix demonstrate. Rory felt his isolation through not fitting in generally: *'I don't understand that I don't - well I don't fit in'* and has felt that isolation most of his life. Whereas Phoenix, an international student, expressed a different kind of isolation - cultural isolation:

Just its.. we've got different culture and most European students they have got the same western culture with Australian people.Like upside down. Yeah. What we think of this world is totally different than what you guys think of this world. Yeah, like now our family always force us to get the best, but there is no best in this world you know. There is no best, and not for your culture - there is no like comparing - this comparing between people. (Phoenix)

Phoenix dealt with his isolation through mixing with 'westerners' and immersing in their culture. When asked about when to introduce *Mytern* at university, he replied *'not first three weeks. First three weeks are drinking weeks'*. He appears to have fitted in!

When *'every waking moment'* is consumed with assignments and study, have feelings of *I don't fit in'*, *'you don't have any support'* and *'you don't know anyone'*, it is not surprising that students felt isolated and alone. These feelings of isolation, along with high stress levels and feelings of anxiety, depression and suicide portrayed some of the negative influential factors faced by the first year student, and the detrimental effects that these may have on students' emotional states. In contrast to the negativity behind the students' personal challenges were the students' powerful reactions to the anonymous *Mytern* texts.

10.4 Influential Factors - Positive

This section outlines the salutogenic changes that occurred as a result of the *Mytern* intervention, and is guided by the research questions: Has change occurred in the students who participated in the intervention *Mytern*? If change did occur as a result of the intervention *Mytern*, what made this change take place? As was found in the analysis (Chapter 9) the SMS component of the intervention was the most influential factor which emerged from the data. It is important to note here that the impact of the *Mytern* intervention that the interviewees refer to is from the SMS component, as only SMS participants were interviewed; all of which attributed any major changes to the SMS component of *Mytern*. The themes that were identified, coded, refined and revised at the positive end of the health continuum are represented in Figure 37.

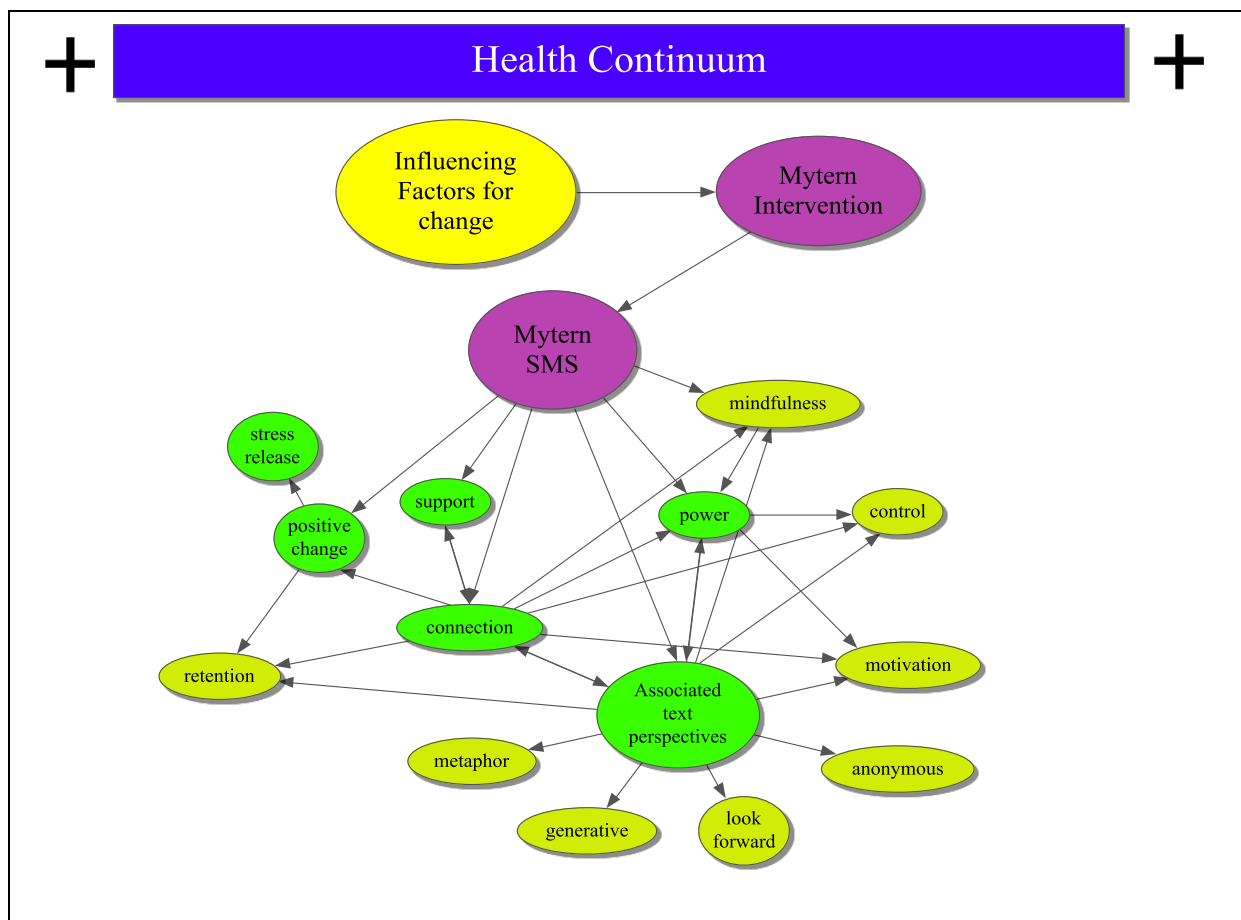


Figure 36. Thematic map (positive end of the health continuum)

Findings revealed that the positive impact that the daily *Mytern* SMS had on the students' emotional states was profound. (See Appendix W for video responses). In contrast to the isolation that the participants voiced in the previous section, students felt that the SMS represented an *anonymous friend* who was *out there, supporting them* and *caring for them*. The SMS's *motivated* them to *stay on track*, but most of all they convinced them that they were in *control* of their lives, their feelings and their emotional state. Relating SMS's to the metaphors of the steering wheel and roads enabled the students to take control of their wheel figuratively and steer down that better road. This ability to be in control in turn appeared to have increased their resilience to the personal and emotional challenges outlined before. The success of the metaphor used in the intervention as well as the students' choice to 'pass it on' will also be discussed, as well as presenting feedback via SMS, both solicited and unsolicited. The themes and the number of participant comments and references outlined in Table 43 reveal that 'power', 'positive change', and 'mindfulness' were mentioned by every participant. The theme of 'connection' (which was also seen as important) was the one of the first themes to emerge.

Table 43 *Salutogenic Influences*

Influential factors: Positive	Students who commented /10	Number of references in text
Connection	9/10	23
Power	10/10	31
Positive Change:	10/10	34
Released stress	7/10	16
Mindfulness	10/10	23
Retention	3/10	3
Associated text perspectives:	10/10	

Metaphor	4/10	5
Generative	5/10	11
Looking forward	4/10	10
Anonymity	6/10	9

10.4.1 Connection: someone out there, a supporter and a friend.

When asked in what way they felt that the *Mytern* SMS had had an impact on their lives, the majority said that receiving the texts was like having a *'friend in the phone'*, a *'support'*, *'an objective influence'*, who was *'motivating'*, *'was always thinking of them'* and was *'always there for them'*. It was *'someone'* with whom they could make a *'connection'*. Half of the participants commented that the fact that the sender was anonymous made little impact on the importance of the message. One participant used the analogy that receiving the *Mytern* SMS was like the unconditional love that you receive from a dog *'It's like a dog coming up to you and giving you a big friendly lick for no reason. It makes you feel loved!'* (Charlie)

The extent of the connection with the SMS was quite unexpected and was reflected in quotes such as those from Rory and Sam, who spoke of the friendship and support that developed between themselves and the anonymous SMS. Rory believed that the SMS made him feel like *'there's someone else out there that isn't here with me right now, who cares, who doesn't even know me.'* He reiterated this feeling of *'caring'* a number of times, again using the terminology of *'someone out there'*. Sam goes on to elaborate on the feelings of *'someone'* being *'on your side'*, including her feelings of support and confidence that she received from the SMS.

You just know that someone's on your side and you feel like when you get the text it feels like you can relate. Just to know that somebody's on your side every day. Just to remind you, give you a bit of confidence. Make you feel a little bit of hope, a bit of happiness, getting that text and seeing and reminding you that you can change your life. (Sam)

As Sam and Rory have demonstrated, an unexpected reaction to the text was the anthropomorphism, or personification of the SMS, which was reflected in the way over half of the students used the word 'someone' or 'somebody' to describe how the texts made them feel.

*It's just a little reminder, just to know that **somebody** is thinking about you... Knowing that there's **someone** out there. (Charlie)*

*It just felt like it was just **somebody** that was just trying to help... like **somebody's** talking to you. (Chris)*

***Someone** to encourage you. (Phoenix)*

*It felt like it was **somebody** trying to help and let you know that you're not the only one out there. (Ash)*

*Good to know that everyone knows that there's **somebody** there. (Chris)*

*It makes you feel **someone's** out there caring. (Rory)*

*You just know that **someone's** on your side. (Sam)*

*I think that the thing about the texts is knowing that there's **someone** out there saying, come on guys, you can do this. You're in charge. (Charlie)*

The anthropomorphism of the SMS for some students went a step further; becoming godlike. It was interesting to discover that the connection the SMS made was to something bigger than they were; a 'higher power', 'the whole big universe' as well as 'increasing their faith'. Alexis referred to her personal connection to the SMS as 'a little friend in the phone' and an 'external compass':

Very personal. I think it was kind of like having a little friend in the phone, if that makes sense. Like, you're some sort of an external little compass friend thing, a little entity. That sort of gives you a connection, that connection. (Alexis)

Sage reiterated that personal connection when she referred to the SMS as being 'like a one-on-one personal connection' and felt that it was 'the personal aspect of it that

makes it help and makes you want to read that', so she 'just looked forward to them'. That connection was also what Rory felt when he received the SMS: 'that's what I'm talking about, that ...that connection'.

In opposition to the personal connection that the majority of the students made with the SMS, Jamie felt that it was the impersonal and generic nature (the disconnection) of the text that added to its success.

It's less personal. It's less accusatory. Like, oh, you look stressed. Yeah, well yes, I'm stressed. But when it just comes through as a generic sort of text, you go - well, you have to think about it yourself, am I being stressed? Well, yeah. It's a bit more self-reflective rather than somebody else telling you that - or accusing you of being stressed. (Jamie)

The level of attachment and the strong feeling of support and caring the majority of participants received from the *Mytern* SMS's was unexpected, especially as most of them didn't know who was sending them or where they were coming from. (Jamie had been the only participant who had looked at the blog on YouTube, which had been uploaded for those students who wanted to know who was behind *Mytern*). Although Rory thought the texts were automated and computer generated, and Phoenix thought that they were being sent by Queensland Transport (as he had recently had a traffic infringement); the SMS was still able to have a positive impact on both their lives.

10.4.2 Control: power and motivation.

Having established a connection to the SMS, the power that the impact of the *Mytern* skill behind the SMS gave the participants appeared to be the motivation for them to take control of their emotions, and as demonstrated by some, their life. Students spoke of the SMS's ability to '*motivate*' them to '*stop and change*' the way they were '*thinking and feeling*'; to '*keep them working*'; to '*reinforce*' that they '*can do this*'; and that they could '*take control*' of their life. Three recurring words in the interviews were '*power*', '*control*' and '*motivation*'.

The use of the word power is illustrated in the following quotes, where Sam uses the word in relation to her ability to turn, stop and to keep going. She realised that she could take control over parts of her life.

*You look at the road that you're on and you always have the **power** to turn and I just read it and thought you know, that's so true. I am here, I'm doing this for myself and I have the **power** to stop. I have the **power** to keep going and in the end I'm doing this for me, no one else, and it's just so helpful. (Sam)*

Like Sam, Charlie also shared that learning the skill of *Mytern* taught her that having control of her feelings is her 'only power', which she saw as being extremely positive. 'It is our only **power**...and it's wonderful'. The feeling of power that she acquired also came from the analogy used in the SMS. 'It's a lovely analogy, that steering wheel thing I think because you think about it driving around in your car and you think I have got **power**.' Once she understood the skill, she was able to utilise that power when she received an SMS. It reminded her that 'Who else has got **power** over me except me really? Nobody can tell you really what to feel'.

Phoenix also felt power when he received the SMS, and used the word in conjunction with motivation, which he saw as power.

*So much - it mean something. It's brilliant. It's meaningful and it can give you some motivation. Yeah. It make me think. It did. Just no - sometimes when we get busy with something and I read these texts, it give you so much motivation. That's **power**, that's energy. So I do love these texts. When I was working on some papers and I read these texts, I feel more **power**. I feel more energy. It helps me with the whole semester - the attitude. (Phoenix)*

Along with the power, a number of students felt that they had more control over their connection between emotion and circumstance. Ash and Chris demonstrated the texts ability to remind and reinforce the message of being in control. One thing they all expressed, similar to Sam and Charlie, was the realisation that they could establish **control** over how they thought and felt, and the strength that this knowledge had given them.

*That afternoon you get that message and it's, yep okay, let's turn. It really does actually help you turn. Yes. Just, it wakes you up and it's like, no you can take **control** of this, it's not going to affect you. (Ash)*

*It's when you get texts it's kind of like it **reinforces**, like oh yeah, I can do this. I can step back and look at it or make sure I get back onto the right road. (Chris)*

Rather than talking about motivation and control, Riley and Ash both used the word 'boost' in reference to receiving the texts. Ash felt that the boost she received helped her gain perspective and realise that everything was satisfactory: *'It's just that little extra boost to help you through the day or to help you realise no, this is all right, it's not a big deal'*; whereas Riley saw the boost that she received with the SMS as a need: *It was like - it was good to get a text every day because it kind of boosts you up, a need.'*

The comments from the participants revealed that as a result of their connection with the SMS, they were able to receive the *power* and *motivation* which enabled them to *'step back and look at it or make sure I get back onto the right road.'* It *'wakes you up'* so you can *'take control'*, *'feel more power'*, and *'realise no, this is all right, it's not a big deal'*. Having talked about the motivation to take control of their steering wheel, the participants then went on to discuss the *'positive changes'* that took place in their lives as a result of *'changing'* their *'direction'*.

10.4.3 Positive change

As outlined in Chapter 2 .5.9 the definition of change was left up to the individual to interpret. All the students interviewed about their experience with the *Mytern* SMS included examples of the positive 'changes' that had occurred in their life; along with those associated with their life at university. The regular texts helped them *'reframe'* their thinking; and by being aware of their emotions and building emotional resilience, allowed them to bring about changes in their life. Some of the changes they experienced included; being able to make better choices regarding friendships; realising the anger they had inside and being able to modify that; becoming more productive regarding university work; gaining confidence; being able to deal with relationships in a better way; and hating themselves less.

The word 'positive' was repeated many times by over half of the participants, indicating it as being a salient theme in their minds:

*I understand what I'm doing here but I need to start thinking more **positive** about something,...you're getting that little bit of **positive** input....**Positive** input...any **positivity** around is just what I need...I just love the **positive** input. (Alexis)*

*It was really **positive**...they were **positive** enough just to push me in the right direction...Mytern gave me a **positive** outlook on life....I was thinking and feeling **positive**.....That road changed to a happier, **positive** road that I went down. (Ash)*

*There's always something **positive** about them and I just find anything **positive** into my life is a good thing.....So anything **positive** that comes into my life now is a real plus.... I like having that **positive** - little **positive** message coming through on a regular basis, to take on that **positivity**. (Charlie)*

*Be **positive** and like change my outlook. (Riley)*

*The **positive** reinforcement. What Mytern - similar emotional, familiar - I can't even say the word - familiarity is **positive** thinking.... **Positive** reinforcement from somewhere else. (Rory)*

***Positive**.....very **positive**....they're all very **positive**. (Sam)*

The positivity that the participants received from the texts seemed to be a catalyst for change. This change manifested in different aspects of the participants lives. Sage found that it stopped her from getting 'bogged down in other people's problems, let those wash', whereas Ash was able to see differences in her work at university and her personal life: 'not only did my marks at uni go up, but my personal life improved a lot'. She felt that in the time that she had been receiving the SMS, she'd 'come from that little sprout of a tree to a big blossom tree', giving her 'a positive outlook on life'. It made her more selective about the friends she chose by moving 'away from people who weren't putting me in a good place, moved to that better person with my newer stronger formed friendships'. Her marks at university also changed, which she attributed to feeling positive: 'when I was thinking and

feeling positive, my marks went up. I was getting distinctions and HD's as well', which were the best marks that she said she 'had ever achieved'.

Chris also found that the positive change that he received as a result of the SMS *'definitely helped with my work'*. It helped him concentrate on his assignments, as he often found it really hard to stay on track: *'If I've just been studying or anything and then you get the random message and it's just like, okay, and it kind of refocuses'* and *'just kind of just keeps me on track with my work'*. Alexis found that she too was able to concentrate better on her work, as she *'was doing a lot more deep breathing and trying to release the negative energy'*; especially when the SMS prompted her to breathe. After that she was *'a lot more - calmer, a lot calmer after realising where my head was and then moving away from that into a more calmer phase'* and concentrate on her assignments.

Rather than concentration, Phoenix found that *Mytern* helped him *'with the whole semester - the attitude'* and that it was his change in *'attitude'* that was the positive change for him. It was the change he felt *'when I was working on some papers and I read these texts, I feel more power. I feel more energy'*.

One of the reasons why the SMS was sent daily was to help rewire the brain to assist in the skill becoming embedded (refer to Chapter 5 Neuroplasticity 5.3.1). Therefore, when students encountered a situation or a pattern of thinking that didn't feel good, they would be able to recognise it and be able to change. Two of the participants felt that a positive change for them was that the skill had become embedded, and that they were able to apply it without relying on the outside prompt of receiving an SMS. It was interesting to note that their ages were 19 and 61, indicating that the ability to change may not be restricted to age.

Ash shared that as far as she was concerned: *'the Mytern skill, it's built in to me now; my goal is where I want to be and I'm not going to let things affect it and take me off that path.'* Charlie also felt that *'I'm starting to do it automatically'*. When *'it gets really bad'* she is able to stop and recognise that she needs to change, and asks herself: *'What's going on here? You're in control of this. What are you going to do about it? So it's been fantastic, it really has'.*

Many of the participants also commented on how the skill had affected their whole life. Rory shared that *Mytern* had *'actually affected my day and my life'*. He believed that the SMS had helped him with relationships, and by recognising that *'when it says things like you don't have to feel how other people feel, it's not just relating to how people feel at uni. It's how I feel about myself at home'*, he was able to deal with personal situations in a much better way. He found the messages *'positively reinforcing, whether in a good mood or a bad mood. I just needed the positive reinforcement'*. Rory also referred to the neuroplasticity of the brain when he expressed that one of the reasons why it was successful was that *'it's important with this rewiring of your brain to think of it and have it subconsciously - these positive thoughts subconsciously. So if you look at it and completely don't even consciously recognise it, it still reinforces it'*.

The positive changes that the participants shared included: improved study habits and relationships, the skill becoming automatic, along with increased concentration. It was the deep breathing that helped Alexis concentrate, implying that she was feeling less stressed and *'a lot more calmer'*. This next theme summarises how 7 of the participants shared their views on how the SMS impacted their stress levels.

10.4.4 Release Stress.

As was illustrated in the negative influential factors, most of the participants experienced varying levels of stress. Some participants used words like *'calm'*, *'calmer'*, *'soothing'*, to reflect the impact that the SMS had on their stress levels, while for others it was a reminder to take control of their wheel and *'turn off that road'* called *'stress'*.

Alexis, as illustrated in the last theme, found that the SMS made her feel *'calmer'* and helped her to *'move into a more calmer phase'*. Chris too felt that the SMS helped *'de-stress a lot of the situation because of all the pressure'*, which he thought *'was a good thing, yeah'*. He reiterated a few times that the SMS helped him de-stress: *'really just keeping de-stressed, and just kind of just keeps me on track with my work'* and thought that *'it's like it's really soothing'*. Jamie noticed that when the workload was *'huge'* and she *'felt inundated'*, and was *'going insane'*, *'the texts really helped'* because when they arrived she'd say *'I'm just going to be calm and I'm just going to let this relax me – yeah'*.

Ash also shared that she felt that *Mytern* reduced her stress, as it directed her to not worry about the major personal situations that she was experiencing. Her father, to whom she was close, had *'got arrested. He'd got in the wrong crowd when I was at uni and that was a big thing for me. A big shock'*. Ash found that the messages helped her realise that *'this was dad's mistake, it's not mine'* and that she needed *'to turn'* and *'keep going with my life and so it really did help me move on and keep going'*. She felt that she couldn't *'let that affect me because if I go down, he's not going to be there to pick me up'*. Ash said that it was the SMS that made her realise that *'it's okay, but it's not for me to worry about'* and that *'I've got uni and got to concentrate on my life and I've accepted that and I'm moving on'*.

As Ash has demonstrated, circumstances in student's personal life can increase their levels of stress, which can then impact their life at university. Sam is a student who suffers from social anxiety, leaving her feeling extremely stressed at university. She finds that the SMS *'really helps, especially with people like me who have social anxiety who get really nervous all the time'*. She reiterated that *'it really helps a lot'* by giving her *'perspective'* and knowing that *'there is someone out there who cares'*. The SMS also gave Sage perspective, which then stopped her from *'losing it'* and going *'wraaah!, wraaah!, wraaah!, wraaah!, wraaah!'*, which she said *'we can all fall into that!'*

For Charlie, she too found the SMS helped her handle her stress levels, as it reminded her to take control during those moments when she was experiencing very stressful situations. When she did *'get stressed now I can really hook into it, you know what I mean'*, especially when working on assignments.

I'm in the middle of doing all my assignments and I'm stressing out like you wouldn't believe because of deadlines and not being able to do the things and I don't get what I'm doing and blah blah..I get a message from Mytern and it just pulls me up in my tracks and I read it and I think yes. That's right, I DO have control of my life. I can turn and move to another road and I find it incredibly useful and powerful to be able to do that. (Charlie)

The majority of the participants had indicated that stress had been a negative influential factor in their lives, making the *'de-stressing'* influence of the SMS to be of value. Just like

Charlie, the rest of the participants found that the texts reminded them to take control and be mindful of what they were thinking and how they were feeling. The comments which centred on such reflection formed the next theme: mindfulness.

10.4.5 Mindfulness: a reminder to reflect.

When workloads are heavy and assignments are due, students can lose perspective and become overwhelmed with the tasks ahead of them. University requires a lot of self-directed learning. It was during times of high workload coupled with a fear of failure, that the participants found the texts helped them to regain perspective through '*reminding*' them that they were doing well and that they could '*do this*'. It was interesting to note that several of the students used '*step back and look at it*', '*step out*', '*change my outlook*' in their explanation, referring to a change in perspective triggered by the SMS.

Chris saw the SMS was '*a reminder*', that '*when you get texts it's kind of like it reinforces, like oh yeah, I can do this*'. He felt, that through receiving the texts he was able to gain perspective and so could '*step back and look at it or make sure I get back onto the right road*'. Alexis also viewed the SMS as '*just that little reminder*'. She realised that she would get so '*caught up in your - in the way you're thinking*' and the SMS reminded her to '*step out of that and go, no, I understand what I'm doing here but I need to start thinking more positive about something, yeah*'. Riley too was '*reminded me to like focus I guess and be positive and like change my outlook I guess so that it was less negative, yes*' when she received the SMS.

Each participant had their own way of speaking about the mindfulness of the SMS. Ash used the words '*wakes you up*' when was talking about going through a particularly difficult time during the semester. She felt that she was '*was a mess again and I started to go down that path where I didn't want to live any more*'. Receiving the SMS helped to '*wake*' her up, encouraging her to '*change direction*'.

It was like I needed that push in the right direction because I would start to fall and then the message would come through and I'm a bit like, no, come on, keep going. You're doing so well, don't let this affect you and turn onto a road to the wrong place and it really did work. It really wakes you up if you're having a bad day. (Ash)

Sam looked forward to the texts as they reminded her of why she was at university because *'they're all very positive'*. She found herself *'going through them again just to read, just to remind myself why I'm here'*, whereas for Phoenix, it reminded him to look at his GPS. When he read the text he would think: *'You've got your GPS and you've got to choose your own road. Maybe this road is stuck. Maybe you can choose another one. Use your GPS'*.

Charlie was the only participant who actually used the term *'mindfulness'*. It was the *'mindfulness'* that she *'liked'*:

*I like the mindfulness of the texts. The **mindfulness** of being here and now, that reminder, that constant reminder when it goes off even if you don't read it and you think oh that's Mytern. Makes you stop and be **mindful** of where you are and what's going on for you. So it's great. It really links in with that **mindfulness** concept that they keep talking about. It grounds you. (Charlie)*

Although Charlie was the only participant to actually refer to *'mindfulness'*, the reminder and reflection that the SMS triggered, assisted the students in becoming mindful of where they were and how they were feeling. Receiving the *Mytern* daily SMS has shown that it can help redirect students onto a better road, away from negative thoughts, reminding them of why they are at university and that they have the ability to be in control and *'do this'*. This empowerment appeared to have prevented several students from leaving university.

10.4.6 Retention.

The findings from the study suggest that student problems associated with their emotional and mental fragility are among the reasons for them considering leaving university. In the factors that influence retention, social support is one of the contributing measures. Participants expressed a feeling of support when they received the daily *Mytern* SMS. Here Sam points out that before receiving the support from the texts and understanding the *Mytern* skill, she probably would have chosen to drop out of university.

It did, yeah. It gave me confidence. It did. I don't think - I'd still be working there if I didn't get that text. I think it's completely changed me - I probably would have dropped out of uni because I couldn't have juggled both of them at the same time.. ...and I'm so glad. I'm loving uni. (Sam)

Mytern also influenced students' choice to focus on and remain at university.

