The modification of two tools to measure emotional intelligence in undergraduate student nurses: A mixed method pilot study

Laurel Collin
Chapter Two

Literature Review

Introduction

A brief overview of the concepts intimately related to this study are presented. A synopsis of stress is followed by a brief discussion of the current literature, specifically related to student nurses within the university, the clinical environment and life stressors. These issues are followed by a short expose of emotion as a concept, including emotional labour and emotional regulation. A more in-depth synopsis of emotional intelligence is discussed, prior to a presentation of the theoretical framework that underpins the study.

What is Stress?

Stress is a survival response (Persson & Zakrisson, 2016). Historically, stress can be looked at from a physiological (Selye, 1976) or psychological perspective (Hochschild, 2003; Lazarus & Folkman, 1987). These perspectives underscore the different definitions of stress. In 1676 Hook used the term in physics to describe the forces that particles exert on each other in different materials (Humphrey, 2005). Stress was the force not the reaction. In 1865, Claude Bernard used the concept of stress in life science, suggesting that blood flow was regulated by sympathetic nerves (Goldstein & Kopin, 2007). In 1929, Cannon identified physiological stability describing the term homeostasis. He identified external stressors as factors that affected homeostasis and initiated the fight or flight response: the emergency response (Goldstein & Kopin, 2007; Humphrey, 2005; Persson & Zakrisson, 2016; Szabo, Tache, & Somogyi, 2012).

The physiological response was further investigated and expanded by Selye, who suggested that "stress is the nonspecific response of the body to any demand" (Selye, 1976, p.15). He described The General Adaptation Syndrome (GAS) as phases of the stress response (Goldstein & Kopin, 2007; Humphrey, 2005; Persson &
Zakrisson, 2016; Selye, 1976; Szabo et al., 2012; Taché & Selye, 1985). It was suggested that Phase One is the Alarm Phase. In this phase, the sympathetic nervous system is activated and the hypothalamus produces a messenger chemical, causing the pituitary gland to secrete adreno-cortico trophic hormone and the adrenal glands to secrete adrenalin and other corticoids. It was argued that, when an individual is alarmed, one possible action was for the person to take a breath to control the alarm response, prior to considering behavioural options. Taking a breath was also considered as counter or defensive behaviour. Other behavioural responses were seen as expressive, or overt behaviours such as facial expressions (Humphrey, 2005). It was proposed that, when individuals do not take control of the alarm response, the thymus causes the heart rate and blood pressure to rise, resulting in somatic symptoms such as stomach cramps, dry throat and memory blocks. According to the GAS, Phase 2 was seen as the Coping/Resistance Phase. With the depletion of resources, the Third Phase was described as Exhaustion (Humphrey, 2005; Persson & Zakrisson, 2016; Selye, 1976). Stress also affected health and cognitive functioning (Chernomas & Shapiro, 2013; Jan & Popescu, 2014).

The literature clearly demonstrates a link between physical stress and psychological stress (Humphrey, 2005). Psychological stress refers to how individuals appraise a situation and how they cope. It is described as “the response an individual makes when confronted with a situation for which they are unprepared, or which they interpret as a possible source of gain, or loss” (Humphrey, 2005, p. 4). Stressors can occur in a variety of different situations and can be related to the work environment (Klainin-Yobas et al., 2014; Lazarus, 2000; Martin & Daniels, 2014; Schuster, Hammitt, & Moore, 2006; Siegrist & Li, 2016). In the life of a student nurse, the academic environment and the fear of failure, can cause the stress response (Humphrey, 2005; Selye, 1976).

Stress cannot be avoided, but it need not necessarily be distress. Rather, it can be eustress, which is associated with motivation (Selye, 1976). Distress occurs when the appraisal of the situation is perceived as beyond the individual’s coping ability (Lazarus & Folkman, 1987). There is a relationship between the individual and their environment, with appraisal of stress being the significance of the stress in terms of wellbeing. This notion of appraisal is relevant to this study, as student nurses are
individuals with specific experiences that impact on how they perceive the world, when enrolled in university studies.

**Stress and Student Nurses**

Nursing has been identified as a stressful occupation (Alzayyat & Al-Gamal, 2014; Andersson, Edberg, Högskolan & Sektionen, 2010; Arieli, 2013; Ashcraft & Gatto, 2015; Blomberg et al., 2014; J. Cameron et al., 2011; Chernomas & Shapiro, 2013; Goodare, 2015). There is stress in all organisations, however, work that involves public service, such as nursing, requires more psychological flexibility to avoid greater stress. Students who struggle to manage their own stress may have difficulty conveying an authentic true caring nurse. (Biron & Veldhoven, 2012; A. Williams, 2013; Zeidner, Matthews, & Roberts, 2009).

