Mindfulness: A Mediator of Interpersonal Style in Predicting Academic Adjustment

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Abstract

The transition to university not only requires academic learning, but there are a range of social skills that are also required for adaption to tertiary level education. The current research identified interpersonal style and mindfulness as frameworks and theoretical perspectives to address first year university students' adjustment to their new milieu. Study one examined the relationship between students' attachment styles, mindfulness and academic adjustment using self-report measures with students who identified as being in their first year of university. The methodology used to examine these relationships was a demographic-matched design, with groups of self-identified meditators and non-meditators. The results indicated that in a meditative sample of first year university students who scored higher in insecure attachment style, their results negatively predicted academic adjustment, and this relationship was partially mediated by higher scores in mindfulness. Interestingly, in a non-meditative sample of first year students who scored higher in anxious attachment style, their results negatively predicted academic adjustment, and this was partially mediated by higher scores in mindfulness. However, this was not the case for students who endorsed higher levels of avoidant attachment style.

As mindfulness has its origins in eastern philosophy and meditation, the aim of study two was to examine two dimensions of the meditation experience and its effect on mindfulness. The frequency of the meditating experience was found to have an effect on self-reported levels of mindfulness. Research implications and limitations are discussed with future research suggestions which may provide the impetus for further work in the area of student adjustment to first year of university.

Keywords: interpersonal style, attachment, mindfulness, academic adjustment, meditation

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Chapter 1 – Introduction and Review of Literature

The aim of this research is to examine the relationships between the variables of interpersonal style as defined through adult attachment style, mindfulness as it is currently conceptualised in research, and tertiary academic adjustment. With increasing numbers of individuals enrolling in tertiary education programs, the Australian Federal Government has asked universities to increase professional graduate numbers and their skill sets (Universities Australia, 2011). As a result, Australian universities have an escalating responsibility to meet educational expectations with more students in classrooms and increased curriculum demands. Findings in such documents as the Bradley and Cutler reviews have identified that targeting students within their first year of university and assisting them with the transition to university learning will assist students adjust to university and also complete their degree (Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education [DIICSRT], 2008 (a); DIICSRT, 2008 (b); James, Krause & Jennings, 2010). Although the current research has used an Australian population to study there are possible international implications.

The process of adjusting to university for individual students requires considerable skill as there are many factors that influence any one student attending a university for the first time (Kantanis, 2000; Lawrence, 2004). One variable found to be pivotal in the process of adjustment to students' first year experience at university is the socialisation of students. Socialisation is defined as how one student relates to their peers and also with their educators, and is a key part of how students engage with the learning process (Astin, 1984; Kift, 2004; Kuh, 2007; McDonald et al., 2008).

The prevalence of psychological distress within Australian university students has been found to be approximately 19.2% for mental health issues, and 67.4% of the total sample reporting subsyndromal symptoms (Stallman, 2010). Findings such as these provide

justification for further research from a clinical psychology perspective. The outcomes of previous research have been similar to these (Rogers & Tennison, 2009). Rodgers and Tennison examined Adjustment Disorder among North American tertiary students and found that “negative emotional, physical, or behavioral stress symptoms” (p. 227, 2009) were related to adjusting to the demands of university, and therefore could negatively impact students' well-being, academic success and retention. Similarly, Gerdes and Mallinckrodt (1994) suggested that social and emotional adjustments were imperative in making the transition to university rather than focusing on academic achievement alone. This was supported by Rodgers and Tennison’s findings that the most common symptoms experienced by American students were emotional difficulties followed by social difficulties. In order to assist students’ transition to university, their interpersonal styles were considered an important variable to research. To assist tertiary students with adjusting to the demands of university, research that explores possible variables that may assist students is required.

The purpose of the current study is to research the variables of interpersonal style, mindfulness and academic adjustment. Previous research indicates that adult attachment style may predict successful academic adjustment (Fassig, 2003; Shilkret, 2003; Wintre & Yaffe, 2000) and that attachment style and mindfulness are closely related (Shaver, Lavy & Saron, 2007). Therefore this research wished to refine the understanding between these variables and to address this within psychological research. This study is to examine the variables of interpersonal style, mindfulness and academic adjustment for first year university students.

Definitions, research and applications of interpersonal style, mindfulness and academic adjustment will be discussed. Study one examined a mediation relationship between these three variables and study two examined the relationship between meditation and mindfulness. After the literature review the rationales for each study are presented with a

shared methods and procedures sections. The results for study one and study two were presented sequentially and likewise for the discussions of each. To end this thesis there is an overall discussion with recommendations.

Literature Review

Interpersonal Style

An attachment theory framework has been provided to conceptualise interpersonal styles of first year university students. Attachment was defined as the affectionate bond between one individual and another (Bowlby, 1982). Additionally, attachment style has been defined as the pattern of expectations, needs, emotions and social behaviours resulting from a particular history of attachment experiences, usually beginning in infancy with the relationships between significant caregiver/parent and child (Fraley & Shaver, 2000). Attachment theory has been extended to include adult romantic relationships (Hazan & Shaver, 1988). According to this system, four styles of attachment have been identified in adults: secure, anxious-preoccupied, dismissive-avoidant and fearful-avoidant (see figure 1; Hazan & Shaver). These roughly correspond to infant classifications of: secure, insecure-ambivalent, insecure-avoidant and disorganized/disoriented.

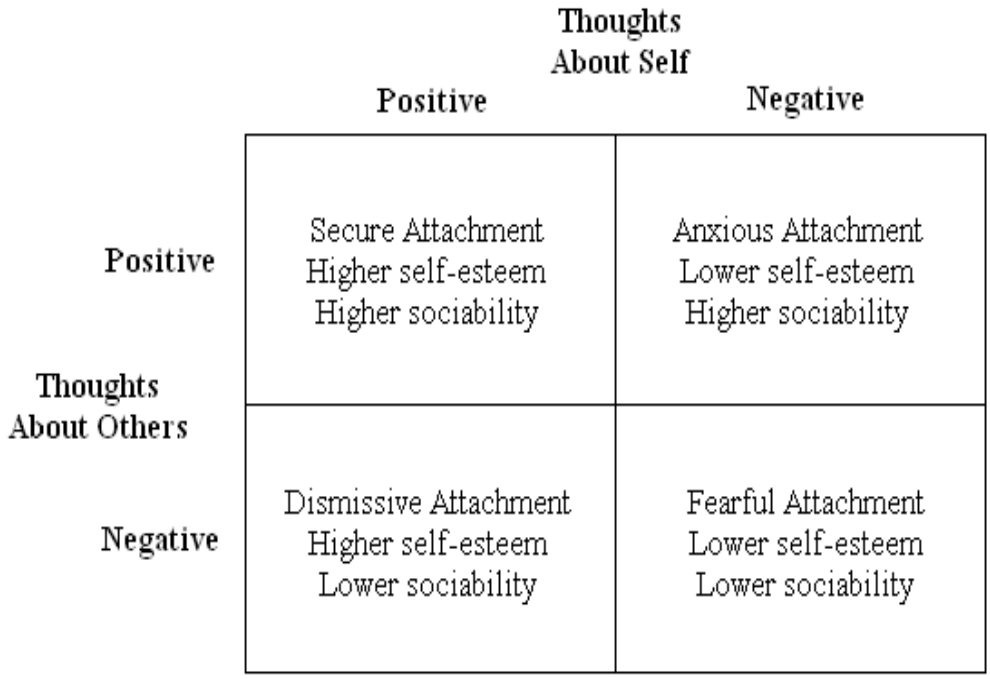

Figure 1. Adult Attachment Styles (Hazan & Shaver, 1998)

Adult Attachment. Securely attached adults tend to have positive views of themselves, their partners and their relationships (Hazan & Shaver, 1987). Securely attached adults feel comfortable with intimacy and independence, and balancing the two. Anxious adults seek high levels of intimacy, approval and responsiveness from partners, potentially becoming overly dependent (Hazan & Shaver). These individuals tend to be less trusting, have less positive views about themselves and positive view of their partners, and may exhibit high levels of emotional expressiveness, worry and impulsiveness in their relationships. Dismissive adults desire a high level of independence, often appearing to avoid attachment altogether (Hazan & Shaver). These individuals view themselves as self-sufficient, invulnerable to attachment feelings and not needing close relationships. Additionally these individuals tend to suppress their feelings, dealing with rejection by distancing themselves from partners of whom they often have a poor opinion. Fearful adults have mixed feelings about close relationships, both desiring and feeling uncomfortable with emotional closeness (Hazan & Shaver). These individuals tend to mistrust their partners and view themselves as

unworthy. However, like dismissive-avoidant adults, fearful-avoidant adults tend to seek less intimacy and suppress their feelings.

Attachment and behavioural systems. Attachment theory relied on the premise that individuals are born into this world with a biologically imperative need to seek significant others in the time of need for survival (Bowlby, 1969; 1982). This gives rise to three systems: the attachment behavioural system incorporating internal working model, the exploration system, and the caregiving system. One goal of the attachment behavioural system is protection and support, and when this is achieved the individual has a subjective perception of safety and security, and it is psychobiological in nature. This system is triggered whenever the individual encounters a threat and when a significant other is not considered to be close. Attachment theory by postulating that the attachment behavioural system was active over an individuals' lifespan, with individuals gaining comfort from internal symbolic representations of significant others (Bowlby, 1988). This has been supported by recent research into the stability of attachment classification over an individual's life into early adulthood (Fraley, 2002; Fraley & Roberts, 2005; Fraley, Vicary, Brumbaugh, & Roisman, 2010).

Interactions with significant others who are available and responsive provide a lasting and pervasive sense of attachment security, and as this is internalised in childhood, it produces healthy functioning of the attachment behavioural system (Bowlby, 1988). During interactions with significant others, individuals internalise the experiences and develop mental representations of a safe world and helpful significant others. These positive mental representations of self and others lead to a healthy self-confidence and a confidence in others. Attachment security was seen as crucial for maintaining emotional stability, developing positive attitudes of self and others, and forming mature, mutually-satisfying, close relationships (Bowlby).

However, when significant others are not available and responsive, attachment security is not attained and internal working model of self and others form attachment insecurity (Bowlby, 1982). There are two possible strategies used by individuals with attachment insecurity to compensate for this experience and act as defence mechanisms for the individual when there is a perceived threat (Cassidy, 2000; Cassidy & Kobak, 1988; Mikulincer & Shaver, 2003; Shaver & Mukulincer, 2002). There is either *hyperactivation* or *deactivation* of the attachment behavioural system. *Hyperactivation* includes strategies such as clinging, controlling, and coercive responses that are energetic and insistent, either cognitive and/or behavioural, in order to bring the significant other closer (Shaver & Mukulincer, 2002). Over-dependence on the relationship ensures that the individual gains a sense of safety and security. *Deactivation* uses strategies that help the individual maintain physical distance from others (Shaver & Mukuliner, 2003). Individuals employing deactivation of the attachment behavioural system are typically uncomfortable being around significant others and gain a sense of security and safety by suppressing threat and attachment related thoughts.

Attachment behavioural system, attachment security, and *hyperactivation* and *deactivation* strategies within the realm of individual attachment style can be measured along two dimensions of attachment-related avoidance and attachment-related anxiety (Brennan, Clark, & Shaver, 1998; see Figure 2).

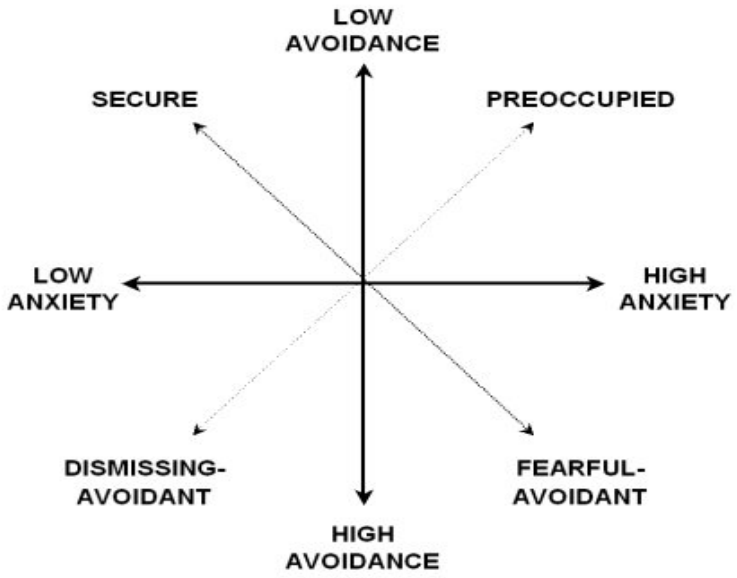

Figure 2. Attachment Style Conceptualisation along Continuums.

Despite previously mentioning that attachment style is stable over an individual life into early adulthood, there is also evidence regarding differences in attachment style throughout an individual's life (Chopik, Edelstein & Faley, 2013). In a large sample of 86555 participants, with strict significant testing, attachment anxiety was highest among younger adults and lowest amongst middle-age and older adults. Attachment avoidance was found to be highest amongst middle-aged and lowest amongst younger and older adults. Longitudinal studies of attachment have demonstrated a high continuity between infant attachment and adult attachment patterns (van IJzendoorn, 1995). However longitudinal studies have suggested changes in attachment status can develop from secure to insecure attachment and insecure to secure attachment (McConnell & Moss, 2011). The term *earned secure* has been used to describe individuals who moved from an insecure status to a secure status (Main, Kaplan, & Cassidy, 1985; Berlin & Dodge, 2004: Saunders, Jacobvitz, Zaccagnino, Beverung, & Hazen, 2011). This is different from an individual who had a nurtured and supported upbringing and therefore more than likely developed a secure internal working model and a *continuous secure* attachment.

In particular, life adjustments and transitions such as: getting married (Crowell, Treboux, & Waters, 2002), loss of a parent, parental divorce, life-threatening illness, parental psychiatric disorder, and physical or sexual abuse (Waters, Merrick, Treboux, Crowell, & Albersheim, 2000) have been found to influence an individual's attachment style. *Earned security* has been found to be associated with life adjustment and transition such as finding alternative support figures that offer: emotional support rather than instrumental support, and quality support from a single individual rather than a number of supports from a number of people (Saunders, Jacobvitz, Zaccagnino, Beverung, & Hazen, 2011). There is debate within research that an individual's attachment style is enduring and life-long or that attachment style has fluidity and can change during a person's lifetime. It is therefore argued that although there are elements of an individual's attachment style that are stable and likely to be enduring throughout their life, there are also elements that are fluid and therefore could be influenced by their life adjustments and transitions such as attending university for the first time. However there are a number of factors that are also involved such as social information processing.

Attachment and social information processing. In the application of Relational Schemas Theory to the Internal Workings Model of attachment, social information processing will be discussed. Relational schemas contain information, or a script, about how an individual interacts with a significant other. For each pattern of interaction that regularly occurs between an individual and a significant other, a relational schema contains information about self, about the significant other, and the way the interaction usually develops and takes place (Baldwin 1992; 1997; Baldwin & Fehr 1995; Baldwin, Fehr, Keedian, Seidel, & Thompson, 1993; Baldwin, Keelan, Fehr, Enns, & Koh-Rangarajoo, 1996; Baldwin & Meeunier, 1999). Differences in attachment style therefore relate to different relational schemas. According to Baldwin, the relational schemas occur within the

context of different social milieus in a three tier hierarchy. The first and highest tier contains relational schemas for a general working model that is applicable to all relationships. The second and middle tier contains relational schemas for different types of relationship, such as friends, a romantic partner, and immediate family. The last and lowest tier contains relational schemas for an internal working model for a specific relationship with an individual. This is particularly relevant to students during their first year of university as it is often the case that students have moved away from social support and therefore attachment figures in order to attend university. There is a transition from having established social networks to needing to develop new social networks. Using Baldwin's tier system, the lowest and the second tier may have to be completely new for a student. Therefore a student may be relying simply on their first tier of relational schemas. However how a student perceives new social experiences may be influences by how they process social information.

Attachment style has been found to influence social information processing by potentially distorting perceptions and responses with respect to attachment insecurity within 3 main categories: interpretations, goals and responses (Gordon & Christman, 2008). The term *deficits* have been used, to surmise *interpretations* of social interactions related to: (a) difficulties with incorporating relevant information, (b) difficulties with synthesizing and integrating information, and (c) attribution bias. Secondly, individuals have different *goals* for social interactions. Goals such as self-enhancement and security seeking have different implications for how effective the social interaction will be. Thirdly, individuals may have different *deficits* in their responses to social interactions. With this in mind when considering the social interactions that take place for students meeting the academic and social demands of their first year at university, this research could provide a framework of where students experience difficulties and/or distress.

Attachment style and mental scripts. As an extension of Bowlby's internal working model, a framework theorising how attachment style leads to cognitive-motivational predispositions, which in turn leads to social information processing and results in interpersonal behaviour has been developed (Shaver & Mikulincer, 2011; see Figure 3).

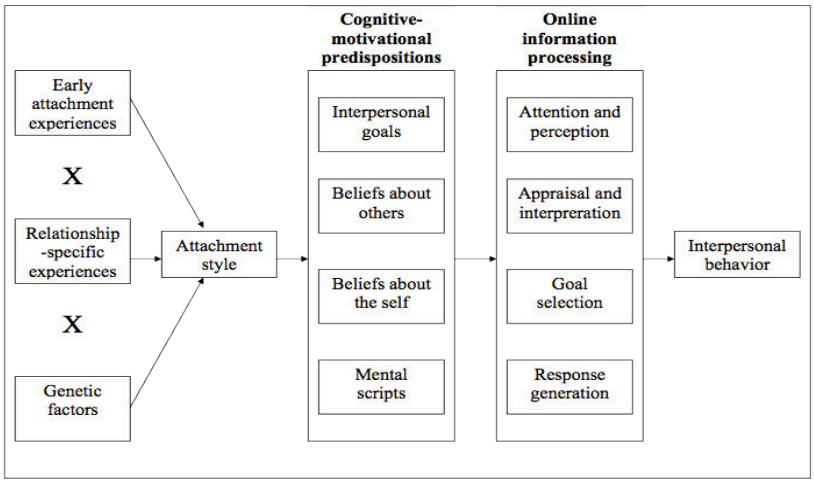

Figure 3. Shaver and Mikulincer's (2011) general attachment framework for studying behaviour in interpersonal exchanges.

The models of self and models of others that are the foundation of attachment style also include procedural knowledge about how social interactions develop and how individuals respond to stress and distress (Mikulincer & Shaver, 2007; Waters, Rodrigues, & Ridgeway, 1998; Waters & Waters, 2006). Typical exchanges between an individual and others develop into procedural expectations and processes about interpersonal exchanges; these exchanges become what is depicted in Figure 3, as mental scripts (Mikulincer & Shaver, 2011). A *secure base* script was described by the following: "If I encounter an obstacle and become distressed, I can approach a significant other for help; they are likely to be available and supportive; I will experience relief and comfort as a result of proximity to this person; I can then return to other activities" (p. 230; Waters, Rorigues, & Ridgeway, 1998). This was supported by Mikulincer, Shaver, Sapir-Lavid, & Avihou-Kanza (2009).

To address attachment insecurity, a *sentinel* script for attachment-related anxiety was used (Ein-Dor, Mikulincer, & Shaver, 2009). Individuals employing this script were sensitive to signs of impending danger and had a tendency to warn others about a possible threat and to stay close to others. For attachment-related avoidance, a *rapid fight-flight* script was described as individuals employing rapid self-protective responses to a threat without telling others and without seeking assistance from them.

These typical scripts of each of the attachment styles provide a possible response for how a first year student at university may experience a stressful social situation. In summary, attachment theory provides this framework of one aspect of socialisation of a student's first year at university. This leads to how attachment style can be measured and used within the current study in now discussed.

Self-report measures. There has been much debate amongst psychologists and researchers about interview-based versus online or questionnaire type tools regarding attachment. A recent review of attachment measures has been conducted (Ravitz, Maunder, Hunter, Sthankiya, & Lancee, 2010). Such debate includes variable reliability, validity of measures, and which type of reporting may be applicable to different research methodologies and clinical applications. In considering measures, the first question was whom was the attachment style going to be measuring, such as parents, romantic partners, or friends in general. Since the target population was going to be about first year university students and how they related to their new social context, and this ruled out such measures as the Adult Attachment Interview (Hesse, 1999).

For convenience sake a self-report questionnaire was desirable, as often training and time is required for interview-based measures. Categorical and continuum measurement of attachment was also considered, and even though categorical measurement offers simplicity, this is not in line with the current concept of continuous measurement of attachment in

research and offers more statically meaningful results. In line with the 2010 review (Ravitz. Maunder, Hunter, Sthankiya, & Lancee) a self-report measure of attachment style was used in the study based upon convenience sampling, time allocation, and importantly, the statistically robust nature of the questionnaire: the Experiences in Close Relationships-Revised measure (ECR-R; Fraley, Waller, & Brennan, 2000: Fairchild & Finney, 2006; Sibley, Fischer, & Lui, 2005). An additional questionnaire to measure attachment style was considered to increase reliability. However participants' time taken to complete this and the other measurements tools for the other variables in the study was given precedence.

The first variable of the current research has been discussed and the measure to capture this attribute. The following section defines and applies the concept of mindfulness to the current research.

Mindfulness

Definition. Several definitions of mindfulness have been used in modern Western psychology, although the skill has been around for thousands of years (Saloman, 1994). Modern research is seeking to accurately define mindfulness and drew on the works of Kabat-Zinn and Linehan to include cognitions, emotions, bodily sensations, sights, sounds, smells and any other stimulant to the experience (Baer, 2009). This definition of mindfulness involved "close observation of all experiences that arise with an attitude of acceptance, openness, and willingness and without impulsive attempts to change or escape them, even if they are unpleasant or unwanted" (Baer, p.15).