It's so easy to get side tracked and socialise and do other things like that and just walk away. At the end of the day, Mytern teaches you that you are the one that you can put the blame on. So it's important to check in regularly- which is what Mytern does- to make sure you're on your road and not getting influenced by someone else. That's why I'm still here at uni. (Rory)

I have read and constantly reread the Mytern texts before uni sessions to pick me up when I am feeling that questioning feeling, should I be here? Being 49, sometimes I question whether what I am doing is the right thing to do. (Anonymous SMS)

Instead of just stressing about it thinking, why did I do this, why did I choose to come to uni? I should just leave now. Just got to stop and just take a look at why you did it. Weigh the pros and cons and the texts remind you of doing that. (Sam)

The support provided by the SMS appears to have had a positive impact on the negative repercussions that being overwhelmed can produce, such as illustrated by Ash '*I don't want to be here*'. As well as the positive experiences outlined above, the analysis also revealed that the use of metaphor had helped with the participants uptake of the skill, and that once understood, the majority of the participants passed the skill onto someone else who they believed would benefit from the message and metaphor behind the texts.

10.5 Associated Text Perspectives

10.5.1 Metaphor/analogy.

Through adopting a metaphor, *Mytern* was able to convey a complex concept in a less complex fashion. The following comments reflect the success of choosing the common metaphor of driving, to which the students could easily relate. Charlie loved the analogy of the steering wheel '*because you think about it driving around in your car and you think I have got power*'. It made her realise that '*I'm here now and I've got to get hold of that steering wheel again*'.

Riley shared that she felt *'that whole driving of where you're going and that whole turn thing was a big thing for me'*. Rory agreed, saying that *'sticking to that analogy of the road'* was *'just generally useful'* as it either *'reinforced what I was feeling or encouraged me to think how it should be'*.

Ash liked the road as she found it was *'really easy to imagine'* and *'at the end of the road is your goal where you want to be'*. The analogy made it easy for her to understand that *'if you're going up that road straight then you're fine, but when you're not, you're going off that path'*.

10.5.2 Generative.

As the participants had experienced the SMS's positive impact on their lives, the majority of the students felt confident enough in the message to pass them onto someone who they felt needed them. At first some of the participants were reluctant to admit that they had forwarded the *Mytern* messages, as they didn't know whether that was allowed within the study, but once they were assured that this was a good thing, they openly shared their stories.

Chris forwarded the texts onto his mum, who found them to be a positive influence when she was going through a particularly stressful time. Alexis also found that she was able to share the SMS during stressful times by reading out the text to other students, saying *'it's there and it helps everyone'*. Sage shared a couple of the texts with a friend of hers *'who was going through a hard time at work with the team that she was in.'* When asked if they helped she replied, *well, she resigned from her job and is much happier'*.

Ash used the principle of *Mytern* without actually using the exact text and found it helpful with her best friend as *'she does have bad days and I message her and say, it will get better, just don't let it affect you and stay on track'*. Like Ash, Jamie also shared the idea behind the texts, but in her own way. It was with the younger students in her course who she noticed were *'very stressed'*. She talked to them *'probably not exactly the way you said it'* and encouraged them to *'just re-centre yourself and think about where you're going and what it is that you're working towards'*.

Sam's story in particular reflects the sentiment behind why the participants decided to share the skill.

The one thing that was really great with these texts is that I could send them to anyone. I could send it to my friends, my family. Whenever I saw someone that needed a helping hand, someone that I couldn't, the texts did. They care for people in strange ways but in a good way.I also have a friend, who doesn't go to uni, but he's very depressed and sometimes I forward the messages to him. It helps so much; I can't begin to say how good it is. (Sam)

Participants who were receiving the SMS also appeared to have inspired students around them to request the service. An example of this via text was:

Student: *Hey, I'd love to sign up for your motivational texts plz. Thanx.*

Researcher: *Absolutely. I'm interested in what motivated YOU to ask for them lol. Are you a student?*

Student: *Awesome. Ha hah well my friend gets them and he loves it, so I thought I'd try to join 😊 and yes I am a student*

Forwarding the SMS appears to have empowered some of the participants, enabling them to help others and consequently feel better about themselves. Four of the participants also reported looking forward to the daily SMS.

10.5.3 Looking forward.

Once some of the participants reported becoming accustomed to the daily texts, they would begin to look forward to them. Sage found that she '*started to look for them and when they'd arrived...I'd sort of wait for them.*' Sam also looked forward to them as positive support, reminding her of why she was at university. *I actually find myself looking forward to what the next text is going to be.*

Alexis was disappointed when they didn't come during the holiday period. '*Right from the word go I enjoyed them*' and then she found herself '*waiting - like, looking forward to them.*' When they didn't come during the holidays '*I did miss them*' as they had '*become part of my*

day'. When she received the SMS that *'said you weren't going to do them anymore, I said, oh no!'*

Ash also found that she was looking forward to the SMS and was disappointed when they didn't arrive: *'When it didn't come in the morning I was like, ah I haven't got my text today. It's like you're expecting it. I hated how they stopped in the holidays'*. Although Ash missed the texts in the holidays and weekends, she felt that it was a positive to not have to depend on the texts and that the absence of the SMS was a good test to see how much of the skill had been assimilated. She thought that *'the weekend is a good test'* as it *'gives them that weekend to do their path and see how they're taking their path without the little boost'*. It also gives them that little bit of freedom and see how they go with not having that dependence with it.' When she didn't receive the SMS over the holiday period she realised in herself *'how much I had changed as well'*.

Looking forward to the texts was something that added to the participants day, rather than creating a dependency on having to receive a regular SMS. The notion of looking forward to the text and the connection and friendship created between the participant and the SMS was made even more intriguing when most of the participants shared that they didn't know who was sending it.

10.5.4 Anonymity.

An interesting category that emerged unexpectedly was that of anonymity. The students had an opportunity to view a blog on YouTube if they wished to find out who was behind the texts, yet only one of the interviewees was interested enough to look at it. Even she said that knowing who was sending the text had made no difference to their effect. Alexis reflected several of the participants' views when she stated *'It was the information I was more interested in just, yeah, I enjoyed the information.'* Sage felt that the anonymity added weight to the message. *'I think the anonymity does help, because it's kind of like some sort of high power - yeah.'* One participant, Charlie, as discussed under the theme of connection, felt that the SMS was like receiving the unconditional love from a dog: *'It's like a dog coming up to you and giving you a big friendly lick for no reason. It makes you feel loved!'*

Jamie also felt that the anonymity added to the texts impact, as it was less accusatory.

It's less personal. It's less accusatory. Like, oh, you look stressed. Yeah, well yes, I'm stressed. But when it just comes through as a generic sort of text, you go - well, you have to think about it yourself, am I being stressed? Well, yeah. It's a bit more self-reflective rather than somebody else telling you that - or accusing you of being stressed. (Jamie)

Whereas Chris, who was quiet and shy, felt that he liked being anonymous as well. Participants were only known by their ID number, as no names were given. *'I rather liked, you know being anonymous.'*

The objectivity of the text, as Jamie pointed out, created a less personal relationship which appeared to assist in its effectiveness. The positive impact of the *Mytern* SMS was also reflected in unsolicited feedback from SMS participants. As was stated earlier, the students were discouraged from replying to the texts for ethical reasons, yet, as illustrated next, some still felt compelled to comment on their effect.

10.6 Findings from the Unsolicited Feedback

Often students would spontaneously respond to an SMS. The majority of the replies indicated the timing and appropriateness of the message, as well as providing a feeling of support, encouragement and caring. The responses were from approx 60% female and 40% male. A few examples are included in Table 44. (See Appendix X for further SMS feedback)

Table 44 *SMS Feedback (1)*

Love these messages. It is uncanny how they come at a precise time in my day! They have come at an important time for me not only with in regard to Uni but in my personal life too.

Thank you ☺ your encouragement always comes just when I really need it ☺ ☺

I must say every time I get a message from you, it is exactly what I am feeling and I would just like to say thank you.

The *Mytern* messages are great! After a few weeks I noticed my attitude had improved and eventually my attitude wasn't as affected by things that happened in the day and the text

messages helped support that change. Thanks!

I love these texts. They are a breath of fresh air within my day. A reminder that all is well.

These texts are very motivational and I think that what you are doing is great.

I do appreciate these messages. Especially when they are oh so relevant. They make me feel better.

Thank you :-) your texts are so lovely and encouraging, caring and uplifting'

There were also three unsolicited replies that weren't so positive. When the initial text was sent out, one of the participants responded with '*f**k off*'. In alignment with ethical considerations, it was decided to simply delete that participant from the list without replying. Two participants replied '*Who the f**k is this?*' and '*WTF?*'. As they were questions, a reply was given prompting them that this was *Mytern*, an SMS service that they had signed up for during class. The replies came back, '*Thanks. Sorry just didn't know what it was*' and '*Oh,ok. No worries.*' Both of them kept receiving texts after that, as they did not reply 'stop' as students who wished to cease the service simply replied 'stop'. One 'stop' included '*I don't have a GPS*'.

The retention rate of the SMS participants was extremely high. At the completion of the intervention, of the 169 participants who initially volunteered, 82% were still receiving the daily SMS; the majority of which chose to keep receiving the texts until the end of semester. At the conclusion of the intervention (end of week 8) an SMS was sent to the participants informing them that the trial was ending. Quotes such as those in Table 45 reflect the students' response.

Table 45 *Continue SMS*

Awesome service. Please continue texts if possible

Please keep the texts going. They are really helpful

I want them to keep going. What can I do to help?

I've loved getting your texts this semester and it'd be great if they continue. Some days they are just the little boost needed 😊

These daily texts have been really beneficial to keep me centred and in the present moment, to focus on the things in my life that are good and to be grateful for. I would love to have texts like this throughout life. Please keep them going. Thank you 😊

As a result of this unsolicited feedback, participants were asked to text back 'continue' if they wished to receive texts until the end of the semester, 'or stop': 98% chose to continue. Students were also given the opportunity to give feedback, positive and negative, via text about the service. An anonymous male wrote *'Texts were good, as awkward as they seemed at first it's really good to get a text that you live your day by.'* Others wrote more extensive replies, as seen in Table 46.

Table 46 SMS Feedback (2)

The *Mytern* txt have helped me throughout the semester. It really made me stop and realise where I was at the time and to appreciate life as well as uni and to create an equal balance with family, friends, uni and work. I would really like for these texts to continue and feel that they would really help me next year as I have a big year coming up.

I signed to receive my daily texts and they have been really beneficial to keep me centred and in the present moment, to focus on the things in my life that are good and to be grateful for. I would love to have texts like this throughout life. Thank you 😊

Good program. During the time, my parents separated and I had a lot of assignment stress so the ideas behind *Mytern* helped me cope. Texts were good reminder to keep it up.

It's really good. You get a text daily and it just makes you feel grounded. You have to reflect what you are doing. It's a reminder that you must create your own path. However, if you feel more lost, rereading over the messages is helpful.

The texts were very nice and positive. I found myself looking forward to them every day. They reminded me to calm down, to take a breath and relax. I'm on this road now; it's my choice where I go. Knowing that helps me feel like a better person.

Whereas Table 47 illustrates how some responses were more succinct.

Table 47 *SMS Feedback (short response)*

It was good!

Thanks 😊

Mytern has helped in more ways than one. Not so much at uni but everyday life.

Helps keep me focussed on my daily tasks.

The texts just helped me to smile sometimes and reconnect with who I am, what I need to do.

Enjoyed receiving messages to make you think about things.

Texts were good, as awkward as they seemed at first it's really good to get a text that you live your day by.

I think the whole premise of *Mytern* is fantastic and feel it would be a great resource for many especially young people.

It was relatively effective. Probably too many texts. 4 or 5 are optimal per week

The booklet was great but that is all I received. No daily texts.

I found the texts very helpful

Great approach and encouragement

It was really great

However, not every student utilised the program. One mature age student wrote:

I'm sorry I didn't utilise Mytern. I guess as a mature age student, in a very happy place, I didn't feel I needed it. But who knows- maybe I will in the future. (Anonymous SMS)

The spontaneous and solicited comments from the SMS participants presented also reflected the positive impact that the *Mytern* SMS had made on the interviewees.

10.7 Limitations

Of the number of students who volunteered on their consent form, the majority were unable to commit to an interview due to time constraints. SMS participants were contacted via text, but there was no way to contact the other volunteers who were not receiving the SMS, as an email section had not been included in the initial consent form – only a mobile contact number. Initially the second questionnaire was going to be done in-class and the contact was going to be made there. However, the course co-ordinator decided after the initial questionnaire was completed and consent forms handed in, that there would be no in-class session. The reason given was that it would take time out of the tutorial. This was disappointing, as it had been originally agreed that the questionnaires would both be in-class to gain greater access to more students. It was found in the pilot study that not as many students attended lectures or tutorials towards the end of the semester. To avoid this, the tutorial time chosen to do the second questionnaire was at a time when the students would all be there practising for a debate. To compensate for the change, an announcement was made in both the lectures and tutorials requesting interviews for those who had volunteered. However, no-one came forward.

Due to the limited number of interviewees, the wider implications of the intervention could not be explored. The reason that students chose not to participate, and why they opted out of the daily texting, could not be followed up, as part of the ethical considerations was to not penalise someone if they opted to drop out of the study. If a reason for their opting out was to be pursued, it may have been seen as confrontational. In future studies, there should be a provision made for voluntary follow-up for those who unsubscribed, and those who chose not to participate from the outset. Consequently, due to a lack of any negative feedback, it was important to represent the voices of those that did speak as accurately as possible; to present depth rather than breadth.

10.8 Conclusion

This chapter has aimed to encapsulate the participant's voice concerning the impact that the daily *Mytern* SMS has had on student's psychological wellbeing, life satisfaction, resilience and psychological wellbeing. Using the health continuum as a measure, it has explored the factors that had a positive and negative influence on student wellbeing, outlining the themes that arose from those factors. It demonstrated how participants' comments made inferences as to why the *Mytern* SMS may have had an impact; inferences which were also observed/reflected in the comments received via SMS. The impact of the SMS and the inferences as to why they may have had an impact will be explored in Chapter 12, when the results from both the quantitative and qualitative data will be combined to form an overall picture, in order to best answer the primary research question.

Having demonstrated the impact that the SMS had on first year students, it was important to also ascertain the long term effect of the skill. Therefore, 6 months after the intervention had officially ended, interviews with 7 out of the 10 interviewees were organised; which will be explored in the following chapter.

Chapter 11 Qualitative Findings T2

Having presented results of the emergent themes surrounding the impact of the emotional fitness and resilience building intervention (*Mytern*) on the psychological wellbeing, life satisfaction, resilience and distress levels of first year university students, this chapter explores the impact of the interventions long term effects on these students. After first introducing the participants, themes established in the analysis outlined in Chapter 9.7 are discussed, again using the participants' voice to substantiate each theme. The chapter concludes with a summary of the participants' views on the continuation of the SMS, before discussing perceived limitations.

11.1 Participants

The students who had participated in the first round of interviews (held 4 weeks after the intervention concluded) were contacted 6 months later. Out of the 10 participants, 7 were able to attend a follow up interview. The remaining 3 participants were either overseas or had moved interstate. During this interview, the questions (as outlined in Chapter 7.2.2.3) aimed to explore whether the participants were still practising the skill and/or receiving the SMS. Major themes that had been generated from the first interview were also explored; such as anonymity and connection.

11.2 Themes

There were 9 major themes emerging from the analysis (see Table 48). It is important to remember that the impact of the *Mytern* intervention was solely from the SMS component, as only SMS participants volunteered to be interviewed; all of which attributed any changes to the SMS component of *Mytern*.

Table 48 *Major Themes from the Long Term Interviews*

Theme	Students who commented /7	Number of references in text
continued use of the skill	7	14
<i>Mytern</i>		
feeling connected (through SMS)	6	9
anonymity	6	14
skill became embedded	4	8
support	6	13
strengthening	5	13
positive change	7	12
generative	7	16

Three (Alexis, Riley and Sage) of the seven participants had ceased receiving the SMS at the end of the intervention. Two of those were unaware that they needed to send a text saying 'continue' for them to continue receiving texts. Both believed that the instructional text saying that must have been 'lost' amongst all their other texts. The other 4 participants (Ash, Charlie, Rory and Sam) had all requested to 'continue' and had been receiving the SMS for 10 months continuously. The outcome of the analysis (See Chapter 9) can also be seen in the thematic map presented in Figure 38. The themes were again presented on the salutogenic health continuum. As all the results were seen to be positive, the negative end of the continuum was not represented. The following will explore the themes in depth, using extracts from the interviews to add meaning and depth.

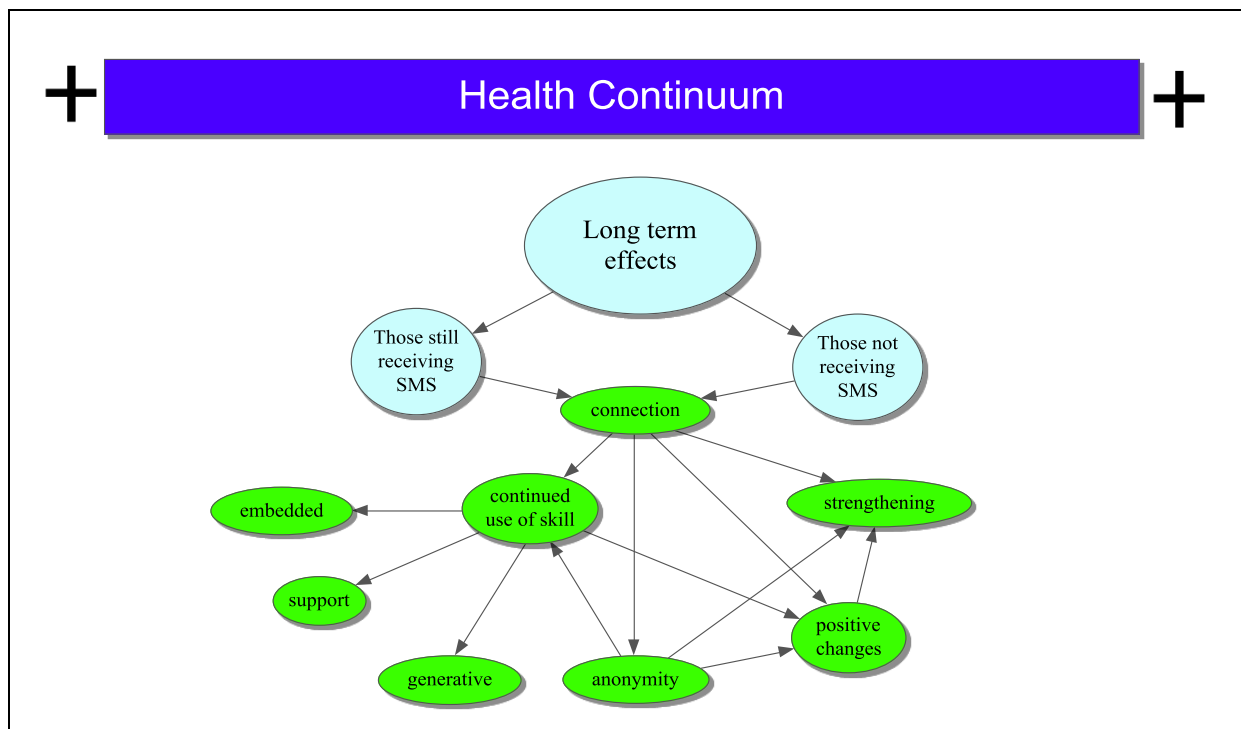


Figure 37. Thematic map depicting the themes generated from the long term interviews

11.2.1 Continued use of the skill *Mytern* (from both continued and discontinued SMS recipients)

All 7 of the participants agreed that they were continuing to use the skill of *Mytern*, albeit in different ways. The three who had ceased receiving the SMS, Alexis, Riley and Sage, all shared different perspectives regarding their use of the skill.

Alexis believed that her skill had definitely been maintained, despite not receiving the SMS. She has found that she was able to *'stop and look at the road and then to reflect'*, and then *'make decisions'* and felt that *'there has been a lasting effect as in thinking about the road'*.

When Riley first received the request for the follow up interview she realised, *'to be completely honest I had completely forgotten about Mytern'*. However, *'on reflection I feel like I still applied the basics to my everyday life (i.e. recognising my emotions and controlling them), so part of it obviously stayed with me'*, without her being consciously aware of it.

Sage already had awareness about being in control of her emotions before the intervention, so without the daily SMS, she still continued to apply it to her daily life: *'I think at my age I realise that really my emotional wellbeing is my responsibility'* and that *'you kind of know that you're really the one in control'*. However, she also shared that *'probably I think the*

positive affirmations of Mytern I use to try to keep on track and keep focused, by staying positive'.

In contrast, the participants who continued to receive the SMS all expressed how important it had been for it to be *'continuous'* and without a *'break'*. Although they all applied the skill outside the times they received the SMS, the constancy had helped them apply the SMS even more regularly. Ash felt that it was *'just helpful and a kind of boost when you need like a little boost when you're not doing the right path'*, and that it was continuing to be helpful: *'you kind of just look down and get that message and you're like, got to get off this road - next road. It's really helpful'*. Rory agreed that *'it's important just on a constant basis'* because *'you can read it and learn to take different things from it, that you need to take at the one time and either carry it on, or snap yourself into a different mindset'*.

Charlie also shared that receiving it continuously *'just keeps reinforcing and reinforcing'*. She believed that *'the period that I've been on it I think that it has been really good'* especially as she was a mature age student and was conscious that she had had a longer time to form negative patterns: *'I mean I've been lucky in that it's working - been a bit longer than most people. But then my period of life has been a lot longer than most people'*.

For Sam, she finds that the SMS *'always seems to come at the right time'* when *'I'm feeling stressed out'*, there's the text usually at the right time, and it *'just calms me down'*, also it *'lets me know that there is someone who cares - there is someone who wants me to do good, and it just helps me realise that'*. Here Sam, similar to the original interviews with all the participants, refers to the connection that she had with the SMS. This connection appears to have continued.

11.2.2 Feeling connected through the SMS.

Participants again mentioned the connection that they had with the SMS. Alexis believed that *'people need to have something like Mytern in their lives'* as there are times when *'we all feel feel disconnected'*. She felt that receiving the SMS would help people to realise that *'you know I'm not alone, I'm not really alone here. There is somebody out there who cares'*, which is *'an important factor of life'*. She expressed that *'we're all human. It's human nature basically to want that'*.

Ash too expressed the connection with the SMS and experiencing those times of feeling isolated, which was not always related to work:

It does make you feel less isolated, and I guess it does, because it's you know, when I was down, I get that message and kind of realise why are you down for - you're the only one that makes you feel this way. So you need to change that, and it kind of like - it really does to make you feel like oh look, someone out there has cared - they're there for me - I need to do what I have to do. (Ash)

Charlie's isolation and feeling of disconnectedness wasn't necessarily work related either. She felt the SMS was like 'having a friend at the end of the phone' and that it's comforting 'just knowing that there's somebody out there', which she thinks 'is a good thing, particularly given that I do spend a lot of time on my own'. Charlie doesn't receive 'a lot of texts or - texts or phone calls or - like because I'm on my own, haven't got family, so yeah'.

Before the intervention, Sam was struggling with life. Her story of connection reflects the sentiments expressed by all the participants, so is presented in full:

I feel there is a connection with the SMS because...well I know who you are now... but before that.. I felt like there was someone on the other end and I didn't know who it was but to me that didn't really matter. They just felt really personal. I always just felt that... I was alone ... I was really alone for a while, and getting those texts reminded me that I wasn't so alone; that there was someone who cared about me and cared about what I did and wanted me to do good. Knowing that there was someone on the other end made me feel good because I just wanted someone to show that they cared about me because when you are going through a really dark time, you don't see that and to have the text come through and have it telling you that you're on the wrong road , but it's your choice if you want to keep going down it or you want to turn off and go down a better road ..and then you do it... and then you feel so much better. For without that text, you wouldn't have realised that you were on that bad road and you wouldn't have turned off it and something bad may have happened to you. You might have harmed yourself or harmed others. I just think it is brilliant. (Sam)

The connection experienced by participants who continued to receive the SMS appeared to have strengthened. A recurring theme when speaking about this connection was anonymity.

11.2.3 Anonymity.

Participants gave various reasons as to why anonymity added to their connection with the SMS. Alexis, who was no longer receiving the SMS, reflected back on her time when she was receiving them. She believed that if a friend had sent the text, she *'could be reading stuff in'* because *'they know me'*. She felt that she would *'then be judging them going, what's she saying that for because your mind ticks over with people sometimes'* and that *'she just said that because I told her two days ago that I was feeling like this'*. Riley, who again was looking back at how she had felt when she was receiving the texts, felt the same way as Alexis. Riley thought that if a friend had sent the texts she *'would attribute the whole process to that particular friend'* and that she would *'think less on the process and more on who my friend is'*.

Rory, who was still receiving the SMS, believed that if he knew the person sending the text, that he might feel *'like you owe them one.....obligated'*. He went on to say that:

A lot of people don't want to have that burden by sharing it. I think in this day and age, strangely enough, everyone wants us to be independent. That includes emotional independence and everyone does want to be that. It's great to work through things emotionally with other people, but the anonymity helps you deal with stuff yourself. Just dealing with that myself, in all these situations anonymously.
(Rory)

Another participant who was still receiving the SMS also expressed the need for anonymity and lack of obligation:

I think it's a good thing, because some people don't want to feel responsible to reply, or feel the need that they need to say something, because they don't, All they need is just to receive the text and they can do what they want from there. (Sam)

Knowing that the SMS was not automated was also very important to Rory, as he strongly believed that if it was automated he *'might as well stick to the book of wise sayings'* Or one

of those happy day books *'you wake up to in the day and just read what they say, which is very artificial and sterile'*.

Whereas Ash (receiving SMS) shared that the most important thing for her was the support that she felt from the SMS; whether it was anonymous or not:

It's like you've got that person in the phone that you don't really know, but they're still there for you, and they're still wanting to support you, and you've got that connection with them. So you really do have that connection, with a friend through the phone, even though it's anonymous. Like, even if I knew the person - for me, I don't think it would make a big difference, because I know that they're there to support me. (Ash)

11.2.4 Skill became embedded

Rory acknowledged that his ability to take control of his emotions had become embedded, as the SMS had changed his *'mindset'* enough, so that he *'no longer had to be reminded'*. It was all about *'taking power, just taking control'* of each situation. He expressed that just hearing a message coming through was enough to trigger the skill: *'I'll just get the SMS, and I say - thinking, righto, just snap out of it'*.