The presence of stress in student nurses has been well documented by numerous systematic literature reviews. Multicultural populations including Australian, American and English cohorts of students, were used as samples of participants in these studies. Additionally, a variety of methodologies, instruments, educational settings, and demographics studies were demonstrated. From these studies, there were three major areas related to student nurses varying in importance: life stressors (personal or social factors), clinical practice and university expectations: life stressors concerned personal, or social factors. The literature highlighted that stress experienced by student nurses was associated with major personal problems such as finances (Alzayyat & Al-Gamal, 2014; J. Cameron et al., 2011; Pulido-Martos, Augusto-Landa, & Lopez-Zafra, 2012; Urwin et al., 2010); a lack of leisure times (Alzayyat & Al-Gamal, 2014) university/family balance (J. Cameron et al., 2011; Pulido-Martos et al., 2012); and unrealistic expectations involving clinical placement (J. Cameron et al., 2011; Hamshire et al., 2012; Urwin et al., 2010). A change in circumstances that could not be anticipated was also cited as causing stressful situations (J. Cameron et al., 2011).

The perception of failure itself, or in the future, was identified as a major academic stressor in all studies (Alzayyat & Al-Gamal, 2014; Pulido-Martos et al.,
2012; Urwin et al., 2010). Failure, at a tertiary level of education, has been associated with students who have entered an undergraduate degree in nursing with a low entry standard, or where they have not been prepared for university academic demands (J. Cameron et al., 2011; Urwin et al., 2010). Exams and university workload were also identified stressors in in the literature (Alzayyat & Al-Gamal, 2014; Blomberg et al., 2014; J. Cameron et al., 2011; Pulido-Martos et al., 2012; Urwin et al., 2010). Based on these studies, it can be concluded that there is an apparent gap addressing strategies to aid coping with stress and creating resilience in the student nurse.

**Stress and University Attrition**

Many publications examined the stress undergraduate students experience in relation to attrition in the university sector. These included: student expectations; support; assessment; feedback; and student involvement (Arnekrans, 2015; Lee, Donlan, & Brown, 2010; Morrison & Brenneman, 2016; Stewart, Doo, & Kim, 2015; Tinto, 2012; Woosley & Shepler, 2011).

The perception of failure, at present or in the future, was identified as a major academic stressor in all studies (Alzayyat & Al-Gamal, 2014; Pulido-Martos et al., 2012; Urwin et al., 2010). Failure at the university level has been associated with students who have entered an undergraduate degree in nursing with a low entry standard, where students have often completed a bridging course or where they have not been prepared for university academic demands (J. Cameron et al., 2011; Urwin et al., 2010). Exams and university workload were also identified stressors in all the reviews (Alzayyat & Al-Gamal, 2014; Blomberg et al., 2014; J. Cameron et al., 2011; Pulido-Martos et al., 2012; Urwin et al., 2010).

It was suggested that success in the classroom, within the first year of study, reflected course completion rates (J. Cameron et al., 2011; Tinto, 2012; Urwin et al., 2010). This issue, however, was not considered by all researchers to be a reliable indicator of students' withdrawal (Tinto, 2012; M. G. Williams, 2010). (Chernomas & Shapiro, 2013) argue that the major reason for leaving a course of study was the
inability to manage the situation, rather than the situation itself. It was also argued that a student’s emotional competence would enable them to persist with their studies, but that this issue needs further investigation (Tinto, 2012; M. G. Williams, 2010).

Prior to university-based education, schools of nursing were closely associated with a hospital. Student nurses were expected to live in the nurses’ quarters and use the staff amenities, where a social bond with colleagues was developed (Piercey, 2006). This bond could have become tenuous when the academic and practical components of nurse education were separated. A sense of belonging was expected to be greater in hospital-based students (Tinto, 1987; Tinto, 2012). But this expectation was not supported in an English study using an ethnographic approach (Crombie et al., 2013). The sample group of nurses in hospital-based training had the same stressors on clinical placement as those enrolled in a university degree, despite spending 50% of their time on wards (Crombie et al., 2013). Reasons for student nurses leaving their course varied but strongly associated with the clinical placement experience (J. Cameron et al., 2011; Crombie et al., 2013; Kenny, Reeve, & Hall, 2016; Kingston, 2008; Urwin et al., 2010).

Studies suggest that social acceptance and a sense of belonging to a team, increases a student’s confidence and competence in patient care. These psychosocial concepts also impact on a student’s decision to continue in their course of study (Blomberg et al., 2014; Gibbons, 2010; Gibbons, Dempster, & Moutray, 2011; Pulido-Martos et al., 2012). Being accepted and respected by colleagues was positively identified as being able to focus on patient relationships (Andersson et al., 2010; Mohamed et al., 2014; Walker et al., 2014). Within clinical placement major stressors were the relationships with their designated mentor and the mentor’s preparedness to support the student (Alzayyat & Al-Gamal, 2014; Blomberg et al., 2014; J. Cameron et al., 2011; Gibbons, 2010; Gibbons et al., 2011; Hamshire et al., 2013; Pulido-Martos et al., 2012).