Mindfulness is often used synonymously with the traditional Buddhist processes of cultivating awareness, and modern psychology has studied it as a psychological tool capable of stress reduction and to increase several positive emotions or traits (Baer, 2009; Harris, 2007). Despite its roots in eastern religion and philosophy, modern psychology has conceptualised and measured mindfulness as a multifaceted construct that includes an

individual being able to observe, describe, act with awareness, be non-judgemental of inner experience, and be non-reactive to inner experience (Baer, Smith, Hopkins, et al. 2006). Despite intensive current research in mindfulness, further research is required to fully capture the construct (Baer, Smith, Lykins, et al. 2008; Carmody & Baer, 2009; Van Dam, Earleywine, & Danoff-Burg, 2009).

Although there is not clarity within the research, mindfulness techniques have been used within different psychological therapies. For example, mindfulness techniques have been used in cognitive therapy (Segal, Williams & Teasdale, 2002), mindfulness based stress reduction (Kabat-Zinn, 2004), adaptive practice (Sherlock, 1978), Gestalt therapy (Perls 1973, Kirkpatrick, 2006), acceptance and commitment therapy (Hayes & Smith, 2004; Harris, 2007), dialectic therapy (Linehan, 1993), and internal family systems therapy (Schwartz, 1995; 2008). This broad application suggests that mindfulness is a relevant research topic for students experiencing stressful adjustment to university life.

There is also evidence to show that mindfulness can be used in treatment of a myriad of psychological disorders. Such disorders could be evident following the stress-diathesis model (Sigel &Rider, 2009). For example when an individual is stressed and in particular when a first year university student has to adapt to a new environment and new social supports, symptoms of distress may manifest as psychopathology. Disorders where mindfulness has been effective in the treatment of psychological disorders include: attention deficit hyperactivity disorder (Krisanaprakornkit, Witoonchart, & Krisanaprakornhit, 2007; Zylowska et al., 2008), anger management (Birnbaum, 2005; Singh et al., 2007), anxiety and stress (Astin, 1997; Kabat-Zinn et al.,1992; Patel, Carmody, & Simpson, 2007), bipolar disorder (Williams et al.,2008), acquired brain injury (Bedard et al., 2005; McMillan, Robertson, Brock, & Chorlton, 2002), depression (Kenny & Williams, 2007; Smith, 2006; Teasdale, 1999), eating disorders (Andersen, 2007; Baer, Fischer & Huss, 2005; Proulx,

2008), sleep disturbances (Bootzin & Stevens, 2005; Lundh, 2005; Winbush, Gross, & Kreitzer, 2007), personality disorders (Huss & Baer, 2007; Lynch & Bronner, 2006; Wagner, Rathus & Miller, 2006), psychosis (Abba, Chadwick & Stevenson, 2008; Bach et al., 2006; Davis Strasburger & Brown, 2007), and suicidal ideation (Birnbaum & Birnbaum, 2005; Williams, Duggans, Crane, & Fennell, 2006; Williams & Swales, 2004). Considering Stallman's (2010) statistics of the prevalence of distress of Australian university students, it would appear that mindfulness techniques could potentially be useful in the psychological treatment of students seeking assistance.

Mechanisms of mindfulness. In addressing how mindfulness works within a therapeutic framework, previous research has proposed a two-component model of mindfulness (Bishop et al., 2004). The first component describes an individual's ability to direct their attention to the immediate experience, allowing for increased recognition of mental processes in the present moment. The self-regulation of attention has the ability to "inhibit secondary elaborative processing of thoughts, feelings, and sensations" (Bishop et al., p. 233). Mindfulness practices promote improvements in cognitive inhibition, in particular those cognitions associated with a level or levels of stimulus selection. Within the context of self-regulation, other processes involve sustained attention and attention switching, and therefore mindfulness is considered a metacognitive skill (Bishop et al.). The second component was proposed as an orientation to experience, characterised by curiosity, openness, and acceptance. The second component could also be described as the skill of investigative awareness. This involves an individual's observations of the causes and nature of thoughts and feelings. This openness and acceptance of experience should decrease avoidance of the experience. In particular this could be useful for first year university students who wish to avoid certain aspects of their studies.

Research has shown that different levels of mindfulness in individuals based on trait anxiety, predicted attachment anxiety and attention control (Walsh, Balint, Smolira, Fredericksen, & Madsen, 2009). The key features of trait anxiety, such as attention and interpretative processing biases, are at odds with the mindfulness components of present-centred attention, openness to experience, and acceptance. Similar results were found for the key features of attachment anxiety such as rumination and hypersensitivity. Thus, whether generalised or specific, anxiety appears to be antagonistic to mindfulness.

A model of mindfulness has been described upon three axioms: attention, intention and attitude (Shapiro, Carlson, Astin, & Freedman, 2006. This is depicted in Figure 4. The authors described mindfulness as the moment to moment process where attention, intention and attitude are "interwoven aspects of a single cyclic process and occur simultaneously" (p. 375). Interestingly, they continue to explain how mindfulness leads to positive outcomes: self- regulation and self-management; emotional, cognitive, and behavioural flexibility; values clarification and exposure.

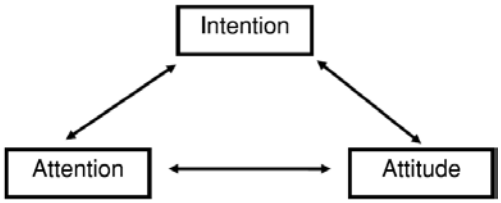

Figure 4. Shapiro, Carlson, Astin and Freedman's (2006) Model of Mindfulness.

In examining this further a model of how mindfulness is linked to its outcomes, in a series of core and secondary processes, as depicted in Figure 5 (Glomb, Duffy, Bono & Yang, 2011). The core processes consist of one neurobiological and two mental processes that are affected by mindfulness. The first of the two mental processes was listed as the decoupling of the self from the events, experiences, thoughts and emotions; and the second included a decrease in the automaticity of mental processes in which past experiences, schemas and cognitive habits influence thinking. The neurobiological core process was

described as an awareness and regulation of the physiological systems. The secondary processes included seven possible outcomes from the core processes: decreased rumination, greater empathy, increased response flexibility, improved affect regulation, increased self-determination and persistence, enhanced working memory, and greater accuracy in affect forecasting. The secondary processes then proceed to improved self-regulation and "ultimately, higher functioning" (p.124).

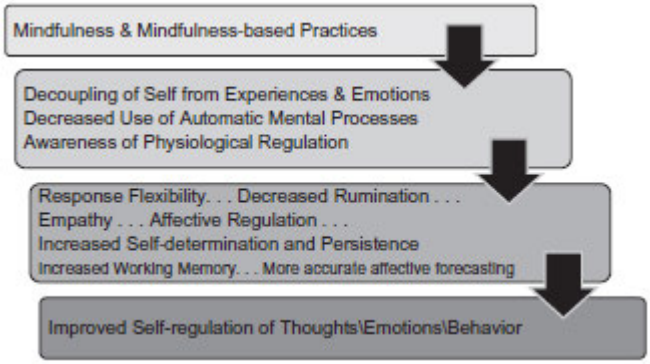

Figure 5. Linking Mindfulness to Outcomes (Glomb, Duffy, Bono, &Yang, 2011)

Following Glomb, Duffy, Bono and Yang (2011) theoretical explanation of how mindfulness leads to outcomes, there are possible implications to link this process to aspects of insecure attachment styles. For example there are implications for the hyperactivation and deactivation of the behavioural attachment model: which are measured as attachment-related anxiety and avoidance (Shaver & Mukulincer, 2003). The first implication is within the secondary processes as there is response flexibility and decreased rumination, which parallels Walsh, Balint, Smolira, Fredericksen and Madsen's work (2009) where attachment anxiety style negatively predicted mindfulness. The second implication is where mindfulness could appear to *balance* or appear to stabilise the hyperactivation and deactivation. This could occur by first the mechanisms of decoupling of self from experience and emotion, and decrease use of auto mental processes. These two implications run parallel to the Shaver and Mukulincer's (2011) attachment framework for studying behaviour in interpersonal exchanges (Figure 3) which includes mental scripts. It is argued that mindfulness could have

implications for first year university students, and could assist students who identify as having an insecure attachment style. One possible avenue where mindfulness could be used is if a student sought therapeutic services.

Within the realm of psychological therapy, mindfulness has been encapsulated within acceptance and commitment therapy (ACT; Hayes &Smith, 2004). Hayes described ACT as the third wave of behaviour therapy and with these ambitious connotations it has been described as an existential humanistic cognitive behaviour therapy (Harris, 2007). According to Hayes, ACT utilises an eclectic mix of metaphors, paradoxes, and mindfulness skills. Since mindfulness skills were described as a key component of ACT, and this therapy has been deemed a major contributor to psychological study, and how it defines mindfulness as a therapeutic tool was imperative (Harris, 2007). ACT has three cognitive categories for mindfulness: defusion, acceptance, and being in the present moment. Defusion entails the distancing and letting go of unhelpful thoughts, beliefs and memories. Acceptance entails the normalisation of painful feelings, urges, sensations and allowing them to come and go without any contention. For an individual being in the present moment entails engaging in the experiences of the here-and-now with an attitude of openness and curiosity. The behavioural component is a secondary element, targeting the avoidance element of an experience. Therapy encourages an individual to embrace an experience with openness and curiosity to pursue new activities.

These proposed mechanisms of mindfulness certainly have possible applications for first year university students adjusting to their academic demands. The next section will outline the differentiation of mindfulness and meditation as there has been some confusion in the literature regarding these constructs, and clarity is needed if there is application to first year university students.

Mindfulness and meditation. The term 'meditation' can be defined by its different types and is dependent on the context, and therefore it has quite a unique meaning for each individual who practices it (Goleman, 1988; Shears, 2006). The term 'meditation' can refer to the state in itself. Meditation can also be about bringing about different thoughts, emotions and experiences for the sake of personal analysis and contemplation. However, this is not definitive. Meditation has been a part of religious tradition and ceremonies including Christianity and prayer (Zanzig & Keilbasa, 2000). Meditation has been practiced for thousands of years and by many cultures, and therefore is not dependent on race, history or geography. It has been considered essential for the human spirit (Durga & Kumari, 2011). Jinpa (2008) provided an explanation:

> Sanskrit term connotes the notion of *cultivation* while its Tibetan equivalent 'gom' carries the idea of developing "familiarity", together implying the idea of some kind of repetitive process of cultivating a familiarity, whether it is with respect to habit, a way of seeing, or a way of being. In its actual usage, however, the term 'gom' is applied not only to the process of *cultivation or developing familiarity* it is also applied to the resultant states achieved through such process (italics added; p.1)

Meditation is therefore difficult to define, and may be conceptualised as a process which an individual can subjectively experience. However, neurology has taken the quest in understanding the phenomenon of meditation, with the use of functional magnetic resonance imaging and electrocardiography. Results of research have found that meditation changes the functioning of the brain and increases growth in areas of the brain associated with compassion, understanding others, attention, and being mindful (Davidson & Lutz, 2007). It must be understood though that meditation is not an experience that can be had, but it is about engagement within the meditative experience and that process of involvement rather

than a fixed definitive task. Meditation requires practice and within the realm of psychology could be described as behavioural deactivation (Benson & Klipper, 2000).

Meditation as a practice is suggested to cultivate mindfulness and other qualities such as awareness, insight, wisdom, compassion and equanimity (Durga & Kumaru, 2011; Goldstein, 2002; Kabat-Zinn, 2000). It is from meditation, that mindfulness has been used within a secular setting, namely from a psychological construct and within therapy. Significant differences in the personality constructs of neuroticism, openness, agreeableness and conscientiousness of 39 university students, when they practiced anapana meditation every evening for one hour for a month (Shinde & Dongre, 2012). This study used pre-test, post-test methodology, however lacked the consideration of a control group. This was found even though personality traits are considered to be stable over time. However the literature does not decipher the terms meditation and mindfulness well. For example in Kabat-Zinn's (1982) early work on the effectiveness of mindfulness in assisting chronic pain patients, he uses the term mindfulness meditation and discusses the roots within Buddhism, but explains the meditation practices were used independent of these religious and cultural beliefs. A clear method for the structure of the stress reduction and relaxation program was provided, but ambiguous definitions for concentration and mindfulness meditation were unclear.

A proposed categories and processes of meditation, which clearly demonstrated mindfulness is presented in Figure 6 (Shapiro, Schwartz & Santeere, 2002). Clearly this demonstrates how within the categories of meditation, that mindfulness requires the process of opening-up in a non-judgemental way.

Figure 6. Shapiro, Schwartz, and Santerre (2002) Proposed Categories of Meditation.

Shapiro, Schwartz, and Santerre continued to propose intentional systemic mindfulness and how mindfulness has a dynamic process within an individual context. One question the authors attempt to answer is why we need to attend and cultivate mindfulness. This is depicted in Figure 7.

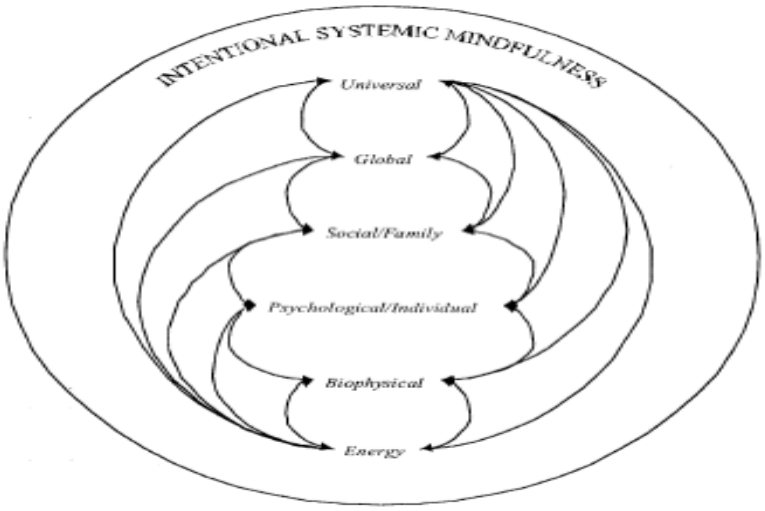

Figure 7. Shapiro, Schwartz, and Santerre (2002) Intentional Systemic Mindfulness

Attention is drawn to the social and family implications within intentional systemic mindfulness. Attachment theory has applications within the model with how people relate to one another and how mindfulness has an effect on how two people relate to one another and the interpersonal process. “Systemic perspectives refers to the intention to incorporate into the self-regulation practice (intrapersonal) exist as part of larger systems (intrapersonal and interpersonal”; p. 641).

How meditation and mindfulness are connected but have different entities and definitions can be seen (Shapiro, Schwartz, and Santerre, 2002). They also proposed models of the categories of meditation, mindfulness qualities, and then the possible implications for mindfulness for an individual in their environment.

In examining mindfulness as a construct, separating samples of meditative and non-meditative groups have been considered (Baer, Smith, Hopkins, et al. 2006; Baer Smith, Lykins, et al. 2008: Lykins, 2006; 2009). When measuring mindfulness within a non-meditative group, mindfulness is considered a trait, which consists of individuals who have higher attributes in mindfulness but do not practice meditation. Mindfulness is therefore innate or intrinsic in nature and considered to be within an individual’s disposition. The neurobiology research into mindfulness examines dispositional mindfulness. When mindfulness is measured within a meditative sample, mindfulness is considered as a skill set that can be developed with practice, and consisted of individuals who have a higher attribute of mindfulness who also meditate. In particular note to the current study, practicing meditation is associated with increased mindfulness which is related to decreased rumination, decreased fear of emotion and increased behavioural-regulation; “These mechanisms appear partially responsible for the relationship between mindfulness skills and psychological adjustment” (Lykins & Baer, 2009; p. 226).

Measuring meditation. It appears that meditation can be captured by the use of equipment such as functional magnetic resonance imaging and electroencephalography within neuroscience to measure changes with brain wave activity (Benson & Klipper, 2000). However this was outside of the scope and expertise of the principal researcher. The Meditation Depth Questionnaire (Piron, 2001) is a 30-item measure designed to capture meditation depth incorporating obstacles to practice, relaxation, concentration, and transpersonal qualities. However this was not used as the focus of understanding the relationship between meditation and mindfulness is to address the frequency and duration of meditation and its possible impact on mindfulness. Therefore the students were asked these parameters in a devised item for each.

In deciphering the differences between meditation, mindfulness and psychological adjustment there appears to be some overlap and unclear definitions. However it is clear that these variables can provide change and benefit for individuals who engage in these practices. In the next section, the possible nexus between attachment and mindfulness has been argued.

Attachment and mindfulness. Three parallels between mindfulness skills and attachment security can be seen (Mikulincer & Shaver, 2007). The first parallel identified between mindfulness skills and attachment security, is that individuals who have experienced attentive and responsive care are likely to be more secure and more mindful. The second described a possible bidirectional relationship existing between the two constructs, meaning that individuals with attachment security were more attentive to others. This suggested that mindfulness facilitated more secure attachments by encouraging more attentive and receptive attention to others. The third parallel was that both attachment security and mindfulness contributed to a myriad of positive outcomes. Furthermore, it has been theorised that as secure attachment increases an individual's capacity for mindfulness (Shaver, Lavey, Saron & Mikulincer, 2007). Therefore, mindfulness may assist an individual in developing secure

attachment in adulthood and preliminary evidence for the relationships between adult attachment style and the current scientific conceptualisation of mindfulness has been found.

Two dimensions of insecure attachment, anxiety and avoidance, has been found to account for 42% of the variance in the total mindfulness score (Saron & Shaver, 2006). Attachment anxiety was significantly associated with, and made unique contributions to, non-reactivity to inner experience, acting with awareness, and non-judging of experience. Additionally, avoidant attachment was significantly associated with and made unique contributions to the measurement of mindfulness. More specifically, avoidant attachment was negatively associated with mindfulness. Although these findings were noteworthy, the study was not without limitations. The sample consisted of 50-year-old Americans (N = 70) and therefore limited generalisability.

However with a sample of 495, a single facet mindfulness measure [Brown & Ryan, 2003; Mindful Attention Awareness Scale (MAAS)] was used and examined these responses across two attachment groups (Cordon & Finney, 2008). They found that securely attached individuals reported significantly higher levels of mindfulness than did individuals with anxious or avoidant attachment styles. However, it was found that the MAAS showed questionable construct validity, demonstrating low inter-item correlations and standardised factor loadings. This suggests a need for further validity research and possible scale modifications.

In a review of the Mindfulness Based Stress Reduction Program (MBSR; Kabat-Zinn, 1982; 1990), attachment styles and perceptions of stress were measured (Cordon, Brown & Gibson, 2009). At baseline, individuals with insecure attachment styles reported higher stress than securely attached individuals. They also found that both securely and insecurely attached individuals reported significant decline in reported stress after engaging in the MBSR. Individuals with insecure attachment style reported only marginally greater decline in

perceived stress (Cordon, Brown, & Gibson, 2009). A stated limitation of this research was the lack of a control group and the resulting inability to rule out that the social gathering of people promotes an environment of self-disclosure which then could have decreased perceived stress (Cordon, Brown & Gibson).

Significantly negative associations between mindfulness and insecure attachment styles have been found (Saavedra, Chapman, & Rogge, 2010). Individuals with high levels of attachment insecurity were more strongly associated with poor relationship functioning. However this was less likely to be the case if the individual had higher levels of mindfulness. These researchers used a categorical classification of attachment style and used the MAAS, a single facet measure of mindfulness, thus prompting research using measurement tools with current research conceptualisations of the constructs.

It is clear that there is a connection between attachment style and mindfulness, with research indicating a strong affiliation in constructs. The next section will discuss the neuroscience that also provides the evidence that underpins the argument in linking attachment style and mindfulness.

Attachment, mindfulness and neuroscience. Before the evidence is presented, it must be stated that this current research does not use any neuro-scientific measures, however the findings and commentary are noteworthy. The practice of mindfulness has been linked to the prefrontal cortex of the brain. In particular, this area of the brain has been found to have three levels of functioning (Stuss & Benson, 1986). The first level of functioning involves integrating and organising with the purpose of forming meaningful representations. Second level functioning was found to be executive functioning, or how creative solutions can be found to new problems. The third level was found to deal with self-awareness of one's own mind, along with understanding the minds of others with the application of the theory of mind (Frith & Frith, 2003).

Areas within the prefrontal cortex have been found to be associated with the cognitions that emerge when an individual is dealing with new concepts and mental schemas (Simon, 2007). Nine functions of the medial prefrontal cortex include: body regulation, attuned communication with other minds through resonance processes, emotional balance, response flexibility, empathy, insight or self-knowledge, fear modulation, intuition and morality (Siegel, 2007). Siegel considered all nine functions to be related to mindfulness whilst at the same time linking the first seven of these to the attachment style as it develops between a child and a parent. In summary:

> If an interpersonal attunement occurs in the secure attachment (between parents and children, between patient and therapist or between teacher and student), in the case of mindfulness there is an internal attunement with oneself, in which the integration of all the neural systems is facilitated so that the nervous system as a whole functions in a coherent manner. As Siegel puts it, mindfulness may nurture healthy relationships through a number of mechanisms including enhanced empathy, emotional balance, response flexibility, and an approach mindset (Simon, p.6)

The previous section argued the concept of mindfulness, the mechanism in how mindfulness can be beneficial, and linking the variables of attachment and mindfulness. The following section describes the most valid and appropriate measure for studying mindfulness.

Measures. In recent years, several mindfulness scales have been developed. These scales differ both in their conceptualisations of the construct of mindfulness and in their intended uses. Current research supports the construct validity of the Five Facet Mindfulness Questionnaire (FFMQ) in populations of both meditating and non-meditating individuals (Baer, Smith, Hopkins, et al. 2006; Baer, Smith, Lykins, et al. 2008). In addition to this research, differential item functioning was carried out with the FFMQ in matched samples of

meditators and non-meditators (Baer, Samuel, Emily, & Lykins, 2011). It was found that most items offered a non-significant result. Four items showed significant results, two of which load onto the observing facet and are entirely positively worded and scored. This was consistent with the observing facet on the Kentucky Inventory of Mindfulness Scale (KIMS; Baum, Kuyken, Bohus, Heidenreich, Michalak, & Steil, inpress). The authors recommended the use of the FFMQ, as the overall results indicated a sound instrument for capturing the current conceptualisation of mindfulness.