Charlie also felt that the skill had become embedded and how *'it does drop into my consciousness all the time'* especially at time when she was not feeling *'so good, or getting angry or things - having emotions that I'm not happy with'*. She described it as *'a little voice: GPS, steering wheel, what's happening?'* which *'can drop into my head'* even *'when I'm driving'*.

Ash communicated that the skill *'had just become more like a part of me as well. Like, it's kind of instinct now'*. The reason it had become embedded was *'just from always getting it and trying to put it into action from the early stages of getting the message'*. Sam also worked at the skill from the beginning: *'at first, you get the texts and you go oh okay yeah, I'm still doing this. Alright, I forgot that I was doing this'* then you start to *'think about it like why you're feeling stressed, and it's good that you think about it before the text'*.

Although some had the experience of the skill becoming embedded, the participants still wanted to continue receiving the texts. Their dependency on the skill and their perception

of the SMS being a support emerged as another dominant theme amongst those still receiving the SMS.

11.2.5 The SMS providing support

Participants who were still receiving the SMS saw them as both a dependency and a support, depending on the situation. Rory liked having the support and said *'they're handy when you need them'*. Although Charlie found that the skill had become automatic, she questioned whether or not she was becoming dependent on the SMS: *'I think I've probably pretty well got it, but I don't - I might be getting a bit dependent on it a little bit, because I'm thinking: oh I don't want to just yeah, kind of end it'*.

Sam felt that she had times when she was dependent, and times when it was a support. *'I mean, it's like a 2 sided coin. Sometimes I feel like I need it, so I'm dependent on it, or sometimes I need the support and I look at the text and there's the support, and it's great. I love it'*. Ash also felt that it was similar to a *'2 sided coin'*. There were days when she was dependent *'when I'm really down, like it's kind of a dependency like I need that message just to help boost me'* yet on other days she found *'it's more a support'*.

However, Alexis felt that if she chose to receive the SMS again, it would be for support: *'definitely support. To me it won't be a dependency. It would be a support for me'*. Although Alexis hadn't continued the SMS, she felt that the skill had continued to strengthen. The majority of those who continued receiving the SMS also expressed that the skill itself had strengthened.

11.2.6 Strengthening

As stated before, although Alexis had stopped receiving the SMS, she felt that her skill had continued to grow: *'Yeah, I think it has actually, to stop and look at the road and then to reflect, to in some cases have to make decisions to - yeah.'* She had realised more and more that *'you may take the wrong path, or you might be on a path that isn't right for you - you better change off that path, and turn'*.

Ash *'definitely'* thinks that her skill continues to grow and that it has become *'more natural now'*. As well as the skill itself strengthening, she believes that it has strengthened her as a person:

It's really made me a stronger person, and made me realise that I have the ability to do what I want to do, and I have the ability feel how I feel, and I need to - no-one's going to be there for you all the time, and that's when you have to rely on yourself, which I never used to do. I used to rely on everyone around me, and I found that way I've had a lot more friends. I've been a lot happier. I still have my downfalls, but everyone does have those couple of days where they're down, but I've found that I'm a lot better now and I've been able to move on with my life in a way that I want to, and not the way that everyone else is telling me to. (Ash)

Rory recounted a similar experience to Ash, finding that his skill had not only strengthened, but that he had also grown as a person: *'it gives you a bit of self-confidence too, to stand up for yourself and your emotions, take care of your emotions'*. He claimed how he was now able to stay on his *'own path'* and *'stay strong, true to myself'*.

Charlie shared that her skill was *'absolutely, absolutely just getting stronger'*. Sam also agreed that her skill had *'gone up a lot. I really think it's strengthened a lot'*. Sam went on to say that: *'it's really helped calm me down and it's helped me realise that there's more to life'* and that *'there's more than just being stressed out all the time, and working all the time'*.

With the strengthening of the skill, it emerged that there were also positive changes that all the participants experienced. The following theme addresses these changes.

11.2.7 Positive change

As outlined in Chapter 1 (1.8.8), the definition of change was left up to the individual to interpret. Although Alexis, Riley and Sage no longer received the SMS, they had all experienced positive change since the last interview. Alexis has found that the texts taught her *'to look at the positive side of everything'* which she had continued to do. Riley *'still applies the basics to my everyday life (i.e. recognising my emotions and controlling them), and has 'used the skills it taught me to help others with their stress'*. However, Sage found her positive change came in the form of being able to help others. The support that the SMS gave her in her first semester at university made her realise *'how important those weeks are, which inspired me to become a student mentor'*.

Those who had continued receiving the SMS all expressed positive changes that had taken place in their lives. Sam found that *'it's really helped calm me down and it's helped me realise that there's more to life'* and that she now feels *'a stronger person'*. Ash believed that it has also made her a *'stronger person'*. She used to *'rely on everyone around me'*. The texts helped her to realise that *'no-one's going to be there for you all the time, and that's when you have to rely on yourself'*. Since she began relying more upon herself she has *'made a lot more friends. I've been a lot happier'*. She still has her *'downfalls'*, which she also now realises that *'everyone has'*, and she has been able *'to move on with my life in a way that I want to, and not the way that everyone else is telling me to'*.

Charlie shared how recently she *'really realised how much of an impact they have had on my life. It's helped me be way more positive'*. In the original interview she spoke of how stressed she became, but now finds that she's *'so much more relaxed about my study for one thing. I just can't believe it. It's fantastic'*. Charlie reiterated a story that really illustrated the depth of her change, first relating that she was 62 years of age and that she had had a pattern of anger all her life:

Anger has been a real issue for me all my life and the other day I was in the middle of a real volatile state and suddenly I just stopped in my tracks and thought hang on a minute and I remembered that I was in control of my steering wheel and that I had to stop and get control and that was just one of the most beautiful things that has ever happened to me. It was fantastic. (Charlie)

Rory felt that the positive changes helped him to better *'address everything, really. So, relationships, friendships - even with my parents actually'*. The control he now has over his emotions *'makes me feel empowered. It makes me feel like an adult'*. He has found that *'when someone else is emotional in that situation, I don't get caught up in it'*. He has been able to be *'more mature about things'*, and not let *'your emotions spin your words around, in an immature way.'* With this ability to remain in control of a volatile situation, *'as opposed to you over-reacting, you just sit on the situation, you stay calm, and then it doesn't spiral out of control'*, he has found that *'it helps you guide them through'*. He has *'just learnt to wait for that right moment'* and, as a result, has been able to maintain his *'first real*

relationship'. His friends who knew him last year have *'just seen me grow as well and they're like, wow, you can get your shit together, that's good'*.

As a result of the positive changes that had occurred in the participants lives, it inspired them to pass the skill on to others. They all shared experiences where they had continued to *'pass on'* the skill to people who they felt would benefit from it.

11.2.8 Generative.

Alexis had passed on the skill by texting those she thought were down: *'if someone's feeling down that I know, I definitely send a little text like Mytern to them'* because *everyone likes to bring people up*. After sending one of the messages she found that *it makes you feel good, it really does*'.

Rather than forwarding texts onto others, Ash had *'told a few of my friends about it'*. She has shown them that they *'have the ability to turn your own road, and you're the only one that makes you feel this way'*, adding that *'when you're going down that path, that's your choice'*. She explained that *'there's always a left or right turn that you can take - you can go on a different road'* and that the choice is *'ultimately yours'*. Similarly, Ash, like Alexis, found that *'being able to pass on the skill that helped me, that someone passed onto me'*, helped her as well.

The reason Charlie *'loves sharing'* the skill with other people is because *'it's helped me so much, yeah. So that way I just think I'm helping someone else'*. She believes that *'if they can benefit from it, then good, and if they choose to pick it up and go with it, fantastic'*.

However, she is fully aware that *'it's their journey, it's - their steering wheel'* so she doesn't push it.

As outlined before, Riley hasn't shared *'the 'Mytern' system exactly'* with people, or *'gone through the roads system'*, but she has used the skills it taught her *'to help others with their stress'*.

Rory feels that he has mainly passed on the skill through being a good example. He finds that people often say *'thank you for being really solid'* and not reacting by saying *'something spiteful in a situation'*. By not *'over-reacting'*, and *'just leaving it and being the adult in that situation'* he has found that they want to emulate his control.

Sage has adopted the skill and become a mentor so she can pass it on to first year students. She has used *'the little smiley faces in my - in communications and keep in constant communication with the students'*. She has Mytern *'in mind when I communicate with them via SMS- weekly or twice a week'*. When asked whether that was working she replied: *'Well, they're all still here from an attrition point of view'*. Sage feels that the *'first three or four weeks'* and then *'the final weeks'* are the *'critical period'* which is when she sends the SMS.

Sam forwards the messages *'onto a friend'* of hers who *'was in a very bad place, and I didn't know how to help him'*. She found that as *'a friend I was doing all I could but there's only so much you can do. I'm not a counsellor'*. Forwarding the SMS was something that *'I could do'* and she has found that the texts *'really help him'*. Sam has also been *'sending them to my mum'*, because *'she's really stressed out at the moment'* and *'they have really helped'* too. Her mum always replies *'oh thank you - I really needed that'*. Sam summed how all the participants felt when they were able to help someone through either sending a text message or outlining the skill:

It makes me feel good that I'm helping someone, because that's really what I want to do. I've been through it. I know what it feels like, and all I want to do is help people get through it as well. I mean, I want people to feel how I feel now. I feel good, and I feel relaxed all the time, until my assessments come round again, but you know, until then I really want to do some good. I want to help people. (Sam)

11.3 Choose to Keep Receiving SMS

This was not one of the themes that emerged, but was a question that was asked during the interview. All 7 participants said that they would all like to continue receiving the SMS; albeit some under different conditions. Alexis felt that she would *'like to receive them'*, even though she didn't *'really feel the need'* but it would be *'more a nice thing to look at each day'* and *'important to my positive frame of mind'*. She felt that it would be beneficial to have them available in times of *'high stress'*.

Sam and Rory were definite about continuing to receive the SMS. When asked if they would continue, Sam replied *'Oh definitely, for as long as you keep doing it, I'll keep onboard'*. Rory was just as enthusiastic saying *'yes, absolutely'*.

Ash was definite about continuing them too, as she felt *'that I don't think I'd be able to deal*

with not getting them'. She felt that 'they're just really helpful, and they're nice to get, which makes me smile for a bit in the day'. Even though she had been receiving them for nearly 10 months, she didn't think they became 'repetitive'. She believed that 'every single one is different' and that 'somehow they're just really relative to my life each day that you do send them'. It was 'like oh wow - they're just really nice to get them' and they just help to 'keep reinforcing and reinforcing'.

Charlie was enthusiastic about maintaining her *'daily SMS'*, but felt that it *'might be good'* to *'spread them out once in a while'* so that she could ascertain whether or not she *'was dependent on them'*. Riley also felt that she didn't want to become dependent, *'because then I'd feel like I needed them in order to be in control'*. While it was great to have a pick-me-up/reminder every day, it would probably be more effective *'once a week or something'* as you would be *'more likely to pay attention to it if it doesn't come as often. Bottom line: Yes, once a week would be nice'*.

Sage felt that she too would like to continue, but with a *'more sophisticated level of support or positive affirmations away from the steering wheel or driving the car'*. She found that the *'car metaphor was excellent for an introduction'*, but *'as a positive reflection I think for me that those metaphors are probably now not going to be as effective'*. For it to be just as positive, Sage believed that *'it would need to go to another level'* and that by *'putting it back into the'* language of *'you are in control of your life and your destiny'* it would be *'more hard-hitting than the metaphor'*.

Rory summed up the need for the SMS to continue in his testimonial (see Appendix Y for video):

My absolute testimonial for Mytern is the longevity and continuation of it because I just realised recently - it's been a fair few months now, that wow I've been on my journey for this long and how much I've improved. So first- it helps you to take control of your emotion and then once you have control of your emotions, it helps you realise that you can control other things. Once you have control of your emotions, you can have control of your health; you can be in control of other relationships and

friendships as opposed to letting other people take control of you ; finance- just all goal setting altogether; academics is in there. Being such a long time (it doesn't feel like a long time but when you're in hard times, when you're out the other side, it seemed like a long time ago). Just the complete continuation helps you reflect back and say look how far I have come and what else can I do? (Rory)

11.4 Limitations

Again, due to the limited number of interviewees, the wider implications of the intervention could not be explored. Therefore, to compensate, it was important to represent the voices of those that did speak as accurately as possible; to present depth rather than breadth.

11.5 Conclusion

This chapter has explored the impact of the long term effects of the emotional fitness and resilience building intervention (*Mytern*) on first year university students. It has outlined the results from the thematic analysis, using the participant's words to illustrate each theme, and presented the themes on the salutogenic health continuum.

The information gathered from the follow up interviews, and the resulting themes, illustrated that the skill imparted by the SMS component of the intervention *Mytern*, has the potential to be sustained. Four of the participants demonstrated that sustainability is possible through the continuous delivery of the SMS, whilst three of the participants shared that they were still able to engage with the skill 6 months later, without having had the prompt of receiving a daily SMS.

Having presented both the quantitative and qualitative results, the following chapter will merge the findings; stimulating discussion in reference to the current literature, the research questions and hypotheses.

Chapter 12 Discussion

The last 4 chapters have documented the impact that the intervention *Mytern* had on first year university students, from a quantitative and qualitative perspective. An often forgotten skill of mixed methods is the merging of the qualitative and quantitative results (Greene, 2007). It is important to ensure that the write up of a mixed method inquiry is respectful (which is fundamental to a mixed method way of thinking) to the “different traditions that have contributed to the study”, signalling “legitimation of multiple ways of knowing and acceptance of diverse experiences, perspectives and understanding” (p.182). This chapter aims to respect and merge the results, understanding the perspective gained from each.

Having divided the chapter into two sections, the first section will be viewed from a pathogenic orientation, discussing the participants’ baseline demographics and student levels of psychological distress (a discussion of the results from Chapter 8), comparing these to the themes that emerged from the pathogenic end of the health continuum (a discussion of the results from Chapter 9) and the literature (a discussion of the issues raised in Chapter 3). Here it must be remembered that the qualitative data comes from the ISMS group, so the merging of data, as well as the comparisons, were often limited only to that particular group. Exploration and comparison of the baseline data was the exception.

The second section constitutes the main focus of this chapter and this study; where the results are viewed from a salutogenic perspective. The two hypotheses will first be discussed in relation to results from the surveys which measured psychological wellbeing, life satisfaction, resilience and distress levels (results from Chapter 8), and compared to the salutogenic themes which emerged from the interviews (results from Chapter 9,10 and 11). Major themes will be compared to those found in the literature (Chapter 3) and the changes experienced by the students will be discussed from a pragmatic perspective. Following these discussions, the objectives set at the commencement of the study (research questions) are collated into a succinct summary. Salutogenic and pragmatic outcomes are then presented, before introducing an emerging theory to help explain the connection created between the participants and the *Mytern* SMS.

The first half of the literature review (Chapter 3) documented the extent of the mental health issues among tertiary students, and outlined the suggested reasons behind this. As this section is from a pathogenic perspective, only the K-10 (psychological distress) baseline scores will be discussed, as the post scores were looking at the salutogenic effects of the intervention. The qualitative data was compared to the quantitative data, looking for reasons to explain the scores obtained.

The results gained from this study were similar to those studies in other tertiary student cohorts that also utilised the K-10 scale to measure mental illness (Ryan, Shochet & Stallman, 2010; Stallman, 2010) where the number of students experiencing moderate to high levels of stress exceeded 64%. The baseline results taken together (combining C, IA and ISMS) revealed that 77.8% of the students were experiencing moderate to high levels of distress, which is approximately 12% higher than published data from other Australian tertiary institutions (Ryan, et al., 2010; Stallman, 2010).

Section A: A Pathogenic Orientation

12.1 Separating the groups: C, IA and ISMS

When the groups were divided into C (control), IA (DVD, mini-manual) and ISMS (DVD, mini-manual and SMS), it was the ISMS group who stood out in contrast to the other two groups. Results indicated that the students who elected to receive the SMS were experiencing much higher levels of distress at baseline ($ISMS = 24.21 \pm 8.5$) than those who did not elect to receive the SMS ($C = 21.17 \pm 6.12$; $IA = 20.13 \pm 4.72$). (See Chapter 8). Within the ISMS group, 21% were experiencing very high levels of distress, which is indicative of a mental health challenge. A large study undertaken involving two Australian universities (Stallman, 2010) also found that there was a high percentage of students experiencing very high levels of distress (19.2%) indicative of a mental health challenge. Although the number of participants were much higher in the Stallman study (6,479), it is interesting to note that the low numbers in this study (19) produced similar results.

12.2 Challenges to Mental Health

The dominant themes which emerged from the interviews were examined in order to paint a more detailed picture. As seen in Table 49, stresses as well as social isolation were the

major pathogenic themes which emerged from the interviews.

Table 49 *Challenges to Mental Health*

Challenges to mental health	Students who commented /10	Number of references in text
Stress (workload/life)	8/10	28
Anxiety and Depression (illness)	4/10	8
Suicide	3/10	5
Past bullying	2/10	3
Isolated	9/10	12

The feelings of stress experienced by the students in this study came from similar factors that dominated the literature; workload at university; outside work; financial issues; transitioning to university and being a first year student and/or international student; being a mature age student; greater freedom and responsibility; the pressure of having to perform academically; past personal experiences (bullying and suicide); and feelings of anxiety and depression.

12.2.1 Stress, depression and anxiety.

The fact that eight out of ten students felt the pressure of stress puts into perspective the studies surrounding depression and anxiety in tertiary students discussed in Chapter 3. Buchanan (2012) found that depression was the most prevalent mental health challenge within tertiary education; Alloy et al., (2006) found a high incidence of depression among students who had no previous history of depression before entering university; and Vivekananda et al., (2011) found that depression and anxiety were the most predominant issues being presented at counselling services. Although the numbers within this study were small, they still reflected the growing concern surrounding depression and anxiety within tertiary students. It is these feelings of anxiety and depression, along with financial pressures, that can add to the already high stress levels experienced by university students

(Stallman, 2011). Jamie, a mature age student, expressed what a number of students inferred as being part of their expectations of university life. *'I mean, we all get stressed. We're doing university, we get stressed.'* (Jamie)

12.2.2 Workload.

Study expectations can also add to the high stress levels experienced by students. When workloads are heavy and assignments are due, students can lose perspective and become overwhelmed with the tasks ahead of them. University requires a lot of self-directed learning. As discussed in Chapter 3, many students find the transition between the structured environment of school to the less formal structure of university (where they are required to manage their time and plan their own study routine) very challenging and stressful (Royal College of Psychiatrists, 2011; Kitzrow, 2003). Failure to achieve academic success often results in exacerbating levels of anxiety, depression and stress (Bitsika et al., 2010; Ruthig, 2009; Vaez & laflamme, 2008). It was during these times of high workload coupled with a fear of failure, that the participants found the texts helped them to regain perspective through *'reminding'* them that they were doing well and that they could *'do this'*.

12.2.3 Social and family support.

The findings from the study suggest that student problems associated with their emotional and mental fragility are among the reasons for them considering leaving university. In the factors that influence retention, Jensen (2011) cites social and family support as one of the contributing measures. Participants expressed a feeling of support when they received the daily *Mytern* SMS. Sam pointed out that before receiving the support from the texts and understanding the *Mytern* skill, she probably would have chosen to drop out of university (see Chapter 10.4.6). The transition to a new environment can often disrupt social networks with many students finding it difficult to make friends and establish new relationships (Andrews & Chong, 2011) as Chris (see Chapter 10.3.4) had experienced. Bitsika, Sharpley and Rubenstein (2010) found that relationships were at the core of the stressors that a group of Australian tertiary students were experiencing. Without positive relationships, students can experience a sense of isolation in their new environment.

12.2.4 Social isolation.

Isolation, the most dominant pathogenic theme, was experienced by 90% of the participants. Some felt it physically (when studying alone); whereas others felt it when they were at university; being surrounded by people but devoid of friends. Phoenix found the isolation to be cultural and expressed it as *'we've got different culture and most European students they have got the same western culture with Australian people'* whereas he felt that Chinese culture is *'like upside down.'* All of these factors articulated by the students indicated social support issues and a feeling of belonging.

A publication about college students and their sense of belonging (Strayhorn, 2012) defines a sense of belonging as being "a basic human need that takes on heightened importance in certain social contexts where some individuals are prone to feel unsupported, unwelcomed, or lonely" (p. 4) . If belonging is a basic human need, then it is important to address this need, as in its absence, it can negatively influence behaviour (Strayhorn, 2012). These students have indicated that they may not have felt that sense of belonging, and as a result, were left feeling isolated and alone.

Merging the data revealed reasons why the SMS group may have had the highest levels of stress; predominantly associated with their feelings of stress and social isolation caused by issues similar to those found in the literature (see Table 49). One major finding to come out of the pathogenic perspective was that the students who had the highest levels of distress at baseline were predominantly the ones who chose to receive the SMS. The results inferred that those who students who needed the support of the SMS chose to received them.

Past research indicates "that between 45% and 65% of university students experiencing mental health problems do not access professional help (Ryan, Shochet & Stallman, 2010, p.74). Those students experiencing the more serious problems such as depression and suicide are less likely to seek help, despite the fact that universities offer free health and counseling services. However, they are more likely to seek informal help (Ryan et al., 2010), which infers that the students who were experiencing high levels of distress may have seen the SMS as informal, making them more willing to participate. Out of the ten students who were interviewed, three of them had tried to take their own lives (two of them in the last 6 months) and four were suffering from anxiety and depression. The reasons why they may

have opted to receive the daily SMS are explored later in this chapter (12.4). As stated in Chapter 3.12, students who are depressed often do not seek treatment, with the symptoms themselves often impeding their ability to seek help. Therefore, a universal prevention program such as *Mytern* has the advantage of giving those at risk strategies to recognise and handle their own mental health issues, assisting them to minimise and manage them more effectively (Andrews & Chong, 2011; Geisner, et al., 2006). These results suggest that an intervention that provides a daily SMS may provide extra support to those students who may not seek the health and counselling services provided by the university.

Having combined the K-10 pre test results with the interview themes, a picture emerged as to why the ISMS group may have been experiencing such high levels of distress. Comparing the K-10 post scores with the themes found at the salutogenic end of the continuum, may also help to explain any changes to the pre scores. The next section, adopting a salutogenic orientation, examined the quantitative data for any changes that may have been experienced by the students, with the qualitative data assisting in explaining why these changes to the ISMS group may have taken place.

Section B: A salutogenic orientation

This section begins by looking at the changes experienced by the students between the baseline and post test scores. The two hypotheses predicted positive change in each of the scales (psychological wellbeing, life satisfaction, resilience and levels of psychological distress) for the participants in the IA and ISMS groups, who each received aspects of the intervention. The quantitative results revealed that all three groups experienced positive change to varying degrees (see table 8.5). However, it was the ISMS group which experienced the greatest change; producing significant increases in their psychological wellbeing, life satisfaction, and resilience results ($p < .001$), and a significant decrease in the levels of psychological distress ($p < .001$). The changes within the C and IA groups were not significant. Although differences recorded in the life satisfaction scores of the IA group were statistically significant, the change was still too small to be termed significant.

This led to a need to interpret the discrepancy between the IA and ISMS groups. As both groups had been exposed to the initial DVD and *Mytern* mini-manual, the only difference between the groups as far as the intervention was concerned, was the receiving of the daily

Mytern SMS. Results between C and IA were similar, indicating that the DVD and mini-manual alone were not sufficient to create a significant impact on the scores of the IA group. Therefore, receiving the daily *Mytern* SMS s well as the DVD and mini-manual may have created the change experienced in the ISMS scores.

12.3 The Influence of the Daily SMS on the ISMS Group

The validity of these changes and the capacity to generalise about the scores, as well as attributing the reason for change to the daily *Mytern* SMS, if left to the interpretation of only the quantitative results, would not have been strong. Factors which may have influenced/impacted the final results of the ISMS group include limited response rate; discrepancies between the size of the groups; the fact that the ISMS group began with the lowest scores, placing them in a position to experience the greatest change. These limitations still apply, but through adopting a mixed-methodology, the qualitative results were able to be evaluated alongside the quantitative results, broadening and deepening the study's outcomes.

With the quantitative data inferring that the positive differences to the ISMS scores may have been a result of the SMS component of the intervention, the qualitative results were investigated to try and ascertain why the students had experienced these changes. In response to the initial question of the interview (how would you describe your experience with *Mytern*?), all the students inferred that when talking about the intervention, it meant receiving the SMS (see Table 36). To them, the intervention was the SMS; with the DVD and mini-manual being seen as supplementary material. The retention rate of the SMS service along with the improved survey results indicated the extent of the SMS success.

12.3.1 High retention rate.

The high retention rate of 82% achieved by the SMS service (see chapter 10.8) may reflect the *Mytern* SMS's positive influence, although some of those who decided to stop the texts did it from a salutogenic perspective; as the daily SMS had achieved what it had set out to do (the SMS was set up to scaffold the learning of the skill). An example of this scaffolding is reflected in one student's response:

Unsubscribe...Thank you for making my day, just when I needed it. My life is back on track, but your kind words have been helping when things have looked dark. While I no longer need your words, others do. I am passing on your kind spirit in my own ways, and practicing the skill every day. So thank you. Goodbye. (S149)

When the students received an SMS announcing the conclusion of the intervention and expressing thanks for their participation, students replied requesting that the service continue. When they were asked to text back 'continue' if they wished to receive texts until the end of the semester, 95% texted back 'continue', indicating that the students perceived the daily SMS as being of value. If they had been requested to text 'stop', it would have been hard to ascertain whether the students really wanted to continue, or whether it was because they couldn't be bothered to reply. The high retention rate indicated the success of being able to deliver a health promotion skill via SMS, expanding the use of texting from health care to the wider university.

Financial constraints related to SMS delivery, such as those pointed out by Brett (2011), were eliminated as the students were not required to reply to the message, essentially making the service free to students. As 93% of Australian students (Walsh, 2008) have mobile phones, it enables a universal health promotion/prevention intervention to reach a large percentage of a student population. In order to explore what aspect of the SMS was valuable, the emergent themes from the interviews were investigated.