It was suggested that some nurses felt they needed to act as ‘ideal’ students in order to be accepted by RNs. This continual behaviour added stress to the practice environment (Crombie et al., 2013; Diefendorff, Erickson, Grandey, & Dahling, 2011). Fear of making mistakes was related to reduced confidence, which in turn was
associated with decreased competence (Pulido-Martos et al., 2012). Student nurses on practicum have demonstrated a need for emotional support from their mentors when confronted with difficult issues and problems (Diefendorff et al., 2011; Gray, 2009; P. Smith & Gray, 2001; Yoon & Kim, 2013). However, studies have found that support from mentors was compromised by an increase in the number of students they were required to mentor. Such an increase impacts mentors’ preparedness and their ability to cope with student numbers (Blomberg et al., 2014; Morrison & Brenneman, 2016; Urwin et al., 2010).

From the researcher’s observation, when working in the field as a RN and as a clinical facilitator, she noted that the workplace is sometimes chaotic, especially in times of staff reduction when many interventions and treatments were carried out. The literature, however, did not concur with this observation. Rather, student nurses perceived the relationship with their mentors as the most pivotal variable in causing stress (Crombie et al., 2013; Gibbons, 2010; Gibbons et al., 2011; Hamshire et al., 2012).

Life stressors were described as personal or social factors often associated with income and finances (Alzayyat & Al-Gamal, 2014; J. Cameron et al., 2011; Pulido-Martos et al., 2012; Urwin et al., 2010); a lack of leisure times (Alzayyat & Al-Gamal, 2014); a balance between university and family life (J. Cameron et al., 2011; Pulido-Martos et al., 2012) and a lack of family or financial support (Hamshire et al., 2012). A change in circumstances that could not be anticipated, or when the person found they were unsuitable for nursing, was also cited as causing stressful situations (J. Cameron et al., 2011). The balance between life and clinical practice, where one impacts the other, may also be associated with students’ thoughts of leaving their nursing course. For example, studies have found that mature age students with family and financial responsibilities, who have not been able to cope, have often been influenced to withdraw from their studies (Hamshire et al., 2013). It is the stress associated with balancing life events that affects their wellbeing, and determines their ability to be fit for clinical practice.

The literature suggested multifactorial reasons for student attrition. It could be argued, however, that there are trends showing patterns of stressors. These include: poor practicum experience; inability to cope with academic demands; and
overwhelming personal problems. Furthermore, a culmination of these factors creates a tipping point for student departure, since they can cause a variety of physiological, psychological and emotional responses.

Theories of Emotion

Emotion has been studied as a construct related to external or internal stimuli, and perceived as either negative or positive (Weisfeld & Goetz, 2013). From a theoretical perspective, determining a definition of emotion has been difficult, even though Descartes described it as early as 1649. Since then, emotion has been variously described as both a concept and a set of phenomena (Frijda, 2016; Mulligan & Scherer, 2012). This issue has led to debates and misunderstandings, which have hindered research (Mulligan & Scherer, 2012).

The initial concept of emotion was developed along two pathways: facial expressions (Frijda, 2009) or subjective feeling states (Ekman, 1993). A third approach considered emotion as a process (Brosch & Sander, 2013; Kirby & Smith, 2009; Roseman, 1991; C. A. Smith & Ellsworth, 1985). All theorists agree that there was an infinite number of situations that elicited a finite number of fundamentally different emotions (Hofmann, 2014; Plutchik, 2001; Roseman, Spindel, & Jose, 1990a; C. A. Smith & Ellsworth, 1985).

Evolutionary theories of emotion proposed that people adapt to their environment. Emotion was viewed as a complex chain of loosely connected events rather than a feeling state. They were described as responses to significant situations in an individual’s life, motivating an action. A feedback loop of emotion, cognition, and action encompassed these aspects (Plutchik, 2001).
A three-dimensional circumplex model (see Figure 1) displays eight basic bipolar emotions: joy/sorrow, anger/fear, acceptance/disgust, surprise/expectancy. The circumplex model was first developed by Harold Schlosberg, who added the dimension of emotional intensity through his Activation Theory of Emotion (Plutchik, 2001; Schlosberg, 1954). This model presents degrees of similarity among emotions with the more intense emotions in the centre. From these eight basic emotions emanate mixed emotion: for example, anger and disgust join to form contempt. Alternately, a change in intensity of a basic emotion, for example, annoyance is a milder form of anger.

Cognitive theorists view emotion from a different perspective, arguing, that it is the individual's evaluation and interpretation of events, rather than the event, which determines the resulting emotion (McCarthy, Mejia, Lui, & Durham, 1998; C. A. Smith & Ellsworth, 1985). Additionally, cognitive appraisal theorists approach the
study of emotions from a psychological perspective. They suggest that there is a set number of appraisal dimensions a person uses to determine the emotion felt. These dimensions include: how much control one has over the event; the perception of the event as either negative or positive; and the possible outcomes in terms of appropriateness of that response (Roseman et al., 1990; Roseman, 2013; C. A. Smith & Ellsworth, 1985; Tesser, 1990; Tesser, 1990).

Accordingly, various studies have developed patterns of appraisal that have elicited particular emotions (McCarthy et al., 1998; C. A. Smith & Ellsworth, 1985). One study involved questioning different people in the same situation, and questioning the same person at different times, to demonstrate the different emotional responses. Findings suggested that there were seventeen discrete emotions generated by the specific combinations of seven appraisal dimensions (Roseman, 2001). A grid depicting the structure of emotion can be seen in Figure 2.

