THE EMOTIONAL INTELLIGENCE OF CLINICAL STAFF NURSES

A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE UNIVERSITY OF HAWAI‘I IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN NURSING

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Dedicated with love to Mary Elizabeth Blatchley Codier, R.N.

In whose eyes I first saw "the nurse glow"
Acknowledgements

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Abstract: The Emotional Intelligence of Clinical Staff Nurses

Dozens of studies throughout a wide range of professions and settings have demonstrated significant correlations between emotional intelligence and high levels of performance, productivity, team effectiveness, lower levels of job stress and other positive organizational outcomes. There is little research on the emotional intelligence of nurses and none in the United States on the measured EI of clinical staff nurses.

This descriptive, explorative and quantitative study was undertaken to analyze the emotional intelligence of clinical staff nurses. Clinical staff nurses from three urban hospitals on Oahu, Hawaii, participated in the study. An emotional intelligence instrument was used that was based on the ability model of emotional intelligence (MSCEIT v2).

Findings from this study support the conclusion of previous studies in non-nursing literature that performance level correlates positively with emotional intelligence scores. Nurses in this study demonstrated greater ability in emotional intelligence skills related to strategizing with emotions than the skills related to experiencing them. The highest branch scores were related to the skills of managing emotions and the lowest the skills of perceiving emotions.

The findings of this study suggest that inclusion of emotional intelligence skills in nursing curricula, both in the academic and clinical practice settings, may be important to retaining and supporting a resilient and thriving nursing workforce in the future.
CHAPTER 1: Introduction, Background and Conceptual Framework

This chapter begins with an introduction to the concept of emotional intelligence (EI), its significance to the profession of nursing, and the purpose, background and conceptual framework for this research study, The Emotional Intelligence of Clinical Staff Nurses.

Introduction to Emotional Intelligence

In 1966, an article in the German popular press contained the phrase, "emotional intelligence." Nearly 20 years later, the phrase resurfaced in a PhD dissertation title at a small liberal arts college in the United States (Payne, 1983). Over the next two decades, there were hundreds of research studies on emotional intelligence and, as of 2006, more than a million references in a wide range of scientific, professional and popular sources.

Emotional intelligence has been rigorously explored in the twenty years since research on the subject began. Hundreds of studies throughout a wide range of professions and settings have shown significant correlations between high EI and high levels of performance, productivity, team effectiveness, retention on the job and other important organizational outcomes.

One meta analysis, for example, investigated the relationship of EI and performance. A total of 69 independent studies with a combined study sample of more than 12,000 concluded that performance was related to emotional intelligence. This study crossed a wide range of settings, populations, countries and job classifications (Van Rooy, Viswesvaran, & Pluta, 2003).

Research evidence demonstrates that EI is a predictor of success in the workplace. Relationships have been demonstrated between EI and transformational leadership,
teamwork, organizational commitment, optimum employee selection and both interpersonal and intrapersonal workplace phenomena such as burnout, conflict management, well-being, morale and work climate (Abraham, 2005).

There is extensive research on emotional intelligence in the fields of psychology, education and organizational development, but there is very little research on the emotional intelligence of nurses and none in the United States measuring the emotional intelligence of clinical staff nurses.

Significance of the Study

The most severe nursing shortage in world history looms in the near future. According to a 2002 Department of Health and Human Services study, the U.S. nursing shortage in 2000 represented 110,000 nurses, or 6%, of the required nursing workforce. This percentage was expected to increase to 12% in 2010, 20% in 2015 and 29% by 2020 (DHHS, 2002). In addition to research into the education, recruitment and retention of new nurses, research is also needed on optimizing the performance and long-term coping skills of nurses currently in practice. Given the demonstrated relationship between emotional intelligence and positive workplace outcomes in numerous other professions, research into the emotional intelligence of nurses may be an important contribution within the context of the nursing shortage.

Emotional intelligence has been used in several professions as a framework for maximizing high levels of employee performance, job satisfaction and positive organizational outcomes. Repeated studies have related high EI and high levels of performance. Research has correlated high EI with lower levels of perceived stress, positive conflict styles and other measures of positive adaptation in difficult work
environments (Abraham, 2005). Higher-than-average levels of EI have also been related to lower rates of turnover, higher overall retention, decreased burnout, and various indicators of workplace wellness and satisfaction (Wong & Law, 2002).