12.4 Major Influences

The major themes that arose out of the interview analysis were scrutinised for indications of what the influencing factors for the positive change in the ISMS could have been. Looking at the thematic map of the salutogenic influential factors (see Chapters 10 and 11), all the emergent themes came about as a consequence of receiving the daily SMS. It was the SMS that was seen as being a positive support that helped relieve stress; bring about mindfulness; produce a feeling of control and power; create motivation; and give them the confidence to be able to help others by forwarding messages (or the essence of the skill) on to those that they had identified as being on a less positive road (generative).

12.4.1 Mindfulness and stress relief.

The students felt that the texts helped them to become mindful of how they were feeling. As discussed in chapter 3, research into mindfulness has revealed that it can reduce stress and stress related medical symptoms as well as enhance positive emotions and quality of life (Greeson, 2008). The daily SMS used mindfulness to help change perspective towards thoughts and feelings, which may have contributed to producing greater resilience, well-being and satisfaction with life within the students (Williams, Teasdale, Segal, & Kabat-Zinn, 2007). The major difference with the mindfulness within *Mytern* was that it was practiced momentarily, via the SMS, rather than being practiced in a class situation for an extended period of time. This form of mindfulness enabled the students to become aware of their thoughts and emotions and not judge them, helping to transform psychological distress into psychological wellbeing (Keng, et al., 2011). Catalino and Fredrickson (2011) argued that 'greater positive emotional reactivity predicts greater mindfulness' and predicted that 'mindfulness will in turn contribute to individuals' flourishing' (p.940).

12.4.2 Control, power and self-belief.

In a study of middle and upper level executives, Kobasa (1979) found that certain personality traits protected the executives from the detrimental effects of stress. One of those traits was control. One thing the students all expressed was the realisation that they could establish control over how they thought and felt, and the strength that this knowledge had given them. The reason that students felt that they had greater control and power over their lives (see chapter 10) may have associations with or be linked to Bandura's social cognitive theory, which represents a theory of learning and change; where "effecting personal and social change is one of the hallmarks" (Bandura, 2012,p.13). And it is through this control, and being the agent of their own change, students developed a feeling of power and self-efficacy.

12.4.3 The agentic perspective of social cognitive theory.

At the heart of Bandura's social cognitive theory is citing the individual as the agent for change; to intentionally make things happen by one's actions (Bandura, 2001). Bandura (2001) argues that the core features of agency enable people to play a part in their self-development, adaptation, and self-renewal with changing times and that neither intention nor desire alone has much effect if people lack the capability for exercising influence over

their own motivation and behaviour (Bandura & Simon, 1977). These features align themselves with a salutogenic orientation, creating health through making the individual aware that they are responsible for their actions. Bandura states that “a functional consciousness involves purposive accessing and deliberative processing of information for selecting, constructing, regulating, and evaluating courses of action” (p.3). Therefore, individuals need to be made aware that they are “agents of experiences rather than simply undergoers of experiences” and that the human mind is “generative, creative, proactive, and reflective, not just reactive” (p.4).

Bandura(2001) explores why people think what they do; how can they intentionally recruit these thoughts; and the influence that these thoughts then have on action. He believes that agency refers to being intentional about thoughts and actions; engaging in forethought to motivate and guide; and be able to self-regulate by monitoring patterns of behaviour and then being able to affect it.

A major influence of social cognitive theory guiding this study lies in the role of self-efficacy, with students being able to have a belief in their ability to take control of how they feel, and to be able to affect their own outcomes. It is this sense of coping efficacy that can reduce vulnerability to “stress and depression in taxing situations” as well as strengthen resiliency to adversity (Bandura, 2001, p. 10). “Any factor that influences choice behavior can profoundly affect the direction of personal development” (Bandura, 2001, p. 10).

There are four ways that can develop people’s feeling of self-efficacy (Bandura, 2012): through mastery experiences where resilience is developed through overcoming obstacles and realising that there is learning in failure; through social modelling when observing others overcoming failure; through social persuasion where individuals are encouraged to believe in themselves, increasing their resolve and influencing their pessimistic/optimistic orientation; and through an individual’s choice process- knowing that they have the power to choose and alter the consequences, thus changing the course of their life. Receiving the daily SMS presented students with a choice of taking control of their steering wheel by overcoming the daily stressors; understanding that there is learning in every road; encouraging them to believe in themselves; knowing that the steering wheel is their responsibility; and realising it is their choice alone as to which road they drive down.

There are three modes of human agency within social cognitive theory: personal, proxy, and collective (Bandura, 2001). Bandura argues that there are situations (eg. social conditions and institutional practices) in life where the individual does not have direct control.

However, there are also situations where many people relinquish their personal control as they find the responsibility too onerous. This is when proxy agency can be used in a positive way to promote self-development; (the daily SMS).

The third collective mode of human agency represents individuals working together and utilising that collective power towards achieving a shared common goal, which again may be represented by the daily SMS. Knowing that other students were also receiving the daily text, as well as those students who forwarded the SMS to friends and family may have increased the groups' aspirations and motivation. This may have then strengthened their ability to face challenges and experience setbacks, building their resilience, thus enhancing their ability to perform (Bandura, 2001).

Social cognitive theory, through becoming the agents of their own change, may assist in explaining why students felt that they had greater control and power over their lives, giving them the confidence to help others.

12.4.4 Generative.

Research indicates that through helping and giving to others, positive emotions can be generated (Catalino & Fredrickson, 2011). When participants in one study (Dunn, Aknin, & Norton, 2008) were asked to perform five acts of kindness in a day, and in another study were asked to spend money on others, (Lyubomirsky, Tkach, & Sheldon, 2004, as cited in Lyubomirsky, Sheldon, & Schkade, 2005)) their happiness was increased by the end of the study. By forwarding on the SMS to someone who needed it, or being asked to appreciate someone in their life, students were able to interact with others in a positive way (Catalino & Fredrickson, 2011). An important aspect of the intervention was the interpersonal texts which the students received at least once a week. At least half the students who were interviewed passed the texts on without needing to be prompted to do so. This is where they became the teacher, whilst the recipient of their text, became the student. If helping and giving is capable of generating positive emotions, then incorporating a skill into a

program which requires a 'passing it on' aspect to it, may be of value in the tertiary setting, to help generate positive emotions; increasing mental health (Fredrickson, 2013).

12.5 Motivation to Keep Receiving SMS - Connection and Anonymity

The most profound finding and the major theme that emerged from the thematic analysis was the students' personal connection with the SMS. It was this connection which motivated the students to want to keep receiving the daily SMS in order to facilitate the positive changes they experienced to their levels of wellbeing. As stated in Chapter 10, this was not an outcome that was expected. Each one of the students referred to the SMS as being a friend; someone who cared; somebody out there who was watching out for them; and whose caring was unconditional.

Linked to this connection was the fact that the texts were anonymous. Neither sender nor receiver knew each other, which all the students believed was of no consequence. In fact, the anonymity was what assisted in the strengthening of the connection; and it was as a result of this strong connection that such profound changes occurred. The anonymity took away any feelings of obligation to the sender and feelings of dumping 'your stuff on others', as well as any personal contextual interpretation of the content.

Comments relating to the anonymity of the texts such as 'it was less personal and less accusatory', alongside comments of connection and a feeling of 'having a friend in the phone' appear to be contradictory, yet it was this combination that helped generate the profound connection. Once the connection was established, the ramification of being able to positively influence aspects of the students' wellbeing was able to take place.

12.5.1 Anonymity.

In a study evaluating the success of on-line interventions, Ryan et al., (2010) found that it was the anonymity which allowed the students to seek help. The authors suggested that 'online mental health interventions might appeal to those individuals who are both likely to need help and unlikely to seek help' (Ryan et al., 2010, p. 75). Anonymity, according to the results of this study, is a major ingredient in the success of attracting those students who may not otherwise seek help, supporting the findings of other studies in implementing and uptake of mental health interventions (Ryan et al., 2010).

In a TEDxCapeTown presentation, Knott Craig (2012) argued that there was no freedom without the freedom to be anonymous, and that anonymity affords a way of safely learning; presents a lack of judgement; creating a dimension where people can connect with others. The SMS offered students an anonymous supervised training service that afforded a safe way of learning to apply a skill, without judgement or even the knowledge that the student was either receiving or reading the text. It was through the anonymity, the absence of obligation and the lack of judgement that all added to the connection that was formed between student and SMS. A balance between the external influence of the SMS and the internal freedom of the receiver seems to have been achieved (Vanderstraeten & Biesta, 2006). Kant argued that a man's destination could only be reached via education (as cited in Vanderstraeten & Biesta, 2006); the daily SMS was set up to educate the students on how to apply the skill of *Mytern*.

12.6 Education, Communication and Change: A Pragmatic Perspective

In line with pragmatism, where action and change is a focus, education also aims to change (Vanderstraeten & Biesta, 2006). Biesta (2004) argues that education takes place not between teacher and student, but 'in the gap between the teacher and the learner' (p.13). To investigate the causal influence of the SMS, one needs to explore the way in which the students were educated via the communication of the SMS. The sender-receiver model of communication is inadequate here, as what is being communicated is not about information, but about meaning, and often the meaning is not attached to the information (Vanderstraeten & Biesta, 2006). Meaning is something that we actively subscribe to something (often unconsciously) and is achieved through the process of communication itself, which is central to the way in which communication is understood from the philosophical stance of pragmatism (Vanderstraeten & Biesta, 2006). This is what forms the gap between teacher and learner, as argued by Biesta (2004). Dewey and Mead (as cited in Vanderstraeten & Biesta, 2006), saw communication as a process in which, through 'the co-ordination of action, meanings are shared and a common world is brought into existence' (p.166). They believed that 'we continually make minor adjustments in our own understandings, our own ways of responding, our own ways of seeing, in order to bring about co-ordinated action (Vanderstraeten & Biesta, 2006, p.166). The daily SMS helped educate the students through this shared communication (even though the communication

appeared to be one way), where anonymity created a form of two way communication, where students could make minor adjustments, responding and seeing in an evolutionary way, bringing about the action of being in control. The long term interviews corroborated this evolutionary aspect of the SMS, with students stating that the skill grew in strength the longer they applied it, regardless of whether they were receiving the daily SMS or not (Chapter 11.3.6).

As stated earlier, once the connection with the SMS was achieved through the anonymous form of communication, and the skill was practiced, psychological wellbeing, life satisfaction and resilience all increased, and the levels of distress decreased within the ISMS group. This was achieved through:

- ✓ Positive Psychology (Chapter 4.2.1): managing personal mental, physical and emotional health issues through developing awareness on how to take control
- ✓ Self efficacy: through knowing that only they have control of their steering wheel (Chapter 10.4.2)
- ✓ Mindfulness (Chapters 3.16 & 4.2.3): through the mindfulness of their GPS and being aware of what road they are on
- ✓ Positive emotions (Chapters 3.16 & 4.2.2): through knowing they have the control of their steering wheel and the power/ability to steer onto better roads no matter what the circumstances, and thus creating positive emotions
- ✓ Broaden and build theory (Chapter 3.15.1 & 4.2.2): positive emotions broaden your outlook and even brief positive emotions have long lasting beneficial consequences
- ✓ Emotional intelligence (Chapter 3.15): through being able to identify what road they were on and knowing whether they were building health, building resilience or decreasing their health
- ✓ Resilience (Chapter 3.14): level of resilience was related to the health measures of optimism, social support, spirituality, purpose in life, and mood clarity.
- ✓ This mode of delivery proved to be a highly successful form of communication (Chapter 9.4).

12.7 Research Questions and Hypotheses: A Summary

At the outset of the study, outcomes were predicted by hypotheses and guided by questions.

Hypotheses 1 & 2: Through combining the quantitative and qualitative results, the null hypothesis was supported when applied to the C and IA groups. This suggested that viewing the DVD and receiving the *Mytern* mini-manual component of the intervention was not enough to significantly impact students' level of wellbeing and distress. However, when applied to the ISMS group, the alternate hypotheses were supported, indicating that it was the *Mytern* intervention combined with the SMS component, which was capable of positively impacting students' level of wellbeing and distress (Chapter 8.4 and 8.5).

The information gathered from the follow up interviews, and the resulting themes, illustrated that the skill imparted by the SMS component of the intervention *Mytern*, had the potential to be sustained (Chapter 11). Four of the participants demonstrated that sustainability is possible through the continuous delivery of the SMS, whilst three of the participants shared that their capacity to engage with the skill 6 months later, without having had the prompt of receiving a daily SMS.

RGQ1 Is there a relationship between psychological wellbeing, life satisfaction, resilience and distress levels in first year university students?

As predicted, there was a significant positive correlation between psychological wellbeing, life satisfaction and resilience levels; when one construct increased, so would the others. There was a significant negative correlation between distress levels and the other scales. Therefore, when distress levels decreased, psychological wellbeing, life satisfaction and resilience levels increased; and when distress levels increased, psychological wellbeing, life satisfaction and resilience levels decreased (Chapter 8.7).

RGQ2 What other factors may influence the psychological wellbeing, life satisfaction, resilience and distress levels of first year students who have participated in the *Mytern* intervention?

The quantitative data indicated the influence of the demographics (FIF, gender and age) on the results; none of which were significant enough to impact the overall score (Chapter 8.6). A factor that has been recognised as contributing to stressors experienced by students are relevant to those who are the First In their Family (FIF) to attend university. The University of Queensland addressed this issue in their guide for transitioning students into university (UQ Student Services, 2012). They stated that the students who were first in family

experienced the added challenge of unrealistic expectations held by both their families and themselves.

Past research has found a correlation between FIF and greater levels of stress (Phinney & Haas, 2003). It is interesting to note that although 80% of the students interviewed were the first in their family to attend university (an even higher number than across the entire university of 51%), a correlation was not found.

The qualitative findings confirmed what was found in the literature regarding the factors that contributed to the mental health challenges of university students, as it was found that the main contributing factors to these challenges for tertiary students were also identified within the interviews (Chapter 9.5.1). Each one of these issues emerged, giving meaning to the quantitative results, helping to explain what factors were contributing to the participants' high levels of distress. (See Table 50)

Table 50 *Contributing factors from the literature and interviews*

Contributing factors	References
Academic issues	(Bitsika et al., 2010; Christie, Tett, Cree, Hounsell, & McCune, 2008; Lizzio & Wilson, 2013a; Ruthig, 2009; Vaez & laflamme, 2008)
Financial pressure	(Bitsika et al., 2010; Eisenberg, Gollust, Golberstein, & Hefner, 2007; Royal College of Psychiatrists, 2011; Andrews et al., 2011)
First year experience	(Rowling, Weber, & Scanlon, 2005)
Greater freedom and responsibility	(Andrews & Chong, 2011; Eisenberg, et al., 2007; Kypri, et al., 2009; Vivekananda, et al., 2011; Weitzman, 2004).
International students	(Currie, 2003; Hellstén, 2002; Khawaja & Stallman, 2011, Lyrakos, 2012; Rosenthal , Russell, &Thomson, 2008; Wang et al.,

	2012)
Mature age students	(Royal College of Psychiatrists, 2011).
Personal situations	(Dyson & Renk, 2006; Price, et al., 2006; Rowling, et al., 2005)
Social support issues	(Andreras & Chong, 2011; Bitsika, Sharpley and Rubenstein, 2010)
Transition	(Dyson & Renk, 2006: Rowling, Weber, & Scanlon, 2005)

RGQ3 Does the delivery of the intervention (video-based, booklet or SMS) impact the psychological wellbeing, life satisfaction, resilience and distress levels in first year university students?

Results revealed that the delivery of the intervention had a major influence on students' level of wellbeing and distress (see Chapter 9.3). Participants indicated that the DVD was a good introduction to the skill; the mini-manual was designed to elaborate on the DVD, although many students did not read it (Chapter 9.4). These appeared to have no significant impact. It was the SMS that had the most significant impact on students' level of wellbeing and distress. Implications would be to continue to introduce the skill via DVD in tutorials or lectures, but only have the mini-manual available as a pdf on the university website for those interested to download onto their computer or phone. However, the written word, in accordance with Gardner's principles (section 4.6.1), should still be incorporated as it is important to cater for differing learning styles. The inclusion of the daily SMS would be essential for the intervention to have a significant impact on students.

RGQ4 Has change occurred in the students who participated in the intervention *Mytern*?

From a quantitative perspective, change occurred in all groups (C, IA and ISMS). However, the only significant change occurred in the ISMS group, with results revealing that all their post scores in FS, SWLS, K-10, CD-RISC were positively impacted by the intervention (Chapter 8).

RGQ5 If change did occur as a result of the intervention *Mytern*, why did this change take place?

The qualitative data produced the reasons as to why change took place; indicating that it was the anonymity which created the personal connection between the student and the SMS, and the knowledge within the skill that gave them a sense of control; which then had a domino effect on aspects of their mental and emotional health (Chapters 10 & 11).

12.8 Research objectives from a pragmatic perspective

Is it successful and is it transferrable?

Looking just at the ISMS group results, it appeared to be successful. However, learning from the study, it is essential to incorporate the SMS as part of the intervention delivery. After the study, the course within which the intervention was trialled chose not to embed *Mytern* the following semester, but to simply flash up a slide for 20 seconds. Despite this, over 100 students (out of a possible 1000) chose to subscribe to the daily SMS, indicating the need for such a service in first year cohorts.

Can it be embedded in a first year curriculum and can it be introduced by teaching staff?

Mytern was successfully embedded in a compulsory first year subject/course. The DVD was part of the tutorial PowerPoint for that week with a brief explanation, so teaching staff followed the prompts and execute the steps as directed, in order to deliver the DVD and mini-manual components of the intervention. As stated earlier, in future, the mini-manual could be downloaded as a pdf from the university website, minimising teacher responsibility regarding the booklets. This would also eliminate the problem of students not attending lecture/tutorials and missing out on receiving the booklet.

Is it time and cost effective?

The time taken in the tutorial was four minutes for the DVD, with anywhere between 1 and 5 minutes of discussion, according to the tutor. As this was the only tutorial time needed, it would be quite easy to incorporate into an existing course/study, and could be embedded in a lecture or a tutorial. The function of the SMS was to act as a daily supervised training for

the student, eliminating students and staff having to find the time to do it through attending classes and workshops.

It was expected that the positive changes experienced by the participants receiving the intervention (now limited to the ISMS group) would then influence the student in several ways:

- academic achievement- two of the interviewees (Chris and Ash) reported a positive influence on their academic achievement as a result of applying the skill of *Mytern*, increasing their ability to concentrate and raising their marks
- helping them enjoy a positive quality of life; this was reflected in the increased scores in wellbeing and life satisfaction
- enabling each student a greater opportunity to positively contribute to their world. As an example, Sam, with her increased confidence, was able to volunteer to help on various committees and earned an apprenticeship with the local ABC
- these changes within the student may in turn reflect in decreasing the high attrition rates (34%) experienced by the university in the study. Applying the skill of *Mytern*, was responsible for keeping several participants at university

12.9 Salutogenic and Pragmatic Outcomes

Through practising the skill learned in the intervention, salutogenic outcomes such as transforming everyday stressors into health (i.e. increased psychological wellbeing and decreased distress levels) have been achieved. From a pragmatic point of view, the outcomes of the study have also been met and reflect the theoretical model adopted in the study and the study design. In terms of action and utility, the intervention was able to bring about positive change, keeping students at university, enabling them to perform better academically and even keep them alive. In terms of value and change, the students valued the SMS, and through receiving the SMS, began to not only value others, but to value themselves. Gaining control over their thoughts and emotions produced a sense of ownership and responsibility, giving some students the confidence to achieve a more stable relationship with themselves and those around them; knowing that it was not circumstance that steered them down certain roads, but their own thoughts and perspective.

From a pragmatic perspective, both students and university need to take responsibility; the student to stay with the course and complete it; and the university for ensuring that the students receive the best opportunities to attend and complete their course. Making available such an intervention as *Mytern*, which has the capacity to provide a free service that has shown that it can positively impact first year students mental health, meets both students and universities responsibilities.

The reasons for adopting a mixed methodology were also affirmed. Through merging the data in the discussion, qualitative results were able to shed light on the quantitative results, adding depth and rigor to the study. As stated in Chapter 5, pragmatism offers rigor, relevance and thoroughness to research, regardless of what particular methodology is selected; recognising the importance of theory 'as a means of explaining and predicting phenomena, while subjecting it to the test of practice and time in order to determine its usefulness or value' (Goles & Hirscheim, 2000, p. 269). Pragmatism tries to explain, psychologically and biologically, how the relation between knower and known 'works' in the world. In an attempt to explain the connection that was made between the student and the daily *Mytern* SMS, a concept emerged.

12.10 An Emerging Theory

It is a commonplace assumption for a doctoral thesis, in the true sense of the word, to develop theory. Paraphrasing the words of Kant, Harrington (2005) stated that 'theories without data are empty; data without theories are blind' (p.5). While the theory below doesn't assume any level of grand theory, it can be seen as an emerging theory which may form the basis for future theory testing research. In keeping with the study, the theory adopted a salutogenic perspective, looking at how the major themes joined together to create positive health, forming a connection between the student and the *Mytern* SMS.

Adopting a mixed methodology afforded the current study the opportunity to both test theory (quantitative) and generate theory (qualitative). In the development of theory, traditionally a researcher may use an inductive (sifting through data) or deductive (accumulation of verified hypothesising) approach (Alvesson & Kärreman, 2011). The current study, through proposing hypotheses, employed a level of deduction and found that the data did indeed fit/support the hypotheses. The theory that emerged was derived from

the main themes that were identified within the qualitative data. The theory was also supported by the quantitative data.

According to Goethe, 'a theory should help observe the phenomenon more clearly' (as cited in Cupchik, 2011, p.320), so the qualitative data were investigated for evidence that could explain the connection created between the student and the daily *Mytern* SMS. This connection was unexpected, and the fact that it was unexpected 'alerts one to the fact that something is up' (Woods, 1992, p. 383). Given the concerns about constructing theory from qualitative data (other than grounded theory), a more useful theory may be evidenced by combining an inductive process with one which also uses the participants words to help construct the theory (Alvesson & Kärreman, 2011). Alvesson and Kärreman suggest that this approach 'highlights the usefulness of empirical material for theory development through recognising the fusion of theory and empirical material in the research construction process' (p.3). They emphasise the 'potential of empirical material as a resource for developing theoretical ideas through the active mobilization and problematisation of existing frameworks' (p. 4). Empirical material can 'facilitate and encourage critical reflection' which can 'enhance our ability to challenge, rethink and illustrate theory' (p.4). Therefore, theory can address reality, whilst being constructed and backed up by evidence.

According to Krathwohl (1998), theories offered by both Skinner (1957) and Piaget (1952) exceeded the data available at that time, yet both 'proved useful as they were subject to experiments for practical evaluation' (p. 28). Although the numbers in the present study were small, it did not eliminate the possibility of being able to begin the development of an emergent theory. While supporting the notion that isolated studies have little impact, Krathwohl (1998) stated that a study's impact may magnify when it contributes, modifies, contradicts or extends existing ideas.

An inductive approach was used to investigate whether there was evidence of a theory emerging from the qualitative data; and in part there was; the Anonymous Caring Connection Theory (ACCT).

12.10.1 ACCT in relation to the study.

A major theme that emerged from the interviews was that of **disconnection**. However, the study highlighted that this disconnection was dichotomous in that it was both positive and negative. The students talked about the negative side of disconnection in terms of experiencing social isolation such as: *'I don't understand that I don't - well I don't fit in'; 'there's not really somebody that I could just go to and talk to'; and you 'feel so alone sometimes in your studies, really **disconnected**, especially when you're at home all day', because 'we all feel **disconnected** at one time or another'*. Whereas the positive side was expressed in terms of the disconnection that anonymity formed: *'It's less personal. It's less accusatory'*. Rory felt that it helped create a situation where you weren't judged. He believed that if he knew the person sending the text that he might also have felt *'like you owe them one.....obligated. The **anonymity** helps you deal with stuff yourself, just dealing with that myself, in all these situations **anonymously**'*. Sam reiterated this perspective by stating:

*'I think **anonymity**'s a good thing, because some people don't want to feel responsible to reply, or feel the need that they need to say something, because they don't. All they need is just to receive the text and they can do what they want from there.'* (Sam)

When students signed up to receive the SMS, it was completely anonymous. The researcher would receive a text saying *'Mytern'*; their number would then be added to a list, subscribing them to the service. As the students were disconnected from the sender, and the sender from them, they were able to see the texts objectively, feeling no obligation *or responsibility* to either read the text or act upon it. Students indicated that they didn't want to connect with someone in order to seek a solution; it was the freedom that the anonymity provided that helped to create the solution.

The **anonymity** also created the freedom to be able to subscribe to the texts without anyone having to know that the student was in need of receiving support. The anonymous self, as well as the digitized self, can go anywhere in hyperspace, *'unencumbered by traditional values or meanings'* (Cupchik, 2011, p.325). This freedom gave students the

opportunity to anonymously participate in the program, thus including those students who may otherwise have not engaged with any form of support (i.e. counselling).

While discussing the digitized self in the internet age, Cupchik (2011) updates Descartes classic 'cogito, ergo sum' (I think, therefore I am)' to 'I am responded to, therefore I am' (p.324). It was the shift from 'think'ing to being 'responded to' which Cupchik had observed that added to the explanation of how/why a connection was created between the student and the *Mytern* SMS. Accompanying disconnection and anonymity in the emerging theory was the daily SMS, which represented a regular positive response, adding to the connection that was ultimately formed.

The procedure of subscribing to the daily SMS may be compared to posting your status on Facebook, and then awaiting a response. Once the students subscribed to the service, the response then came daily via the *Mytern* SMS. The SMS appeared to act as a daily affirmation; not only affirming the individual student's existence but also reinforcing that there was '*someone out there who **cared***'. This notion of caring was referred to by all the students, reflected in statements such as:

Just to know that somebody is **thinking about you**

It makes you feel someone's out there **caring**

You just know that someone's **on your side**

Knowing that there's someone out there saying, **come on guys, you can do this**

It felt like it was somebody **trying to help** and let you know that you're not the only one out there

The study revealed that through a combination of disconnection (both positive and negative), anonymity, and being the recipient of a regular positive response via the daily *Mytern* SMS (caring), a feeling of connection was generated within the participants.