**Figure 2. Roseman’s Structure of Emotions (Adapted from Roseman, 2013 p. 143)**

<table>
<thead>
<tr>
<th>1. Situational State</th>
<th>positive</th>
<th>negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Motivational State</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Expectedness 5. Certainty</td>
<td>Appetitive</td>
<td>Aversive</td>
</tr>
<tr>
<td>6. Control Potential</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Causal Agency</td>
<td>Unexpected</td>
<td>surprise</td>
</tr>
<tr>
<td>circumstances</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certain</td>
<td>joy</td>
<td>relief</td>
</tr>
<tr>
<td>Certain</td>
<td>hope</td>
<td>frustration</td>
</tr>
<tr>
<td>Certain</td>
<td>joy</td>
<td>relief</td>
</tr>
<tr>
<td>others</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certain</td>
<td>liking</td>
<td>anger</td>
</tr>
<tr>
<td>Certain</td>
<td>pride</td>
<td>regret</td>
</tr>
<tr>
<td>self</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certain</td>
<td>guilt</td>
<td>shame</td>
</tr>
<tr>
<td>Uncertain</td>
<td></td>
<td>7 Problem Type</td>
</tr>
<tr>
<td>Certain</td>
<td>6*Intrinsic</td>
<td>6*Intrinsic</td>
</tr>
</tbody>
</table>

The seven appraisal dimensions may be briefly defined as follows:
- **Situational State** = an event is desire versus an event is unwanted;
- **Motivational State** = want to minimize punishment versus want to maximize reward;
- **Causal Agency** = caused by self, caused by another person, or caused by circumstance;
- **Expectedness** = expected versus unexpected;
- **Certainty** = event may or may not happen versus event has happened or definitely will happen;
- **Control Potential** = there is nothing or very little one can do versus there is something one can do;
- **Problem Type** = instrumental blocks attainment of goal versus intrinsic due to inherent nature of the event or stimuli.
Further studies demonstrate that there is a control component to an individual’s appraisal of an event, demonstrating a connection between thoughts and emotions (McCarthy et al., 1998; Roseman, Spindel, & Jose, 1990; Roseman, 2004). The ability to appraise a situation, and to determine the appropriate emotion, has been used to guide an individual’s perception and management of emotion, and to enhance emotional intelligence. Likewise, it may be possible to adapt this appraisal pattern to assist student nurses’ emotional understanding.

**Emotional Labour**

Emotional labour involves the induction or suppression of a feeling (Hochschild, 2003). Stress and emotional labour together can create a work environment, which may become overwhelming for the student nurse (A. Williams, 2013). Nurses are socialised to display caring, compassion and empathy, whilst at the same time being encouraged to develop a level of professional detachment. It is through strategies like empathy, that the nurse can communicate a genuine, authentic and congruent patient relationship (Watson, 1985). In order to promote such a relationship with patients, nurses often have to suppress their feelings (Watson, 1985).

The controlling of facial expressions can be ruled by social and cultural conventions to display what others expect to see (Ekman & Friesen, 1975). Display rules have been divided into surface and deep acting. Surface acting occurs when surface emotions do not reflect the felt internal emotions, creating false emotions, or suppressing emotions (Yoon & Kim, 2013). This type of acting is acceptable, but in nursing it creates stress and burnout (Diefendorff et al., 2011; Gabriel, Daniels, Diefendorff, & Greguras, 2015; A. Williams, 2013; Yoon & Kim, 2013). The reality of nursing means that a stressful situation requires the nurse to modify internal emotions to match displayed emotions. Deep acting is a sincere form of emotional management and encourages positive relationships that meet the complex emotional needs of patients (Diefendorff et al., 2011; A. Williams, 2013). Experienced nurses have mastered this dichotomy but, it can be stressful for students (Diefendorff et al., 2011).
The original research into display rules studied surface emotions in service workers, such as air hostesses, but it did not take into account the authentic patient relationship that nurses are expected to portray (Biron & Veldhoven, 2012; De Castro, Curbow, Agnew, Haythornthwaite, & Fitzgerald, 2006; Gabriel et al., 2015). The display rules described the facial expression of an employee in order to attain the organizational objectives (Diefendorff et al., 2011). In terms of nursing, however, patient confidence and a sense of safety can be affected by the nurse’s facial expression. For example, if a nurse looked scared or confused, it could undermine the patient’s confidence.

Studies in the UK, on emotional labour in RNs, found that those who tuned into emotions, both their own and their patients were more likely to cope with stressful situations (Diefendorff et al., 2011; Gray, 2009; P. Smith & Gray, 2001; Yoon & Kim, 2013). Another study suggested that, when student nurses felt they were not coping and could not manage emotional labour, their stress increased and resulted in depression (Yoon & Kim, 2013). Teaching student nurses how to manage their emotions early in their studies may facilitate their ability to develop a genuine, authentic and congruent relationship with patients.