Other measures that have been developed to capture mindfulness include: Mindful Attention and Awareness Scale (MAAS; Brown & Ryan, 2003), Cognitive and Affective Mindfulness Scale (CAMS; Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007), Freiberg Mindfulness Questionnaire (Bucheld, Grossman, & Walach, 2001), Philadelphia Mindfulness Scale (Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008), Solloway Mindfulness Measure (Sollway & Ficher, 2007) and the Toronto Mindfulness Scale (TMS; Lau et al., 2006). These measures were considered for the current research, however the FFMQ is widely used within research, offers sound psychometric properties, is convenient to use, and has the potential to be able to address different facets of mindfulness. Other research that links attachment style and mindfulness has used the MAAS as a measure of mindfulness (Cordon & Finney, 2008; Saavedra, Chapman, & Rogge, 2010) and therefore to generalise these results, the FFMQ was used to extend the relationship between attachment style and mindfulness.

The previous section has outlined the measures that western psychology has developed to capture mindfulness. There are certain cognitive components of mindfulness that requires focus and regular practice that resonate with the academic demands that are required in engaging in university learning. The third variable of the current study, academic adjustment will now be argued.

Academic adjustment

This section argues some theoretical frameworks behind tertiary education adjustment, stress and coping, the importance of social adjustment for tertiary students in terms of education and learning, and the Student Adaptation of College Questionnaire (SACQ) measure.

First year experience. The transition to university has been of interest to researchers, tertiary educators, and government bodies with studies and reviews examining this specific phase of student learning (DIICSRT, 2008a; 2008b). In particular of interest is students' first year at university as this is where the transition and adjustment to university begins, with the term First Year Experience (FYE) often used. In a longitudinal study of American FYE medical and law students variables such as; coping tactics, self-esteem, perfectionism, optimism, and extraversion, were considered (Pritchard, Wilson & Yamnitz , 2007). The research covered the period of the student's course and used two data collections to measure variables, thereby providing increased reliability. One finding was that the FYE increased physical and psychological distress within students. It was recommended the establishment of peer-support groups to assist university students with engagement in university life.

University is a place for higher education where, just as there is transition from primary school to high school, there is a transition from high school to tertiary education. Vygotsky's theory of social learning has been extended to used the term *transitions* to describe stages of learning and how a learner progresses through different stages of acquiring knowledge (Mahn, 2003),. The transitions are in the context of the learners' progression, and as learners change their associated social interaction and therefore culture. Tinto (1993, 1997) also mentioned this idea of change in culture with a student's transition to university. With this transition comes the change of family situation; students are moving away from family and developing their own sense of independence and responsibility (Tinto). Tinto explained

that the best way to approach this transition was to have students involved, academically and socially, in a shared learning experience. Assisting the learner to connect with other learners and peers makes it more likely that they become involved in their own learning and invest the time and energy into learning (Tinto, Goodsell, & Russo, 1993). Social affiliation acts as the conveyor of academic involvement and the motivation to learn also increases student involvement as a meaningful and valued part of the learning process.

American research on how students were affected by university life. They identified a number of variables that influenced students in the transition to university (Pascarella & Terenzini, 2005). Some of the variables identified were academic and social involvement, family background, socio-economic status, and academic preparedness. More specifically, contact with other students encouraged persistence, which in turn led to degree completion. There was evidence to suggest that co-operative learning had an effect on students' overall learning and particularly on higher or more complex cognitive functioning rather than on lower less complex levels (Garside, 1996).

More recent research evaluated FYE for university students, including the use of a program to better equip students to meet tertiary academic requirements (Schrader & Brown, 2008). Instruments were used to measure knowledge, attitudes, and behaviours of first year university students. It was not found that the program necessarily assisted students, with low explained variations attributable to each variable (i.e. partial η^2 range of 0.005 to 0.074) and low effect sizes. However, the exact effect size figures were not stated. The authors did find that students who reported an awareness of available resources demonstrated better academic success over time. The awareness of resources could be seen as social support, particularly as the study mentioned support services and library assistance staff. While the study conducted by Schrader and Brown had its strengths, the study lacked generalisability due to limitations on sampling. The results found in this study are in line with those found in many other

Australian university studies which have also found social interaction to be an influencing factor in FYE (Kift, 2004; Krause, 2005; Lawrence, 2004; McInnis & James, 1995).

For individual students, the first year of university is an important transition point. It may affect the development of attitudes towards continued learning in tertiary education and beyond. University learning is the starting ground for life-long learning. Research suggests that the early experiences with tertiary education are pivotal in establishing values and approaches to learning that will endure throughout their tertiary experience, and so affect each student's career and perspective on education (McInnis & James, 1995). Tinto (1993, 1997) explained that completion of the first year equates to enough persistence for degree completion.

Australian research has found that development of a new social structure, formation of an independent identity, developing autonomy, finding a structured university environment, finances, and longing for home contacts, are all challenges faced by first year university students (McInnis & James 1995). Kantanis (2000) placed a strong emphasis on the social transition which underpins a successful academic transition to university. In addition to emphasizing social transition, there was emphasis on the individual student skills required for establishing and maintaining a friendship network. She observed that developing such a network required "sophisticated social skills" (p.3) with an outgoing personality. Kantanis explained that the need for belonging is a core desire in human behaviour and particularly for adolescents, and therefore when students do not have social supports they are disadvantaged.

The various roles students may experience during FYE, not only as a learner were further explored (Kantanis, 2000). A university student may have adult responsibilities for learning, an adolescent role within family, work commitments, and new social commitments to maintain at university. Further, adult students may have children or dependents from an

older generation and therefore the social roles that students have to manage become increasingly complex.

In national surveys which gave importance to engagement in learning, engagement was not only time spent in class and on campus, but also time spent with other students, academics and teachers, and other student support staff (Krause, Hartley, James, & McInnis, 2005). The study called for quantitative and qualitative research into FYE in order to find a better understanding of student engagement. It was suggested that the more a student interacts with other students within the cohort in an educationally meaningful way, the more likely the student will engage in their learning. Until 2004, engagement was measured using time, which was a crude measure, missing the quality of the student engagement. However, the Krause et al. study used four subscales to measure engagement. One of these subscales measured engagement with peers. There were four items in this subscale, including, "I work with classmates outside of class on group assignments". The measure was found to have poor reliability. It was reported that between one-fifth and one-third of students never participate in peer interactions outside the classroom. The researchers called for more qualitative research in this area to find better ways of understanding and assessing student engagement.

Learning engagement was then defined it as "time, energy, and resources students devote to activities designed to enhance learning at university" (Krause, 2005; p. 3). However this definition missed possible implications and complexities of engagement in learning within FYE and university students, such as managing varied roles. More recent work by Krause and Coates (2008) stated:

> The concept of engagement embraces a specific understanding of the relationship between students and institutions. Institutions are responsible for creating environments that make learning possible, and that afford opportunities to learn. The final responsibility for learning however rests with students. (p. 494)

Krause (2005) made reference to Astin's study (1984) into involvement and learning, and explained that this played a major function in the extent and nature of learning at university. It was identified that learning is the shared responsibility between each student and the tertiary educational facility (Krause and Coates, 2008). This has been theorised as transactional relationships in higher education and the transmission of information within a networked world (Anderson & Garrison, 1998). They moved away from the teacher-conveying-information paradigm to the student paradigm which focused more on shared responsibility where the learner takes an active role within the learning experience. Anderson and Garrison's theory is depicted in Figure 8.

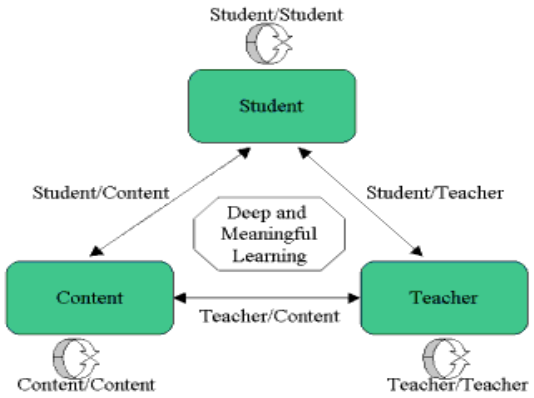

Figure 8. Anderson and Garrison's (1998) Transactional Relationships in Higher Education Theory.

It is obvious in Anderson and Garrison's (1998) theory how attachment style and interpersonal skills could be applicable. For example, if a student reported an insecure attachment style, this will in turn affect how the student interacts and learns from the teacher. In Anderson and Garrison's theory, the triad alters and the Student/Teacher transmission may affect deep and meaningful learning. Additionally the internally directional arrows that are depicted in the figure represent a certain reflection of learning or self-directed learning. Looking at the student reflection of learning, there could be an application of the model of self and model of others from the internal working model (Bowlby, 1988). For example, if a

student reported a higher level of anxious attachment style and therefore a negative view of self and a positive sense of others, in this case the teacher, the student may not engage in a productive self-directed learning as they do not believe in their own abilities.

In a broader perspective, importance on students having a sense of being connected with affiliated universities and other learning peers in order to enhance learning in the FYE also needs to be considered (Kift, 2000). University students take on new responsibilities in their life when they enrol. For example, university students are often required to balance work, life, and their studies, leaving them with less time to invest in learning. Kift also explained that universities were dealing with larger numbers of students both in the classroom and in distance education programs. As a result, educators may find they have less time to engage each student in learning. In recommending strategies for the university learner in the domains of personal, social, academic, physical, and career, four points for social adjustment were identified. These were the need for students to: (a) identify that they were feeling isolated, (b) make a new peer group for a university experience, (c) embrace the new identity with the cohort, and (d) then interact. This process is not simple for a student who also has to adjust in other areas in his or her life.

Fostering peer study groups has been identified as a significant factor that assists students during their FYE at university, and one example has been the University of Melbourne creating a “Transition Workshop”. It was theorised that establishing strong peer relationships would increase study, motivation, and general enjoyment of university life (Peat, Dalziel, & Grant, 2001). They continued to discuss the way that peer groups assisted students to address issues of anxiety, depression, and loneliness, and enhanced the FYE at university. The workshop was held before the university’s orientation program and was voluntary. The students who attended were introduced to the idea of forming peer groups within their laboratory and tutorial sessions, which was led by academics with a strong

interest in first year students. This result shows great potential for how valuable an intervention workshop can be, however the results are limited to that cohort and does not look at a myriad of other factors that could have influenced these results, such as other workshops and resources being available to these students. There is also scope within this workshop intervention to address attachment style and how these students were able to connect and be effective in peer study groups, for example, some of the dimensions or variables that made some groups more effective than others.

Transition. Transition is the process of becoming academically and socially integrated into the university environment.) It has been identified that separation, transition, and incorporation as the three stages of the process by which students become integrated into the academic and social environment of a university (Tinto,1993; 1997. Separation occurs prior to and at the start of the university experience and involves a student's ability to disassociate to some extent from the norms of past communities, including friends, families, high school, residences, and other ties. Following successful completion of the separation stage, students experience the stage of transition. The transition stage is when a student has successfully separated from past norms and communities, but has not yet integrated the norms and behaviours of the new environment; "a period of passage between the old and the new, before the full adoption of new norms and patterns of behavior, and after the onset of separation from old ones" (Tinto, 1993; p. 97). The process that Tinto describes as a transition in a student's life has applications with attachment style and how certain transitions have the potential to change an individual attachment style through social interaction that could occur (Crowell, Treboux, & Waters, 2002).

Adaptation and adjustment. Adaptation and adjustment refer to the developmental changes that take place when an individual demonstrates more adequate skills and reflects on life's events from a different and more mature perspective. Adaptation is viewed as the

emotional process undertaken as a response to the environment and adjustment refers to the behavioural responses to an environment in order to establish a good fit (Eaton & Bean, 1995). Adaptation and adjustment to university can then be seen as social and academic integration into the university environment (Kampsen, 2009).

The earliest definition of adjustment was given by Arkoff (1968) as a person's interaction with his or her environment. Arkoff further defined college or university adjustment in terms of university achievement which covered students' academic achievement and personal growth. The adjusted student obtains adequate grades, passes in his or her courses, and eventually graduates. Conversely, the maladjusted student demonstrates unsatisfactory grades, either marginal levels of performance in course work or failing, and tends to drop out of university before graduation. University adjustment not only involves academic achievement but also personal growth. An adjusted student shows good personal growth in terms of non-academic potential with reference to accomplishments outside of the classroom such as art, music, creativity, and leadership.

However adjustment to university was defined as multifaceted, involving an array of demands, varying in kind and degree and requiring a variety of coping responses (Baker & Siryk, 1999). To understand this process of adjustment, a cognitive appraisal process such as Lazarus and Folkman's (1984) transactional model of stress could be used. The transactional model of stress described coping strategies within a framework of an individual's cognitive appraisals (see Figure 9). Combining the transactional model of stress and attachment style theory there are certain implications. The internal working model (Bowlby, 1969) and the social information processing theory (Baldwin, 1992), could be applied to the threat-appraisal processing and the individual's self-perceived ability to cope within the transactional model of stress. For example, if a student identifies as having a higher avoidant attachment style, they have a negative view of others and therefore are sensitivity to any threat from another.

This in turn affects the student's perception, problem definition, problem solving, memory, decision making and reasoning within Lazarus and Folkman's model.

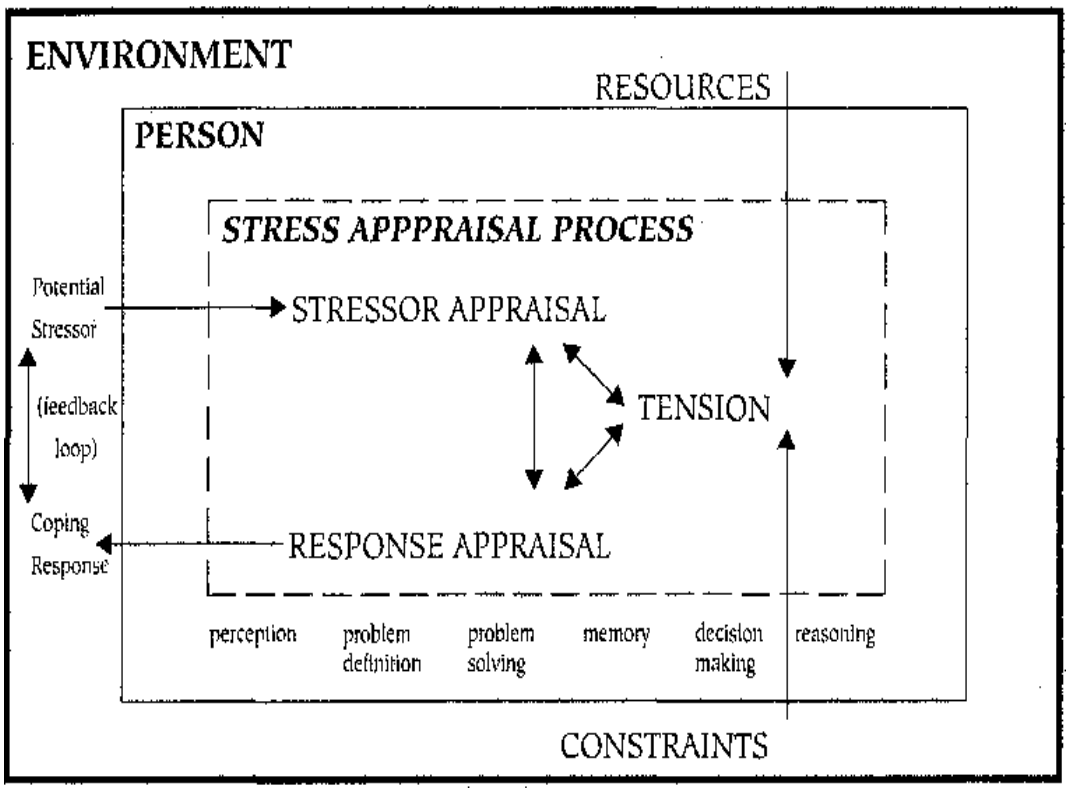

Figure 9. Lazarus and Folkman's Transactional Model of Stress.

Another facet within the transactional model of stress (Lazarus & Folkman, 1984) is the stressor appraisal and response appraisal. An individual's locus of control or ability to internalise and externalise issues or problems has been influenced by an individual's sense of self-efficacy and this forms part of attribution theory (Aspinwall & Taylor, 1997). Bandura (1993) asserted that self-processes (cognitive, motivational, affective, and selection) and efficacy influence how one thinks, feels, and behaves and these are major factors in motivation. Bean and Eaton (2001) defined self-efficacy as "an individual's perception of his or her ability to act in a certain way to assure certain outcomes" (p. 75). Self-efficacy is specific to particular tasks that individuals believe they can do well, based on past experiences and observation. Individuals gain self-confidence when they believe they are competent, and are consequently more persistent in achieving a particular task. Students who

are not confident may avoid tasks they fear to be too difficult or challenging, while those who are more efficacious are willing to face more difficult and challenging problems (Bandura). A study found that individuals with lower self-esteem and higher negative affect showed greater levels of "self-handicapping" behaviour, creating obstacles to performance in order to protect self-esteem (Zuckerman, Kieffer, & Knee, 1998). However, the obstacles created impeded performance and further lowered self-esteem whilst increasing negative affect, thereby indicating poor adjustment. A similar phenomenon as part of self-worth theory of achievement motivation, which identifies factors related to attempts by some students to maintain or enhance self-worth is also related (Covington, 1984). Part of the theory postulates that students may avoid failure by not participating in tasks they do not feel they can do well. If they work hard at achievement of a task or activity and fail, they risk their self-worth, whereas avoiding the task can help them protect their self-worth.

A lack of academic and social self-efficacy may impede academic and social integration and adaptation to university (Bean & Eaton, 2001). Students with disabilities may commence university with lower self-esteem, a lack of confidence, feelings of inadequacy and depression (Price, 2002). Additionally, students with disabilities may be less prepared academically and have less developed social skills (Wolf, 2001). However, in one study on management of self-perception of university students with psychiatric disabilities (n = 38), it was found that students frequently described disability as a problem in the environment rather than within themselves (Olney & Brockelman, 2003). Maintaining a positive self-concept and social identity were important coping strategies these students used in order to adapt successfully to the university environment.

Coping behaviour is another major aspect of attribution theory. Coping theory attempts to capture the individual adaptations of behaviours that are required for adjustment to a new environment or context (Eaton & Bean, 1995). The psychological construct of

adjustment runs parallel to the sociological contrast of integration as these terms incorporate behaviour that is required for adaptation. Social and academic integration require adjustment behaviours such as making friends, engaging in the social environment of the institution, developing study behaviours, selecting appropriate courses, preparing for tests, and developing relationships with faculty. Appropriate academic adjustment behaviours and coping strategies lead to competence and confidence. Adjustment to university reflects behaviours and processes by which students attempt to fit into the new environment, whereas adaptation reflects the ability to cope with a new situation, whether or not one fits into the environment (Eaton & Bean, 1995). While some students cope with the stresses of university by creating obstacles to performance in order to preserve self-efficacy (Zuckerman, et al., 1998), others use past experiences to acquire new and effective problem-solving skills that allow them to persist under stress in ways they were previously unable to, adapting in new ways to the university environment (Eaton & Bean).

It has been found that attachment style and coping resources predicted coping strategies in transition to parenthood (Alexander, Feeney, Hohaus, & Noller, 2001). These studies described complex relationships of direct and indirect associations between attachment style, coping, and stress. The findings supported the integration of theories between attachment and coping in explaining how couples adjust and transition to parenthood. This research also can be broadened to theoretically justify how attachment theory could be used in assisting first year university students to cope and adapt to academic adjustment.

It is therefore evident that the measuring of student adaptation may also inform researchers of how to best assist students to adjust to the demands of university life. The following section discusses the measurement tool used for the current study.

Student adaptation measure. The Student Adaptation to College Questionnaire (SACQ) was developed by Baker and Siryk (1984, 1986, and 1989) and has been largely used within American university populations and a few Australian populations (Monash, 2005; Lawrence, 2004; Munrow & Pooley, 2009). The SACQ contains four subscales that pertain to the current study. These include academic demand adjustment, social adjustment, personal/emotional adjustment, and institutional affiliation. The SACQ has been associated with clinical measures and symptoms of adjustment disorders (Rodgers & Tennison, 2009). It has also been associated with increased levels of stress, sleep disturbances, and anxiety (Brissette, Scheier, & Carver, 2002; Twenge, 2001), and emotional maladjustment and depression (Pittman & Richmond, 2008). Although the SACQ was not intended for clinical psychology use, it certainly has applicability.

Rationale for study one - interpersonal style, mindfulness and academic adjustment.

An unpublished doctoral research dissertation has addressed similar concepts of looking at attachment style, mindfulness and academic adjustment (Ma, 2008). In order to examine university adjustment, Cecero, Beitel, and Prout (2008) explored the possible mediation effect of early maladaptive schemas and psychological mindedness on university adjustment. The Young Schema Questionnaire (Young, 1998) was used to measure maladaptive schemas. According to Young, Klosko, and Weishar (2003) maladaptive schemas are defined as "broad, pervasive themes... regarding oneself and one's relationships with others, which are developed during childhood or adolescence, elaborated throughout one's lifetime, and dysfunctional to a significant degree" (p. 7). Psychological mindedness was defined as "an attribute of an individual that presupposes a degree of access to one's feelings, a willingness to try to understand oneself and others, a belief in the benefits of discussing one's problems, an interest in the meaning and motivation of one's own and others' thoughts, feelings, behavior, and a capacity for change" (p. 258, Conte, Ratto, &

Karasu, 1996). Psychological mindedness has been found to be associated with increased mindfulness, as measured by MAAS, in a university student sample (Beitel, Ferrer, & Cecero, 2005). They found that psychological mindedness did partially mediate the relationship between early maladaptive schemas and university adjustment with 264 students. From another perspective, research has found that emotion regulation, nonattachment or defusement, and rumination were mediators between the relationship of mindfulness and psychological distress, as measured by depressive and anxious symptomology in a university student sample (Coffey & Hartman, 2008).