Statements such as '*a one-on-one personal **connection***' and '*it was kind of like having a little friend in the phone, that sort of gives you that **connection***', emphasised how it was

‘connection’ that played a major role in the success of the intervention; instigating the salutogenic changes experienced by the students.

It was through combining the major themes of disconnection (both positive and negative), anonymity, and the regular positive response of the SMS which resulted in the creation of the Anonymous Caring Connection Theory (ACCT). (See Figure 39)

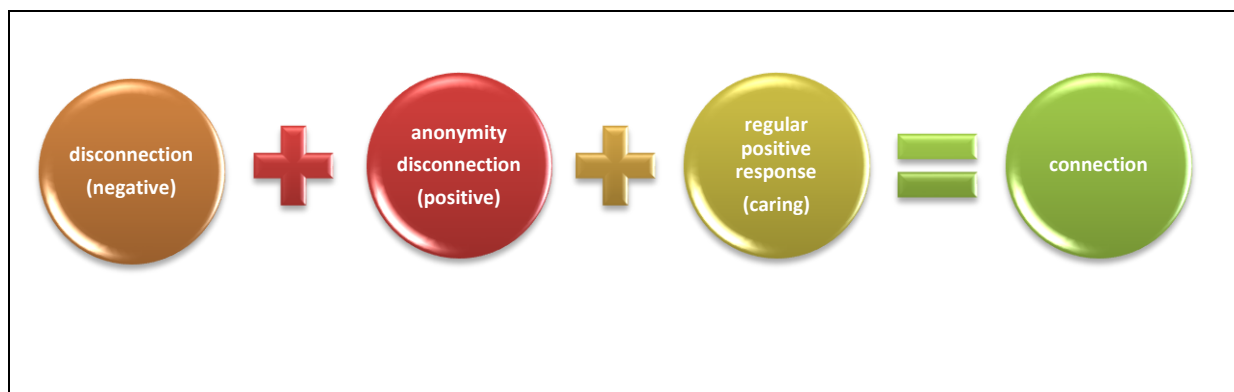


Figure 38. Anonymous Caring Connection Theory (ACCT)

12.10.2 ACCT in relation to the wider social media.

Rather than merely mirroring their own reality, the language that the students used to convey the connection that they felt with the SMS (**disconnection**, **anonymity** and **care**) could be used to generate a more generalised theory pertaining to the connection created within social media (Alversson & Karreman, 2011). It is often through the anonymity of social media that a connection is able to be made.

The impact of anonymity has been studied in relation to crowds and computer communication, both of which broaden the understanding of anonymity within the study. Le Bon (1995, as cited in Watt, Lea & Spears, 2002) developed the observation that ‘people experienced a sense of **anonymity** when immersed in large crowds’ creating a loss of ‘personal and social responsibility’ (p.66). It may be this loss of personal responsibility along with an anonymous personal identity, which gave the students the freedom to participate.

Watt, Lea and Spears (2002) proposed a 'theoretical framework (the Social Identity model of Depersonalisation Effects, or SIDE) to explain how anonymity in CMC (computer mediated communication) can accentuate feelings of group belongingness and identification, which in the authors' view, is 'central to understanding the internet's social effects' (p.76). The study found that the 'physical isolation and visual anonymity' that individuals experienced when communicating via computer 'may actually lead people to behave in a more socially regulated, normative way' (p.76). The physical isolation and complete anonymity experienced by the participants in the study may have given them the freedom to interact with the intervention in a 'more socially regulated, normative way'.

A recently released App (application software, now more applicable to mobile phones) supports the positive aspects of isolation and anonymity (Spraffl, 2013). Spraffl is a free downloadable app for Iphones which 'introduces instant networks where people can share ideas, gossip and connect without the 'baggage of identity' – placing the onus on conversation not self-promotion' (Spraffl, 2013). Jay Feeney, co-founder and CEO of Spraffl states that: *'Anonymity has been an incredibly important part of the way we communicate over the centuries and has proved its great worth in print and other media'* (Spraffl, 2013). Anonymity in the current study played a major role in the communication and ultimate connection that was formed between the student and the daily *Mytern* SMS.

The connection made between the participants and the *Mytern* SMS reflected the 'current obsession with social media', which is linked with 'the evolutionary engrained desire for humans to connect at large scales' (Crosier, Webster & Dillon, 2012, p.238). A study which supported this idea (Reich, Subrahmanyam, & Espinoza, 2012), found that the most common reason for participating in social networking was for **connection** rather than entertainment. They found that social media provided 'additional ways for teens to interact with each other in the search for intimacy and emotional **connection**' (Reich, Subrahmanyam, and Espinoza, 2012, p.231). Therefore, the ultimate goal was connection.

A recent study, investigating the use of Facebook and relatedness need-satisfaction in university students (Harrington, 2005; Reich, et al., 2012; Sheldon, Abad, & Hinsch, 2011) found a relationship between **disconnection** and **connection**. It was the feeling of

disconnection that motivated the participants to use Facebook as a coping response. The more participants used Facebook, the more connection they reported feeling with life. However, the study also reported that the level of disconnection did not decrease; in fact, they found that 'the frequency of Facebook use is positively correlated with feelings of general connection in life and with feelings of general disconnection with life' (p.11). The authors concluded that 'general disconnection may motivate Facebook use, and connection may reward it' (p.11). Having '**many specific rewarding feelings** within a particular domain increases the probability that the Facebook domain will be selected the next time a general deficiency is felt (p. 13). This 'reward' supports the **regular positive response** created by receiving the daily *Mytern* SMS, and the ultimate feeling of **connection** that was created.

12.10.3 Applying ACCT.

ACCT may best be illustrated when applying it to a current problematic situation, one that was recently highlighted in a report on the National Mental Health Survey of Doctors and Medical Students (Beyondblue, 2013). With an unprecedented 14,000 participants, the survey revealed that doctors were experiencing high emotional exhaustion, as well as substantially higher rates of psychological distress and attempted suicide compared to both the Australian population and other Australian professionals' (p.3). With doctors and medical students experiencing similar levels of psychological distress as university students (Beyondblue, 2013; Stallman, 2011), an intervention based on ACCT would appear to be applicable.

There exists within the general public a stigma towards common mental disorders such as depression and anxiety (Barney, Griffiths, Jorm, & Christensen, 2006; Coppens et al., 2013; SANE, 2013). This stigma persists within the medical profession, contributing to the doctors' reluctance to seek help (Beyondblue, 2013). The survey listed the barriers preventing the doctors and medical students from seeking help. These included:

- a fear of a lack of confidentiality or privacy (52.5%)
- embarrassment (37.4%)
- impact on registration and right to practice (34.3%)
- preference to rely on self or not seek help (30.5%)

- lack of time (28.5%)
- concerns about career development or progress (27.5%)

Coping privately with high levels of psychological stress, as found with the university students in the current study, can produce a feeling of social isolation and disconnection. Given the above factors, the need for anonymity and connection would appear to be just as advantageous in this situation as it was with the university students.

It was the frequency of the support in the form of the daily SMS that generated a connection, which created the profound changes within the students. Therefore, if doctors had a support mechanism similar to the *Mytern* daily SMS, that was also able to be accessed anonymously, it could help prevent the escalation of their psychological distress levels. The anonymity, combined with the regular positive response, would also assist in creating a form of connection between the anonymous support and the doctor, therefore helping to eliminate a feeling of disconnection.

12.10.4 Summary.

The strength of the intervention was that it allowed a **connection** to be made to the extent that it helped alleviate the negative aspect of disconnection. The intervention found a balance between sufficient connection to address the problem and sufficient **anonymity** to allow the students to retain a sense of independence.

Combining the disconnection expressed by the students in the Facebook study, the freedom that anonymity was able to create, and the positive responses or ‘rewards’ experienced, a connection was created. This combination of disconnection (both positive and negative), anonymity and daily positive response (caring), which established the connection, is what formed the Anonymous Caring Connection Theory.

12.11 Conclusion

As a result of being able to merge the quantitative and qualitative results, a broader and deeper picture was able to be created regarding the impact of the intervention *Mytern* on first year students psychological wellbeing, life satisfaction, resilience and psychological distress levels. This chapter showed from a pathogenic perspective that the students’

negative influential factors reflected those stated in the literature, with stress and social isolation being the dominant themes. The salutogenic perspective revealed that the connection made (with the assistance of anonymity and caring) was able to positively impact them through mindfulness; developing a feeling of control which may be explained through applying the agentic perspective of Bandura's social cognitive theory; giving them the confidence to be able to forward on the skill of *Mytern*.

The pragmatic perspective of education and communication assisted further in explaining the changes documented; as a common world being brought into existence through the sharing of meaning. Responses to the research questions and objectives were summarised, as well as the salutogenic and pragmatic outcomes of the study. Finally, a theory was created to help explain the unique connection that was created between student and SMS.

The connection that the students developed with the *Mytern* SMS (as a result of the ACCT) motivated them to be able to practice and apply the skill daily and be mindful of what they were thinking and feeling. As presented in Chapter 3 and confirmed by the findings, the mindfulness that receiving the SMS created, served to amplify the effects of building resilience and generating positive emotions. In light of the increasing prevalence of depression and other mental health problems being experienced by tertiary students, interventions which increase an awareness of emotions; incorporate mindfulness; and teach strategies that build resilience and generate positive emotions, are worth further exploration. Wellbeing (see chapter 3.10) should not only be promoted but should be taught as 'an as an antidote to depression, as a vehicle for increasing life satisfaction, and as an aid to better learning and more creative thinking' (Seligman et al., 2009). The authors argue that as 'most young people attend school, schools provide the opportunity to reach them and enhance their wellbeing on a wide scale' (p.296). This may also prove true for tertiary institutions. The following chapter concludes the study, critically reflecting on the orientation, framework and study design; discussing implications for implementing interventions in a university setting; concluding with limitations and future research possibilities.

Chapter 13 Conclusion

In response to the rising prevalence of mental health challenges in first year university students, the study investigated the impact of a resilience-building intervention on the psychological wellbeing, life satisfaction; resilience and distress levels of first year university students. This chapter, divided into three sections, aims to critically reflect the study. The first section involves the study itself; reflecting on the orientation, methodology and methods used. The second section concentrates on the implementation of an intervention in a university setting; discussing lessons learned. The third section begins with the study's claims to knowledge, and then outlines the limitations, before concluding with suggestions for future research.

13.1 Section 1: The study

13.1.1 A salutogenic orientation.

The substantive theory of salutogenesis influenced all aspect of the study: the intervention, paradigm, methodology, analysis and discussion. Adopting a pathogenic perspective (the reasons for creating disease) to interpret the findings would have required the researcher to focus on *why* there was a rising prevalence of mental health problems in first year tertiary students. This study wished to contribute to this knowledge by documenting findings from the salutogenic perspective (the reasons for creating health), and sought to ascertain what positive impact, if any, the intervention had on participants' psychological wellbeing, life satisfaction and resilience and distress levels. Adopting a salutogenic perspective meant that the study did not seek ways to eliminate stressors from the participants' lives, but sought to help them strengthen and create health, whilst still experiencing these everyday stressors. In regards to participants in the ISMS group, the study's results revealed that the skill was able to help students transform these stressors, developing a level of resilience that not only allowed them to bounce back, but to increase their wellbeing. Adopting a salutogenic orientation strengthened the focus of the intervention and the positive outcomes of the study; helping to sustain the passion, interest and dedication of the researcher.

13.1.2 Methodology and methods.

Pragmatism, as discussed in Chapter 5, is strongly associated with action and change and ‘the interplay between knowledge and action’, which ‘makes it appropriate as a basis for research approaches intervening into the world and not merely observing the world’ (Goldkuhn, 2012, p.136). The study focussed on action and change and was driven by the researcher’s passion to help students manage their own emotional health. The research intervened into the students’ world, introducing a skill and reinforcing it daily with the SMS. This pragmatic approach was supported by the salutogenic perspective of looking at the positive end of the continuum, as a pragmatist focuses on ‘what works’ and not on ‘what doesn’t’. This study, in trying to define ‘what works’, leant towards Dewey’s interpretation of pragmatism, straddling the two extremes of objectivism and subjectivism, and answering the research question both impersonally (survey) and personally (participant’s voice).

Therefore, pertinent to this study, was valuing objectivity and subjectivity (studying the problem from both a general and specific perspective) in order to obtain the stated outcomes. Through adopting the dual lenses of a mixed methodology, the study combined the broader picture generated by the statistical data, with the deeper interpretations of the individual student.

If the study had not utilised the dual lenses of a mixed methodology, the transformation of the daily stressors of the first year students’ life into the creation of health (salutogenesis) and the association with the intervention, could not have been made so strongly. As revealed in the discussion of the results (Chapter 12), both quantitative and qualitative findings were strengthened by the merging of the data, adding depth and rigor to the study; with results reflecting the study’s salutogenic outcomes.

13.2 Section 2: the implementation of an intervention in a university setting; discussing lessons learned

13.2.1 University as a setting for health promotion.

Universities are in an excellent position (see Chapter 3.11) to become more involved in the prevention of mental disorders and the promotion of wellbeing (Lally, et al., 2013; Price, et al., 2006; Stallman, 2008). Through implementing a universal intervention (one which targets the entire first year population rather than just focussing on individuals who may be at risk), any stigma that may be associated with individual participants can be minimised (Lally et al., 2013; Reavley & Jorm, 2010). Managing personal mental health issues begins with awareness, therefore a universal intervention introduced to all first year students also has the advantage of giving those at risk strategies to recognise and handle their own mental health issues, assisting them to minimise and manage them more effectively (Andrews & Chong, 2011; Geisner, et al., 2006). Universal interventions also have the advantage of covering more than one issue or problem at a time, as was found with *Mytern*. Through adopting a salutogenic perspective, the skill helped students (whilst still under the influence of daily stressors) perform better academically; improve their relationships; stay at university; and even save lives. It is therefore important to develop universal interventions that cater for diverse student populations and that can be used across multiple college campuses and university settings (Buchanan, 2011).

Adopting and implementing such changes as positive education within tertiary institutions require strong, committed leadership in a system that is already considered to be overloaded (Oades et al., 2011). This study proved why interventions such as *Mytern* are so important, and provided universities with empirical evidence about a time/cost effective intervention which can be embedded into the curriculum and implemented by non-specialist staff.

13.2.2 Factors influencing the success of an intervention in a university setting.

Successful universal mental health promotion prevention programs for higher education are the skill-oriented interventions (especially those that incorporated mindfulness and cognitive behavioural therapy) that are embedded into the curriculum (Conley et al., 2013). Their effectiveness is increased when they incorporate a form of supervised skills practice;

‘improving social and emotional skills, enhancing self-perceptions, and reducing emotional distress (including depression, anxiety, and stress)’ (p. 295). The effectiveness of *Mytern* reflected these attributes, making them essential/major components of a successful intervention that is to be introduced into a tertiary setting. The intervention *Mytern* was embedded within a compulsory curriculum and incorporated a skill which required mindfulness, which then instigated a cognitive awareness of thoughts and feelings. The success of the daily SMS, which acted as daily supervised training, also highlights the importance of incorporating the use of social media into an intervention.

However it was the anonymous component of the intervention that presented another important ingredient to be incorporated into interventions. The SMS offered students a daily anonymous supervised training service that afforded a safe way of learning to apply a skill, without judgement or even the knowledge that the student was either receiving or reading the text. The absence of any obligation placed the students in a position where they became their own agents of change, which was another important aspect of the interventions’ success. It was through the anonymity, the absence of obligation and the lack of judgement that all added to the success of the intervention.

The daily SMS also addressed the difficulties of universities having to incorporate time intensive programs (such as those included in the review by Conely et al. 2013) which ranged from 1 to 35 hours, as they are often impractical to implement in an already time poor tertiary curriculum. As the service was delivered daily via the students’ phone, there was no need for either staff or student to attend a regular class in order to practice the skill.

Another important fact to consider is that many interventions are developed, implemented and evaluated by either student counsellors (Bretag, et al., 2009) or psychologists (Hasel et. al., 2011; Stallman, 2011). This highlights a need for universal interventions that are implemented by those who are not specialists, such as the one in this study which was implemented by tutors. This can help broaden the application and uptake of health promotion within universities, and assist in reducing the strain already felt by university student counselling services (Lally, et al., 2013, Stallman, 2012).

Mental health promotion programs and interventions ‘need to be integrated into the routine structure and programming of higher education institutions and to have support

from students, staff, and administrators' (Conley et al., 2013, p. 297). In order to be affective, they should not just provide information, but aim to change behaviour and attitudes of both students and staff, which in turn, will bring significant benefits to the institution (Crouch, Scarffe & Davies, 2006). It may be through adopting a salutogenic perspective (recognising that daily stressors may not be able to be controlled) that such strategies as *Mytern*, when integrated into the whole university community, could be seen to bring about institution wide positive change.

13.2.3 Health constructs that may be incorporated into a tertiary health promotion intervention.

The major health constructs which were incorporated into the intervention *Mytern* were resilience, positive emotions and mindfulness. Resilience can be viewed as an asset-based approach that can support tertiary students' mental health needs (Hartley, 2012). As discussed in Chapter 3, resilience is open to development (Bonnano, 2004; McAllister & Lowe, 2011); can be enhanced by interventions (Connor & Davidson, 2003; McAllister & McKinnon, 2009) and can be learnt by anyone (Newman, 2005; McAllister & McKinnon, 2009). Vulnerability and adversity were common themes within the literature surrounding resilience, of which both may be encountered by a student in their first year of university. It was through the teaching of the *Mytern* skill, which showed how to transform daily stressors, that students' level of resilience was increased, helping them manage their vulnerability and adversity, reflecting the salutogenic concept of creating health through daily stressors.

Learning to cultivate positive emotions can be seen as a protective factor, as positive emotions not only signal flourishing, or optimal well-being, but produce it- both in the present moment and in the long term. They are worth cultivating, 'not just as end states in themselves but also as a means to achieving psychological growth and improved well-being over time' (Fredrickson, 2001, p. 218). From a salutogenic perspective, enhancing the protective factors is more effective than reducing the risk factors to improve resilience (Lee et al., 2013).

The daily SMS acted as a prompt to help students cultivate positive emotions, building a protective factor against daily stressors while creating improved wellbeing. As generating

positive emotions has the ability to enhance psychological wellbeing and functioning, and is associated with lowering levels of mental health problems, it seems to be an important ingredient to be added to a tertiary intervention (Bonanno & Keltner, 1997; Folkman & Moskowitz, 2000; Fredrickson, 1998, 2001; Lyubomirsky et al., 2005).

Mindfulness was also incorporated into the intervention, but not in the usual way. As discussed in Chapter 12, the major difference with the mindfulness within *Mytern* was that it was practiced momentarily, via the SMS, rather than being practiced in a class situation for an extended period of time. This form of mindfulness enabled the students to become aware of their thoughts and emotions and not judge them, helping to transform psychological distress into psychological wellbeing (Keng, et al., 2011).

These three constructs (resilience, positive emotions and mindfulness) combined to form a powerful intervention that was able to positively impact students' psychological wellbeing, life satisfaction; resilience and distress levels. This is just one example of how multiple constructs could be combined to form an intervention that may be suitable for tertiary students.

13.3 Section 3: Contributions, Limitations and Future Research

13.3.1 Contributions.

As there have been limited scope and number of studies that have been subject to review, it has been 'difficult to reach clear conclusions about the impact of mental health prevention and promotion interventions for higher education students' (Conley et al., p. 287). This was the first study of its kind in Australia evaluating a universal intervention which incorporated the following attributes:

- embedded in a compulsory first year course
- both time and cost effective
- proactive rather than reactive
- not a one off seminar
- accessible daily through multimedia and social networking support
- introduced by a teacher/educator
- evaluated the efficacy of video, booklet and SMS delivery of the intervention

The study not only evaluated the statistical changes but also recorded the individual student responses to the intervention, demonstrating its original and substantive contribution to the current body of literature surrounding the problems being experienced worldwide in the area of student mental health.

The study also developed a new theory (Anonymous Caring Connection Theory) to help explain the connection that can be made through social media, as a result of anonymity and disconnection. As outlined in Chapter 12, the Anonymous Caring Connection Theory (ACCT) demonstrated how an anonymous SMS was able to create a feeling of connection and caring between the student and the daily SMS.

13.3.2 Limitations and future directions.

The aim of the research was to add to the body of knowledge of health promotion, through evaluating the impact of a resilience-building intervention on first year students' wellbeing, resilience and distress levels. However, there were limitations that appeared during the study which need to be taken into account. Despite the large sample size, the response rate (which was outside the researcher's control) to complete both pre and post surveys, was small. This impacted the study's ability to generalise to other larger university cohorts. As it was a single-case study, conducted at one Australian university, the results are necessarily contextualised, making it post-positive rather than positive. Therefore claims to greater generalisability are understandably limited; opening the way to future study's being conducted at larger university campuses.

It may have been advantageous if participants, who attended the tutorial and chose not to receive the daily *Mytern* SMS, had been interviewed. Although asked, none of these students volunteered. It may also have been advantageous to have interviewed those students who had received the daily SMS, but had chosen to stop. To that end, a request was sent to them to be interviewed, but none came forward. Future research that included these participants would have increase the knowledge surrounding the uptake of such interventions.

As the involvement in the intervention was voluntary, it would be difficult not to encounter some self-selection bias. Although the control and intervention groups had similar

demographic baselines, they demonstrated differences in their pre-test baselines, with the intervention group having lower levels of flourishing, life satisfaction and resilience, and higher levels of psychological distress than the control group. This would possibly indicate that people in the intervention group chose to take part because they had a greater need. Students' electing to participate in the intervention augurs well for its transferability into other university settings.

The transferability of the study is more likely than the generalisability, due to the limited response rates. However, other universities, no matter what the size or location, may be able to adapt the integration of *Mytern* to best suit their environment. Integrating the intervention into an existing curriculum produces its own limitations, as the researcher has to operate within the constraints imposed by the course co-ordinator, which was experienced within this study. As a result of the pilot study and prior to the commencement of the main study, it was decided that both pre and post tests would be conducted in-class to maximise the response rate. However, after the pre-test, the course co-ordinator changed the post test from in-class to during a lecture. When comparing the pre-test scores of the control and intervention groups, the intervention group (in-class: 250) produced over double the response rate of the control group (during a lecture: 120). Both post-tests were conducted during a lecture, producing a similar response rate (54 in the control and 53 in the intervention). It may be construed that the timing and location of the data collection may have impacted the response rate, thus impacting the study.

Rather than integrating *Mytern* into the curriculum, the intervention could be introduced to students during orientation week, or during one of the first lectures. It may also be introduced later in the semester, when students are beginning to feel the pressure of assignments and assessments. It would be beneficial to look at various methods of integration, especially when courses are reluctant to include interventions, no matter how small.

The SMS messages in the study were sent from the researcher's phone. This would be impractical in any other situation. Therefore, universities would have to subscribe to the *Mytern* SMS service, which may prove costly with a larger number of participants. An app is being developed which will reduce the price of *Mytern* considerably, making it accessible to

a greater number of students. However, future research is needed to assess the impact of a message received from an app as opposed to receiving it via SMS.

The number of students interviewed who received the daily *Mytern* SMS was also small; despite a large sample size. Those who did volunteer all had positive experiences. Therefore, the absence of negative feedback made it difficult to evaluate the shortcomings of the intervention. The fact that no-one volunteered any negative feedback, even when requested via SMS, implied that the intervention was able to have a positive or neutral impact on students' wellbeing and distress levels.

Future research could also include tutors and staff in the study; involving them in the intervention and inviting them to also receive the daily SMS. Making the intervention university wide (not only first year students) would also provide valuable information, adding to the body of knowledge surrounding mental health promotion and prevention programs.

Mytern may have had a positive impact on some of the students within the study, but the numbers are too small to predict success in other university environments. As stated earlier, more research is needed to verify any generalisability and transferability of the intervention. The University of Technology Sydney (UTS) is holding a randomised clinical trial of *Mytern* in 2015 to ascertain its impact on 1000 first year students, which will contribute to the body of knowledge surrounding the uptake of interventions such as *Mytern*.

13.4 Conclusion

This thesis has evaluated the impact of a time and cost effective intervention (*Mytern*) which was embedded into a first year compulsory course and delivered via a brief movie on DVD, a mini manual and a daily SMS. Through adopting a salutogenic perspective and employing a mixed method approach, the study gathered data from surveys, semi-structured interviews and SMS feedback.

Participants were divided into 3 groups (C, IA, and ISMS), with results indicating that the intervention ISMS group experienced significant positive changes in all 3 surveys of wellbeing and a decreased score in psychological distress. The results for the ISMS group

supported the hypotheses that the intervention (*Mytern*) would increase students' psychological wellbeing, life satisfaction and resilience, and decrease levels of psychological distress.

Qualitative data added depth to the quantitative results, highlighting the value of adopting a mixed method approach when evaluating the impact of a resilience-building intervention. Findings revealing how the intervention was responsible for developing a feeling of connection and a sense of control within a large number of students; enabling them to feel better mentally and physically; perform better academically; whilst encouraging them to continue at university.

The original contributions to knowledge included the creation of the Anonymous Caring Connection Theory (ACCT), which helped to explain the connection that was created between the student and the daily *Mytern* SMS; as well as empirically testing a resilience-building intervention that has the capacity to be embedded into a first year course and implemented within a tutorial by tutors. The study findings indicate that equipping students with a skill to reframe the daily stressors of university and life may increase wellbeing, increase resilience, reduce distress and as a result, may increase student retention.

The thesis may conclude best in the words of two students whose comments epitomised the links between *Mytern* and its potential impact on the emotional health and resilience of first year university students.