**Emotional Memory**

It has been proposed that human beings attach emotions to experiences that are remembered and then carried over to new experiences (Reeves, 2005). Strong emotions can provoke fear, anxiety and stress (Idris & Dollard, 2011). A stressful practicum experience has been associated with a lack of support, confidence, study skills, low motivation, disillusionment, and the perceived theory-practice gap. An example of a stressful situation that can cause an emotion to be remembered occurs when students are unprepared to perform tasks, and are given negative feedback. Stressful experiences remain with students for extended periods of time and can affect mental and physical health (Hoobler, Rospenda, Lemmon, & Rosa, 2010; Reeves, 2005).
Emotional memory has a great impact on student nurses in the clinical setting, for example the first experience of death is never forgotten. (Edo-Gual, Tomás-Sábado, Bardallo-Porras, & Monforte-Royo, 2014). Studies have concluded that, when attending to multiple tasks, the task containing high levels of emotional intensity are remembered (Buratto, Pottage, Brown, Morrison, & Schaefer, 2014). There are emotional challenges in nursing which need to be managed to reduce the impact on emotional memory (Christiansen & Jensen, 2008; Hochschild, 2003). When the student can find a positive meaning in a negative experience, for example, viewing the experience as a learning opportunity, then the event is less likely to be related to a fear response in the future (Edo-Gual et al., 2014; Flores & Berenbaum, 2016; Mujica-Parodi et al., 2009). Reappraisal of an event demonstrated emotional modification and emotional regulation (Buruck, Dörfel, Kugler, & Brom, 2016). It is suggested that emotional regulation can be viewed as a strategy to determine the manifestation of emotion.

Coping and Emotional Regulation

Coping and emotional regulation are distinct concepts that overlap (Compas et al., 2014; Folkman & Lazarus, 1988a). Coping can occur when there is a stressful situation (Compas et al., 2014; Gross, 2013). It is a response and deals with the emotions that arise when confronted with a stressor (Bonanno & Burton, 2013; Folkman & Lazarus, 1988a; Folkman & Lazarus, 1988b; Jan & Popescu, 2014). This process involves appraising the situation and the perceived outcome, or improving the situation (Folkman, Lazarus, Gruen, & DeLongis, 1986; Jung, Wranke, Hamburger, & Knauff, 2014). Any one stressful situation has more than one implication for well-being, and there is more than one option for coping (Bonanno & Burton, 2013; Folkman & Lazarus, 1988a; Folkman & Lazarus, 1988b; Jan & Popescu, 2014).

It is suggested that coping with stress creates resilience, which is the ability to adjust to adversity, whilst maintaining a sense of control and equilibrium (Jackson, Firtko, & Edenborough, 2007). To build resilience in student nurses, coping skills are needed to enable them to survive and flourish in the workplace (Donoso, Demerouti,
Hernández, Moreno-Jiménez, & Cobo, 2015; Montes-Berges & Augusto, 2007; Montes-Berges & Augusto-Landa, 2014). These skills include institutional support and a positive personal attitude, resourcefulness and balance between life and work (Klainin-Yobas et al., 2014; Zander, Hutton, & King, 2010; Zander, Hutton, & King, 2013).

Response to stress may also be modified by the predictability or perceived controllability of the stressor (Klainin-Yobas et al., 2014). Much of the literature suggests two types of coping (Lazarus & Folkman, 1987). Firstly, modification of the situation. If the situation could not be changed, the second strategy was to regulate the emotional response (Bonanno & Burton, 2013; Jan & Popescu, 2014; Klainin-Yobas et al., 2014). However, for nursing and from a student nurse’s perspective, during the initial clinical practice experience, it is difficult to change a situation. It could be argued that the regulation of the emotional response and reappraisal of a situation to a more positive one, may be a better strategy to cope with stress (Balk, Adriaanse, de Ridder, & Evers, 2013; Klainin-Yobas et al., 2014). There is, however, a need to be flexible and to have a range of strategies, as nursing is dynamic and no two patients have the same needs, and each situation is different (Bonanno & Burton, 2013). Whichever strategy is used, it has been established that coping mediates the stress response (Balk et al., 2013; Folkman & Lazarus, 1988a; Folkman & Lazarus, 1988b; Klainin-Yobas et al., 2014).

When students feel they are coping and successful, they feel positive about themselves. Alternatively, if they perceive they are not coping they may feel threatened (Gibbons, 2010; Gibbons et al., 2011; Zeidner et al., 2009). Students, who have not experienced or learnt how to deal with stress, need strategies to cope with stressors inherent in nursing, as well as those associated with studying (Balk et al., 2013; Bonanno & Burton, 2013; Donoso et al., 2015; Jan & Popescu, 2014; Klainin-Yobas et al., 2014). Emotional intelligence may be one method to prepare student nurses for the reality of the clinical environment and the stress associated with academia (Aradilla-Herrero, Tomás-Sábadó, & Gómez-Benito, 2014; Augusto Landa, López-Zafra, Aguilar-Luzón, & de Ugarte, 2009; Barkhordari & Rostambeygi, 2013; Beauvais, Brady, O'Shea, & Griffin, 2011; Bulmer Smith, Profetto-McGrath, & Cummings, 2009; Cerit & Beser, 2014; Jones-Schenk &