Tloczynski and Tantriella (1998) examined how meditation was compared with relaxation techniques to assist students with university adjustment. Their methodology included a meditation group, relaxation group and a control group. Anxiety and depression scores significantly decreased in the meditation and relaxation groups as compared to the control group. Additionally, interpersonal problems significantly decreased in the meditation group. These results indicated that meditation and relaxation were of assistance of students, however it appears that mindfulness as a possible confound was not examined with the relationship of the variables.

At Monash University a mindfulness and lifestyle program was used as an intervention to assist 148 medical students over a semester (Hassed, Lisle, Sullivan, & Pier, 2008). In order to measure changes in symptoms, three subscales from the SCL-90-R (Symptom Checklist 90 Revised; Derogatis, 1994) were used and the WHO Quality of Life Questionnaire (Murphy, Herman, Hawthorne, Pinzone, & Evert, 2000) were used. Authors found that there were reductions in symptoms of depression and hostility but not anxiety. Additionally, authors found that the psychological domain of the Quality of Life Questionnaire had significantly changed but not the physical domain. As a result, the authors concluded that mindfulness may be beneficial for student wellbeing and therefore assist them

with their learning pursuits. Even though the study conducted by Hassed, Lisle, Sullivan and Pier had its strengths, methodological weaknesses were also evident. Such weaknesses included no long-term measurements and a lack of a control group.

More specifically in dealing with adjustment to university, as measured by the SACQ, there was research conducted addressing attachment style and group attachments as predictors (Marmaroch & Markin, 2007). They found that both attachment style and group attachments predicted higher adjustment to university. In particular Marmaroch and Markin found that university students who have insecure dyadic attachment and who have more avoidant group attachments are more likely to experience difficulties adjusting to the demands of university.

In summary, there is research to support the relationships between attachment style and mindfulness (Shaver, Lavy, & Saron, 2007), mindfulness and academic adjustment (Hassed, Lisle, Sullivan, & Pier, 2008) and attachment style and academic adjustment (Marmarosh & Markin, 2007).The previously mentioned research supports the current investigation into the relationship between attachment style, mindfulness, and academic adjustment. In particular, the aim of the current study was to understand the role of mindfulness in the relationship between attachment style and academic adjustment. As identified by previous research (Baer, Smith, Lykins, et al. 2008; Hayes & Shenk, 2004; Williams, 2008) the construct of mindfulness is separated into groups; meditators with higher mindfulness scores conceptualise mindfulness as a set of skills, and non-meditators with higher mindfulness scores conceptualise mindfulness as a personality trait. The current research therefore identified individuals who have experienced meditation and we have two samples; meditative and non-meditative first year university students.

Research aims and hypotheses for study one. Study one examined the meditative and a demographic-matched non-meditative sample of first year university students. Depicted in

Figure 10 is an illustration of the proposed relationship between attachment style, mindfulness and academic adjustment.

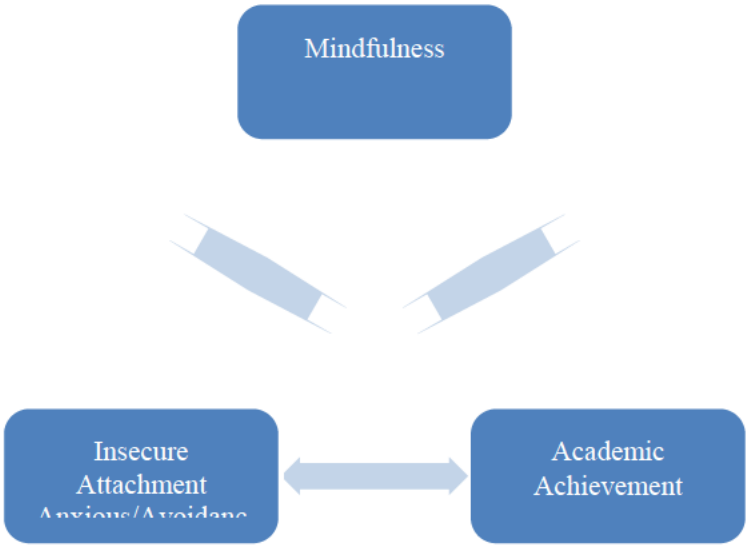

Figure 10. Illustration Depicting Variables of Interest for Study One.

Study 1 draws upon the methodology and analysis of other authors who conceptualised mindfulness using the FFMQ (Baer, Smith, Hopkins, et al. 2006; Baer, Smith, Lykins, et al. 2008), with matching demographics in meditators and non-meditators. In regards to first year tertiary students who meditate, the aim of the first study was to examine the relationship between the variables of interpersonal style, mindfulness, and academic adjustment. In particular, one aim of the current study was to examine whether there was a relationship between anxious attachment style, mindfulness and academic adjustment. Another aim of the study was to examine whether there was a relationship between avoidant attachment style, mindfulness and academic adjustment. The third and fourth aims of the current study were to examine first year students who indicated that they do not meditate. In particular, of those who do not meditate, the aim was to examine whether there was a relationship between anxious attachment style, mindfulness and academic adjustment. Likewise, the aim was to examine whether there was a relationship between avoidant

attachment style, mindfulness and academic adjustment in a non-meditative first year tertiary student sample. Once the relationship between mindfulness and academic adjustment has been established in a meditative sample:

(a) It was hypothesised that higher scores in Anxious Attachment Style will predict lower scores in Academic Adjustment and this relationship will be mediated by higher scores in Mindfulness.

(b) It was also hypothesised that higher scores in Avoidant Attachment Style will predict lower scores in Academic Adjustment and this relationship will be mediated by higher scores in Mindfulness.

Again once the relationship between mindfulness and academic adjustment has been established on a non-meditative sample of first year tertiary students:

path a path b

(c) It was hypothesized that the higher scores in Anxious Attachment Style will predict lower scores in Academic Adjustment and this relationship will be mediated by Mindfulness.

path c and once Mindfulness has been accounted for this is known as path c'

(d) It was hypothesize idant attachment style will predict lower scores in Academic Adjustment and this relationship with be mediated by Mindfulness.

Rationale for study two – meditation and mindfulness.

The aim of study two was to examine some of the qualities of the relationship between meditation and mindfulness in a sample of first year university students. This is of interest as how these two concepts are related and impacts one another, can assist how to implement potential strategies to increase mindfulness skills and therefore assist academic adjustment. Two particular qualities of interest were the frequency, or how often a student indicated they meditated and the duration or the time spent when they did meditate. Jinpa (2008) explained mindfulness occurs from the repetitive process of cultivating familiarity.

There is a dearth of research in examining the frequency and duration of meditation and its impact on levels of self-reported mindfulness. The first aim of study two in the current research was to examine the relationship between the self-reported frequency of meditation and self-reported levels of mindfulness. The second aim of study two in the current research was to examine the relationship between self-reported duration of meditation and self-reported levels of mindfulness.

Meditation has been found to induced a myriad of health benefits that included biochemical and physical changes in the body collectively and named this the "relaxation response" (Benson & Klipper, 2000) . Physiologically meditation changed an individual's metabolism, heart rate, respiration, blood pressure and brain chemistry. Benson argued that it was the consistency of the practice of meditation that leads to these desirable outcomes. In a randomised controlled trial of mindfulness and relaxation training, there was no significant difference between the group of individuals who received mindfulness skills and the other group of individuals who received relaxation training, in decreasing distress and increasing positive states (Jain, et al., 2007). This supports the notion that mindfulness and relaxation could be broadly categorised a behavioural deactivation.

It must be stated however that the focus of meditation or mindfulness is not to relax, but to bring insight or awareness into an individual's state of mind in a particular manner. This is an active process. The style of meditation has not been found to significantly differ in self-reported mindfulness and psychological well-being, however meditation frequency was found to be associated with these (Schoormans and Nyklíček, 2011). It has been found that there was a trend between frequency of awareness of breath and an increase in mindfulness (Dobkin & Zhao, 2011).

Another attribute that has been found to increase levels of mindfulness was the length of meditation experience, which in turn is associated with improved well-being (Josefsson,

Larsman, Broberg, & Lundh, 2011). While there may be several important moderating factors which impact this relationship (Carmody & Baer, 2009), the current operationalisation of meditation experience as number of years may ultimately be insufficient and a more sensitive measure might also assess the frequency, duration, depth and proficiency of meditation practice (Ireland, 2012). Therefore study 2 will address two of these measures: frequency and duration.

The MBSR program recommends 45 minutes each day throughout the seven week program (Kabat-Zinn, 1990). In an Acceptance and Commitment Therapy manual, it is recommended practicing 15-30 minutes per day (Hayes & Smith, 2005). In Dialectic Behaviour Therapy, regular practice is emphasised but meditative goals are determined with the clients and the therapist. Although these recommendations were made, there does not appear to be consistency amongst them or published research to confirm these parameters.

"The amount of variation in the described frequency and duration of practice make it difficult to draw generalisation about the training requirements for meditation techniques. The criteria for successful meditation practice have also not been described well in the literature." (p. 3, Ospina, et al. 2007). Additional research concurred with recognising that few studies have rigorously evaluating the dose-response relationship of meditation and mindfulness and likewise to beneficial outcomes (Edenfield & Saeed, 2012).

Research aim and hypothesis of study two. The aim of study two was to examine the quality of the relationship between meditation and mindfulness in a sample of first year university students. This crucial relationship can assist in making recommendations to FYE students to increase their mindfulness skills and potentially academic adjustment. This sample was used in study one. Two particular qualities of interest were the frequency, or how often a student indicated they meditated, and the duration or the time spent when they did meditate. There is a dearth of research in examining the frequency and duration of mediation

and their impact on levels of self-reported mindfulness. The first aim of study two in the current research was to examine the relationship between the self-reported frequency of meditation and self-reported levels of mindfulness. The second aim of study two in the current research was to examine the relationship between self-reported duration of meditation and self-reported levels of mindfulness.

In regards to first year university students who meditate, the aims of study two of the current research was to examine the frequency and duration of meditation and/or the potential influence on levels of mindfulness. The first aim of study two in the current research was to examine the relationship between the self-reported frequency of meditation and self-reported levels of mindfulness. The second aim of study two in the current research was to examine the relationship between self-reported duration of meditation and self-reported levels of mindfulness. Therefore in a sample of first year university students:

(a) It was hypothesised that as the frequency and/or duration of meditation differs then the level of self-reported mindfulness also differs.

Chapter 2 – Methodology

Methods

Participants

A sample of 417 students participated in the current study. One student asked to be deleted from the sample (N = 416). All participants were first year, undergraduate university students from the University of Southern Queensland, however a number of students, although enrolled in the first year units, had already completed university qualifications (n = 53) and therefore they were not considered in any further analysis, leaving 362 students in the sample. The age range was 16 to 71 years (M = 29.74, SD = 11.41). The sample contained 283 students who identified as Anglo-European (78%), 16 as Indigenous Australians (4%), 20 as Asian (6%), 16 as African (4%) and 27 as other (7%). The representation of each faculty at USQ was demonstrated with 1 student from Engineering and Surveying, 5 from Education (2%), 244 from Sciences (67%), 25 from Business and Law (7%), 87 from Arts (24%). One hundred and fifty students stated that they were enrolled as internal students and 212 students were external and 216 were full-time students and 146 were part-time students. There were 16 students who lived in residential colleges (4%), seven students who lived in private accommodation such as university village (2%), 40 who lived in Toowoomba with their parents/guardians (11%), 39 who lived in Toowoomba in private residences independently (11%), 255 students who lived outside of Toowoomba and inside Australia (70%), and five students who lived overseas (2%).

One hundred and forty three students identified as living in a regional community (40%), 51 as living in a rural community (14%), and 168 students as living in an urban community (46%). There were 256 students who stated that there were employed (71%) and of these 79 worked full-time, being 38 hours per week or more. Of the remaining students

who worked, the average number of hours worked was 25 hours (*SD*=13.22). There were 140 students who identified as having dependents, such as children. The sample consisted of 14 students who had a previous level of completed education of primary school (4%), 31 as grade 10 of high school (9%), 243 as completing grade 12 (67%), and 74 as undertaking TAFE (20%).

Two hundred and nineteen students identified as being in a romantic relationship, with 97 students identified as being married, 56 as de facto, 33 as divorced, and 176 as never married. There were 189 students who identified as meditators (52%); and of these 42 (12%) indicated that they have meditated once, 79 (22%) indicated a few times per year, 13 (4%) responded monthly, 30 (8%) responded weekly, 17 (5%) responded daily and eight (2%) indicated other. The students were asked how long they meditated and this population consisted of 46 (13%) students who participated in this activity for less than 10 minutes, 55 (15%) for 10-15 minutes, 51 (14%) for 15-30 minutes, 20 (6%) for 30-45 minutes, 11 (3%) for longer than 45 minutes, and 6 (1%) responded "*Other*".

Measures

There were four measures used in the study. The first questionnaire was related to the participants' demographic characteristics and included questions relating to frequency and duration of meditation. The remaining three questionnaires were the Experiences in Close Relationships - Revised Questionnaire (ECR-R; Fraley, Waller, & Brennan, 2000), Five Facet Mindfulness Questionnaire (FFMQ: Baer, Smith, Hopkins, et al. 2006); and the Student Adaption to College Questionnaire (SACQ; Baker & Siryk, 1989). Copies of the measures are listed in Appendix A.

Experiences in close relationships – revised. The Experiences in Close Relationships – Revised Questionnaire contains 36-items and was used to measure an individual's attachment style. This measure was originally based on the measure of attachment style

developed by Brennan, Clark and Shaver (2000), and the reliability and precision of the instrument was found in measurement of the two subscales; anxiety and avoidance (Fraley, Waller & Brennan, 2000). Participants in the current study were instructed to respond to statements about how they generally experience relationships, not just what is happening in current relationships and to indicate how much they agree or disagree to each of the statements within the measure. As recommended by Fraley, Waller and Brennan (2000) there were changes to items that made reference to "partner" or "romantic partner", which was replaced with the term "others" since this research was interested in interpersonal relations generally, not just intimate relations. For example, the first statement on the questionnaire was "I prefer not to show a partner how I feel", which was replaced with "I prefer not to show others how I feel". Participants have a choice to respond on a seven-point Likert scale (1=*strongly disagree* to 7=*strongly agree*).

The measure has been found to have two subscales: an attachment-related anxiety subscale (i.e., model of self) and the attachment-related avoidance subscale (i.e., model of others). Attachment related anxiety is used to assess an individual's experience of anxiety in relation to their preoccupation with attachment and fear of rejection (i.e., model of self). Attachment related avoidance is used to measure an individual's discomfort in relation to closeness in interpersonal interactions (i.e., model of others). Two examples of an item from the attachment related anxiety subscale is "I worry a lot about relationships", and "I find it difficult to allow myself to depend on others". Two of the 18 items which related to attachment anxiety were reverse scored and 12 of the 18 items which related to avoidance were reverse scored. Each individual's score was obtained by averaging their responses to each of the items for each scale. Potential ranges for each subscale was 1 to 7. Higher scores indicated higher affiliation with attachment anxiety, attachment avoidance and insecure attachment; a low score on each subscale indicates secure attachment. Similar to previous

research (Ravitz, Maunder, Hunter, Stankiya, & Lancee, 2010), attachment style was measured as a continuous variable. Cronbach alpha's from research carried out with a similar population was found to be .94 for attachment related anxiety, and .95 for attachment related avoidance (Smith, 2010).

Five facet mindfulness questionnaire. The FFMQ (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) is a 39-item questionnaire and was used to measure individuals' level of mindfulness. Participants were instructed to rate each of the statements that best describes their own opinion of what is generally true for them on a 5-point Likert scale (1=*never or very rarely true* to 5=*very often or always true*). Scoring is undertaken by adding an individual's scores together, where a higher score indicates higher affiliation with the measured attribute/s. Items 3, 5, 8, 10, 12, 13, 14, 16, 17, 18, 23, 25, 28, 30, 34, 35, 38, and 39 were reverse scored.

The FFMQ was built from the Kentucky Inventory of Mindfulness Scale (KIMS; Baer, Smith, & Allen, 2004) and other recent mindfulness measures and has demonstrated to represent the elements of mindfulness as it is currently conceptualised (Baer, Smith, Hopkins, Krietemeyer, & Tonry, 2006). The five subscales on the FFMQ are observing, describing, acting with awareness, non-judging of inner experience, and non-reactivity to inner experience. The inner experience subscale contains 7 items, while the other four subscales contain eight items. In order to measure the construct of mindfulness, Study 1 used the whole measure as an indication of the construct. In order to score the measure, the reported score for each item was added. The potential range of scores for each subscale was 39 to 195. Cronbach alpha's were found within a similar population to be acceptable: .93 for total score, .86 for observing, .89 for describe, .91. for acting with awareness, .92 for non-judging of inner experience, and .85 for non-reactivity to inner experience (Davies, 2011)

Student adaption to college questionnaire. The Student Adaptation to College Questionnaire (SACQ; Baker & Siryk, 1984) contains 67-items and was used to measure individual student's adjustment to university (Baker & Siryk, 1999). In the development of the measure, Baker and Siryk found that this construct required a multifaceted measure as it involves measuring student adjustment as a varied construct and requires a variety of coping responses from students. Although a full scale score of the measure can be used, the four subscales found to be effective in measuring student adaptation to university included the academic demand adjustment subscale which contains 24 items, the social adjustment subscale which contains 20 items, the personal-emotional adjustment subscale which contains 15 items, and the goal commitment/institutional affiliation subscale which contains 15 items. Participants respond to statements on a 9-point Likert scale (1=*Applied Very Closely to Me* to 7=*Doesn't Apply to Me at All*).

Scoring is done by adding the participant's response to each item, and this is for each subscale and for the measure in entirety. Lower scores indicate a less adaptive adjustment to university and higher scores indicate a higher adaptive adjustment to university. Before scores could be calculated there were 34 items that were negatively scored: items 6, 10, 17, 21, 25, 29, 32, 39, 41, 52, 58, 22, 42, 48, 51, 56, 57, 2, 7, 11, 12, 20, 28, 31, 35, 38, 40, 45, 49, 64, 34, 59, 60, and 61. Potential scores could range from 67-469. Reliability measures for the SACQ have been reported between .81 to .95 with American samples (Baker &Siryk, 1999).

In a Belgium sample of 368 participants, an alpha coefficient of more than .80 for each of the subscales and full scale were reported (Beyers & Goossens, 2007). Authors also reported that the measure was reliable and valid specifically for research purposes (Beyers & Goossens, 2007). In Australia the SACQ used at the Edith Cowan University found the SACQ to be a suitable measure (Munro & Pooley, 2009). At the University of Southern

Queensland, a version of the SACQ was deemed suitable for use with 88 students (Cooper, 1991). The differences made from this version to the current version did not include change items in the questionnaire, but changed terms such as "*college*" to "*university*", as college has the connotation of residential college in Australasian countries.

Parameters of meditation. In the demographic questionnaire, there were several questions that assessed the frequency and duration of meditation in first year university students. Questions were designed specifically measure the frequency and duration parameters of meditation practice. There is no other psychological research measure known that is standardised, commonly in use, and readily available that can measure these two dimensions of meditation practice. To assess if a student meditates, the question "*Have you ever meditated?*" was used. The student then could make a selection of: only once ever, few times per year, monthly, weekly, daily, or other (please specify). To assess the duration or the time spent meditating, the "*If so, for how long?*" was used. The student could then select from the following options; <10minutes, 10-15 minutes,15-30 minutes, 30-45 minutes, >45 minutes, or other (please specify).

Procedure

The present study was designed to be offered as an online survey for USQ first year students. As previously defined, first year experience students were defined as students enrolled in any first year unit of their chosen program and this was the criterion of participation, to preclude students who are more advanced in their degree. The demographic questionnaire and the online battery (Appendix B, C, D, E, and F) were offered via the faculty of psychology website (http://psych.sci.usq.edu.au). Once a student had logged on to the website, the survey was presented with an outline of the research aims of this research and the requirement of being enrolled in first year units. Informed consent (Appendix A) was obtained through participants entering a code into the section of the webpage to gauge

participant's confirmation of intent and understanding relating to this research. Potential participants were ensured that confidentiality was maintained as all responses remained anonymous once the data was collected. Participants were informed that they could withdraw at any stage of the research and that this research was approved by the USQ Human Ethics Committee (Appendix). As part of the consent process, potential participants were provided with the contact details of the USQ Student Services and the USQ Psychology Clinic.

The survey included the demographic questionnaire and the three standardised measures; ECR-R, FFMQ, and the SACQ. In lieu of participants' time taken to complete the survey, students could apply for 1% course credit in their enrolled psychology unit. Alternatively participants could opt to be entered into the USQ department of psychology raffle to win $100, which is administered by the technical services staff. Participants were informed that there would be no penalty if they wished to withdraw from the research. The contact details of the principal researcher and the supervising researcher were provided in the consent form to aid any queries by participants. Once the data was collected, it was stored on password protected devices.

The methodology of study one was to examine an age matched design of groups. This was achieved by dividing the sample into meditators and non-meditators groups, and this was achieved by matching participants' age within three-year proximity, in each group. Similar research using this methodology used five-year proximity (Lykins, 2006; 2009). In order to maintain an age matched design, seven data were deleted from the meditators groups and 25 data were deleted from the non-meditators group, and therefore there were 165 data in each meditator and non-meditator group.

Chapter 3 - Results

Results for Study One

Statistical analysis was conducted using Statistical Package for Social Science Version 19 (SPSS, 2010). As the current research was to examine a mediation relationship of mindfulness between interpersonal style and academic adjustment, standard regression analyses were used. Prior to statistical analysis, data were assessed for ranges, missing data, abnormalities; parametric assumption testing and confirmatory factor analysis was conducted. A priori sample size for each group of meditators and non-meditators was considered to be ample with 165 in each, as the minimum sample size of 107 was required (1 – β = .95, f^2= .15, α = .05; G*Power 3 calculator; Faul, Erdfelder, Lang, & Buchner, 2009).