I was at a really bad place at the beginning of the year. Everything just seemed really dark and really down. I was at rock bottom. I felt like I was dead. I was numb every day. I was just taking life as it passed me by. But then when I started *Mytern* things got better. The texts just reminded me that I was in control, that my life was my life. It reminded me why I was here. It changed everything. . Now I'm at a really good place. It's.... amazing! *Mytern* has completely changed everything. It's changed my way of thinking; how I view every day, how I see people. Instead of seeing everything in black and white, everything is in colour and I'm so grateful. (Sam)

Last semester I was in a pretty dark place. So dark that I actually tried to commit suicide. Ended up in hospital and I was at really rock bottom. Ended up moving to

the sunshine coast and started uni here. From there *Mytern* actually helped me because during this semester I went through big family dramas and it was pretty unbearable for me cos it was to do with my dad. Basically I was a mess again and I started to go down that path where I didn't want to live any more. With *Mytern* I was able to turn that around and I really did bounce back up and I'm probably the happiest I've been for a very long time. (Ash)

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Appendices

Appendix A: Literature Review Summary Table

Author/year	Topic/focus/purpose	Methods	Context/setting/sample	Findings	Limitations/future research
(Stallman, 2010)	Comparison of university student distress levels to general population	Web based survey K-10	6,479 students from two large Australian universities 65% female, 86% fulltime 77% undergraduate	84% reported elevated distress levels compared to 29% of general population Highlights need for universal early interventions to prevent the development of severe mental health illness in university students.	Limitations: Results only on lower-bound estimates as K-10 focuses on depression and anxiety. Response bias. Sample had high GPA's Future research: on multilevel interventions to address the broader mental health needs of uni students
(Conley, Durlak, & Dickson, 2013)	Evaluate the effectiveness of universal promotion and prevention programs for university students	Journal and reference list search. Criteria: higher education general population; more than 1 session; control group; evaluated one of emotional distress, social and emotional skills, self-perceptions, interpersonal relationships	83 controlled interventions Randomised or quasi-experimental Most participants were undergraduates beyond first year Interventions: 75% skill oriented 25% psychoeducational Majority delivered as full course or small group intervention	In-class, skill oriented programs were most effective, followed by CBT, mindfulness. Need supervised practise to succeed	Limitations of interventions: range of outcomes assessed, reliance on self-report measures, durability of intervention impact, lack of information on program moderators and mediators, methodological and data analytical strategies Future research: studies which address the above limitations, and research into interventions which are skill oriented, CBT, mindfulness and contain supervised practise
(Conley, Travers, & Bryant, 2013)	Evaluate the effectiveness of a psychosocial wellness seminar for first year college students	Quasi-experimental	51 first year students from an American university Control: $n=22$ Intervention: $n=29$ $M age = 18.4$ 65% female	Significant improvements in psychosocial adjustment and stress management	Limitations: sample size only detected medium to large effects, only one sample from one college campus, within a curriculum so less attrition, self-selection bias Future research: to verify generalisability and should incorporate a variety of assessment tools

Author/year	Topic/focus/purpose	Methods	Context/setting/sample	Findings	Limitations/future research
(Stallman, 2011)Stallman, 2011	Embedding a strength-focused resilience building seminar within a university curriculum	Mixed methods On-line questionnaire Follow-up reflective journals	247 first year psychology undergraduates from an Australian university 86.1% female Age $M=21.93$ Full time $n=97.5\%$	90% reported at least one of the six building blocks as being useful High scores for satisfaction, which translated into positive behaviour change	Limitations: gender imbalance, only psychology students Future research: evaluate the effectiveness within other faculties
(Bitsika, Sharpley, & Rubenstein, 2010)Bitsika, Sharpley and Rubenstein 2010	What stresses university students	Qualitative: interviews using standardised protocol	35 university undergraduates from different degrees within an Australian university Males: $n=14$ Age: $M=27.6$ yrs	Students found dislocation from family, friend and partner relationships ,most stressful, followed by time demands of study and financial restrictions	Limitations: only a single university, city based, done over a short period of time so stressors could change, self-selection bias Future research: counsellors adopting the same interview methodology; including a number of different universities
(Bretag, Hayes, & Rohde, 2009)Bretag, Hayes and Rohde 2009	Intervention to help uni students manage their mood	Survey Feedback letter Postcard Focus group	239 students from a South Australian university who lived on campus (no other statistics given)	Moods experienced: 80% feeling down, 62% irritable, 81% avoidant 43% slower to complete tasks 80% of students spoke with a friend or family member before seeking professional help, Highlighting mood and strategies to compensate helped the students	Limitations: only students in residence, one setting, Future research: university wide strategy
(Farrer et al., 2013)Farrer	Systematic review of published randomized trials of technology-based interventions evaluated in a university setting for disorders other than substance use and eating	The PubMed, PsycInfo, and Cochrane Central Register of Controlled Trials databases were searched	27 studies (89% targeted anxiety symptoms or disorders or stress, one third targeted both depression and anxiety) 49% of studies employed internet-based technology (most involving CBT), distal and universal interventions were most common	47% had at least one significant positive outcome compared to control 29% failed to find a significant effect Median effect size was 0.54 for interventions targeting depression and anxiety symptoms and 0.84 for interventions targeting anxiety symptoms and disorders Universal preventative interventions delivered early on look promising (especially those using CBT)	Limitations: interventions may not have been specifically designed for university students, only searched 3 data bases, restricted to English language journal papers, few studies focused on technology Future research: a greater amount of high quality trials that fully report randomised methods, outcome data, and data analysis methods

Author/year	Topic/focus/purpose	Methods	Context/setting/sample	Findings	Limitations/future research
	disorders				
(Wynaden, Wichmann, & Murray, 2013)	A snapshot of university students' experiences to enable strategic planning of future university support services	Qualitative exploratory study using a cross-sectional survey design.	1378 students from all teaching areas enrolled in a WA university 72% female 84% undergraduate 67% enrolled 2 years or less Age: 72% less than 26	83.5% described recognisable labels for common mental disorders of which the most commonly identified were depression, anxiety and stress related concerns. 78% reported that stress was impacting their mental wellbeing. More than half didn't seek professional help	Limitations: misreading of written communication, and due to sampling approach findings can't be generalised Future research: into providing information for staff and students on how to support and assist students who self-disclose to them (for eg. the Mental Health First Aid program)
(Lally, Conghaile, Quigley, Bainbridge, & McDonald, 2013)	Stigma and Help Seeking for Mental Health Among College Students	On-line survey	Random sample of 5,555 students from 13 different UK universities 46% male 74% undergraduates	(a) Perceived public stigma was considerably higher than personal stigma; (b) personal stigma was higher among students with any of the following characteristics: male, younger, Asian, international, more religious, or from a poor family; and (c) personal stigma was significantly and negatively associated with measures of help seeking (perceived need and use of psychotropic medication, therapy, and nonclinical sources of support), whereas perceived stigma was not significantly associated with help seeking.	Limitations: social desirability bias, students may have been thinking about society in general, more so than their fellow students Future research: into stigma reduction efforts, as they are more likely to increase help-seeking behaviour among college students, especially if they reduce personally held stigmatizing attitudes as opposed to perceptions of what others believe.
(Hasel, Abdolhoseini, & Ganji, 2011)	Hardiness Training and Perceived Stress among College Students	Pre and post test (Hardiness Scale, Perceived Stress Scale) Intervention 6x2hr sessions	56 students from an Iranian university 32 female Age $M=21$ 29 experimental group 29 witness group	Hardiness levels of experiment group increased ($t= 10.703$, $P<.01$) and perceived stress levels had decreased ($t= -5.307$, $P<0.01$) after the hardiness training intervention. Control group had minimal changes.	Limitations: Baseline scores were different between control and intervention group, one university, Future research: intervention to be assessed in different university settings

Author/year	Topic/focus/purpose	Methods	Context/setting/sample	Findings	Limitations/future research
(Jorm, Kitchener, Fischer, & Cvetkovski, 2010)	Evaluated the effects of Mental Health First Aid training delivered by e-learning on knowledge about mental disorders, stigmatizing attitudes and helping behaviour	Randomised control trial On-line questionnaires pre and post test 6 month follow up	262 adults recruited from the Australian general public Age $M=40$ 81%female, 52% had reported mental health problems Delivery of the Mental Health First Aid information was either via e-learning CD (with video and interactive case history's) or printed manual	Recognition for depression was already high, but recognition improved with schizophrenia. Both deliveries reduced personal stigma towards depression and schizophrenia. Perceived stigma didn't change. Confidence to help others increased. Psychological distress levels didn't change but days out of role decreased with the CD group.	Limitations: previous trials had face-to-face training so couldn't compare, couldn't access first aid actions taken by participants, differences in retention between sample groups Future research: creating a method to assess the uptake of first aid procedures post intervention
(Ryan, Shochet, & Stallman, 2010)	Explores the potential of the Universal online interventions might engage psychologically distressed university students who are unlikely to seek formal help	On-line questionnaire K-10 General Help Seeking Questionnaire	254 students from a large Queensland university Age $M= 23.74$ 85% fulltime 77% female First years $n=37.8\%$ Other undergraduates $n=34.3\%$, honours $n=14.6\%$, postgrad $n=14.6\%$	K-10 $m=20.24$ Help seeking was more likely to be sought informally when stress was low, average or high ie. a) formal $n=4.97$ versus b) informal $n=2.0$ 47% said that they would access an on-line program (including 57% of the highly stressed students and 36% of those with low stress) Internet is a great resource and may reach those who are unlikely to seek formal help Need for early intervention programs	Limitations: female dominant, limited sample (only 2 disciplines at one university) Future research: into early intervention programs to prevent more serious mental health issues
(Nolan, Quinn, & MacCobb, 2011)	How mobile phone use, in particular text messaging, has been used to communicate	Descriptive, non-experimental, and pre- dominantly qualitative in nature. It employed a mixed-method approach,	40 students attending the UNILINK service in Ireland between 2005-8 Male $n= 62.5\%$ Age $n=24.2\%$ Diagnosed with depression	SMS was a valuable means of communication Maintained ongoing contact and therapeutic relationship and an important part of the ongoing management of the individual's	Limitations: not focused on the ethical and legal aspects of mobile technology Future research: to ascertain the benefits of text messaging outside a counselling environment

Author/year	Topic/focus/purpose	Methods	Context/setting/sample	Findings	Limitations/future research
	with and support students with mental health problems attending a university within Ireland to manage their academic and social lives.	by way of: (1) Collecting text messaging data, relating to 40 students, from four therapists across three years, and (2) auditing the service files to gather demographic data and some intervention-related information that was cross-analyzed with the qualitative text messaging data	$n=52.5\%$ 4 therapists also participated 413 text messages were recorded and included in the study	condition/illness	
(Haste, 2005)	Use of text messaging in students aged 11-21	Interview survey online and on paper from a random sample of 29 schools and colleges	1,058 students in the UK aged 11-21 (600 school and college students, 159 university students, 299 no longer in full time education)	Mobiles phones: essential to young people's lives where texting plays a prominent role in their social interactions; more than a communication tool or piece of furniture; an extension of their person and expresses their identity and selfhood in a variety of ways, including both how it is used and how it is worn; give young people independence, and also – paradoxically – privacy; even though conversations may take place in 'public', they are in the control of the young person, unconstrained by parents and family members, and the choice of location is theirs;	Limitations: Only in UK Future research: more recent in depth study to see if usage has changed over time; include different countries and different socio-economic backgrounds

Author/year	Topic/focus/purpose	Methods	Context/setting/sample	Findings	Limitations/future research
				enables them to function effectively in a world which is their own domain.	
(Free et al., 2013)	A systematic review to assess the effectiveness of mobile technology interventions delivered to health care consumers	Controlled trials of mobile technology-based health interventions delivered to health care consumers using MEDLINE, EMBASE, PsycINFO, Global Health, Web of Science, Cochrane Library, UK NHS HTA (Jan 1990–Sept 2010)	Identified 75 trials. Fifty-nine trials investigated the use of mobile technologies to improve disease management and 26 trials investigated their use to change health behaviours. Nearly all trials were conducted in high-income countries	Health behaviour change trials reported between one and 23 outcomes Disease management trials reported between 1 and 25 outcomes Text messaging interventions should be considered for inclusion in health bservices.	Limitations: Only done in high income countries Future research: needed in low income countries and the inclusion of high quality adequately powered trials of optimised interventions to evaluate effects on objective outcomes.
Shaw(Shaw, 2012)	A Mobile Health Intervention to Sustain Recent Weight loss	An exploratory 3-arm mixed methods randomized controlled trial to test the feasibility, acceptability, perception of the usefulness, and efficacy of a weight loss sustaining mHealth SMS intervention among people with obesity.	Participants (N=120) from USA were randomized to a promotion message group, a prevention message group, or an attention-control general health message group. Completed baseline assessments, and reported their weight at 1 and 3 months post-baseline. A phone interview followed completion of the intervention.	SMS served as a daily reminder to help them to stay focused, and in some cases to keep them motivated to continue losing weight. 91% said that they preferred to get messages on their cell phone due to accessibility and convenience. A minimum of one message per day delivered at approximately 8:00 A.M. was deemed the optimal delivery time and frequency. Technological tools such as this SMS intervention show promise in helping people sustain healthy behaviours that can lead to improved health outcomes.	Limitations: The majority of participants were from a more affluent and educated background, mostly White non-Hispanic, and not representative of the general U.S. population. This study also did not evaluate the effectiveness of the SMS intervention or the effects of the message framing on sustaining weight loss. Future research: test interventions using SMS to maintain and thwart behaviours other than weight loss.

Author/year	Topic/focus/purpose	Methods	Context/setting/sample	Findings	Limitations/future research
(Hartley, 2013)	The relationships between measures of inter- and intrapersonal resilience and mental health were examined with respect to academic persistence in college students with mental health issues	Web survey The Mental Health Inventory – 5 (MHI-5) CD-RISC 10 Social Support Questionnaire-6 (SSQ-6)	121 students from two Midwestern university USA, mainly arts and science, recruited from campus mental health offices 72% female Age M=21.06	There was a strong statistical correlation between the resilience factors and mental health, indicating that a resilience framework may assist university students with mental health issues, helping them to cope better with the everyday stressors of university and may improve college retention.	Limitations: greater percentage of female participants Future research: include participants who do not have a mental health issue history
(Catalino & Fredrickson, 2011)	Assessing the role of positive emotion reactivity in optimal mental health	Web-based surveys. The study was conducted in three phases: a classification phase (“Pre-DRM”), the administration of the DRM (Daily Reconstruction Method) and a recontact phase (post DRM)	208 USA adult community members 59% female Age n=42	108 flourishers, 67 non-flourishers and 33 depressed people	Limitations: didn’t experimentally manipulate the variables of interest; vulnerability to response bias; flourishers may have a more positive recall of events; homogenous nature of sample (white, middle class and middle aged) Future research: examine the degree different individuals in each category spend engaging in targeted activities; effects of dispositional characteristics; longitudinal study.
(Vivekananda, Telley, & Trethowan, 2011)	A Five Year Study on Psychological Distress within a University Counselling Population	The Outcome Questionnaire -45.2 (OQ-45.2) gathered over a five and half year period and measured psychological	3682 students who presented for counselling at the RMIT University Counselling Service in Australia. 61.4% female. Over half (52.72%, n =416) of the international	78.4% of students scored in either the Medium or High range of psychological distress. Three at-risk cohorts are less likely to seek help early with 57.5% of international students first attending counselling with high levels of	Limitations: lack of qualitative research to explore reasons for outcomes Future research: track participants over time; relationship between psychological distress and low socio-economic backgrounds; greater qualitative research

Author/year	Topic/focus/purpose	Methods	Context/setting/sample	Findings	Limitations/future research
		distress. The OQ-45 is a 45-item self report outcome/tracking instrument designed for repeated measurement of client progress through the course of therapy.	students were from a non-English Speaking Background (NESB) while 17.63% (<i>n</i> = 510) of domestic students come from a NESB.	distress, as did 56.7% of students with a disability, and 55.1% of students from a NESB	as to why students wait before seeking formal help; resilient factors; exploring a wider, more general population

Appendix AA: Mytern Tutorial DVD

(See attached USB)

Appendix B: Extract from The Mytern Mini Manual

Is Mytern for everyone?

How often do you allow someone else's bad mood to affect how you feel?

How often do you let circumstances control how you feel? Pressure at work; failure at things; putting on weight; not enough money; not enough friends...the list goes on.

Mytern teaches that you may not be able to change the circumstances, but you ALWAYS have the option to change the way you feel.

We all know that to attain and maintain physical fitness we need to exercise and eat correctly. However, few of us know how to attain and maintain our mental and emotional fitness. Just because we are not taking medication doesn't mean that we are mentally and emotionally fit. We need to work at it, just as we do with our physical fitness. The bonus here is that if you keep yourself emotionally fit, it will have a positive impact on your physical fitness as well.

Who is in charge of my emotions?

If I suggested that in 2 minutes I could make you love me, what would you say? You would probably say that it is YOUR choice whether or not you would love me, and I would have to agree with you. However, if I said that I now have another 2 minutes, only this time I am going to make you angry because I know which buttons to press, my ability to influence your emotions suddenly becomes possible. Why? They are both emotions, so why should you choose to be responsible for love but not for anger? It doesn't make sense to be selective does it? You are actually in charge of ALL your emotions. Your thoughts and emotions are the one thing that no-one else can influence. No-one has the power to make you feel something, except yourself. The bottom line is that YOU are the only one who controls your emotions. No-one else can make you feel happy, sad, excited, lonely, worthless ...these feelings are all your choice and your responsibility.

However, you still need to remember that all the emotions that you experience are important. Each 'positive' one is a balance for the 'not so positive' one. All of us need to feel anger sometimes, as that can help define boundaries. Grief helps us to cope with loss. Sadness can often give us a different perspective, out of which comes a different solution. No-one feels good ALL the time, so don't put pressure on yourself to try to be perfect. Perfection is actually a balance between feeling both positive and not so positive emotions, and everyone's balance is different.

The skill of Mytern

Mytern is an emotional fitness skill designed to increase your mental and emotional fitness. The skill is based around the metaphor that you are the driver, only you have control of the steering wheel, and all the roads that you drive down represent your thoughts and emotions. Less positive thoughts and feelings (such as failure, worthlessness, jealousy, depression, and stress) lead you down roads which are less positive to your body causing high petrol consumption and wear and tear.

Positive thoughts and feelings (such as happiness, success, love, and appreciation) take you down roads that are positive to your body, causing low petrol consumption which makes your body stronger.

Appendix C: Student replies to the daily *Mytern* SMS

(None of the students knew who was sending the SMS)

I wouldn't be able to thank you enough! Thanks for starting something so powerful and unselfish !

Thanks. It has really helped me

The *Mytern* messages have been great! After a few weeks I noticed my attitude had improved and eventually my attitude wasn't as affected by things that happened in the day and the text messages help support that change. Thanks ! ☺☺

Thankyou, it really helps ☺

UNSUBSCRIBE...Thank you for making my day, just when i need it. My life is back on track, but your kind words have been helping when things have looked dark. Just remember it only takes one person to make a world of difference and you are reaching people every day and doing your part. That's something to be proud of. While i no longer need your words, others do. And I am passing on your kind spirit in my own ways. So thank you. Goodbye.

Just wanted to say thanks for the messages, I absolutely love receiving them and look forward to reading your words!!

I appreciate you even more for sending them! They really do help out on those down days ☺

Thank you ☺ I will try to do just as you suggest, it is a great idea☺☺

I have very much appreciated and enjoyed your My Tern texts, thank you. Please continue to send your texts.

I love the messages. I can see how they can easily save someone's life or even alter it to a more positive stance. U r amazing! It's subliminal content is gifting of enormous power to create a shift for many many folk. It's as if an Angel is reaching out from heaven And so u r truly a Guardian to all of us sent from the universe who has tapped into their life's path.

Everyday when I get ur text I feel better that universe is talking to me n I'm not alone

Makes a difference ... Cheers

This rings so unbelievably true for me today!! Oh my ! Thank you so much every day you help! X

Thanks so much..great timing xo

Love this one! Thanks !!

Thank you so much for all these texts. It has really made a difference and helps me put things into perspective and just step back. Have a good day.

I appreciate all your messages they are a big help especially this week Thankyou

Thanks for all the great messages. Today was one I really needed to hear, so perfect timing. Look forward to many more. ☺

Thank you 4 all the wonderful *Myterns* 😊😊

Thank you 😊 your texts are so lovely and encouraging, caring and uplifting 😊😊

Thank you 😊 your encouragement always comes just when I really need it 😊😊

😊 your messages mean lots 2 me and very helpful 😊😊

Thank you 😊 I really needed 2 hear that 😊

Thank you 😊 your texts are gifts 2 me 😊

Thank you for all the helpful texts 😊 they come along just when I need them :-)

I appreciate all your messages they are a big help especially this week Thankyou

Thank you for sending them. I really love getting them and appreciate the effort taken for me to receive them 😊

Kangaroos on the grass at Uni right now beautiful. Your text inspires me to leave the masters suite and get out in the sun.

Apreciate sms-s u send. thanks

Hi I love this one!! Xx

Thanks so much for all yr messages ..It's just so comforting!!!! That someone cares 😊

Thanks for the reminder 😊

Hahaha

This stuff is so good

Keep up the good work

Thankyou your messages are inspiring

STOP. Im all better now 😊 thank you for your love and support.I couldn't have done this as well as I have, without your positive affirmations, they really were helpful and uplifting, so thank you. 😊

Love this one! Thanks !!

Thank you so much for all these texts. It has really made a difference and helps me put things into perspective and just step back. Have a good day.

And I appreciate your unconditional support for me - thank you xoxoxxo

I really appreciate having these texts in my life n I should start appreciating myself more 😊

Thank you for the lovely messages they are inspirational x

Your sms is like a dog coming up 2 u & giving u a big friendly lick 4 no reason ..makes you feel loved!

My new favourite!!!

Very sticky wheel sometimes! Some days better than others

They just get better & better!

Love that one!!! 😊

I needed this more than you'll ever know. Thank you, whoever you are!

Hmm very appropriate 😊

This stuff is so good

Keep up the good work

I'm not sure if i am allowed to reply, but just letting you know your advice and tips are excellent! loving it. keep it up! 😊

Love that one!!! :)

Thank you! cant wait to get more 😊

Thank you . looking 4ward 2 receiving more sms's

The "right" corner!

Thank you again 😊 I've said it before but your texts are so lovely and encouraging, caring and uplifting 😊😊

Thank you 4 all the wonderful *Myterns* 😊😊

Omg thank you so much made my day :) i honestly cant thank you enough for everything you have honestly taught me so much and helped me grow so so much as a person and given me strength to do things i never thought were possible!

I use the skills from *Mytern* all the time. I am a mature age student so I have many thought and reactionary responses that have been embedded over many years. I am getting better at catching myself early and breathing and refocusing. Sometimes it is hard to get those deep relaxing breaths when a bit tense, however I have become aware of the feeling of being relaxed as compared to that feeling of 'bad stuff' surging through my body. Thank you again. 😊

Thankyou for these messages, sometimes they come just at the right time 😊

Appendix D: Pilot Study Tutorial (PowerPoint)

(see attached USB)

Appendix E: Examples of *Mytern* Facebook Quotes and Video



•

[Mytern Pilot](#)

[27 April 2012](#)

We are still masters of our fate.

We are still captains of our souls. Winston Churchill

Use your GPS to take control of your steering wheel. Drive to where it feels good!

[Like](#) · · [Share](#)



•

[Mytern Pilot](#)

[26 April 2012](#)

"Every problem contains within itself the seeds of its own solution."

Stanley Arnold

[Like](#) · · [Share](#)



•

[Mytern Pilot](#)

[24 April 2012](#)

People are not disturbed by things, but by the view they take of them.

Use your GPS and TERN

[1Like](#) · · [Share](#)



•

[Mytern Pilot](#)

[31 March 2012](#)

[Shy Boy and his Friend Shock the Audience with the Prayer - This is Unbelievable!](#)

www.godvine.com

[Simon, the other judges, and the entire audience laughed as this boy and his friend came on stage. But then those laughs quickly turned to applause and tears when Jonathan and Charlotte started to sing. WOW.](#)

Appendix F: Text message examples: Pilot Study

How are you feeling? Why are you feeling that way? Check your GPS. Use your PET to steer down a better road

Being influenced by the amount of work that you have? Grab your steering wheel and use your PET to help steer you down a better road

What road are you on? Check your GPS. Use your PET to help steer you down a better road

Have you thought of a PET to use today?

Is there anyone in your life who is being a challenging PET today? Use them to steer onto a better road.

Are your feelings being influenced by those around you? Take control now

Do you have your hands on your steering wheel? Where are you driving?

Are your feelings being influenced by not achieving what you want to achieve? You can't change circumstance, but you can change how you feel?

Are you driving in a good district? Well done!

Could you benefit from changing your perspective right now?

Breathing deeply helps to settle you down and can act as a portable PET!

How many times have you checked in with your GPS today?

Remember, no-one else has power over your steering wheel.

Are you driving down someone else's road? Take control now

Stop! GPS, PET, TERN! Well done!

Are these texts annoying you? You can do this! Train your thoughts to feel better.

This will be worth the effort. Remember that brain plasticity! Keep creating those positive pathways.

Well done. Another week of TERNing. Hang in there.



Title of Project

The impact of *myT.E.R.N.* (a resilience intervention) on positive psychological capital and distress levels in first year university students.

It has been well documented that first year university students can experience rising levels of stress. This can be due to many different factors such as financial situation, living away from home, working part time, changes in lifestyle and academic pressures. Research into interventions that provide tertiary students with strategies that may help them manage their own stress levels needs to be carried out in order to help alleviate the problems associated with high levels of stress. *myT.E.R.N.* is a program which introduces a skill to help manage your stress levels through learning to manage your thoughts.

The purpose of this research is to assess the impact that *myT.E.R.N.* (a resilience intervention) has on the stress levels and mental health of first year university students.

You are invited to participate in this research which will help gather data surrounding the resilience intervention, *myT.E.R.N.* Your participation will involve being introduced to the principles of *myT.E.R.N.* over two 15 minute sessions held during your tutorial time. It also involves filling out anonymous questionnaires which will assist in measuring the impact of *myT.E.R.N.* The first questionnaire, K-10, measures your distress levels whereas the second questionnaire, Pyscap, measures your psychological capital (which combines resilience, hope, optimism and self-efficacy). These will be administered in your tutorial on two separate occasions-

Week 4-before the intervention

Week 13- at the conclusion of the intervention

At the conclusion of the intervention, you may volunteer to be involved in a short one-on-one interview of 30-45 minutes, to discuss your thoughts about how *myT.E.R.N.* did/didn't influence your scores in the questionnaires.