Emotional regulation, as opposed to coping with stress, can be conceptualised as the strategies used to determine which emotion is felt, and how that emotion is experienced and expressed (Donoso et al., 2015; Gross, 1998; Tamir, 2016). Emotional episodes are characterized by two stages. During the first stage, the emotion blossoms and strengthens over time, adding to the overall intensity of the emotion. During the second stage the emotion fades. It is the speed of the recovery process that is strongly related to the duration of the emotion (Brans & Verduyn, 2014). When the appraisal of an event discloses a mismatch between the current state and the desired state, there is a negative emotion. The bigger the difference, the greater the intensity of the emotion felt. The amount of the emotion’s intensity determines how much regulation is needed (Brans & Verduyn, 2014; Verduyn, Delaveau, Rotgé, Fossati, & Van Mechelen, 2015).

Emotional disturbances are often characterized by inappropriately strong/weak and long/short emotions, which display variability in intensity and duration. For example, “I was very angry: I felt sad all day long”. Episodes of sadness are the most intense and last the longest. Anger, by contrast, is more intense than episodes of guilt and fear. Episodes of shame and disgust are usually the shortest and least intense. It was thought that the greater the difficulty in coping with the emotion, the longer the duration of the emotion, unless the situation is removed. The researcher observed that the less important the emotion, the more efficient people are in its regulation. For example, disgust is easier to regulate than sorrow, as sorrow requires a wider range of coping strategies (Frijda, 2009; Verduyn et al., 2015; Verduyn & Lavrijsen, 2015; Vogt & De Houwer, 2014).

A response to a stressful situation can involve many emotions. It is an individual’s perspective of these emotions and their strength that determines whether regulation is needed (Frijda, 2013; Frijda, 2009). Studies have concluded that emotions cannot force the individual to respond in a certain way. For example, if angry, an individual does not have to hit out, indicating that emotions can be regulated (Gross, 2002). Thus, emotional regulation strategies can involve reappraisal of the situation. Alternatively, suppression of an emotion can inhibit the
outward signs of inner feelings (Gross, 1998; Haines et al., 2016; Quoidbach, Mikolajczak, & Gross, 2015; Vogt & De Houwer, 2014). The literature indicates that appraisal strategies lead to a decrease in the negative emotions and an increase in positive emotions. Suppression of emotions, however, decreases both the positive and negative emotions at the same time, which activates the sympathetic nervous system (Gross, 1998; Gross, 2002; Schutte, Manes, & Malouff, 2009; Vogt & De Houwer, 2014). This could manifest as an anxiety attack.

**Intelligence**

Debates in relation to the concept of intelligence have traditionally centred on how well the cognitive spheres of the brain operate, including how well a person learns, judges and thinks (Mayer & Salovey, 1997). Historically, intelligence theories examined logical, propositional thinking where abstract logical reasoning is used to form a conclusion in the absence of concrete information (Stojanov, 2007).

It has been argued that intelligence is not a singular trait, but an aspect of behaviour with many facets (Wechsler, 1975). Several authors support this notion of multiple intelligences (Gardner & Moran, 2006; Hampshire, Highfield, Parkin, & Owen, 2011; Kornhaber, Krechevsky, & Gardner, 1990). Eight areas of intelligences, or competencies, have been proposed, including: linguistic; musical; logical-mathematical; spatial; bodily kinesthetic; naturalistic; interpersonal; and intrapersonal competencies. The theory of multiple intelligence suggests that each competency developed at an independent rate, and to a different extent (Gardner, 1999; Gardner & Moran, 2006; Kornhaber et al., 1990).

Traditional standards set to define intelligence fall into three distinct groups: conceptual (it must reflect mental performance rather than preferred ways of being); correlational (empirical standards which show intelligence as a set of abilities closely related to but distinct from mental abilities); and developmental (it develops with age and experience) (Mayer, Caruso, & Salovey, 2000). Emotional intelligence is conceptualised in a similar way to that of traditional cognitive intelligence (Muyia, 2009).
Research is moving towards establishing links between cognitive ability and emotion, through working memory and fluid intelligence. Working memory is the temporary storage of information whilst doing higher order cognitive functions such as reasoning and comprehension. By contrast, fluid intelligence is the intelligence representing abstraction and problem solving free from prior experience and education. Together, working memory and fluid intelligence use emotionally laden information, called hot information, to allow novel problem solving and adaptive changes (Barbey, Colom, Paul, & Grafman, 2014; Gutiérrez-Cobo, Cabello, & Fernández-Berrocal, 2016; Juffs & Harrington, 2011; Liu, Xiao, Li, & Shi, 2015; Mayer, Caruso, Panter, & Salovey, 2012; W. J. Schneider, Mayer, & Newman, 2016). The link between cognitive ability and emotion impacts on student nurses, through their ability to manage stressful situations and regulate emotions. If emotions are not regulated, the students’ health may be affected (Augusto Landa et al., 2009).

**Theoretical Framework**

Emotional intelligence (EI) was originally defined as “the ability to monitor one's own and others’ feelings and emotions, to discriminate amongst them, and to use this information to guide one’s thinking and action” (Mayer & Salovey, 1997), p 10). This definition was later revised to include thinking about feelings:

- the ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth (Mayer & Salovey, 1997), p. 10).