Parametric Data Screening.

All scores were viewed to be within the expected minimum and maximum values for each of the scales and subscales. Assumptions of the data were examined. The research looked at meditative and non-meditative samples, so therefore the assumption tests were examined in the two groups.

Normality. The assumption of normality was assessed with the calculation of skewness and kurtosis and this ranged from .66 to -.78 with standard errors of .13 and .27 respectively. Since these values were under the value of +/-2, the data did not violate normality (Tabachnick & Fidell, 2001). Additionally, visual inspection of the P-P and Q-Q plots indicated no violation of the assumption of normality. The Kolmogorov-Smirnov test was conducted and for the meditative group: anxious attachment was $D(165) = .06$, $p > .05$, avoidant attachment was $D(165) = .04$, $p > .05$, mindfulness was $D(165) = .05$, $p > .05$, and academic adjustment was $D(165) = .05$, $p > .05$. Likewise, for the non-meditative group:

anxious attachment was $D(165) = .06$, $p > .05$, avoidant attachment was $D\ (165) = .08$, $p > .05$, mindfulness was $D(165) = .05$, $p > .05$, and academic adjustment was $D(165) = .04$, $p > .05$. Since all the results were non-significant the scores are approximately normally distributed and therefore this assumption was not violated.

Homoscedasticity. Initially this assumption was tested by viewing the histograms of anxious attachment, avoidant attachment, and mindfulness as independent variables as spread across the academic adjustment as the dependent variable. Viewing the histograms the data appeared to follow the bell shaped curve, the P-P Plot data appeared on and close to the standardised residuals and the scatterplot showed an even spread over the four quadrants. Therefore the visual representations of the data indicated no violation of this assumption.

Homogeneity of variance. Across groups, Levene's Test was used to address homogeneity of variance. For the variance distribution across avoidant attachment style, anxious attachment style, and academic adjustment across the meditative and non-meditative groups, the results were non-significant: $F(1,328) = .10$, $p > .05$, $F(1, 328) = .34$, $p > .05$, and $F(1, 328) = .23$, $p > .05$. However, mindfulness was be found to be significant and there were concerns of heterogeneity, $F(1, 328) = 8.70$, $p < .05$. Field (2009) explained Levene's Test could be significant even when group variances are not significant in larger samples. Additionally the design of the study was an age-matched sample of meditative and non-meditative groups as mindfulness has been noted to be more likely to have increased in meditative samples (Lykins, 2006). Therefore the data indicated no violation of this assumption.

Linear relationship between the independent and dependant variables. To assess this assumption, viewing of the plots to assess any curvature and or U shape in the data is required. It appeared that the clusters of data were in close proximity to a line with minimum data in opposite corners of the plots.

Multicollinearity. In order to ensure that the dependent and independent variables were not too highly related, the variance inflated factor was used. In the meditative group, the scores were above 1: anxious attachment, *VIF* = 1.57; avoidant attachment, *VIF* = 1.57, and mindfulness *VIF* = 1.57, and for the non-meditative group: anxious attachment, *VIF* = 1.39; avoidant attachment *VIF* = 1.13; and mindfulness *VIF* = 1.39. Since all values were under 5 (O'Brien, 2007), the data indicated no violation of this assumption.

Independence of errors. This assumption was assessed with the Durbin-Watson statistic. For the meditative group, the value of 1.95 was calculated,while in the non-meditative group the value of 1.92 was calculated. Since both values were between 1.50 and 2.50 (Tabachnick &Fidell, 2001), the data indicated no violation of this assumption.

Univariate and multivariate outliers. Univariate outliers were assessed with the conversion into standard scores z=±3.29, and there were 15 cases identified. Multivariate outliers were assessed with Mahalanobis distance and $\chi^2(2, 165)=13.82$ as the criterion. There were no identified multivariate outliers. Since the 15 cases were not identified as multivariate outliers and were a small proportion of the overall sample, they were retained.

Confirmatory factor analysis. The modified ECR-R (Fraley, Waller and Brennan, 2000) responses were analysed in a confirmatory factor analysis for conservative and to ensure that the structure of the measure was robust. The confirmatory factor analysis was conducted on the 36 items with orthogonal rotation and a fixed factor of two. The Kaiser-Meyer-Olkin measure concurred the sampling sufficiency for the analysis *KMO* = .92 which was deemed 'excellent' (Field, 2009). Bartlett's test of sphericity indicated that correlations between items were sufficient for the analysis, χ^2 (165) = 6627.20, $p < .05$. The two components had eigenvalues over the Kaiser's criterion of 1 and the factors explained 45.12% of the variance. Appendix F shows the factor loadings and how each of the items loads onto each of the subscales.

Principal component or factor analyses were not carried out on the FFMB (Baer, Smith, Hopkins, Krietemeyer, & Tonry, 2006) or the SACQ (Baker & Siryk, 1999) as the measures were used to indicate the whole construct and they are standardised measures. Internal reliability for each of the measures and subscales were calculated: anxious attachment $\alpha = .94$ for 18 items, avoidant attachment $\alpha = .91$ for 18 items; mindfulness $\alpha = .90$ for 39 items, and academic adjustment $\alpha = .93$ for 67 items. The internal reliability for each of the measures and subscales were deemed suitable (Francis, 2004).

Descriptives of variables of interest.

The range, mean, and standard deviation for each of the meditative and non-meditative samples are presented in Table 1. As the methodology of the current study mirrors that of Baer, et al. (2008), ethnicity characteristics were presented in Table 2.

Table 1. *The Range, Mean and Standard Deviation for Variables of Interest in the Meditative Sample (n = 165) and Non-meditative Sample (n = 165).*

	Variable	Range	*M*	*SD*
Meditative	Age	16 - 54	28.14	9.77
	Anxious Attachment	19 - 114	65.91	22.14
	Avoidant Attachment	18 - 120	64.28	18.49
	Mindfulness	55 – 176	126.24	20.35
	Academic Adjust	138 – 413	307.06	50.57
Non-meditative	Age	16 – 55	27.67	10.20
	Anxious Attachment	18 – 109	63.35	21.09
	Avoidant Attachment	28 – 123	64.64	17.43
	Mindfulness	77 – 178	124.12	16.03
	Academic Adjust	161 – 409	300.76	48.58

Note: Academic Adjust = Academic Adjustment

Table 2. *Representation of Ethnicity and Education level in Meditative (n=165) and Non-meditative (n = 165) samples.*

	Ethnicity	Freq	%	Edu	Freq	%
Meditative	Anglo-European	125	75.8	Primary	7	4.2
	Indigenous Au	7	4.2	Grade 10	15	9.1
	Asian	5	3	Grade 12	110	66.7
	African	4	2.4	Vocation	33	20
	Other	24	14.5			
Non-med	Anglo-European	118	71.5	Primary	5	3
	Indigenous Au	5	3	Grade 10	13	7.9
	Asian	6	3.6	Grade 12	115	69.7
	African	6	3.6	Vocation	33	20
	Other	30	18.2			

Note: Freq = Frequency, Edu = Education, % = Percent, Indigenous Au = Indigenous Australian, Non-med = Non-meditative.

Tests of matched meditative and non-meditative samples.

To ensure that the two groups were considered equal for the variable of age a comparison of the two groups, meditative and non-meditative, were compared with the variable of age. A t-test was used for this analysis. The result of $t(328) = .43$, $p = .67$, was non-significant, and therefore the groups were not considered to be different in the variable of age. Likewise for education level a chi-square was used and was found to be non-significant,

$\chi^2(4,210) = 223.11$, $p = .255$. This was consistent with Baer, et al. (2008). Since one of the predictors in this study was attachment style, analyses for these variables were also compared to ensure that the two groups were not significantly different. Anxious attachment style was found to be non-significant, $t(328) = 1.08$, $p = .28$, and avoidant attachment style was non-significant $t(328) = -.18$, $p = .85$.

Correlations.

A correlation matrix was constructed for anxious attachment style, avoidant attachment style, mindfulness and academic adjustment for each of the meditative (n = 165) and non-meditative samples ($n = 165$) in Table 3.

Table 3. *Correlations between Anxious Attachment Style, Avoidant Attachment Style, Mindfulness and Academic Adjustment.*

	AnxAtt	AvoAtt	Mindfulness	Academic
AnxAtt	1	**.51****	**-.60****	**-.50****
Avo Att	.28**	1	**-.38****	**-.34****
Mindfulness	-.53**	-.34**	1	**.59****
Academic	-.32**	-.14	.36**	1

Note: ** denotes significance at p < .01; Top bold diagonal = Meditative sample, Bottom diagonal = Non-meditative sample; AnxAtt = anxious attachment style, AvoAtt = avoidant attachment style, Academic= academic adjustment.

Hypotheses one, two, three and four.

Standard regression analyses were used to examine whether mindfulness would mediate the relationship between anxious attachment style and academic adjustment in a meditative sample. A graphic representation of anxious attachment style being the predictor, academic adjustment being the criterion and mindfulness being the possible mediator was

constructed in Figure 10. The regression analysis procedures of Baron and Kenny (1986) were used to study this mediation.

Hypothesis 1. The direct effect between anxious attachment style and academic adjustment needs to be established in a meditative sample. This was found to be significant, $F(1, 163) = 55.26$, $p < .01$. The direct effect between anxious attachment style and mindfulness needs to be established. This was found to be significant, $F(1,163) = 92.18$, $p < .01$. The next procedure was to find the relationship between mindfulness and academic adjustment was significant once anxious attachment style was accounted for. Mindfulness and controlling for anxious attachment style was found to be significant, $F(1,163) = 55.26$, $p < .01$ and $F(1,162) = 49.38$, $p < .01$, respectively. This is demonstrated in Table 4.

Table 4. *Testing the Mediator Effect Using Multiple Regression: Mindfulness mediates the effects of Anxious Attachment Style on Academic Adjustment in a Meditative sample (n = 165)*

Testing steps in Mediation Model	*B*	SE *B*	β	R^2	ΔR^2
Testing Path c					
Outcome Variable: Academic Adjustment					
Predictor Variable: Anxious Attachment	-1.15	.16	-.50**	.25	.25**
Testing Path a					
Outcome Variable: Mindfulness					
Predictor Variable: Anxious Attachment	-.55	.06	-.60**	.36	.36**
Testing Path b and ć					
Outcome Variable: Academic Adjustment					
Meditator Variable: Mindfulness	1.10	.19	.44**	.38	.37**
Predictor Variable: Anxious Attachment	-.54	.18	-.24**	.25	.25**

Note: ** denotes p <.01.

The final step in this mediation was to examine if the amount of the mediation was significant and this was carried out with the Sobel Test (Sobel, 1982; Soper, 2013). As indicated in Table 4, mindfulness was found to change the relationship between anxious attachment style and academic adjustment, as β = -.50 moved to β = -.24. This was found to be significant, z = -4.5, p < .01. Therefore, mindfulness partially mediated the relationship between anxious attachment style and academic adjustment in a meditative sample. The calculated effect size for this mediation analysis was f^2 = .61 and was considered medium (Sobel; Soper).

Hypothesis 2. The direct effect between avoidant attachment style and academic adjustment needs to be established in a meditative sample. This was found to be significant, $F(1,163) = 20.76$, $p < .01$. The direct relationship between avoidant attachment style and mindfulness needs to be established. This was found to be significant, $F(1, 163) = 26.86$, $p < .01$. The next procedure was to find the relationship between mindfulness and academic adjustment once avoidance attachment style was accounted for. Mindfulness, controlling for avoidant attachment style predicted academic adjustment, $F(1,163) = 20.76$, $p < .01$, $F(2,162) = 45.28$, $p < .01$, respectively. This is demonstrated in Table 5.

Table 5. *Testing Mediation Effects using Multiple Regression: Mindfulness mediates the effect of Avoidant Attachment Style on Academic Adjustment in a Meditative sample (n = 165).*

Testing steps in Mediation Model	*B*	SE *B*	β	R^2	ΔR^2
Testing Path c					
Outcome Variable: Academic Adjustment					
Predictor Variable: Avoidant Attachment	-.92	.20	-.34**	.12	.11**
Testing Path a					
Outcome Variable: Mindfulness					
Predictor Variable: Avoidant Attachment	-.41	.08	-.38**	.14	.14**
Testing Path b and ć					
Outcome Variable: Academic Adjustment					
Meditator Variable: Mindfulness	1.33	.17	.54**	.36	.35**
Predictor Variable: Avoidant Attachment	-.37	.19	-.14**	.11	.11**

Note: ** denotes p < .01.

The final step in this mediation was to examine if the amount of the mediation was significant and this was carried out with the Sobel Test (Sobel, 1982; Soper, 2013). As indicated in Table 5, mindfulness was found to change the relationship between avoidant attachment style and academic adjustment, as β = -.38 moved to β = -.14. This was found to be significant, $z = -4.29$, $p < .01$. Therefore, mindfulness partially mediated the relationship

between avoidant attachment style and academic adjustment in a meditative sample. The calculated effect size for this mediation analysis was $f^2 = .56$ and was considered medium (Sobel; Soper).

Hypothesis three. The direct effect between anxious attachment style and academic adjustment needs to be established in a non-meditative sample. This was found to be significant, $F(1,163) = 18.12$, $p < .01$. The direct relationship between anxious attachment style and mindfulness needs to be established. This was found to be significant, $F(1, 163) = 64.09$, $p < .01$. The next procedure was to find the relationship between mindfulness and academic adjustment once anxious attachment style was accounted for. Mindfulness, controlling for anxious attachment style, predicted academic adjustment, $F(1,163) = 18.12$, $p < .01$, $F(2,162) = 14.65$, $p < .01$, respectively. This is demonstrated in Table 6.

Table 6. *Testing Mediation Effects using Multiple Regression: Mindfulness mediates the effect of Anxious Attachment Style on Academic Adjustment in a Non-meditative sample (n = 165).*

Testing steps in Mediation Model	*B*	SE *B*	β	R^2	ΔR^2
Testing Path c					
Outcome Variable: Academic Adjustment					
Predictor Variable: Avoidant Attachment	-.73	.17	-.32**	.10	.10**
Testing Path a					
Outcome Variable: Mindfulness					
Predictor Variable: Avoidant Attachment	-.40	.05	-.53**	.28	.28**
Testing Path b and ć					
Outcome Variable: Academic Adjustment					
Meditator Variable: Mindfulness	.83	.26	.27**	.15	.14**
Predictor Variable: Avoidant Attachment	-.40	.20	-.17*	.10	.10**

Note: ** denote $p < .01$, * denotes $p < .05$

The final step in this mediation was to examine if the amount of the mediation was significant and this was carried out with the Sobel Test (Sobel, 1982; Soper, 2013). As indicated in Table 6, mindfulness was found to change the relationship between anxious attachment style and academic adjustment, as $\beta = -.32$ moved to $\beta = -.17$. This was found to be significant, $z = -2.96$, $p < .01$. Therefore, mindfulness partially mediated the relationship between anxious attachment style and academic adjustment in a non-meditative sample. The calculated effect size for this mediation analysis result was $f^2 = .18$ and was considered small (Sobel; Soper).

Hypothesis four. Attention was drawn to the correlation matrix Table 3, particularly the relationship between avoidant attachment style and academic adjustment in the non-meditative sample. This was a non-significant relationship and therefore this relationship was not examined any further and failed to reject the null hypothesis.

Results for Study Two

This analysis contained a sample of first year university students who meditate. Factorial Analysis of Variance (ANOVA) was the statistic for the calculation of two categorical independent variables (frequency and/or duration/time) and a continuous dependant variable (mindfulness). The categorical class of frequency and duration was used use to the measured used to these attributes. A priori power analysis was conducted to measure sufficient sample size with the following parameters: $1 - \beta = .80$, $f^2 = .25$, $\alpha = .05$, and 5 groups (G*Power 3 calculator; Faul, Erdfelder, Lang, & Buchner, 2009). It was recommended that a sample size of 128 would suffice and therefore the current study is appropriate ($n = 228$).

Parametric data screening.

All scores were reviewed to be within the expected minimum and maximum values for each of the scales and subscales. In the frequency variable, participants were able to indicate "other" as a response and these were viewed. Six entries were able to be recoded as they fit the scale provided, and two entries recoded as 0 and therefore were not considered in the analysis. In the duration variable, participants were able to indicate "other" as a response and these were viewed. Two entries were able to be recoded as they fit the scale provided and two were recoded as 0 and therefore were not considered in the analysis. Assumptions of the data were examined with notice made to unequal group. In measuring the group differences it was recommended that there were no fewer than 7 in any one cell (Wilson, van Voorhis, & Morgan, 2007).

Normality in each group. The assumption of normality following central limit theorem was assessed first by skewness, kurtosis, the Kolmogorov-Smirnov (K-S) statistic and the Shapiro-Wilk (S-W) statistic which are depicted in Table 7 for transparency.

Table 7. *Normality Statistics for each Frequency and Duration Group in Meditators (n = 226).*

Group	Skewness	Kurtosis	(K-S)	(S-W)
Only once ever	.005(.33)	.14(.64)	$D(53)=.08, p>.05$	$W(53)=.98, p>.05$
Few times per year	-.26(.25)	1.08(.51)	$D(89)=.05, p>.05$	$W(89)=.98, p>.05$
Monthly	.09(.46)	-.41(.90)	$D(25)=.09, p>.05$	$W(25)=.98, p>.05$
Weekly	.27(.39)	-.14(.77)	$D(36)=.10, p>.05$	$W(36)=.98, p>.05$
Daily	-.25(.48)	.43(.94)	$D(23)=.19, p>.05$	$W(23)=.98, p>.05$
<10 minutes	.33(.31)	-.30(.60)	$D(61)=.09, p>.05$	$W(61)=.98, p>.05$
10-15 minutes	-.24(.28)	1.08(.56)	$D(72)=.08, p>.05$	$W(72)=.98, p>.05$
15-30 minutes	-.03(.32)	-.27(.62)	$D(57)=.08, p>.05$	$W(57)=.99, p>.05$
30-45 minutes	-.89(.48)	2.18(.94)	$D(23)=.13, p>.05$	$W(23)=.94, p>.05$

>45 minutes	.49(.62)	-.84(1.92)	$D(13)=.16$, $p>.05$	$W(13)=.93$,$p>.05$

Attention was drawn to the kurtosis of the 30-45 minute group with a score over 1.96; this was not deemed a concern due to the other statistics being within acceptable range. Viewing the P-P Plots and the Q-Q plots did not indicate a violation of normality. Therefore the assumption of normality was not violated.

Independence of the independent variables and covariates. The design of the research did not allow for individuals to be in any more than one group of each variable, it was a forced choice. As recommended by Field (2009) simple analysis of variance statistics were used to assess independence from experimental design. The main effect of frequency was not significant, $F(3, 221) = 1.39$, $p = .25$ and likewise for duration, $F(3, 221) = 1.71$, $p = .17$. Therefore the assumption of independence was not violated.

Homogeneity of variance. For the frequency of meditation group the Levene's test was significant and therefore the homogeneity of variances was not violated, $F(4, 221) = .61$, $p > .05$. Likewise for the duration of meditation groups, the test was significant and this assumption was not violated, $F(4, 221) = .10$, $p > .05$. This was of particular interest due to unequal sample sizes (Field, 2009).

Analysis.

Table 8 depicts the means and standard deviations of the frequency and duration of meditation experience for students. As age was considered to be a confounding factor within the measurement of mindfulness, a one way ANOVA was conducted for the frequency and the duration of meditation. Age did not significantly differ across the frequency groups $F(4, 225) = .92$, $p = .452$ or across the duration groups $F(4, 225) = .35$, $p = .847$.

Table 8. *Frequency and Duration of Meditation groups with Age (n = 226).*

	Descriptor	*n*	*M*	*SD*	Age (*M, SD*)
Frequency	Only once ever	53	121.94	20.70	29.08(11.13)
	Few times per year	89	127.87	20.41	31.30(11.13)
	Monthly	25	124.60	16.73	32.04(10.18)
	Weekly	36	134.00	20.28	32.78(13.09)
	Daily	23	143.83	16.24	28.61(10.34)
Duration	<10 minutes	61	129.87	19.10	30.70(11.20)
	10-15 minutes	72	125.57	21.41	29.96(11.42)
	15-30 minutes	57	131.46	20.59	31.77(11.76)
	30-45 minutes	23	132.57	21.44	32.26(11.04)
	> 45 minutes	13	121.92	19.62	29.46(10.18)

The Levene's test of the analysis was deemed suitable to examine the ANOVA table, $F(23, 202) = 1.06$, $p = .389$. There was no significant interaction effect between the frequency and the time spent meditating on the level of mindfulness $F(15, 226) = .79$, $p = .688$. There was however a significant resultant for the frequency of meditation on mindfulness, $F(4, 226) =$

6.84, p = .001, ω^2 = .485. The effect size was deemed large according to Cohen's convention (Field, 2009). There was a non-significant result for duration of meditation on mindfulness $F(4,226) = 1.93$, p = .132. This indicates that mindfulness was affected by the frequency of meditation experience.

Post hoc analysis using Games-Howell techniques were used, as recommended by Field (2009) due to unequal sample sizes and following the principle of conservatism. Significant mean differences in the groups were found between: "Only once ever" (M = 121.94, SD = 20.70) and "Weekly" (M = 134.00, SD = 20.28); "Only once ever" (M = 121.94, SD = 20.70) and "Daily" (M = 143.83, SD = 16.24) ;"Few times per year" (M = 127.87, SD = 20.41) and "Daily" (M = 143.83, SD = 16.24); and "Monthly" (M = 124.60, SD = 16.73) and "Daily" (M = 143.83, SD = 16.24). This is graphically represented in Figure 11.