All information that you provide will remain anonymous and confidential and will be used strictly for research purposes only. The questionnaires, transcripts and CD's will be kept in a secure, locked filing cabinet both on and off campus for the duration of the study. Once the study is complete, all data will be securely locked in a secure cabinet for five years duration, then destroyed.

Taking part in this research study is completely voluntary. If you decide not to be in this study, or if you choose to stop participating at any time, it will not prejudice or influence your academic progress.

The benefit of participating in this research is that you will be assisting in developing a mental health program for tertiary students. As a consequence of the study, you will be introduced to a skill that may assist you in managing your own stress levels, not only whilst you attend university, but as a general life skill that can be incorporated anywhere at any time. You may even choose to share this skill with family and friends.

When you engage in questionnaires and interviews relating to your feelings there is a low psychological risk, as you may be prompted to think about something that has distressed you. If you wish to seek counselling following the survey, the researcher will be able to provide direction to the appropriate service offered by USC.

A final summary of the study will be made available for all the participants electronically on either the university website or on the USC **myT.E.R.N.** Facebook page.

If you have any queries concerning the research project, please don't hesitate to contact either the principal student researcher/chief investigator Jane Foster at switchpositive@live.com.au or ph: 0425718632 or the principal supervisor Dr Florin Oprescu at foprescu@usc.edu.au or ph: 07 5459 4639

If you have any complaints about the way this research project is being conducted you can raise them with the Principal Researcher or, if you prefer an independent person, contact the Chairperson of the Human Research Ethics Committee at the University of the Sunshine Coast: (c/- the Research Ethics Officer, Office of Research, University of the Sunshine Coast, Maroochydore DC 4558; telephone (07) 5459 4574; facsimile (07) 5430 1177; email humanethics@usc.edu.au).

The researcher and USC would like to thank you for considering participation in this study.



University of the
Sunshine Coast

Title of Project

The impact of *myT.E.R.N.* (a resilience intervention) on positive psychological capital and distress levels in first year university students.

It has been well documented that first year university students can experience rising levels of stress. This can be due to many different factors such as financial situation, living away from home, working part time, changes in lifestyle and academic pressures. Research into interventions that provide tertiary students with strategies that may help them manage their own stress levels needs to be carried out in order to help alleviate the problems associated with high levels of stress. **myT.E.R.N.** is a program which introduces a skill to help manage your stress levels through learning to manage your thoughts.

The purpose of this research is to assess the impact that **myT.E.R.N.** (a resilience intervention) has on the stress levels and mental health of first year university students.

You are invited to participate in this research which will help gather data surrounding the resilience intervention, **myT.E.R.N.** Your participation will be helping to evaluate the impact of **myT.E.R.N.** by acting as the control group. To help work out if an intervention is effective or not, experimental research incorporates a group which doesn't receive the intervention, in order to then compare the results. The control groups are an important part of the experiment as they help create a baseline for the experiment and help eliminate factors that may affect the results. Your participation as the control group will simply involve filling out anonymous questionnaires. The first questionnaire, K-10, measures your distress levels whereas

the second questionnaire, Psycap, measures your psychological capital (which combines resilience, hope, optimism and self-efficacy). These will be administered in your tutorial on two separate occasions-

Week 4 and Week 13.

All information that you provide will remain anonymous and confidential and will be used strictly for research purposes only. The questionnaires, transcripts and CD's will be kept in a secure, locked filing cabinet both on and off campus for the duration of the study. Once the study is complete, all data will be securely locked in a secure cabinet for five years duration, then destroyed.

Taking part in this research study is completely voluntary. If you decide not to be in this study, or if you choose to stop participating at any time, it will not prejudice or influence your academic progress.

The benefit of participating in this research is that you will be helping to evaluate the effectiveness of a resilience intervention. Being part of the control group means that you will not initially receive the intervention, but at the conclusion of the Semester, you will be given the chance to receive the intervention and learn to apply it to your own life.

When you engage in questionnaires and interviews relating to your feelings there is a low psychological risk, as you may be prompted to think about something that has distressed you. If you wish to seek counselling following the survey, the researcher will be able to provide direction to the appropriate service offered by USC.

A final summary of the study will be made available for all the participants electronically on either the university website or on the USC *myT.E.R.N.* Facebook page.

If you have any queries concerning the research project, please don't hesitate to contact either the principal student researcher/chief investigator Jane Foster at switchpositive@live.com.au or ph: 0425718632 or the principal supervisor Dr Florin Oprescu at foprescu@usc.edu.au or ph: 07 5459 4639

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The researcher and USC would like to thank you for considering participation in this study.



University of the
Sunshine Coast

CONSENT TO PARTICIPATE IN RESEARCH

Title of Project

The impact of *myT.E.R.N.* (a resilience intervention) on positive psychological capital and distress levels in first year university students.

I have read and understood the contents of the Research Project Information Sheet for the above research project.

I realise that this research project will be carried out as described in the Research Project Information Sheet, a copy of which I have kept.

Any questions I have about this research project and my participation in it have been answered to my satisfaction.

I agree to participate in the research project, *The impact of myT.E.R.N. (a resilience intervention) on the positive psychological capital and distress levels in first year university students.*

I give consent for data about my participation to be used in a confidential manner for the purposes of this research project, and in future research projects.

I understand that I am free to withdraw at any time, without comment or penalty.

Participant

Date

I agree to also participate in a follow up 30-45 minute interview if required

Participant

Date

Appendix H: Questionnaire (pilot study)



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Individual Code

First two letters of your first name ____ first two letters of your mothers' first name ____ your birth year _____

Year of study: 1st, 2nd, 3rd, 4th, PGrad, Other _____ Gender _____ First in Family at Uni (circle one) Yes / No

Program _____

For all questions, please tick the appropriate response:

In the past 4 weeks:

<p>1. About how often did you feel tired out for no good reason?</p> <p><input type="checkbox"/> None of the time <input type="checkbox"/> A little of the time <input type="checkbox"/> Some of the time <input type="checkbox"/> Most of the time <input type="checkbox"/> All of the time</p> <p>2. About how often did you feel nervous?</p> <p><input type="checkbox"/> None of the time <input type="checkbox"/> A little of the time <input type="checkbox"/> Some of the time <input type="checkbox"/> Most of the time <input type="checkbox"/> All of the time</p> <p>3. About how often did you feel so nervous that nothing could calm you down?</p> <p><input type="checkbox"/> None of the time <input type="checkbox"/> A little of the time <input type="checkbox"/> Some of the time <input type="checkbox"/> Most of the time <input type="checkbox"/> All of the time</p> <p>4. About how often did you feel hopeless?</p> <p><input type="checkbox"/> None of the time <input type="checkbox"/> A little of the time <input type="checkbox"/> Some of the time <input type="checkbox"/> Most of the time <input type="checkbox"/> All of the time</p> <p>5. About how often did you feel restless or</p>	<p>6. About how often did you feel so restless you could not sit still?</p> <p><input type="checkbox"/> None of the time <input type="checkbox"/> A little of the time <input type="checkbox"/> Some of the time <input type="checkbox"/> Most of the time <input type="checkbox"/> All of the time</p> <p>7. About how often did you feel depressed?</p> <p><input type="checkbox"/> None of the time <input type="checkbox"/> A little of the time <input type="checkbox"/> Some of the time <input type="checkbox"/> Most of the time <input type="checkbox"/> All of the time</p> <p>8. About how often did you feel that everything is an effort?</p> <p><input type="checkbox"/> None of the time <input type="checkbox"/> A little of the time <input type="checkbox"/> Some of the time <input type="checkbox"/> Most of the time <input type="checkbox"/> All of the time</p> <p>9. About how often did you feel so sad that nothing could cheer you up?</p> <p><input type="checkbox"/> None of the time <input type="checkbox"/> A little of the time <input type="checkbox"/> Some of the time <input type="checkbox"/> Most of the time <input type="checkbox"/> All of the time</p>
---	---

fidgety? <input type="checkbox"/> None of the time <input type="checkbox"/> A little of the time <input type="checkbox"/> Some of the time <input type="checkbox"/> Most of the time <input type="checkbox"/> All of the time	10. About how often did you feel worthless? <input type="checkbox"/> None of the time <input type="checkbox"/> A little of the time <input type="checkbox"/> Some of the time <input type="checkbox"/> Most of the time <input type="checkbox"/> All of the time
---	--

Psycap (*Used with permission*)

Below are a series of statements that describe how you may think about yourself **RIGHT NOW**. We are asking you to consider each question relative to your overall life and school work aspects. Use the scale below to indicate your level of agreement or disagreement with each statement.

Strongly Disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly Agree
1	2	3	4	5	6

Question	Overall Life	School Work
I feel confident analysing a long-term problem to find a solution concerning my.....		
I feel confident in representing my ideas concerning my.....		
I feel confident contributing to discussions about strategies on my.....		
I feel confident setting targets/goals on my.....		
I feel confident contacting people to discuss problems concerning my.....		
I feel confident sharing information with a group of students about my.....		
If I should find myself in a jam about my, I could think of many ways to get out of the jam.		
At the present time, I am energetically pursuing my.....goals.		
There are lots of ways around any problem concerning my.....		
Right now, I see myself as being pretty successful concerning my.....		
I can think of many ways to reach my current goals regarding.....		
At this time, I am meeting the goals that I have set for myself concerning.....		
When I have a setback with, I have trouble recovering from it, moving on.		
I usually manage difficulties one way or another concerning my.....		
I can be “on my own” so to speak, if I have to regarding my.....		
I usually take stressful things in stride with regard to my.....		
I can get through difficult times at school because I’ve experienced difficulty before concerning my.....		
I feel I can handle many things at a time with my.....		
When things are uncertain for me with regards to....., I usually expect the best.		
If something can go wrong for me with my....., it will.		

I always look on the bright side of things regarding my.....		
I'm optimistic about what will happen to me in the future as it pertains to my.....		
With regards to my....., things never work out the way I want them to.		
I approach myas if "every cloud has a silver lining."		

~Thank you for your answers~

Appendix I: Project Information Sheet Focus Group (pilot study)



University of the
Sunshine Coast

Title of Project

The impact of *myT.E.R.N.* (a resilience intervention) on positive psychological capital and distress levels in first year university students.

It has been well documented that first year university students can experience rising levels of stress. This can be due to many different factors such as financial situation, living away from home, working part time, changes in lifestyle and academic pressures. Research into interventions that provide tertiary students with strategies that may help them manage their own stress levels needs to be carried out in order to help alleviate the problems associated with high levels of stress. *myT.E.R.N.* is a program which introduces a skill to help manage students' stress levels through learning to manage thoughts.

The purpose of this research is to assess the impact that *myT.E.R.N.* (a resilience intervention) has on the stress levels and mental health of first year university students.

You are invited to participate in this research which will help gather data surrounding the resilience intervention, *myT.E.R.N.* Your participation will involve being in 2 focus groups for the duration of up to one hour (one in Week 5 and one in week 11), where you will answer a short questionnaire and be introduced to the principles of *myT.E.R.N.* Participants will include students only.

You will then be asked to participate in a discussion surrounding 5 focus questions. Some of which include:

1. What do you think would be the most useful aspect in learning how to use *myT.E.R.N.*
2. What do you think would be the least useful aspect in learning how to use *myT.E.R.N.*

Guidelines for the discussions in the focus group will be that:

- everyone treats the others with respect
- discussion needs to stay on the topic
- everyone needs to listen (even when disagreeing)
- people speak one at a time
- people don't shout at each other
- there will be a break if needed for people to calm down
- people can leave if they don't feel comfortable.

All information that you provide will remain anonymous and confidential and will be used strictly for research purposes only. The questionnaires, transcripts and CD's will be kept in a secure, locked filing cabinet both on and off campus for the duration of the study. Once the study is complete, all data will be securely locked in a secure cabinet for five years duration, then destroyed.

Taking part in this research study is completely voluntary. If you decide not to be in this study, or if you choose to stop participating at any time, it will not prejudice or influence your academic progress.

The benefit of participating in this research is that you will be assisting in developing a mental health program for tertiary students. As a consequence of the study, you will be introduced to a skill that may assist you in managing your own stress levels, not only whilst you attend university, but as a general life skill that can be incorporated anywhere at any time. You may even choose to share this skill with family and friends.

When you engage in discussions relating to your feelings there is a low psychological risk, as you may be prompted to think about something that has distressed you. If you wish to seek counselling following the survey, the researcher will be able to provide direction to the appropriate service offered by USC. A final summary of the study will be made available for all the participants electronically on either the university website or on the USC *myT.E.R.N.* Facebook page.

If you have any queries concerning the research project, please don't hesitate to contact either the principal student researcher/chief investigator Jane Foster at switchpositive@live.com.au or ph: 0425718632 or the principal supervisor Dr Florin Opreescu at foprescu@usc.edu.au or ph: 07 5459 4639

If you have any complaints about the way this research project is being conducted you can raise them with the Principal Researcher or, if you prefer an independent person, contact the Chairperson of the Human Research Ethics Committee at the University of the Sunshine Coast: (c/- the Research Ethics Officer, Teaching and Research Services, University of the Sunshine Coast, Maroochydore DC 4558; telephone (07) 5459 4574; facsimile (07) 5430 1177; email humanethics@usc.edu.au).

The researcher and USC would like to thank you for considering participation in this study.



University of the
Sunshine Coast

CONSENT TO PARTICIPATE IN RESEARCH

Title of Project

The impact of *myT.E.R.N.* (a resilience intervention) on positive psychological capital and distress levels in first year university students.

I have read and understood the contents of the Research Project Information Sheet for the above research project.

I realise that this research project will be carried out as described in the Research Project Information Sheet, a copy of which I have kept.

Any questions I have about this research project and my participation in it have been answered to my satisfaction.

I agree to participate in the research project, *The impact of myT.E.R.N. (a resilience intervention) on the positive psychological capital and distress levels in first year university students.*

I give consent for data about my participation to be used in a confidential manner for the purposes of this research project, and in future research projects.

I understand that I am free to withdraw at any time, without comment or penalty.

Participant

Appendix J: Focus Group Interview (guiding questions)

1. Which elements of the intervention did you find most useful?
2. Which elements of the intervention would you improve or change?
3. How did you apply the principles of *Mytern* over the last ten weeks?
4. If you received text messages, were they helpful? What types of text were the most effective?
5. Were there times when the texts were annoying?
6. What type of texts did you find most inspiring?
7. Were there any significant events where you found *Mytern* particularly useful?
8. If you were to teach the skill to someone else, how would you do it?



University of the
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Evaluation- final results

1. Did you gain any new knowledge from the tutorial? Yes 95.5% No 4.5%
2. Was the skill easy to understand? Yes 100% No 0%
3. Did you learn enough to be able to apply it in your own life? Yes 92.5% No 7.5%
4. Did it make you think about the way you deal with your own emotions? Yes 90.5% No 9.5%
5. Did it make you think about the way others deal with their emotions? Yes 90.5% No 9.5%
6. Have you applied the skill since the tutorial? Yes 47% No 53%
7. Did you think about getting a 'personal trainer'? Yes 30% No 70%
8. Would the term 'emotional fitness' be better to use than 'mental fitness'? Yes 83% No 17%
9. Do you know of a better term for 'mental health'? (Most answers preferred the words 'emotional' and 'fitness'. No-one used the word 'mental')
10. Is mental health the same as mental fitness? Yes 43.5% No 56.5%
11. Do you feel that it would be positive for your health to apply the skill of *Mytern*? Yes 97.5% No 2.5%
12. Would you ever think of using the *Mytern* Facebook page? Yes 56.5% No 43.5%
13. Did you look at the business card that you were given? Yes 75% No 25%
14. Would it help to be given a small booklet explaining *Mytern* and how to use it? Yes 80.5% No 19.5%

Appendix L: Focus Group Feedback

PhD Pilot Interview: Focus Group Feedback *Mytern* SMS

Student M: It was basically a reminder when I was getting stressed or something to remember the skill that you taught us- when I failed to remember it myself. I just put it aside when I wasn't ready to read it or when I wasn't ready to turn, and look at it later.

Student N: It was a great reminder and I found it really good and it came at such opportune times for me because I was just so stressed this semester. I really don't want to lose these messages as I keep reading them and find them so inspirational. It would be really useful to have those messages just somewhere so I could look at them anytime. Even if they came up on your computer every time you turned it on- little things like that- I thought would be really useful. You don't always have the little book with you and we do spend a lot of time on our computers.

Student S: Three weeks isn't enough. I want it forever! I'm absolutely at break point most days and I would get mine at about 6 o'clock at night when I was really stressed/cranky- and I would receive a text- I didn't get anything actually out of it, it just amused me because I would think – yeah right- and it would actually, by the time I did my condescending deconstruction of how in the heck does this stuff work and laughed about it, it actually had distracted me. By the time I had done my analysis of oh yeah- oh right- I actually did turn because then I'd laugh- I'd sit there and laugh at it and think- this is just ridiculous- as if a text message is going to take away all my issues- but in the end it would make me laugh and change my mood. ... It may not be how it was meant to be used but I would look at it and say look out- here we go- now what am I doing with my car- and it made me laugh. Even though I didn't embrace it in probably the way you wanted it to be embraced, it actually still worked- it did do what it was meant to do- because I am flippant - when there is adversity- oh my god- there must be something funny in this- so I found this quite amusing- which for me is better than being upset and destroyed- by the time I'd made fun of it- it had empowered me.... Even though I wasn't trying to get the texts to do it- I was pushing it away and I was doing all those sort of things- there'd be something there that I would just go yeah, right- and it would have done it without me actually trying to say – here's a pat on the back- what have we got today !

Student N: I liked the variety of the length of texts. Sometimes you're really busy and other times you are not so busy and I could sit down and read them. Sometimes I'd be driving along and hear a message and know that- here's Jane- and it would make me think about where I was- not even reading the text yet- it changed my direction

Student M: the frequency is good. There's no real obligation to do anything on the other persons end . They can respond if they want to – but they don't have to.

Student N: I would respond when the text would arrive.. and I'd say.. this is just what I needed. I was having a nervous breakdown about an assignment I was doing and you asked me to send a face back of how I was feeling – so then I stopped- and played around with the faces- and it became fun- because none of them were bad enough- so I laughed.

Student S: I found that it was wonderful to know that someone else was interested in the way I felt- even if it was just a text. I liked the randomness of it because it wouldn't matter what time of day I was still stuck in the mud - it would actually make me laugh.

Student N: Without the text messaging thing- I do do a lot of thinking in the car because I do a lot of driving- I live 45 mins from uni- driving home after uni and stressing about whether I'm going to get the assignment done- I'm too old- I'm this and I'm that..then the analogy was useful- for some reason it would pop into my head- because of the GPS thing and driving-and I'd think that's right and I would try to visualise something really beautiful- then I'd totally forget about the thing I was stressing about in my mind. I'd look at the beautiful scenery and feel good. It did work.

Student M: Your messages that said about not being able to change circumstances and when I had heaps of assignments- I would think- you can either stress about it or you can take a break and then just get on with it. Even taking 5 mins- knowing that the due date is not going to change- to change and then go back to it.

Appendix M: Examples of SMS feedback (pilot study)

I now have an awareness to assess how I am processing situations and to monitor my internal reactions to them. I am more aware of the positive health benefits from monitoring these reactions. Deep breathing has become my best friend😊. I am more alert to stop trying to anticipate how others are thinking and to stop taking responsibility for their reactions. Thank you for your time that you have put into this project and for the benefits I will now reap.

I am finding your messages really r a great help 2 help me 2 check in as to where my GPS is at. As u r aware, it has been a really busy time for students and has been very useful to me.

I was under some stress with a cold and a presentation I wasn't happy with😞. I did notice that I was aware of trying to monitor how I was processing it all. So even though it may not have been 30 days yet, a habit is forming 😊

I'm definitely checking my GPS nearly every day and sometimes several times a day. On your scale I would say that I'm about a 4/5. I've got a few different PETS that I have been using for different occasions. Thanks again!

Appendix N: K-10 Questionnaire

K-10 In the last 4 weeks of Semester 1...	None of the time	A little of the time	Some of the time	Most of the time	All of the time
Q1 About how often did you feel tired out for no good reason?					
Q2 About how often did you feel nervous?					
Q3 About how often did you feel so nervous that nothing could calm you down?					
Q4 About how often did you feel hopeless?					
Q5 About how often did you feel restless or fidgety?					
Q6 About how often did you feel so restless you could not sit still?					
Q7 About how often did you feel depressed?					
Q8 About how often did you feel that everything is an effort?					
Q9 About how often did you feel so sad that nothing could cheer you up?					
Q10 About how often did you feel worthless?					

K-10 Scoring

K10 cut-off scores used in 2000 Health and Wellbeing Survey and the 2001 National Health Survey to estimate the prevalence of levels of psychological distress.

K10 score	Level of psychological distress
10 - 15	Low
16 - 21	Moderate
22 - 29	High
30 - 50	Very High

("Information Paper: The Use of the Kessler Psychological Distress Scale in ABS Health Surveys, Australia, 2001," 2003)

Appendix O: Psycap Questionnaire

(Used with permission)

Below are a series of statements that describe how you may think about yourself **RIGHT NOW**. We are asking you to consider each question relative to your overall life and school work aspects. Use the scale below to indicate your level of agreement or disagreement with each statement.

Strongly Disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly Agree
1	2	3	4	5	6

Question	Overall Life	School Work
I feel confident analysing a long-term problem to find a solution concerning my.....		
I feel confident in representing my ideas concerning my.....		
I feel confident contributing to discussions about strategies on my.....		
I feel confident setting targets/goals on my.....		
I feel confident contacting people to discuss problems concerning my.....		
I feel confident sharing information with a group of students about my.....		
If I should find myself in a jam about my, I could think of many ways to get out of the jam.		
At the present time, I am energetically pursuing my.....goals.		
There are lots of ways around any problem concerning my.....		
Right now, I see myself as being pretty successful concerning my.....		
I can think of many ways to reach my current goals regarding.....		
At this time, I am meeting the goals that I have set for myself concerning.....		
When I have a setback with, I have trouble recovering from it, moving on.		
I usually manage difficulties one way or another concerning my.....		
I can be “on my own” so to speak, if I have to regarding my.....		
I usually take stressful things in stride with regard to my.....		
I can get through difficult times at school because I’ve experienced difficulty before concerning my.....		
I feel I can handle many things at a time with my.....		
When things are uncertain for me with regards to....., I usually expect the best.		
If something can go wrong for me with my....., it will.		
I always look on the bright side of things regarding my.....		
I’m optimistic about what will happen to me in the future as it pertains to my.....		
With regards to my....., things never work out the way I want them to.		
I approach myas if “every cloud has a silver lining.”		

Appendix P: The Flourishing scale

Below are 8 statements with which you may agree or disagree. Using the 1–7 scale below, indicate your agreement with each item by indicating that response for each statement.

	Strongly disagree 1	Disagree 2	Slightly Disagree 3	Neither agree or disagree 4	Slightly Agree 5	Agree 6	Strongly Agree 7
I lead a purposeful and meaningful life							
My social relationships are supportive and rewarding							
I am engaged and interested in my daily activities							
I actively contribute to the happiness and well-being of others							
I am competent and capable in the activities that are important to me							
I am a good person and live a good life							
I am optimistic about my future							
People respect me							

FLOURISHING SCALE

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Appendix Q: Satisfaction With Life Scale (SWLS)

Instructions:

Below are five statements that you may agree or disagree with. Using the 1 - 7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding.

- 7 - Strongly agree
- 6 - Agree
- 5 - Slightly agree
- 4 - Neither agree nor disagree
- 3 - Slightly disagree
- 2 - Disagree
- 1 - Strongly disagree

_____ In most ways my life is close to my ideal.

_____ The conditions of my life are excellent.

_____ I am satisfied with my life.

_____ So far I have gotten the important things I want in life.

_____ If I could live my life over, I would change almost nothing.

Scoring:

Though scoring should be kept continuous (sum up scores on each item), here are some cut-offs to be used as benchmarks.

- 31 - 35 Extremely satisfied
- 26 - 30 Satisfied
- 21 - 25 Slightly satisfied
- 20 Neutral
- 15 - 19 Slightly dissatisfied
- 10 - 14 Dissatisfied
- 5 - 9 Extremely dissatisfied

Appendix R: CD-RISC Questionnaire

Please indicate how much you agree with the following statements as they apply to you over the last month of Semester 1. If a particular situation has not occurred recently, answer according to how you think you would have felt.	Not true at all	Rarely true	Sometimes true	Often true	True nearly all the time
Q1 I am able to adapt when changes occur					
Q2 I can deal with whatever comes my way.					
Q3 I try to see the humorous side of things when I am faced with problems.					
Q4 Having to cope with stress can make me stronger					
Q5 I tend to bounce back after illness, injury, or other hardships.					
Q6 I believe I can achieve my goals, even if there are obstacles.					
Q7 Under pressure, I stay focused and think clearly.					
Q8 I am not easily discouraged by failure.					
Q9 I think of myself as a strong person when dealing with life's challenges and difficulties.					
Q10 I am able to handle unpleasant or painful feelings like sadness, fear and anger.					

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Appendix S: Project Information Sheet Intervention and Control (main study)



University of the
Sunshine Coast

Title of Project
**The impact of *Mytern* (a resilience intervention)
on resilience and distress levels in first year
university students.**

It has been well documented that first year university students can experience rising levels of stress. This can be due to many different factors such as financial situation, living away from home, working part time, changes in lifestyle and academic pressures. Research into interventions that provide tertiary students with strategies that may help them manage their own stress levels needs to be carried out in order to help alleviate the problems associated with high levels of stress. ***Mytern*** is a program which introduces a skill to help manage your stress levels through learning to manage your thoughts.

The purpose of this research is to assess the impact that ***Mytern*** (a resilience intervention) has on the stress levels and mental health of first year university students.

You are invited to participate in this research which will help gather data surrounding the resilience intervention, ***Mytern***. Your participation will involve being introduced to the principles of ***Mytern*** in a 5 minute video presentation held during your Core 109 tutorial time. It also involves filling out anonymous questionnaires which will assist in measuring the impact of ***Mytern***. The first questionnaire, K-10, measures your distress levels whereas the second questionnaire, CD-RISC, measures your resilience, the Flourishing Scale measures and the SWL measures your satisfaction with life. These will be administered in your tutorial on two separate occasions-

Week 2-before the intervention

Week 10- at the conclusion of the intervention

You will also have the choice to receive daily text messaging to help keep you focussed and 3 minute video presentations which will be available on the USC Blackboard.