Although many authors have used the revised definition of EI as a foundation for studying the concept, personality traits, motivation and persistence have been added (Austin, 2010; Caruso, Mayer, & Salovey, 2002; Grubb & McDaniel, 2007; Libbrecht, Beuckelaer, Lievens, & Rockstuhl, 2014; Petrides & Furnham, 2001; Petrides, Pérez-González, & Furnham, 2007; Schutte, 2014; Siegling, Furnham, & Petrides, 2015). The range and scope of new definitions concerning EI has made the conceptualization of EI both broad and vague (Anguiano-Carrasco, MacCann, Geiger, Seybert, & Roberts, 2015; Austin, 2010; Copestake, Gray, & Snowden,
2013; Gong & Paulson, 2016). Moreover, the additional attributes have led to mixed models of EI being developed.

The ability model of EI emphasised cognitive components, indicating that it could be learnt and increased with experience (Bastable, 2008; Fischer et al., 2016; Hadders-Algra, 2016; La Fleur & Salthouse, 2014). Significantly, the model is more adaptable to objective measurement of EI (Anguiano-Carrasco et al., 2015; Copestake et al., 2013; Grubb & McDaniel, 2007; Hartman & Grubb, 2011; Libbrecht, Lievens, & Schollaert, 2010; Libbrecht & Lievens, 2012a; Rosete & Ciarrochi, 2005). Clarification and explanation of the model is necessary, since it is used in this study (see Figure 3).

Figure 3. A Four Branch Hierarchical Ability Model of EI (Adapted from Mayer and Salovey, 1997)
The Ability Model of EI consists of four branches, ranging from basic psychological processes to higher more integrated processes. Within each branch there are four representative abilities, or sub-elements that develop along a continuum. They move from discrete to complex psychological functions involving personal self-management (see Figure 3). These sub-elements have been identified as observable abilities that promote the collection of objective data.

The first branch of the Ability Model identifies the perception, appraisal and expression of emotion. The second branch is about facilitating emotional thinking to assist in intellectual processing. The third branch concerns the ability to understand emotions and use emotional knowledge, whilst the fourth branch concerns the conscious regulation of emotion (Mayer, Salovey, & Caruso, 2008).

**Emotional Intelligence Measurement Tools**

There is a proliferation of EI measurement tools, however, they lack standardisation (Akerjordet & Severinson, 2007; Austin, 2010). This deficit is associated with disagreement concerning the nature and definition of EI, an anomaly highlighted in fourteen studies comparing nine different EI tools (Arora et al., 2010).

The number of tools has been related in part to the demand of the corporate world, where they are used to aid in the recruitment of managers (Boyatzis & Soler, 2012; Momeni, 2009; Yuvaraj & Srivastava, 2007). Human resource departments have generally used EI mixed model tools, such as: the Emotional Competence Inventory (ECI) (Boyatzis, Goleman, & Rhee, 2000); the Emotional Quotient Inventory (EQ-i) (Bar-On, 2006); the Intelligence Questionnaire (TEIQ) (Petrides et al., 2007); the EIQ (Wakeman, 2006); and the SEIS (Schutte, 2002). These mixed model instruments incorporate personality traits, which have had a tendency to make objective measurements difficult. In addition, these tests used self-reporting measures allowing them to easily recognise which response biased their score (Grubb & McDaniel, 2007) or alternately reflect limited personal insight (Foster, 2011). This anomaly reduced construct validity (Paunonen & O’Neill, 2010; Strauss & Smith, 2009). To remove this bias, it was suggested that the construct of EI was
best operationalised by test takers answering problems, which would demonstrate knowledge and use of their emotions (Caruso et al., 2002). It may be possible to create nursing scenarios whereby students could demonstrate their EI.

Tools that have been used to measure EI in nursing students include the mixed models: Bar-Ons’ (2006) EQ-I, Schuttes’ (2002) SEIS and Mayer & Saloveys’ (1997) MSETT (Allen, Ploeg, & Kaasalainen, 2012; Birks, McKendree, & Watt, 2009; Pence, 2011). Despite the issue with mixed models and their tendency to measure EI subjectively, nursing studies have used them to reflect nurses’ personality traits (Allen et al., 2012). In the measurement EI pre/post educational intervention, however, there needs to be an objective measurement to establish a valid baseline (Benson, Ploeg, & Brown, 2010). Such a baseline was deemed appropriate for this study using the Mayer and Salovey four tier Ability Model of EI.

By contrast, the State Meta-Mood Scale (SMMS) measures the ongoing process in which an individual continually reflected, monitored, evaluated and regulated their mood in relation to their feelings (Salovey, Mayer, Goldman, Turvey, & Palfai, 1995; Salovey, Stroud, Woolery, & Epel, 2002). It did not, however, address stable attitudes and learnt strategies used to deal with mood swings. This deficit prompted a further scale, the Trait Meta Mood Scale (TMMS), to include understanding individual differences in people’s reactions to changes in their feelings (Salovey et al., 1995). These tests, however, used self-reporting measures, which as has been pointed out have a tendency to be less objective (Grubb & McDaniel, 2007).