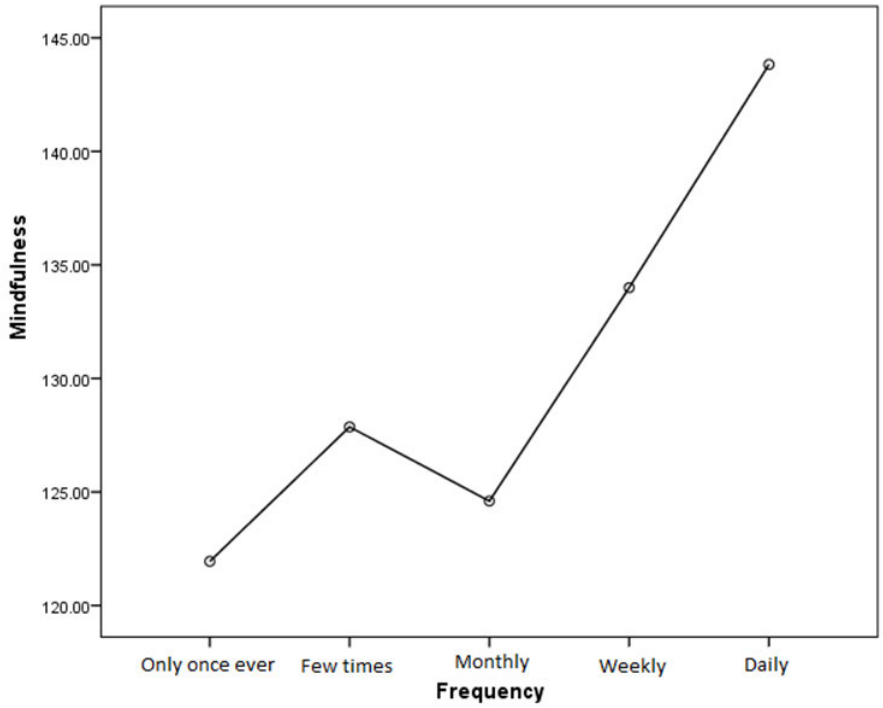

Figure 11. Graphical Representation of the Means of Frequency with the Measure of Mindfulness.

It can be seen that the “Daily” experience of meditation differs in the level of self-reported mindfulness.

Chapter 4 - Discussion

Discussion for Study One

The current research found support for three of the four hypotheses. The first aim of the current study was to investigate the relationships between the constructs of insecure attachment styles, mindfulness and academic adjustment in meditative and non-meditative samples of first year university students. Previous research suggested the following two hypotheses in a meditative sample: (a) higher scores in anxious attachment style will predict lower scores in academic adjustment and this relationship will be mediated by higher scores in mindfulness; and (b) higher scores in avoidant attachment style will predict lowers scores in academic adjustment and this relationship will be mediated by higher scores in mindfulness.

The second aim of the current study was to investigate the relationships between the two types of insecure attachment style, mindfulness and academic adjustment in a non-meditative sample of first year university students. Previous research suggested the following hypotheses: (c) higher scores in anxious attachment style will predict lower scores in academic adjustment and this relationship will be mediated by mindfulness; (d) higher scores in avoidant attachment style will predict lower scores in academic adjustment and this relationship with be mediated by mindfulness.

The research findings of these four hypotheses in relation to previous research are discussed in the following section. The theoretical explanations of this current study's findings will be offered, with the potential implications and limitations also mentioned. This is followed by research suggestions for future research and a brief summary.

Meditative sample.

The present study supported the first hypothesis that in a meditative sample, first year university students who reported higher anxious attachment will predict lower scores in their academic adjustment, and this relationship is partially mediated by higher scores in mindfulness. This supports previous research in indicating the relationship between attachment style and mindfulness (Shaver, Lavy, & Saron, 2007), mindfulness and academic adjustment (Hassed, Lisle, Sullivan & Pier, 2008), and attachment style and academic adjustment (Marmarosh & Markin, 2007). However this current research demonstrated that in this sample of first year university students who practice meditation in some form, and who also indicated higher levels of anxious attachment style, that mindfulness skills would assist in academic adjustment.

The present study supported the hypothesis that in a meditative sample, first year university students who report higher avoidant attachment style will predict lower scores in academic adjustment and this relationship is partially mediated by higher scores in mindfulness. As previous research examined individual relationships amongst these variables and constructs, this current study demonstrated a partial mediation that would assist first year students to adjust to the academic demands of university.

The strength of each of these partial mediation analyses were medium which would indicate that the amount of variance that is explained by the partial mediation is worthy of further research and query. Theoretical considerations from these partial mediations support the commentary from Shaver, Lavy and Saron (2007) in the relationship between attachment style and mindfulness. Although specifically looking at a meditative sample of first year university students, the correlations and predictions between the variables and constructs were consistent between anxious attachment style and avoidant attachment style, indicating that students who endorse a more insecure attachment style could benefit from mindfulness skills. This current study contributes to the generalisation of the relationship between these

two variables: attachment style with mindfulness and possible overlap of theoretical perspectives. As Mikulincer and Shaver (2007) suggested that there were three parallels between mindfulness skills and attachment security, this research supports the notion that attachment style and mindfulness share theoretical underpinnings. Likewise, this current study concurs with Saron and Shaver's (2006) research which demonstrated that two dimension of attachment, anxiety and avoidance accounted for 42% of the variance in the total mindfulness score. Although the current research was not to replicate Saron and Shaver, the premise that insecure attachment styles of anxiety and avoidance, were certainly related and even predicted mindfulness, albeit negatively. There was also generalisability in how mindfulness has been measured and conceptualised, as Saron and Shaver used the MAAS, measuring mindfulness as a single construct, while the FFMQ has the potential to be deconstructed into looking at how attachment style relates to each of the facets of mindfulness.

Additionally as a collective, attachment style, mindfulness and meditation are variables of interest and provide frameworks in assisting first year student adjustment to the demands of university. Attachment style as a variable of interest in the first year experience of university research is in line with social learning theory and modern conceptualisations of learning (Bandura, 1977; Shaver & Mikulincer, 2011). This research demonstrated that for first year students, who reported higher levels of anxious attachment style, mindfulness skills could be beneficial in assisting in academic adjustment.

Likewise for first year university students who indicated that they had a higher avoidant attachment style, hypothesis two was supported in the current research. As identified in previous research, students who indicate higher scores in avoidant attachment are particularly at risk of poor academic adjustment (Marmaroch & Markin, 2007). The current research also sorted those individuals into those who meditate and those who do not.

The process or activity of meditation would seem appealing for an individual who endorsed higher scores in an avoidant attachment style, as the activity is often and easily carried out in solitude and does not rely on others for preparation or engagement.

Previous research identified that mindfulness within a meditative sample could be conceptualised as mindfulness skills and assist individuals with psychological adjustment (Baer, Smith, Hopkins, et al. 2006; Baer, Smith, Lykins, et al. 2008). From a constructivist perspective, mindfulness skills have a clear role in assisting first year students with academic adjustment. However there is ambiguity if there are other components of meditation that contribute to academic adjustment, such as compassion or resilience, which are also potential outcomes from meditation. This current study let the first year students define meditation, as there is no clear definitive practice, process or understanding within western scientific research.

In particular avoidant attachment style was seen to have a relationship with mindfulness and academic adjustment in the meditative sample and this was not the case in the non-meditative sample of this study. This could suggest that there were skills or state/s that were particularly helpful in assisting students who indicated higher levels of avoidant attachment style, through the processes of meditation and mindfulness. It was identified that students who were particularly at risk of experiencing difficulty in their first year of university were those who indicated higher avoidant group attachment style (Marmaroch & Markin, 2007) and this study supports this finding. However the current study also found tentative results that indicated that mindfulness skills or being in a mindfulness state could particularly assist those students. As Marmaroch and Markin (2007) have found, those individuals who reported more insecure dyadic attachment and more avoidant group attachment styles were likely to experience difficulties adjusting to the demands of university. This current research concurred, suggesting however, that mindfulness skills or

states could be of assistance in academic adjustment, particularly for those who have difficulties with interpersonal skills.

Non-meditative sample.

The aim of the current study was to examine the relationship between attachment style, mindfulness and academic adjustment in a non-meditative sample of first year university students. Hypothesis three was supported. First year students who indicated that they did not meditate and had higher scores in anxious attachment style predicted lower scores on the academic adjustment scale. This relationship was partially mediated by higher scores in mindfulness. In this design mindfulness has been conceptualised as a dispositional trait, and therefore mindfulness is inherent within an individual (Baer, Smith, Hopkins, et al. 2006; Baer, Smith, Lykins, et al. 2008). Ma (2007) however proposed a mediation model where mindfulness may predict secure attachment style, and the current study has not disproved this and will be discussed further in this chapter. What has been demonstrated in this sample of first year university students who indicated higher levels of anxious attachment style is that it predicted lower scores in academic adjustment and that this relationship was partially mediated by dispositional mindfulness.

Hypothesis three was supported. However from a constructivist perspective, higher levels of mindfulness in a non-meditative sample could be defined as dispositional mindfulness: mindfulness as a personality trait. Attention was drawn to the relationship between anxious attachment style and mindfulness in a non-meditative sample. There was a negative predictive relationship between anxious attachment style and mindfulness in a non-meditative sample of first year university students. This would indicate that individuals who engage in social situations but feel nervous or uncomfortable are less prone to experience the qualities of dispositional mindfulness where there is an acceptance and openness to experience. This has logical appeal, as the practice of mindfulness would allow an individual

to accept the nervousness and have some coping strategies and skills to cope with the distress. An individual with anxious coping mechanisms in place will engage in the activity but will still have symptoms of distress, and mindfulness as a personality trait or learned practice could evoke a state of mind that accepts and facilitates coping.

The fourth hypothesis was not supported in the current study. The first relationship examined was between avoidant attachment style and academic adjustment and this relationship was not significant, yet there is logic in the relationship conceptually. Students who have higher scores in avoidant attachment style, may have elicited an emotional or cognitive response to the questions in the SACQ,. For example individuals who endorse higher scores in the avoidant attachment style may avoid or prefer not to be socially involved with others, and the SACQ has a social adjustment subscale which consists of 20 out of the 67 items. A student who indicated higher scores in avoidant attachment may have had the intent to attend and study at university but when the SACQ measures the social adjustment to university, this student may be ambivalent on how to respond to the social academic adjustment questions. For example "*I am meeting as many people and making as many friends as I would like at university*" and "*I have some good friends or acquaintances at college with whom I can talk about any problems I may have"* are two items on the SACQ.

However from another perspective, mindfulness can also manifest unwanted side-effects and its practice in clinical psychology needs to be monitored (Lustyk, Chawla, Nolan, & Marlatt, 2009). For example, for an individual who has experienced adversity and may have a diagnosis of post-traumatic stress disorder and who has developed avoidant strategies to dealing with distress, mindfulness may "put them at risk for potential retraumatisation" (p.21; Lustyk, Chawla, Nolan, & Marlatt). The avoidant strategies serve a purpose to protect an individual from re-experiencing the adverse experience, so there is an element of fear of contemplation or fear of the idea of the adversity. While mindfulness asks an individual to be

accepting of whatever experience your mind conjures, there is a fundamental difference between these approaches: avoid at all costs versus endurance. Therefore questionnaire screeners could be used to assist clinical judgement in the use of mindfulness within the setting.

It was identified that students who were particularly at risk of experiencing difficulty in their first year of university were those who indicated a higher avoidant group attachment style (Marmaroch & Markin, 2007), and this study supports this finding. The correlation between avoidant attachment style in a non-meditative sample and mindfulness was $r = -.34$, $p<.01$, which indicates a negative association, and there was a non-significant relationship between avoidant attachment style and academic adjustment. Together these results may suggest there is a basis for a negative relationship between avoidant attachment style and mindfulness as a disposition, however avoidant attachment style has no bearing towards academic adjustment in the population studied. This will be discussed further in this chapter.

However in both meditative and non-mediative samples, mindfulness was found to have a positive associative relationship with academic adjustment. The current research provided evidence for the theoretical link between mindfulness and assisting tertiary students in their first year of university. There is appeal to the cognitive components in linking mindfulness and academic adjustment (Hassed, Lisle, Sullivan & Pier, 2008). For example, mindfulness as a set of skills requires training and practice of the mind in focused concentration, likewise academic study requires these skills in order to learn. The notion of mindfulness as a personality trait and being in an accepting frame of mind, also offers students a framework for accepting new information in their first year of university. The skills or facets of mindfulness could enhance the discipline required in study.

Of interest are the relationships found between mindfulness conceptualised both as a set of skills and as a personal trait having significant relationships with academic adjustment;

r =.59, p< .01 and r = .36, p<.01 respectively. This result indicates that mindfulness either as a set of skills or as a personality trait is related to academic adjustment in some way. This relationship is strengthened by the path analysis with the partial mediation analyses conducted indicating predictive functions. However there is certainly implied evidence to suggest that mindfulness as a set of skills has more of an effect on academic adjustment than mindfulness as a trait, due to the value of the correlations and the regressions. The implications of this could indicate that mindfulness as a set of skills facilitates the capacity to engage in study and therefore learn at university. There is also some evidence to suggest that mindfulness as a personality trait has an effect on academic adjustment of first year university students. Although this relationship exists in the current research, it provides a framework for the role personality has within first year students' adjustment to the demands of tertiary education. The personality trait of mindfulness as connotations of accepting situations without reacting and facilitating personal growth is very much in line with coping and the idea of adjusting to new demands. This fits within Lazarus and Folkman's (1984) transactional model of stress and coping strategies with stressor and response appraisals.

The discussion for study one described the relationships between two forms of insecure attachment style, mindfulness, and academic adjustment in demographically matched meditative and non-meditative samples of first year university students. This will be discussed more in a broader perspective in the general discussion. The next section discusses the results for study two and possible implications for the relationship between meditation and mindfulness for first year university students.

Discussion for Study Two

The aim of study two was to examine the relationship between the parameters of meditation and self-reported mindfulness. This study consisted of first year university students who indicated that they meditate. There was partial support of the hypothesis that

frequency and/or duration of meditative practice had an effect on students' level of mindfulness. It was found that the level of frequency had an effect on a student's self-reported mindfulness, with an effect size that was deemed large and therefore worthy of further investigation. There was a non-significant result for the time spent meditating. There was also a non-significant result for the co-variation of frequency and duration of meditation to have an effect on mindfulness. This is consistent with Benson's studies on the relaxation response (Benson &Klipper, 2000) where the notion that frequency of meditation had an effect on the level of mindfulness was supported. This finding provides evidence of a relationship between the frequency of meditation and levels of self-report mindfulness, which in turn has been researched to have potential to increase psychological wellbeing. This could potentially be useful for first-year students who would like to practice meditation to increase mindfulness skills, who are at risk of increased mental health symptoms (Stallman, 2010). Although this research has been conducted with first year university students, there is the potential to generalise the results to other populations. However clinical judgement of each personal application of the appropriateness of meditation and mindfulness based activities would need to be assessed, as there are possible contra-indications (Lustyk, Chawla, Nolan, & Marlatt, 2009).

Meditation, because of its varied types and subjectivity (Goleman, 1988; Shear, 2006) presents difficulties in constructing a measure. This current study allowed the participants to define their meditation practices and did not provide an example with the risk of excluding any form of meditation, making it inclusive and all encompassing. This method included secular and non-secular experiences. Although this may be subject to criticism, this allowed the participants to define meditation individually. Likewise for the parameters of frequency and duration of meditation, the participants could choose from the scale provided. Although basic in construction, the measure captured elements of the phenomena of meditation, albeit

crude. However self-constructed measures in measuring the parameters of meditation are not unusual (Ireland, 2012) as it does not appear there is a standardised tool.

Since there is ambiguity in the definition and therefore operationalisation of meditation, and how it cultivates mindfulness, there are inherent flaws with how mindfulness can be defined and measured. Mindfulness embedded within an eastern practice and philosophy, compared with how it is used within the framework of scientific research may be lost in translation. However the quest for understanding these constructs further may come to some fruition, with ongoing research and refining ideas. The gap between philosophy and science may be weakening with regards to the terms meditation and mindfulness due to their use within clinical psychology. However with the impetus behind mindfulness research, it is surprising that meditation as a construct is less popular. The momentum behind research must continue in order to understand the phenomena of meditation and mindfulness and how these constructs are connected and intertwined. Alternatively it is possible that research will never know how these variables are married and we may just need to accept that meditation is an immeasurable practice, and mindfulness may never be fully understood.

Despite the ambiguity behind the relationship between meditation and mindfulness, it is a fundamental basis for the research methodology. An argument posed is that people with an already higher trait of mindfulness are more prone to engage in meditation and therefore inherently have higher levels of mindfulness which are then more obvious due to meditation. Additionally people with higher levels of mindfulness who do not meditate may also engage in other activities which have similar conceptual philosophies such as yoga or breathing exercises.

The ambiguity that surrounds the variables of meditation and mindfulness provides the quest and hunger for further research in this area and related topics. The measurement of

meditation will be discussed more in limitations and future research in this chapter. The next section will provide a general discussion of the principles behind the results of this research.

General Discussion

This research examined in two studies the relationships between two types of insecure attachment styles, meditation, mindfulness and academic adjustment. There were significant results that support the theoretic link between these variables with strength in the statistical analyses that would indicate practical implications that could be considered, or at least provide support for further research. An overview of the broader and theoretical perspectives will be discussed, with the limitations of this current research, followed by suggestions for further research.

The main essence of addressing mindfulness in meditative and non-meditative groups was to decipher the difference between mindfulness as a skill set and mindfulness as a personality trait. Mindfulness being defined within scientific literature is still being developed and therefore measurement tools are potentially evolving. Applying how mindfulness is currently conceptualised in this study, there is potential application within the first year student population. How mindfulness can make a difference is still up for theoretical debate (Shapiro, Carlson, Astin, & Freedman, 2006; Glomb, Duffy, Bono, & Yang, 2011). There is appeal in Figure 5, Linking Mindfulness to Outcomes (p. 16) in particular, when working with the population of first year university students. The resultant is improved self-regulation of thoughts, emotions and behaviours, and the mechanisms in place of decreased rumination, empathy, increased self-determination and persistence certainly are desirable within the tertiary education arena and in assisting students to adjust to their new demands. In particular then when linking this to Lazarus and Folkman's Transactional Model of Stress (1984; Figure 9, p 35), and how improved self-regulation of thoughts, emotions and behaviours could assist with a coping response and therefore influence the interpretation of

potential stressors. Further when the mechanisms of mindfulness include increased self-determination and persistence this is ideal in the perception, problem definition, problem solving, memory, decision making and reasoning linkage in the model of stress. The theoretical linkage between mindfulness and academic mindfulness has logic and parallels.

In the non-meditative group, mindfulness was conceptualised as a personality trait. Generally mindfulness traits have been portrayed with a positive and desirable connotation; however the traits within an individual of lower levels of mindfulness should not be seen as undesirable on the principle of accepting individual differences. This will be discussed further in the future research section.

Likewise for attachment style, individual differences should not be deemed as undesirable. This study did not address secure attachment style and therefore does not indicate that students with higher scores in secure attachment could also benefit from mindfulness skills or be able to access within themselves mindfulness traits. Mikulincer and Shaver (2007) asked the question “Is it possible that a person can be too secure and thereby overly dull, complacent, and self-satisfied” (p. 459). This is where the continuum in measurement of attachment style is valuable. The same holds for the measurement of mindfulness. Individuals with lower levels of mindfulness measuring a personality trait, deserves respect and the individual difference forms part of an individual’s identity. No connotation within research should indicate that higher levels of dispositional mindfulness are ‘better’ than others. The conceptualisation of mindfulness is still being developed within psychology and scientific research and there is no definitive descriptor or consensus on what mindfulness is or how it is measured. The social construction of mindfulness needs to respect the individual difference within any one person (Mikulincer & Shaver, 2007).

Another concept worthy of debate and discussion is being too mindful and possibly aloof and overly contemplative. Very high scores of mindfulness could also be counter-

productive to academic adjustment and learning goals, with at times a need to have strategic learning goals and tasks, and being contemplative and aloof may hinder academic strategy and progress (Öst, 2008).

Additionally, meditation may also directly contribute to a student's first year success. Particularly of interest are other categories of meditation, which may include contemplation which includes asking or wondering, and another category of concentration which includes focusing (Shapiro, Schwartz, & Santerre, 2002). Following the argument beforehand mentioned, how much meditation is too much, and can it be counterproductive to academic adjustment? The results in the current study found that frequency and not duration of meditation had an effect on students' level of mindfulness. However there was no more detailed measure beyond "daily" and it quite possibly may need to be measured in further detail and specifically, in order to capture the relationship between meditation and mindfulness. If there was a link made between meditation and academic adjustment directly, the parameters of meditation those are necessary for the relationship need to be identified. The subjective and varied experience of meditation may be able to be fully captured within scientific measurement with the assistance of real-time neuroimaging, but with the understanding that this information and its implication may be in the nature of the experience itself and the art of meditation that makes the experience valuable: meditation as a phenomenon. Meditation could be an experience that is immeasurable due to the very nature and unique experience for each practitioner. Any attempt to define and accurately portray meditation within a definition could exclude meditational practitioners, or elements from others' experience that is crucial for them. If a definition for meditation was all encompassing and broad then, this allows for other elements from other experiences to be involved. This is a quandary for scientific research. Ireland (2012) addressed the five parameters of meditation: length, duration, frequency, depth, and proficiency, which is comprehensive and well-

designed from a scientific research perspective. This was not without limitations though as frequency was measured with the question "*Within your religious or spiritual tradition, how often do you meditate?*", and this clearly is from a non-secular perspective and therefore does not include meditation from a secular experience. The five parameters that Ireland uses within his research are limited in scope and in their ability to capture the variety of responses that may truly portray an individual's experience in meditation.