At the conclusion of the intervention, you may volunteer to be involved in a focus group of 30-45 minutes, to discuss your thoughts about how ***Mytern*** did/didn't influence your scores in the questionnaires.

All information that you provide will remain anonymous and confidential and will be used strictly for research purposes only. The questionnaires, transcripts and CD's will be kept in a secure, locked filing cabinet both on and off campus for the duration of the study. Once the study is complete, all data will be securely locked in a secure cabinet for five years duration, then destroyed.

Taking part in this research study is completely voluntary. If you decide not to be in this study, or if you choose to stop participating at any time, it will not prejudice or influence your academic progress. The benefit of participating in this research is that you will be assisting in evaluating a mental fitness program for tertiary students. As a consequence of the study, you will be introduced to a skill that may assist you in managing your own stress levels, not only whilst you attend university, but as a general life skill that can be incorporated anywhere at any time. You may even choose to share this skill with family and friends.

When you engage in questionnaires and interviews relating to your feelings there is a low psychological risk, as you may be prompted to think about something that has distressed you. If you wish to seek counselling following the survey, the researcher will be able to provide direction to the appropriate service offered by USC.

A final summary of the study will be made available for all the participants electronically on the university website.

If you have any queries concerning the research project, please don't hesitate to contact either the principal student researcher/chief investigator Jane Foster at switchpositive@live.com.au or ph: 0425718632 or the principal supervisor Dr Florin Oprescu at foprescu@usc.edu.au or ph: 07 5459 4639

If you have any complaints about the way this research project is being conducted you can raise them with the Principal Researcher or, if you prefer an independent person, contact the Chairperson of the Human Research Ethics Committee at the University of the Sunshine Coast: (c/- the Research Ethics Officer, Office of Research, University of the Sunshine Coast, Maroochydore DC 4558; telephone (07) 5459 4574; facsimile (07) 5430 1177; email humanethics@usc.edu.au).

The researcher and USC would like to thank you for considering participation in this study.



CONSENT TO PARTICIPATE IN RESEARCH

Title of Project

The impact of *Mytern*. (a resilience building intervention) on resilience and distress levels in first year university students.

I have read and understood the contents of the Research Project Information Sheet for the above research project.

I realise that this research project will be carried out as described in the Research Project Information Sheet, a copy of which I have kept.

Any questions I have about this research project and my participation in it have been answered to my satisfaction.

I agree to participate in the research project, *The impact of Mytern (a resilience building intervention) on the resilience and distress levels in first year university students*.

I give consent for data about my participation to be used in a confidential manner for the purposes of this research project, and in future research projects.

I understand that I am free to withdraw at any time, without comment or penalty.

Participant

Date

I wish to participate in the daily texting service

Participant

Mobile Number

Date

I am happy to take part in a focus group/interview at the completion of the intervention

Participant



University of the
Sunshine Coast

The impact of a health promotion intervention (*Mytern*) on the resilience, wellbeing and distress levels of first year university students. (S/11/378)

It has been well documented that first year university students can experience rising levels of stress. This can be due to many different factors such as financial situation, living away from home, working part time, changes in lifestyle and academic pressures. Research into interventions that provide tertiary students with strategies that may help them manage their own stress levels needs to be carried out in order to help alleviate the problems associated with high levels of stress. *Mytern* is a program which introduces a skill to help manage your stress levels through learning to manage your thoughts.

The purpose of this research is to assess the impact that **Mytern** (a health promotion intervention) has on the stress levels and mental health of first year university students.

You are invited to participate in this research which will help gather data surrounding the resilience intervention, **Mytern**. Your participation will be helping to evaluate the impact of **Mytern** by acting as the control group. To help work out if an intervention is effective or not, experimental research incorporates a group which doesn't receive the intervention, in order to then compare the results. The control groups are an important part of the experiment as they help create a baseline for the experiment and help eliminate factors that may affect the results. Your participation as the control group will simply involve filling out anonymous questionnaires. The first questionnaire, K-10, measures your distress levels, the second questionnaire, CD-RISC, measures your resilience, and the Flourishing Scale and Satisfaction With Life measure your overall wellbeing. These will be administered in your tutorial on two separate occasions- Week 2 and Week 10. You will be given the opportunity to receive the skill of **Mytern** during the lecture held in week 12.

All information that you provide will remain anonymous and confidential and will be used strictly for research purposes only. The questionnaires, transcripts and CD's will be kept in a secure, locked filing cabinet both on and off campus for the duration of the study. Once the study is complete, all data will be securely locked in a secure cabinet for five years duration, then destroyed.

Taking part in this research study is completely voluntary. If you decide not to be in this study, or if you choose to stop participating at any time, it will not prejudice or influence your academic progress.

When you engage in questionnaires and interviews relating to your feelings there is a low psychological risk, as you may be prompted to think about something that has distressed you. If you wish to seek counselling following the survey, the researcher will be able to provide direction to the appropriate service offered by USC.

A final summary of the study will be made available for all the participants electronically on the university website.

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The researcher and USC would like to thank you for considering participation in this study.

Appendix T: Ethics Approval (pilot and main study)



21 December 2011

Barbara Palmer
Manager, Office of Research
Tel: +61 7 5459 4574
Fax: +61 7 5459 4727
Email: humanethics@usc.edu.au

F18505

Ms Jane Foster
Dr Florin Oprescu
Dr Bill Allen
Professor Margaret McAllister
Faculty of Science, Health and Education

Dear Jane, Florin, Bill and Margaret

Application for ethics approval for research project: The impact of a resilience intervention ('U-T.E.R.N.') on positive psychological capital and distress levels in first year university students (S/11/378)

This letter is to confirm that on 19 December, following review of the application for ethics approval of the research project, *The impact of a resilience intervention ('U-T.E.R.N.') on positive psychological capital and distress levels in first year university students*, the Chairperson of the Human Research Ethics Committee of the University of the Sunshine Coast granted expedited ethics approval for the project, subject to specific conditions all of which have now been addressed.

The Human Research Ethics Committee will review the Chairperson's grant of approval and the conditions of approval at its next meeting and, should there be any variation of the conditions of approval, you will be informed as soon as practicable.

The period of ethics approval is from 21 December 2011 to 1 December 2013.

Could you please note that the ethics approval number for the project is HREC: S/11/378. This number should be quoted in your Research Project Information Sheet and in any written communication when you are recruiting participants.

The standard conditions of ethics approval are listed overleaf.

If you have any queries in relation to this ethics approval or if you require further information please contact the Research Ethics Officer by email at humanethics@usc.edu.au or by telephone on +61 7 5459 4574.

I wish you well with the success of your project.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Barbara Palmer'.

Barbara Palmer
Manager, Office of Research

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Appendix U: Final questionnaire results (Excel Spreadsheet)
(a sample)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	stu	group	age	age grouping	gender	fif	fa	fb	fdiff	sa	sb	sdiff	ka	kb	kdiff	ca	cb	cdiff
2	AHD93	1	19	1	0	1	51	56	5	30	30	0	14	15	1	36	40	4
3	ANM73	1	39	3	0	0	50	54	4	26	24	-2	26	25	-1	32	37	5
4	ATS94	1	18	1	1	1	43	47	4	22	24	2	22	21	-1	30	31	1
5	BIL94	1	18	1	1	0	53	55	2	33	35	2	14	12	-2	34	35	1
6	CAL94	1	18	1	0	0	35	42	7	23	25	2	29	28	-1	17	13	-4
7	CLC92	1	20	1	0	0	49	50	1	22	25	3	19	18	-1	21	26	5
8	COD94	1	18	1	1	1	34	36	2	13	15	2	31	30	-1	16	18	2
9	COE86	1	26	2	0	1	33	39	6	10	25	15	20	30	10	29	20	-9
10	CRH94	1	18	1	1	0	50	50	0	21	23	2	22	21	-1	29	30	1
11	CRK87	1	25	2	1	1	43	43	0	21	23	2	19	14	-5	31	32	1
12	CRS88	1	24	2	0	1	43	39	-4	15	16	1	24	31	7	17	14	-3
13	DEL87	1	25	2	0	1	48	44	-4	17	13	-4	21	27	6	28	29	1
14	EIC93	1	19	1	1	1	49	48	-1	28	25	-3	16	13	-3	32	28	-4
15	ELC94	1	18	1	0	1	48	50	2	26	28	2	18	17	-1	30	18	-12
16	FAM94	1	18	1	0	0	46	46	0	24	25	1	23	20	-3	25	29	4
17	FEJ94	1	18	1	0	1	49	46	-3	29	31	2	16	12	-4	31	32	1
18	FIP93	1	19	1	0	1	42	44	2	25	26	1	20	22	2	25	25	0
19	FOP90	1	22	2	1	0	51	45	-6	25	29	4	12	18	6	38	33	-5
20	FRF93	1	19	1	0	0	47	47	0	25	27	2	19	22	3	32	32	0
21	GAK79	1	33	3	1	1	43	46	3	20	11	-9	14	23	9	27	27	0
22	GEM94	1	18	1	0	1	54	43	-11	26	27	1	42	25	-17	21	20	-1
23	GRG76	1	36	3	0	1	47	43	-4	20	17	-3	27	23	-4	20	22	2
24	HAM91	1	21	2	1	0	56	52	-4	35	28	-7	29	14	-15	20	26	6
25	HOS94	1	18	1	1	0	42	48	6	20	20	0	27	21	-6	26	24	-2
26	HUM88	1	24	2	0	0	48	54	6	22	29	7	14	17	3	40	40	0
27	LUM93	1	19	1	0	0	56	49	-7	32	29	-3	18	22	4	30	33	3
28	LUM94	1	18	1	0	0	54	54	0	21	27	6	28	22	-6	28	28	0
29	MAL94	1	18	1	1	1	34	46	12	21	27	6	15	16	1	28	36	8
30	ORC92	1	20	1	1	1	54	56	2	26	35	9	12	11	-1	22	29	7
31	RAS77	1	35	3	0	0	51	50	-1	15	8	-7	19	17	-2	20	26	6
32	SAF89	1	23	2	1	1	53	49	-4	32	23	-9	16	15	-1	36	29	-7
33	SEC88	1	24	2	1	1	47	56	9	17	12	-5	21	22	1	27	39	12
34	SID94	1	18	1	1	1	47	48	1	20	20	0	25	21	-4	26	27	1
35	SIH69	1	43	4	0	1	54	52	-2	27	29	2	29	17	-12	37	40	3
36	SIK94	1	18	1	0	1	48	45	-3	23	21	-2	25	28	3	20	25	5
37	SMJ93	1	19	1	1	1	50	48	-2	26	20	-6	20	17	-3	27	27	0
38	SMK93	1	19	1	1	1	46	48	2	23	27	4	23	20	-3	23	24	1
39	SPM91	1	21	2	0	0	55	55	0	30	30	0	19	19	0	21	26	5
40	STS94	1	18	1	0	0	47	46	-1	30	27	-3	25	20	-5	31	26	-5
41	THK94	1	18	1	0	1	47	48	1	27	28	1	14	12	-2	29	32	3
42	TRR94	1	18	1	0	1	36	42	6	16	18	2	25	20	-5	18	17	-1
43	WRS94	1	18	1	1	0	44	45	1	32	30	-2	17	14	-3	34	35	1
44	ABB94	2	18	1	0	0	40	40	0	19	21	2	20	19	-1	30	28	-2
45	AND70	2	42	4	0	1	45	44	-1	18	22	4	16	19	3	35	38	3
46	AYJ94	2	18	1	1	1	48	46	-2	25	28	3	23	16	-7	27	24	-3
47	BRM70	2	42	4	0	0	50	55	5	35	35	0	16	12	-4	29	31	2
48	COL92	2	20	1	1	0	41	47	6	19	24	5	24	25	1	20	25	5
49	COL94	2	18	1	1	0	39	49	10	21	24	3	23	20	-3	23	25	2
50	DEJ84	2	28	2	1	1	49	48	-1	20	19	-1	20	16	-4	30	33	3

Appendix V: Coding Sheet: Representing Themes 50%+

	Sam	Jamie	Ash	Riley	Phoenix	Chris	Rory	Sage	Alexis	Charlie
abuse	*									
alone	*					*		*	*	*
analogy			*				*		*	*
anger management			*							
anonymity/anonymous	*	*			*	*		*	*	
anxiety	*		*							*
assignments/workload	*	*			*	*		*		*
attitude	*		*		*					
automatically				*						*
beneficial/helped	*	*	*	*	*	*	*	*	*	*
bigger picture			*							
blame							*			
blossoming			*							
Boost			*	*						
blow off steam						*				
brightness			*							
brilliant					*					
bullied	*		*							
busy	*									
Calm		*							*	
change	*	*	*	*	*	*	*	*	*	*
cherish/treasured			*					*	*	
choice	*	*	*							
comfort						*		*		
confidence	*									
connection	*	*	*	*	*	*	*	*	*	*
consumed		*								
continual	*	*	*				*	*		*
control	*	*	*	*	*	*	*	*	*	*
convenient										
dark place	*		*							
depressed	*		*				*			*
disenchantment										*
distracted						*				
de-stressing		*		*		*				
direction			*					*		
don't fit in							*			
don't stop	*		*	*		*	*	*	*	*
draining								*		
effective	*	*								
encourage					*		*			
entrenched										*

50% +

Positive Codes

Anonymity/anonymous
Beneficial/helped
Change
Connection
Control
Friend
Personal
Perspective
positive
change/outlook
relevant/appropriate
reminder
support
timing

Neutral codes

continual
don't stop
Mytern booklet
Mytern DVD
orientation
sign up
Suggestion
Weekends

Negative Codes

alone
assignments/workload
frustrated
pressure
stress/stressing

everyone	*									
external compass							*			
faith			*							
fantastic									*	
focusses			*			*	*			
freaked out									*	
freedom			*							
financially strapped									*	
first year experience	*	*		*		*				
friend	*		*				*	*	*	
frustrated	*	*	*		*	*	*	*	*	
generic		*				*	*			
goal			*			*				
grounds you									*	
hang on										
harmless	*									
higher power							*			
helps										
high school	*	*	*			*				
impact										
in your face									*	
insane		*								
inspirational					*		*	*		
international				*						
initial response	*		*		*	*				
inundated		*								
isolation										
language (jargon)										
life changing	*									
look forward to	*		*				*			
mindfulness									*	
mindset			*							
motivation	*		*							
<i>Mytern</i> blog	*	*		*						
<i>Mytern</i> booklet	*	*	*	*		*	*			
<i>Mytern</i> DVD	*	*	*	*	*	*	*			
need			*							
network						*	*			
neuroplasticity							*			
no hassle	*									
on track			*			*				
orientation	*	*	*	*	*	*	*	*	*	*
overwhelmed		*					*			
passong it on (forwarding messages)	*	*	*			*		*		
peer pressure						*	*			
perception			*							
personal	*	*	*				*	*	*	*
perspective	*	*	*	*	*	*	*	*	*	*

pick me up	*									
positive change/outlook	*	*	*	*	*	*	*	*	*	*
power	*		*		*					
powerful	*				*		*			*
pressure	*	*	*		*	*				
procrastinate		*				*				*
productive		*		*		*				
push										
randomness	*					*	*			*
recommended	*		*	*						
reflected										
refocuses				*		*				
relevant/appropriate	*			*		*	*	*	*	*
relief										
reminder	*	*	*	*	*	*	*	*	*	*
reread texts										
resilience			*							*
retention	*		*			*				
serendipity								*		
sharing										
shed light										
shock	*		*							*
sign up	*	*	*	*	*	*	*			
skill										
someone/somebody	*		*		*	*	*	*	*	*
soothing						*				
steering wheel			*							*
stress/stressing	*	*	*	*	*	*	*	*	*	*
stronger			*							
suggestion	*	*	*	*	*	*	*			
suicide	*		*			*				
support	*	*	*	*	*	*	*	*	*	*
symbolic								*		
taking responsibility										
think	*		*							
timing	*	*	*		*			*	*	
tool										*
transformation										
turning			*							*
uncertain	*									
weekends		*	*				*	*	*	
wonderful	*									*
work stress	*									*
worries										*

Appendix W: Video Responses T1

(See attached USB)

Appendix X: Student replies to the daily *Mytern* SMS

(None of the students knew who was sending the SMS)

I wouldn't be able to thank you enough! Thanks for starting something so powerful and unselfish !

Thanks. It has really helped me

The *Mytern* messages have been great! After a few weeks I noticed my attitude had improved and eventually my attitude wasn't as affected by things that happened in the day and the text messages help support that change. Thanks ! ☺☺

Thank you, it really helps ☺

UNSUBSCRIBE...Thank you for making my day, just when i need it. My life is back on track, but your kind words have been helping when things have looked dark. Just remember it only takes one person to make a world of difference and you are reaching people every day and doing your part. That's something to be proud of. While i no longer need your words, others do. And I am passing on your kind spirit in my own ways. So thank you. Goodbye.

Just wanted to say thanks for the messages, I absolutely love receiving them and look forward to reading your words!!

I appreciate you even more for sending them! They really do help out on those down days ☺

Thank you ☺ I will try to do just as you suggest, it is a great idea☺☺

I have very much appreciated and enjoyed your My Tern texts, thank you. Please continue to send your texts.

I love the messages. I can see how they can easily save someone's life or even alter it to a more positive stance. U r amazing! It's subliminal content is gifting of enormous power to create a shift for many many folk. It's as if an Angel is reaching out from heaven And so u r truly a Guardian to all of us sent from the universe who has tapped into their life's path.

Everyday when I get ur text I feel better that universe is talking to me n I'm not alone

Makes a difference ... Cheers

This rings so unbelievably true for me today!! Oh my ! Thank you so much every day you help! X

Thanks so much..great timing xo

Love this one! Thanks !!

Thank you so much for all these texts. It has really made a difference and helps me put things into perspective and just step back. Have a good day.

I appreciate all your messages they are a big help especially this week Thankyou

Thanks for all the great messages. Today was one I really needed to hear, so perfect timing. Look forward to many more. 😊

Thank you 4 all the wonderful *Myterns* 😊😊

Thank you 😊 your texts are so lovely and encouraging, caring and uplifting 😊😊

Thank you 😊 your encouragement always comes just when I really need it 😊😊

😊 your messages mean lots 2 me and very helpful 😊😊

Thank you 😊 I really needed 2 hear that 😊

Thank you 😊 your texts are gifts 2 me 😊

Thank you for all the helpful texts 😊 they come along just when I need them :-)

I appreciate all your messages they are a big help especially this week Thankyou

Thank you for sending them. I really love getting them and appreciate the effort taken for me to receive them 😊

Kangaroos on the grass at Uni right now beautiful. Your text inspires me to leave the masters suite and get out in the sun.

Apreciate sms-s u send. thanks

Hi I love this one!! Xx

Thanks so much for all yr messages ..It's just so comforting!!!! That someone cares 😊

Thanks for the reminder 😊

Hahaha

This stuff is so good

Keep up the good work

Thankyou your messages are inspiring

STOP. Im all better now 😊 thank you for your love and support.I couldn't have done this as well as I have, without your positive affirmations, they really were helpful and uplifting, so thank you. 😊

Love this one! Thanks !!

Thank you so much for all these texts. It has really made a difference and helps me put things into perspective and just step back. Have a good day.

And I appreciate your unconditional support for me - thank you xoxoxxo

I really appreciate having these texts in my life n I should start appreciating myself more ☺

Thank you for the lovely messages they are inspirational x

Your sms is like a dog coming up 2 u & giving u a big friendly lick 4 no reason ..makes you feel loved!

My new favourite!!!

Very sticky wheel sometimes! Some days better than others

They just get better & better!

Love that one!!! ☺

I needed this more than you'll ever know. Thank you, whoever you are!

Hmm very appropriate ☺

This stuff is so good

Keep up the good work

I'm not sure if i am allowed to reply, but just letting you know your advice and tips are excellent! loving it.
keep it up! ☺

Love that one!!! :)

Thank you! cant wait to get more ☺

Thank you . looking 4ward 2 receiving more sms's

The "right" corner!

Thank you again ☺ I've said it before but your texts are so lovely and encouraging, caring and uplifting ☺☺

Thank you 4 all the wonderful *Myterns* ☺☺

Omg thank you so much made my day :) i honestly cant thank you enough for everything you have
honestly taught me so much and helped me grow so so much as a person and given me strength to do
things i never thought were possible!

I use the skills from *Mytern* all the time. I am a mature age student so I have many thought and reactionary
responses that have been embedded over many years. I am getting better at catching myself early and
breathing and refocusing. Sometimes it is hard to get those deep relaxing breaths when a bit tense,
however I have become aware of the feeling of being relaxed as compared to that feeling of 'bad stuff'
surging through my body. Thank you again. ☺

Thankyou for these messages, sometimes they come just at the right time ☺

Appendix Y: Video Response T2

(See attached USB)

Appendix Z: Follow up interviews – excerpts from transcript

Alexis: I really do think that people need to have something like *Mytern* in their lives. We all feel disconnected at one time or another. Even if it's just a text that will then help to go; 'you know I'm not alone, I'm not really alone here. There is somebody out there who cares', which is an important factor of life. We're all human. It's human nature basically to want that.

When I was receiving the *Mytern* texts there were times when I was studying really hard, no one around me, feeling really isolated. It was nice to receive something and by doing that it gave me a lift...it made me feel ok I'm not here by myself, I have support there, which helped me to study a little bit harder and a little bit more positive, which is so important when you're doing these sort of things to have a really good positive frame of mind.

Rory: My absolute testimonial for *Mytern* is the longevity and continuation of it because I just realised recently- It's been a fair few months now, that wow I've been on my journey for this long and how much I've improved. So first- it helps you to take control of your emotion and then once you have control of your emotions, it helps you realise that you can control other things. Once you have control of your emotions, you can have control of your health; you can be in control of other relationships and friendships as opposed to letting other people take control of you ; finance- just all goal setting altogether; academics is in there. Being such a long time (it doesn't feel like a long time but when you're in hard times, when you're out the other side, it seemed like a long time ago). Just the complete continuation helps you reflect back and say look how far I have come and what else can I do?

Charlie: I have been receiving *Mytern* SMS for about a year now and they've been fantastic for me. But recently, I really realised how much of an impact they have had on my life. I'm so much more relaxed about my study for one thing. I just can't believe it.. it's fantastic.. I just can't tell you how fantastic it is.. but I must tell you this story. I was really stressed. I'd gone down to Brisbane. My mobile phone wasn't working; I'd arranged to meet a friend. I was sending these messages and then realising that they hadn't gone through to her. Got down to Brisbane and was going to go and pick her up..it was just a nightmare. And I was just getting angrier and angrier and more frustrated and I could have just killed everybody in sight. I arrived at the caravan park and went to the loo and got out and I was still angry and suddenly I thought and I stopped and the turn thing just kicked in. It was just amazing. I thought what am I feeling ? where am I going? How am I relating.. I don't want to go there and be angry with my best friend and I just stopped in my tracks and calmed down. It was just amazing. I thought wow this is amazing and when I got to see my friend who was just a few yards away I don't think she even realised that I was in such a state. It was just amazing. I can't begin to tell you ...anger has been one of my biggest problems – when I'm feeling depressed and frustrated- and things aren't going well for me. So it was a really big breakthrough for me.

Anger has been a real issue for me all my life and the other day I was in the middle of a real volatile state and suddenly I just stopped in my tracks and thought hang on a minute and I remembered that I was in control of my steering wheel and that I had to stop and get control and that was just one of the most beautiful things that has ever happened to me. It was fantastic.

I'm 62 years of age . I've had a pattern of anger all my life and being introduced to *Mytern* has actually enable me to become more aware of those patterns and it makes me stop and think about what I am feeling at that point in time and it helps me to control those patterns. It's just been amazing.

Ash: I've been receiving *Mytern* for about 10 months now. In that time I've found that my skill to turn has strengthened a lot and it has become more instinct I guess than being a skill that I have picked up and not taken on board. It's helped me a lot with my uni life and social life and even with home life- with family. It's taught me that you have the ability to do what you want to do. It's really helpful with the uni as well because it puts you on the right track and I kinda figure it out even if you have no motivation, that's not going to get me my degree and *Mytern* kind of helps you realise that you have to do what you need to do, not you want to do, and sometimes what you want to do is not what you need to do . It's a really helpful skill and eventually it just becomes an instinct when you've received it for so long and it's really just a positive reinforcement to help you keep on that positive road.

Sam: The reason I think that *Mytern* has been so affective is because of the anonymity and just knowing that there is someone on the other line but you're not really sure who and I don't think that matters. I actually think that it's better to not have anybody that you know on the other end. I think that it works very well because it's not personal, you don't have any responsibilities, and you can interpret it any way you want. So you never know who that person is but it really doesn't matter.

Because if it was a friend saying it you may think it was because of something you said the other day or the other month and you think that that person is getting up you for it or you might think that they are getting angry at you for it, But it's not. It's really about just trying to help people and having someone anonymous at the other end saying I care, here's the text, I want you to be better, I think that helps a lot.

I feel there is a connection with the SMS because...well I know who you are now... but before that.. I felt like there was someone on the other end and I didn't know who it was but to me that didn't really matter. They just felt really personal. I always just felt that... I was alone ... I was really alone for a while, and getting those texts reminded me that I wasn't so alone ..that there was someone who cared about me and cared about what I did and wanted me to do good. Knowing that there was someone on the other end made me feel good because I just wanted someone to show that they cared about me because when you are going through a really dark time, you don't see that and to have the text come through and have it telling you that you're on the wrong road , but it's your choice if you want to keep going down it or you want to turn off and go down a better road ..and then you do it... and then you feel so much better. For without that text, you wouldn't have realised that you were on that bad road and you wouldn't have turned off it and something bad may have happened to you . You might have harmed yourself or harmed others. I just think it is brilliant.

Sage: I think *Mytern* was really useful in helping me as a first year student. I realised that I was connected and those little messages every day became very important and I looked forward to them to give me some reinforcement and encouragement as a mature age student in my first semester at university.