The Multifactor Emotional Intelligence Scale (MEIS) test includes: judging emotions; generating and reasoning with an emotion; defining complex emotional terms; and selecting optimum emotional decision-making strategies. It was found that, with no intervention after a two-week interval, re-testing the MEIS resulted in scores remaining the same (Caruso et al., 2002). This time-lapse indicated that answers were not learnt. Rather, it was suggested that the test-taker utilised their EI to answer the items. This process demonstrated an absence of the practice effect and strengthened the test/re-test reliability (Z. Schneider, Whitehead, Elliott, Lobiondo-Wood, & Haber, 2007). Scores from the MEIS measure the construct of EI separate from standard personality traits using Cattell’s’ Personality Factor questionnaire (Austin, 2010; Caruso et al., 2002).
The MEIS was the precursor to the Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT). This test operationalised the four branches of EI separately, allowing individual differences to be measured, and increased content validity (Austin, 2010). The results were scored using a consensus method that relied on pooled observations of individuals. The number of participants selecting a given response defined the correct answer. The greater the number who chose that response, the more correct was the response (Caruso et al., 2002). It was argued that some subtests of both the MEIS and MSCEIT might not have measured EI, as they did not have satisfactory levels of internal consistency (Matthews, Roberts, & Zeidner, 2004). This concern posed a problem for researcher since scores for sub-elements of the four branches of the Ability Model would be unreliable for building an educational intervention to enhance EI. Additionally, the MSCEIT was used by psychologists and required special training to administer and interpret. Moreover, it was not readily available to the researcher (Beauvais et al., 2011). Nonetheless, the MSCEIT was developed to measure ability EI and included situations to rate the efficiency of a persons’ behaviour in real life situations. Likewise rating real nursing scenarios could measure nursing performance (Codier & Odell, 2014).

By contrast, the Situational Test of Emotional Understanding (STEU) and the Situational Test of Emotional Management (STEM) were two Australian tools that reflected the Mayer and Salovey Ability Model of EI and were available to the researcher (MacCann & Roberts, 2008). The STEU and the STEM were empirically tested on undergraduate psychology students (MacCann & Roberts, 2008). These instruments provide a theoretical basis for emotional understanding and management. Additionally, they were deemed the most appropriate tools to undergo modification and testing on student nurses prior to and following an EI skills enhancement program (see Appendix One: Original STEU and STEM Instruments Developed by Dr. C. MacCann). Therefore, to create tools that reflected nursing practice and that could be used by nurse educators, as opposed to clinical psychologists, the STEU and the STEM were deemed to be the best fit.

The STEU has 42 items consisting of situations aimed at eliciting internal emotional responses. Participants had five choices to reflect upon, based on Roseman’s appraisal theory. The STEU had a veridical scoring system which infers; there is only one valid answer to the scenario.
The STEM was developed using the Situational Judgement Tests (SJT) to predict task and contextual performance. Situational Judgement Tests have multi-choice items with the response format being either knowledge based (“What is the best answer?”) or behavioural tendency (“What are you most likely to do?”). Scenarios of low fidelity simulations, that is, those simulations that present a verbal or written description of a hypothetical situation based on contextual knowledge, objectively assess non-academic attributes such as EI (Christian, Edwards, & Bradley, 2010; McDaniel, Hartman, Whetzel, & Grubb, 2007a; O’Connell, Hartman, McDaniel, Grubb, & Lawrence, 2007; Whetzel, McDaniel, & Nguyen, 2008). There were three steps in formulating SJTs. Initially, the scenarios were developed based on focus groups or semi-structured interviews. Secondly, responses to scenarios were generated by asking a sample group “What should they do” and “What would they do” in response to each scenario. The final step was to submit the developing tool to subject matter experts (SMEs) for scoring (Jackson, LoPilato, Hughes, Guenole, & Shalfrooshan, 2017; Krumm et al., 2015; Lievens, Sackett, & Buyse, 2009; McDaniel et al., 2007a; Whetzel et al., 2008). Although the STEU and the STEM were available to the researcher, they had not been used with student nurses. As has been argued previously, nursing is a dynamic profession where no two situations are the same, and students are required to learn to take responsibility for individualised quality patient care. Thus, the STEM and the STEU needed to be modified to test student nurses’ pre-and post an educational intervention.

**Conclusion**

Student nurses undertaking a university degree, to qualify as RNs, experience a variety of stressful situations. Whilst university studies and personal stressors are common to most university students, by contrast, student nurses are required to undertake clinical practice supervised by a mentor. It is the stressful situations encountered in the clinical environment that has been associated with attrition. Whilst it is impossible to change a situation, an individual can appraise the situation as a learning experience, thereby transforming the experience to a positive rather than a negative. This means the student nurse would recognise and monitor emotions to facilitate thinking and problem solving. It is proposed that enhancing EI in student
nurses can assist them to better cope with stressful situations. The Ability Model of EI would appear to be an appropriate framework for such an intervention using Roseman’s grid and Plutchik’s description of emotions.