Another area of interest was with the significant results of anxious and avoidant attachment styles in the meditative and non-meditative samples. The correlations of $r = .51$, $p<.01$ and $r = .28$, $p<.01$ respectively, indicate a positive relationship and are in some way then related. This supports the concept of anxious attachment strategies and avoidant attachment strategies acting as defences of vulnerability (Mikulincer & Shaver, 2007). The strategies employed are a reaction to a threat that induces a reaction that is overwhelming or unmanageable and therefore used to protect the individual. As mentioned beforehand, this needs to be respected as this is how the individual has learnt how to survive and protect themselves. The person believes that they do not have the resources to cope with the idea of failure, and that failure is then representative of self and or others. These strategies then manifest as an individual difference.

In more detail, the relationships between each insecure attachment style and mindfulness in the meditative sample were significant and this could provide impetus for further examining their relationship. There is potential to address sub-continuums of anxiety and avoidant attachment styles with emotional, cognitive and behavioural defences. For example the question "*I am afraid that I will lose other's love*" which is part of the ECR-R's anxiety subscale and is clearly an emotive component due to the word 'afraid'. For the cognitive component of the anxiety subscale, an example is "*I often worry that others don't really love me*". The value in doing so could aid the interventions which mindfulness

exercises could target. If a student indicated high levels of the cognitive defences in the anxiety subscale of the ECR-R, an intervention based on cognitive mindfulness exercises would be more likely to be effective. Cognitive defences that have emotive interventions are less likely to be therapeutic, and likewise for mismatched emotive and behavioural defences and interventions. By looking at the emotional, cognitive and behavioural defences employed by a student, this provides essential information for possible change and appropriate skill development strategies.

As before mentioned Alexander, Feeney, Hohaus, and Noller (2001) provided evidence for the theoretical support between attachment style and coping in the context of a transition to parenthood. This research also provides some support to the theoretical underpinning between attachment style and coping for transition to university. This will be discussed further in the future research section.

The discussion for study one, study two and a broader contextual argument have been put forward. These areas of interpersonal style, mindfulness and academic adjustment are broad and there are many ways in which implications could be interpreted. The following section has argued limitations of the current study and this is followed by future directions.

Limitations

Interpersonal style. The construct of interpersonal style being assessed by an attachment based measure, could be seen as rather short-sighted as it measures a social component of personality, rather than addressing a more holistic perspective, such as personality through the concept of the Big Five (Costa & McCrae, 1992). Attachment styles as measured by the ECR-R also has its limitations as it is a self-report and could also benefit from further validity with a participant's relative or close other also reporting, that is, for cross-validation. However this still has its limitations as this is indicative of the specific relationship as opposed to a more global attachment style and therefore interpersonal style.

Furthermore, the self-report measure of the ECR-R could also be prone to measure a state-like representation of their concept of attachment style rather that a more global interactional measure. Another limitation of the self-report ECR-R is impression management, either when an individual reports in an overly positive or overly negatively perspective.

In the anxious subscale there is only one item that is negatively worded and therefore provides limited scope of the anxious component from a non-direct perspective. The measure was also adapted from “romantic partner” to “others” and the nonspecific nature of the word “others” could provide ambiguity, and rely on the participants’ salience of relating to another person. This is problematic, as a student could complete the survey after talking to their parents on the phone, as opposed to relating to other students at university.

A dimension in measuring attachment that seems to be missing is the concept of time and the fluidity of an individual’s attachment style over time. Even though the ECR-R is not for the measurement of an individual’s state of attachment, a participant’s state of mind could be in a state of distress or happiness and this could over-influence an individual’s score. For example if an individual has just been in an interpersonal dispute with a new friend that they had met during their first week of university, a generalisation from this dispute could be that it is hard to make friends at university. If they completed the questionnaire during this state of dispute with the new friend, this could over-influence the attachment style measurement. This could be addressed in future research.

Another dimension of measuring attachment style that seems to be overlooked is the concept of context and the environment is which interpersonal exchange occurs that influences an individual attachment style if not explicitly, certainly implicitly. For example, when an exchange occurs in a library or in a sports field there are going to be social cues that shape our behaviour and social expectations of what occurs within an interpersonal exchange. This shapes our impression of others and ourselves in terms of attachment style. Particularly

when the variable of time is also considered and particularly looking at students at university, people may meet at the library or within a classroom and may do so over the term and length of degree. However this is somewhat different to an interpersonal exchange that occurs as spectator or participant of a sport, where there are different acceptable social behaviours and expectations. The context and environment includes such aspects as culture and socio-economic status.

Universities have made entry into university programs more accessible to students and this includes students from other countries and cultures, and people with varied socio-economic statuses. Adult attachment style measures, such as the ECR-R have been developed with the usually middle-class and American students and this may limit generalisability. This will discussed further in the further research section ahead.

Mindfulness. The construct of mindfulness and meditation is relatively new to scientific investigation although its principles are now popular in psychological therapy, as opposed to being familiar within eastern culture for centuries. There is no one agreed upon definition of mindfulness, and this can only warrant further research and better conceptualisation. The FFMQ was only developed within the last decade of research, and there is still research needed to look at the individual facets captured with mindfulness, if there is such a definitive idea. The developers recommend that the measure has better validity as a whole. In particular the observer facet has had some inconclusive validity (Baer, Smith, Lykins, et al., 2008; Davies, 2011).

The FFMQ is a self-report measure and although there are subjective and personal components to mindfulness, the results of mindfulness skills or states are also obvious to others. The effect that mindfulness has on an individual also has interpersonal consequences as the capacity for relationship attunement is more likely (Siegel, 2007). The measure provided a definitive mindfulness score and there is debate amongst the scientific writings

that the process of developing mindfulness skills or being in mindful states, that, due to the subjective and personal qualities of mindfulness this cannot be captured within a score. Mindfulness as a concept is problematic in terms of measurement, nature, and subjectivity and in addition to confounds with meditation. A counter-argument could be that the ability to be mindful could in essence be the drive or motivation to meditate, rather than a separate and unique quality that results in higher levels of mindfulness.

The FFMQ can be perceived as a measure of how mindfulness is currently conceptualised within the scientific research (Baer, Smith, Lykins, et al., 2008), but there are some interesting anomalies. The proportion of negatively worded items in each of the facets is unusual and rather that defining a quality this can capture what a quality is not and this could be a separate entity. Another query in the use of the facets within mindfulness is the idea that the whole is greater than the sum of the parts and therefore the components of the experience of mindfulness, subjective in nature, cannot be separated.

A confound in this study and in other mindfulness research is the acquisition of mindfulness skills that may occur from students and individuals seeking 'self-help'. Information is readily available through the internet and as mindfulness being topical there is the possibility that students could develop mindfulness skills without meditation and therefore mindfulness as a trait. Another influence is the use of focused attention and concentration that could be developed through other activities such as golf and pool/snooker. These activities require a participant to be aware of their body stance and focus on a particular object with sustained attention. It could be argued that these activities and many others could develop the same attribute/s that we call mindfulness. There is the same requirement of the student to draw their attention to the present moment and sustain attention and focus on the task at hand. Therefore it is possible for in individual to develop mindfulness skills without meditation.

There is also an argument that people with certain disposition/s are innately drawn to activities such as meditation, and therefore are more likely to develop mindfulness because of their predisposing nature, rather than the development of a certain skill in itself. For example, an individual who scores highly in introversion and openness to new experience then could be more likely to engage in meditation because of this usually solitary experience, and there is a sense of novelty in the activity. Therefore there may be a factor within introversion and openness to a new experience that innately draws an individual to concentrating, focussing, and sustaining attention with certain activities.

Academic achievement. A students' adaptation to the academic demands of their first year of university was measured by the SACQ, an instrument which has been well researched for validity and reliability. However, there are still flaws with this measure and construct. Although there may be a high correlational relationship between the SACQ and actual student grades, this is not definitive. Even with using students' grades as a measure, this does not capture an individual student's perception of integration and engagement with their first year experience at university. In addition, the way in which a student responds successfully to their first year of university life, may be a process that changes throughout the year; if the SACQ was used at the beginning of the year, this may change in many different domains over different sampling times of the year. Self-report measures are also prone to impression management and students could respond differently depending on perceived desirability.

In a broader context, for a first year university student there are also other demands in other areas of an individual's life such as family, work, and social needs. Even though a student may be succeeding well with university there may be difficulties in other areas of their life, and visa-versa. If the student then is experiencing difficulty, this may hinder their progress in university even though they have adapted well to the academic demands. For example, a first year university student may be motivated, engaged and likely to do well at

university, but then experiences family difficulties, may then not continue tertiary education due to financial responsibilities or time constraints.

Meditation. Like mindfulness, it does not appear that there is a clear and concise definition of meditation in the scientific literature. This is problematic as the investigations into the dimensions of meditation and its relationship with mindfulness, will have no fundamental bases for understanding. Meditation as a practice may have been embedded within a religious framework and therefore may lose some of its value and benefits due to western culture's desire to use this exercise or training in a secular setting. Just as psychology has evolved from Freud's impetus of psychoanalysis, mindfulness as a practice may develop within scientific research and clinical psychology, as the benefits to psychological well-being are well documented.

However from a clinical psychology perspective meditation as a practice could be used within the framework of behavioural deactivation (Benson & Klipper, 2000), although there is a focus and sustained concentration that is required. Since there are issues with a concise and uniform definition, how meditation could look within the clinical psychology field will vary and therefore could be problematic as there is no definitive prescribed method or technique. The notion of behavioural deactivation is very encompassing and can mean a number of different techniques, and meditation could also encompass a myriad of different techniques, and these ambiguities are problematic in research.

A limitation of study 2 was that although there was a significant difference in the level of mindfulness in the frequency of meditation, the measure was crude. There potentially could be significant differences in the level of mindfulness if an individual meditated several times a day. The initial question of "*Have you ever meditated*?" embraces an encompassing approach with the word "ever", attempting to capture any experience of meditation. However this has its limitations, as meditation is also known as a practice and therefore with the

subjective meaning associated with meditation this could be easily confused with other practices or experiences, such as relaxation. The question designed to measure the frequency of meditation, "*How frequently do you meditate?*" was provided with a Likert-type scale, and this does not allow for a variety of responses or the changing need or desire for meditation. For example an individual may ordinarily meditate once a day. However during exam times or doing a large assessment they may practice meditation three or four times a day. Likewise for the measurement of duration of meditation, as the question "*How long do you meditate for at a time?*" The responses available to the respondents were on a Likert-type scale and therefore do not allow for the varied time that really is spent meditating. An example could be as an individual becomes proficient with meditation, they may require less time in meditation.

Methodology. The current study is limited by the self-report cross sectional design of the data collection. Data was collected over 10 months and the variables of interest were measured at different points of any one student's academic first year. A students' perception of their own academic adjustment to university may be different in their first week of university, to after they have received results, to after their first year of enrolment. This variability is also the same for an individual's perception of attachment or relating to others and mindfulness. For example, a student may feel insecure relating to others in their first week of university before they have met many other students as compared to being a member in a productive study group or feeling like they have social supports around them and can ask for assistance if needs be.

The internet based surveys could also be prone to sampling students who want to participate in learning activities, as participants can opt for receiving course credit. This convenience sampling does not target students who are marginalised or particularly prone to

not adapting to the demands of their first year of university, such as individuals who have limited access to technology and internet.

This was not a mindfulness based intervention study with pre and post measures and a control group. This limits the conclusions that could possibly be made, however the current study can make theoretical claims between the constructs and provide the impetus for further research. In addition the current study has only used one measure for each of the constructs, so the theoretical generalisability is again limited.

The samples of the students were looking at self-identified first year university students and this was not further validated beyond students' self-report. The definition used for students in their first year of university was students enrolled in first year units of their course and this may be problematic as students can be part-time studying or enrolled in one unit. A student may well be enrolled in a first year unit in addition to being in their second or third year at university. Also there could have been some sampling issues with differentiating between students who live in residential colleges and those who do not. Students who live in residential colleges have addition resources which may contribute to the adjustment process.

To identify students who meditate, a simple question in the demographic sheet asked explicitly so. However each student's definition could be very different and particularly those students who indicated that they do not meditate yet may go to yoga, and therefore could develop the same qualities as from meditation in regards to mindfulness. Although scientific research does not define this experience or activity of mediation well, those components that relate to being mindful have not been well defined within the demographic questions, for example "*Do you practice mindful meditation?*" The demographics of the population that also limit the generalizability and ability to replicate this research is the variable of gender, as this was not captured from the participating students.

Future research

Attachment theory research has provided other measures that address other qualities, such the State Adult Attachment Measure (Gillath, Hart, Noftle & Stackdale, 2009), and the Experiences in Close-Relationship Structures (ECR-RS; Fraley, Heffernan, Vicary, & Brumbaugh, 2011). In particular in the use of the ECR-RS, the friends' domain could be variables of interest for academic adjustment as this is often where study groups and peer learning can occur. However there would need to be differentiation from study friend or social friends or both. The other measures of attachment offer generalisability and strengthen the relationships between attachment style, mindfulness and academic adjustment.

As discussed in the Limitations section in regards to the adult measurement of attachment style, there are contextual factors that can influence individual attachment style. It is proposed that a model of adult attachment style measure could take this attribute into consideration in a 3 dimensional assessment tool, as depicted in Figure 12.

Figure 12. Proposed Model of Adult Attachment Style

The x and y-axes have the continuums of anxious and avoidant, and the depth or z-axis has the context to the attachment style. This is particularly valuable in measuring attachment style across learning environments for students at university, such that context 1 could represent lectures, context 2 could represent tutorials and context 3 could represent informal study group. This could be valuable for students to see where they have a more anxious attachment style and therefore it could be expected that their academic adjustment could be at risk. This is not a measurement of state versus trait with regards to attachment style but rather how a student interacts in an environment over a specific time.

As mentioned in the General Discussion, Alexander, Feeney, Hohaus and Noller's (2001) research provided the theoretical link between attachment style and coping in the

context of couples transitioning to parenthood. This is worthy of further investigation with coping and coping resources being explicit variables of research with first year experience students. Alexander, Feeney, Hohaus and Noller provided a multi-sampling methodology which could also be used to study the transition to university over a period of time.

Future research could also be directed by assisting individuals that have been identified as particularly vulnerable, and this was identified by Marmarosh and Markin (2007) with students who identify as having a more avoidant attachment style. Future research in this area is crucial as these students have a desire for change by the fact that they have enrolled in a course at university. Mindfulness has been found to be beneficial for these students towards academic adjustment and this warrants further investigation with other measures, varied research methodologies and varied experimental designs. This is due to the lack of consensus within the literature of definitions and operationalisations of meditation and mindfulness. The flaws within the research provide the drive for further work within this area and in particular the implication that meditation and mindfulness has for assisting first year university students to adjust to their new academic demands.

Another area of research that could be particularly useful in helping first year students is in the area of neuroscience, particularly in attachment style and mindfulness. Neuroscience has identified many underlying commonalities between attachment style and mindfulness (Siegel, 2007; Simon, 2007). However the idea that the mind is larger than the brain is limited to the constraints of our knowledge relating to the brain. There is much research yet to be done particularly when imaging technique and measurement tools are still being developed and are limited by resources such as funding. Neuroscience may have a role with understanding the fluidity of attachment style and understanding concepts such as earned secure attachment style and altruistic attachment style. Alongside of this line of research is the idea of mindfulness and any possible links between mindfulness as a set of skills and

mindfulness as a personality trait. Adding another variable that is of interest is meditation. However if an experimental design was used in a methodology and a workshop in mindfulness was offered, there is a potential for the use of biofeedback within the intervention, as this provides students with immediate feedback with physiological responses of perspiration and heart-rate and galvanic skin response. An additional benefit for this type of intervention is the relative ease and convenience.

Another line of research could be examining the variable of mindfulness and the use of other measures, for example the Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith, & Allen, 2004) is explicitly used for the skills of mindfulness. This could be particularly useful for therapists assisting students in academic adjustment and possibly the use of mindfulness skills to elicit being in a state of mindfulness, which in turn can assist with psychological adjustment. However the research to date has been able to capture some of the dimensions of mindfulness, and being able to differentiate between dispositional and state qualities. Future research within dispositional and state mindfulness has thus been found to be worthy of further research and investigation in particular, research targeting the differentiation of the qualities of mindfulness from meditation. There is a call for qualitative research into meditation to find common patterns and qualities that are frequent in populations. This could guide and contribute to a more common definition of meditation, and for that matter a similar methodology for studying mindfulness, so that these qualities could be better understood.

As suggested in the limitations of mindfulness section, there are different forms of meditation and the research to date does not have evidence to suggest that different forms of meditation produce or facilitate increased levels of mindfulness. What may be of interest is if the different parameters of meditation have on each of the facets of mindfulness. For example it would be interesting to research if yoga has an effect on the ‘act with awareness’ facet due

to the body awareness and physiological component of exercise, while it would also be interesting to research if contemplative meditation has an effect on the observing and describing facets. In contrast, research that linked breathing and 'holding an emotion' exercises to the non-judgemental and non-reactivity facets could be valuable. This could be particularly of interest for academic adjustment of tertiary students, as this research could contribute to assist clinicians and guide evidence-based practice.

Academic adjustment could be further conceptualised with further sampling and measurement techniques. This research has only addressed the social or attachment perspectives, and the potential role mindfulness could take in assisting tertiary students' academics adjustment in their first year of university, and there are other variables that could be also predictors, for example: study skills, learning styles, and meditation practices or yoga. The adjustment for first year university students is beyond the academic demands of university, as it can often entail lifestyle changes such as moving home, or managing a balance between work and study life. A home-work-study life balance can be difficult to establish and maintain.

Another area of future research lies in the concept that academic adjustment may have possible implications on an individual's attachment style is worthy of investigation. The research would need to take place with pre-measures being used before a student starts university and then after degree completion. The concept that an individual's meaning associated with academic adjustment could have implications of their self-concept and therefore have an effect on their attachment style. The continuum of attachment style must also be considered. An individual may utilise anxious attachment style but to a lesser degree, as they have learnt other strategies to cope with distress.

In addressing the variables that have been researched in the current study, there is potential benefit from specifying how mindfulness impacts on the subscales of the SACQ. As

there are identified issues with examining the facets of the FFMQ, another measure such as the KIMS may be used and then examining how this impacts on the subscales of the SACQ. In addition attachment style such as secure and insecure could specifically be variables for a broad perspective on social interaction between students.

Additionally there is validity in a proposed model examining the relationships between the variables: attachment style, mindfulness, meditation and academic adjustment such as depicted in Figure 13.

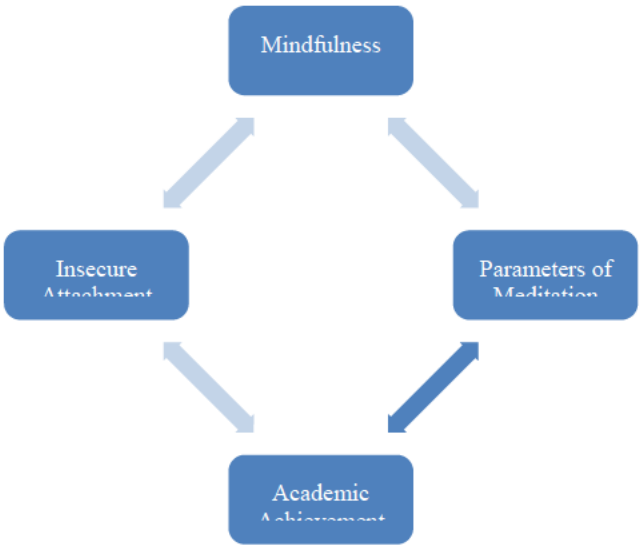

Figure 13. The Proposed Model of Insecure Attachment Style, Meditation, Mindfulness and Academic Adjustment.

This model, although initially complex in nature, due to the scales within each of the variables to be considered, offers a consolidated and theoretically cohesive perspective. Additionally it is problematic to examine variables such as meditation and mindfulness without considering the lack of uniform understanding within the scientific and clinical

psychology research. However the strength in the relationship between the variables found in this research would indicate that it is worthy of further work.

Another area of future research that has longitudinal research applications is in the area of earned secure attachment style and the potential role that mindfulness and academic adjustment may play. For example once a person has used mindfulness skills and adjusted to university and graduated, there may be other implications for the individual beyond study, and one implication may be interpersonal in nature. Longitudinal research may reassess attachment style once an individual has graduated and age is statistically accounted for. It would be of interest on a more global level if the successful adjustment to university may have interpersonal ramifications, such as making those previously identified as having insecure attachment style are more likely to be attracted to a securely attached individual and the potential for earned secure attachment style to manifest (Saunders, Jacobvitz, Zaccagnino, Beverung, & Hazen, 2011).

Future research with the assistance of the discipline of information technology could address reaching students with online designs of research experiments and interventions. USQ offers to a large proportion of its students, online and distance education options to learn. The availability and access to mindfulness-based interventions would need to reach off-campus students, particularly when such interventions have such an impact on academic adjustment. There is a need for mindfulness-based modalities to be offered in an online interface. A possible option is the use of such an interface as Skype where an interpersonal transaction may take place. Although not as advantageous as in-person exchange, Skype makes such interventions available.

As the current research examines the theoretical construct of attachment style, mindfulness, and academic adjustment, a study designed to use a mindfulness workshop or mindfulness meditation with pre- and post-measures to assess differences in the qualities in

mindfulness and also academic adjustment would be efficacious. For example the first step could be identifying first year students who are at risk of academic adjustment issues by students who identify insecure attachment styles. In this research the use of the ECR-R was used. The next step could be a pre-test of academic adjustment and in this research the SACQ was used. Additionally used in the pre-test could be a mindfulness measure, such as the FFMQ. The mindfulness workshop or mindfulness meditation could take a plethora of different forms, from yoga to contemplative meditation to a set of mindfulness based exercises that are prescribed within the Acceptance and Commitment Therapy framework (Harris, 2007). In fact a number of groups could be conducted to measure difference in levels of mindfulness. Once the workshops were completed a post-measure of mindfulness and academic adjustment would be used again to measure improvements. However if there were a number of groups and a control group, a demographically-matched design and methodology would be desirable. Additionally comparisons to other behavioural deactivation activities such as relaxation would also be warranted, particularly within this population of first year university students.

Conclusion

The implications of finding ways of assisting student at university not only are of benefit to the students, but also the tertiary institutions and the federal government. Places within program are valuable, and student retention rates are viewed as a desirable attribute of a university. By students adjusting to their first year of courses they are more likely to enrol in second, third, and fourth year courses and therefore complete their undergraduate degree. This qualification then enables an individual to apply for many more employment opportunities and higher remuneration and offer more to society through their employment. Although there are many other adjustments that an individual may need to endure between

first year of university and being offered employment opportunities, this is the first step and a crucial one for many.

A concept such as mindfulness pedagogy (Odahowski, 2004) is worthy of research. This research was designed to investigate the relationship between three variables: interpersonal style, mindfulness and academic adjustment and found some significant results which provide evidence for the theoretical links between the variables.

This research aimed to provide evidence to assist first year students to adjust to university. The other implications include saving federal costs in less student attrition, better learning outcomes for lecturers and possible treatment modality options for psychologists within student services. Not only is there to be benefit from potential cost savings from this but additionally there is efficiency in a proven and evidence-based modality that can be of assistance. One of USQ's goals is "To enhance the experience of USQ students by provision of accessible support and services that are student outcome-focussed and anticipate students' needs" and this research is evidence that can support activities towards this (University of Southern Queensland, 2009)

Taking a systemic approach towards the possible implications of this research, the first priority is the student. The student who identifies as having an insecure attachment style and is struggling at university could possibly investigate mindfulness skills, and this may increase the likelihood that the student will improve their adjustment to university. The next implication is to those closely related to the student: this includes the students' friends, support services at university and lecturers that they see most days. When there is a student who expresses insecure attachment style and is experiencing difficulties with academic adjustment, there is the direct approach of informing the student about looking at mindfulness skills or seeking assistance from someone with expertise within the area of mindfulness. The next implication is for the administration and the university at large. Following the notion of

'knowledge is power', and the knowledge that mindfulness has a possible role in assisting first year university students, there are implications to support future directions in university action plans towards reducing student attrition. The next level for the implications of this research includes other universities and organisations such as Universities Australia. Assisting first year university students to progress through their degrees is in the direction and policy of such organisations, and this research certainly has that focus. The last level discussed is the Australian Federal Government. There has been policy, funded programs, reviews and evaluations targeting first year adjustment for university students and this research provide evidence for further ventures, in many forms. The Australian Federal Government is responsible for the accountability for funding towards Australian universities and this research could be of assistance for the justification for pilot projects. Of course there could even be further implications for students and universities overseas, such as America where the SACQ was developed.

The aim of this research was to examine the relationships between the variables of interpersonal style, mindfulness and academic adjustment. The value in assisting first year students through university has life-long implications, not only for the students, but also for the people and institutions around them. The Australian society and the many communities that support first year university students, have a vested interest in bettering the next generation to have a better education and develop life-long skills that previous generations did not have the privilege or opportunity. Part of evolution is to foster the young in order to survive and for them to have a better life than previous generations, and this research supports the notion that assisting first year university students to survive and thrive at university and develop skills that can have life-long consequences.

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Appendix A: Consent to Participate

Progress

DEPARTMENT OF PSYCHOLOGY
FACULTY OF SCIENCES
UNIVERSITY OF SOUTHERN QUEENSLAND

Before starting the survey, close down any menu bars or other programs that may be reducing your screen size. You should be able to read the information on the screen without having to scroll from left to right.

Mindfulness: a Mediator of Interpersonal Style in Predicting Academic Adjustment

Consent to Participate

Dr. Sue Littler (Supervisor) and Aaron Osmachenko (Supervisee) from the Psychology Department at the University of Southern Queensland are conducting a study. This study will investigate aspects of how individual students interact (Interpersonal Style), how individual students make conscious decisions to pay attention to personal experiences (Mindfulness), and student's self-report on how well they are adjusting to the demands of university (Academic Adjustment). The results of this study will be reported in a dissertation being carried out by Aaron Osmachenko and may be published in journal articles or conference presentations, however will include no information that may reflect identifying information.

You are invited to participate in this study. This study aims to investigate the relationship between Interpersonal Style, Mindfulness, and Academic Adjustment. By agreeing to participate in this study you will be asked to complete several self-report questionnaires that contain questions about your feelings about close relationships, levels of mindfulness, and experiences of university. The questionnaires should take no longer than 40 minutes to complete. Instructions are located at the top of each section, please read carefully before you begin answering questions in each section. Also be sure to give an answer for each question. There are two conditions for your participation:

1. *This study is only for first year at university students*
2. *This survey is only for students who have not already partaken in the paper-format survey*.

Participation is completely voluntary and you may withdraw at any stage without penalty or disadvantage. All of the responses gained from this survey will be kept completely confidential and the questionnaires will be de-identified upon completion. Information will only be assessed by the researchers and the relevant technical staff. Electronic copies of the responses will be kept in a secure place for an allotted amount of time. You have the opportunity to either enter your details into the psychology raffle for a chance to win cash prizes ranging from $50 to $100, or those eligible psychology students may receive course credit for their participations. In order to be eligible psychology students may receive course credit for their participation. In order to be eligible for this study you must be over 16 years of age, and be within your first year of tertiary education, please provide consent below.

Your participation is greatly appreciated and the researchers would like to thank you for your time. If you wish to receive general feedback at the conclusion to this study please follow instructions at the completion of the survey. If you have any queries regarding this research you may contact:

Aaron Osmachenko
Postgraduate Student – Supervisee
Email - [redacted]

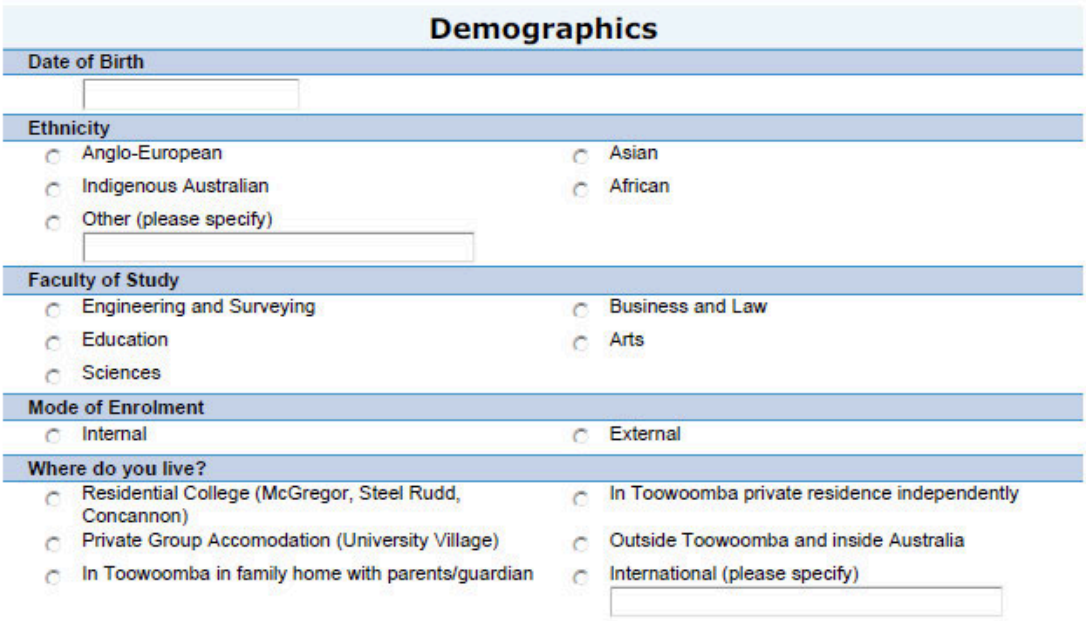
Dr. Sue Littler
Postgraduate Psychology Clinic
Email - [redacted]

If any psychological concerns arise due to the nature of the study, you can be directed to the Student Services, your G.P. for a referral to a psychologist, or to the Psychology Clinic. This project has received ethics approval from the USQ Human Research Ethics Committee (H11RAE080). Should you have any concerns about the ethical conduct of this research project, please conduct: USQ Ethics Office of research and Higher Degrees, University of Southern Queensland, West Street, Toowoomba QLD, 4350. It is also possible to contact the Ethic Office via phone on 0746312690 or email - ethics@use.edu.au.

If you have any questions about the study please email Aaron Osmachenko, University of Southern Queensland at [redacted] For technical concerns or difficulties accessing the survey please contact Ken Askin, University of Southern Queensland, at askin@usq.edu.au.

To start the survey please click on the 'Next' button below.

Appendix B: Demographics Questionnaire



Demographics

Date of Birth

Ethnicity

- Anglo-European
- Asian
- Indigenous Australian
- African
- Other (please specify)

Faculty of Study

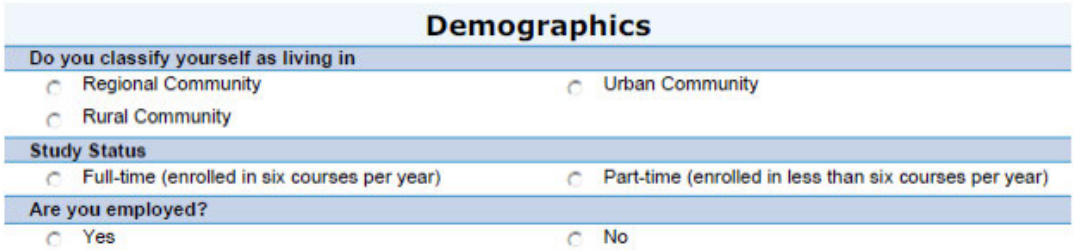
- Engineering and Surveying
- Business and Law
- Education
- Arts
- Sciences

Mode of Enrolment

- Internal
- External

Where do you live?

- Residential College (McGregor, Steel Rudd, Concannon)
- In Toowoomba private residence independently
- Private Group Accomodation (University Village)
- Outside Toowoomba and inside Australia
- In Toowoomba in family home with parents/guardian
- International (please specify)



Demographics

Do you classify yourself as living in

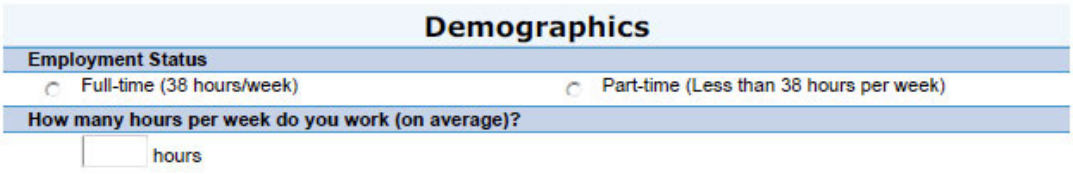
- Regional Community
- Urban Community
- Rural Community

Study Status

- Full-time (enrolled in six courses per year)
- Part-time (enrolled in less than six courses per year)

Are you employed?

- Yes
- No



Demographics

Employment Status

- Full-time (38 hours/week)
- Part-time (Less than 38 hours per week)

How many hours per week do you work (on average)?

hours

Demographics

Do you have any dependents, such as children or provide care?

- ○ Yes
- ○ No

Previous level of completed education

- ○ Primary School
- ○ Completed High School – Grade 12
- ○ Grade 10 of High School
- ○ TAFE
- ○ Vocational Training, please specify

Are you in a romantic relationship?

- ○ Yes
  How long have you been in this relationship?
  ____ years ____ months
- ○ No
  How long has it been since your last relationship?
  ____ years ____ months

Maritial Status

- ○ Married
- ○ Divorced
- ○ De Facto
- ○ Never Married

Have you ever meditated?

- ○ Yes
- ○ No

Demographics

How frequently do you meditate?

- ○ Only once ever
- ○ Weekly
- ○ Few times per year
- ○ Daily
- ○ Monthly
- ○ Other (please specify)

How long to you meditate for at a time?

- ○ Less than 10 minutes
- ○ 30-45 minutes
- ○ 10-15 mintues
- ○ Longer than 45 mintues
- ○ 15-30 minutes
- ○ Other (please specify)

Demographics

Have you ever sought and undertaken Mindfulness activities, such as self-development readings? (Mindfulness is defined as an individual's ability to observe, describe, act with awareness, be non-judgemental of inner experience, and be non-reactive to inner experience)

- ○ Yes
- ○ No

Appendix C: Interpersonal Style Measure

Experiences in Close Relationship – Revised Questionnaire

(Fraley, Waller & Brennan, 2000)

Please respond to the following statements about how you generally experience relationships, not just what is happening in current relationships and indicate how you agree or disagree.

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
I prefer not to show others how I feel deep down.	○	○	○	○	○	○	○
I am afraid that I will lose other's love.	○	○	○	○	○	○	○
I feel comfortable sharing my private thoughts and feelings with others.	○	○	○	○	○	○	○
I often worry that others will not want to stay with me.	○	○	○	○	○	○	○
I find it difficult to allow myself to depend on others.	○	○	○	○	○	○	○
I often worry that others don't really love me.	○	○	○	○	○	○	○
I find it very comfortable being close to others.	○	○	○	○	○	○	○
I worry that others won't care about me as much as I care about them.	○	○	○	○	○	○	○
I don't feel comfortable opening up to others.	○	○	○	○	○	○	○

Experiences in Close Relationship – Revised Questionnaire

(Fraley, Waller & Brennan, 2000)

Please respond to the following statements about how you generally experience relationships, not just what is happening in current relationships and indicate how you agree or disagree.

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
I often wish that others feelings for me were as strong as my feelings for him or her.	○	○	○	○	○	○	○
I prefer not to be too close to others.	○	○	○	○	○	○	○
I worry a lot about my relationships	○	○	○	○	○	○	○
I get uncomfortable when others want to be very close.	○	○	○	○	○	○	○
When others are out of sight, I worry that he or she might become interested in someone else.	○	○	○	○	○	○	○
I find it relatively easy to get close to others.	○	○	○	○	○	○	○
When I show my feelings for others, I'm afraid they will not feel the same about me.	○	○	○	○	○	○	○
It's not difficult for me to get close to others.	○	○	○	○	○	○	○
I rarely worry about others leaving me.	○	○	○	○	○	○	○

Experiences in Close Relationship – Revised Questionnaire

(Fraley, Waller & Brennan, 2000)

Please respond to the following statements about how you generally experience relationships, not just what is happening in current relationships and indicate how you agree or disagree.

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
I usually discuss my problems and concerns with others.	○	○	○	○	○	○	○
Others make me doubt myself.	○	○	○	○	○	○	○
It helps to turn to others in times of need.	○	○	○	○	○	○	○
I do not often worry about being abandoned.	○	○	○	○	○	○	○
I tell others just about everything.	○	○	○	○	○	○	○
I find that others don't want to get as close as I would like.	○	○	○	○	○	○	○
I talk things over with others.	○	○	○	○	○	○	○
Sometimes others change their feelings about me for no apparent reason.	○	○	○	○	○	○	○
I am nervous when others get too close to me.	○	○	○	○	○	○	○

Experiences in Close Relationship – Revised Questionnaire

(Fraley, Waller & Brennan, 2000)

Please respond to the following statements about how you generally experience relationships, not just what is happening in current relationships and indicate how you agree or disagree.

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree Nor Disagree	Slightly Agree	Agree	Strongly Agree
My desire to be very close scares people away.	○	○	○	○	○	○	○
I feel comfortable depending on others.	○	○	○	○	○	○	○
I'm afraid that once others get to know me, he or she won't like who I really am.	○	○	○	○	○	○	○
I find it easy to depend on others.	○	○	○	○	○	○	○
It makes me mad that I don't get the affections and support I need from others.	○	○	○	○	○	○	○
It's easy for me to be affectionate with others.	○	○	○	○	○	○	○
I worry that I won't measure up to other people.	○	○	○	○	○	○	○
Others really understand me and my needs.	○	○	○	○	○	○	○
Others only seem to notice me when I'm angry.	○	○	○	○	○	○	○

Appendix D: Mindfulness Measure

Five Facet Mindfulness Questionnaire

(Baer, Smith, Hopkins, Krietemeyer, and Toney, 2006)

Please rate each of the following statements using the scale provided. Select the response that best describes your own opinion of what is generally true for you.

	Never or rarely true	Rarely true	Sometimes true	Often true	Very often or always true
When I'm walking, I deliberately notice the sensations of my body moving.	○	○	○	○	○
I'm good at finding words to describe my feelings.	○	○	○	○	○
I criticise myself for having irrational or inappropriate emotions	○	○	○	○	○
I perceive my feelings and emotions without having to react to them.	○	○	○	○	○
When I do things, my mind wanders off and I'm easily distracted.	○	○	○	○	○
When I take a shower or bath, I stay alert to the sensations of water on my body.	○	○	○	○	○
I can easily put my beliefs, opinions, and expectations into words.	○	○	○	○	○
I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.	○	○	○	○	○
I watch my feelings without getting lost in them.	○	○	○	○	○
I tell myself I shouldn't be feeling the way I'm feeling.	○	○	○	○	○

Five Facet Mindfulness Questionnaire

(Baer, Smith, Hopkins, Krietemeyer, and Toney, 2006)

Please rate each of the following statements using the scale provided. Select the response that best describes your own opinion of what is generally true for you.

	Never or rarely true	Rarely true	Sometimes true	Often true	Very often or always true
I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.	○	○	○	○	○
It's hard for me to find the words to describe what I'm thinking.	○	○	○	○	○
I am easily distracted.	○	○	○	○	○
I believe some of my thoughts are abnormal or bad and I shouldn't think that way.	○	○	○	○	○
I pay attention to sensations, such as the wind in my hair or sun on my face.	○	○	○	○	○
I have trouble thinking of the right words to express how I feel about things.	○	○	○	○	○
I make judgments about whether my thoughts are good or bad.	○	○	○	○	○
I find it difficult to stay focused on what's happening in the present.	○	○	○	○	○
When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.	○	○	○	○	○
I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.	○	○	○	○	○

Five Facet Mindfulness Questionnaire

(Baer, Smith, Hopkins, Krietemeyer, and Toney, 2006)

Please rate each of the following statements using the scale provided. Select the response that best describes your own opinion of what is generally true for you.

	Never or rarely true	Rarely true	Sometimes true	Often true	Very often or always true
In difficult situations, I can pause without immediately reacting.	○	○	○	○	○
When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.	○	○	○	○	○
It seems I am "running on automatic" without much awareness of what I'm doing.	○	○	○	○	○
When I have distressing thoughts or images, I feel calm soon after.	○	○	○	○	○
I tell myself that I shouldn't be thinking the way I'm thinking.	○	○	○	○	○
I notice the smells and aromas of things.	○	○	○	○	○
Even when I'm feeling terribly upset, I can find a way to put it into words.	○	○	○	○	○
I rush through activities without being really attentive to them.	○	○	○	○	○
When I have distressing thoughts or images I am able just to notice them without reacting.	○	○	○	○	○
I think some of my emotions are bad or inappropriate and I shouldn't feel them.	○	○	○	○	○

Five Facet Mindfulness Questionnaire

(Baer, Smith, Hopkins, Krietemeyer, and Toney, 2006)

Please rate each of the following statements using the scale provided. Select the response that best describes your own opinion of what is generally true for you.

	Never or rarely true	Rarely true	Sometimes true	Often true	Very often or always true
I notice visual elements in art or nature, such as colours, shapes, textures, or patterns of light and shadow.	○	○	○	○	○
My natural tendency is to put my experiences into words.	○	○	○	○	○
When I have distressing thoughts or images, I just notice them and let them go.	○	○	○	○	○
I do jobs or tasks automatically without being aware of what I'm doing.	○	○	○	○	○
When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.	○	○	○	○	○
I pay attention to how my emotions affect my thoughts and behaviour.	○	○	○	○	○
I can usually describe how I feel at the moment in considerable detail.	○	○	○	○	○
I find myself doing things without paying attention.	○	○	○	○	○
I disapprove of myself when I have irrational ideas.	○	○	○	○	○

Appendix E: Academic Adjustment Measure

Appendix F: Factor Loadings for ECR-R

Table 1. Confirmatory Factor Analysis Factor Loadings for ECR-R

	Components	
Items	Anxiety	Avoidance
4. I often worry that others will not want to stay with me.	.84	
8. I worry that others won't care about me as much as I care about…	.84	
6. I Often worry that others don't really love me.	.83	
16. When I show my feelings for others, I'm afraid that they will…	.77	
12. I worry a lot about my relationships	.77	
10. I often wish that other's feelings for me were as strong as my…	.74	
2. I am afraid will lose other's love.	.74	
14. When others are out of my sight, I worry that he or she might…	.70	
34. I worry that I won't measure up to other people.	.70	
30. I worry that once others get to know me, he or she won't like ...	.67	
24. I find that others don't want to get as close as I would like.	.65	
26. Sometimes others change their feelings about me for no…	.65	
32. It makes me mad that I don't get the affections and support I …	.59	
18. I rarely worry about others leaving me.	.57	
28. My desire to be very close scares people away.	.57	
20. Others make me doubt myself.	.56	
36. Others only seem to notice me when I'm angry.	.49	
22. I do not often worry about being abandoned.	.44	
25. I talk things over with others.		.70
15. I find it relatively easy to get close to others.		.70
33. It's easy for me to be affectionate with others.		.69
19. I usually discuss my problems and concerns with others.		.69
3. I feeling comfortable sharing my thoughts and feelings with...		.67
9. I don't feel comfortable opening up with others.		.67
7. I find it very comfortable being close to others.		.65
23. I tell others just about everything.		.65
21. It helps to turn to others in time of need.		.64
17. It's not difficult for me to get close to others.		.62
11. I prefer not to be close to others.		.62
31. I find it easy to depend on others.		.60
1. I prefer not to show others how I feel deep down.		.58
29. I feel comfortable depending on others.		.57
13. I get uncomfortable when others want to be very close.		.57
35. Others really understand me and my needs.		.51
5. I find it difficult to allow myself to depend on others.		.41
27. I am nervous when others get too close to me.		.41