These examples of the relationship between EI and positive organizational outcomes are particularly important in light of reports from numerous organizations that EI skills can be effectively taught and organizational outcomes improved as a result of EI education. For example, one study of 1,000 employees demonstrated that employees who received EI education demonstrated significantly higher levels of measured outcomes when compared with a control group that had not received the EI education. Measured outcomes included improved ability to give supportive feedback on the job, greater ability to handle disagreements and work overload and a better team climate (Heaney, Price & Raferty, 1995). If nursing research can replicate the findings from other professions that there is a correlation between EI and both positive workplace outcomes and performance, the findings could be important for the education, recruitment, development and retention of the nursing workforce. The first step for investigation of these important possibilities is to measure and explore the EI of clinical staff nurses.

Statement of Purpose

The purpose of this explorative, descriptive and quantitative study was to explore the emotional intelligence of clinical staff nurses.

Conceptual Framework

Introduction

Fundamental to an understanding of emotional intelligence is an appreciation of the various contexts within which it emerged. To this end, the following will be reviewed
briefly: 1) the evolution of intelligence theory, 2) the development of cognition theory, 3) changing views on emotions in the workplace, 4) emergence of emotional management curricula, 5) societal attitudes toward intelligence measurement, 6) the cultural emergence of the concept of emotional intelligence, and 7) three major models of emotional intelligence.

Evolution of Intelligence Theory, 1800-2000

The evolution of intelligence theory has produced three major "schools," the "classical," "revisionist" and the "radical" schools of intelligence theory. The "classical" school was grounded in the work of Darwin, Galin and Binet in the 1800s. Intelligence was considered by the classical theorists to be essentially unchangeable, biologically transferred and measured primarily by sensory capabilities (Wilhelm & Engle, 2005). According to classical intelligence theory, intelligence is a discrete concept (later referred to as "g," or general intelligence) (Wilhelm & Engle, 2005).

The "revisionist" school, which emerged in the early 1900s, considered intelligence to be a multi-focal concept, related to both internal and external processes, and intrinsically related to an individual's context. Those of this school believed that intelligence could be changed by environment, education and experience (Wilhelm & Engle, 2005). A "revisionist" is less interested in a single discrete measure of intelligence and more interested in the way an individual behaves when acting intelligently. Robert Thorndike, a revisionist theorist in the 1920s, expanded the concept of intelligence to include concrete, abstract and social intelligences (Thorndike, 1920). Thorndike was the first intelligence theorist to include social abilities within the domain of intelligence. Robert Sternberg, the father of "Practical Intelligence," was a later revisionist who
encouraged the measurement of intelligence in practical settings (Wilhelm & Engle, 2005).

Theorists from the “radical” school consider intelligence to be a socially constructed concept that grows out of a historical, social and cultural context (Wilhelm & Engle, 2005). Howard Gardner, father of the theory of “multiple intelligences”, is a radical theorist who posited nine separate forms of intelligence, including mathematical, linguistic, spacial, musical, kinesthetic, intrapersonal, interpersonal, existential and naturalistic intelligences (Gardner, 2000). Two of his “intelligences,” intrapersonal and interpersonal, were derived by David Wechsler from Thorndike’s social intelligence theory (Wechsler, 1940). Gardener’s identification of the “intelligence” of interpersonal and intrapersonal capabilities was one of the original sources out of which emotional intelligence emerged.

*Development of Cognition Theory*

Emotional intelligence also emerged within the context of increasing societal interest in cognitive science and cognitive emotional styles. Cognitive style research began in the 20th century with Carl Jung’s work on psychological types (Jung, 1921) and continued with the development of the MBTI (Myers-Briggs Trait Inventory) between 1942 and 1957 (Myers-Briggs & Myers, 1980). Cognitive science in the 1970s identified varying cognitive patterns among individuals, contexts and cultures (Heins, 2002; Sternberg, 1997). Much of the early cognitive style research had at its core an interest in the varying patterns of cognition demonstrated by individuals in the work setting. This occurred at a time in which there was an increase in interest in the role of emotions in the
workplace. Early emotional intelligence research had, as its foundation, studies done on various aspects of emotional management in the workplace.

*Changing Views on Emotions and the Workplace*

Serious conversation about the role of emotions in the workplace began in the 1980s, particularly in service industries and in management roles (Hochschild, 1983; Rafaeli & Sutton, 1987). Numerous studies demonstrated the negative organizational consequences of poorly developed emotional and interpersonal capacities (Denhardt & Aristigueta, 1996; Diamond, 1993; Senge, 1990). Additionally, there was a growing concern that professional schools were not adequately preparing students to function well emotionally and interpersonally within the context of complex organizations.

The first large-scale research on emotional intelligence occurred in large corporations such as Johnson & Johnson, the U.S. military and American Express (Cavallo & Brienza, 2001). What these diverse organizations had in common was an interest in making their organizations more effective by improving interpersonal, team and corporate relationships. This early organizational EI research was later followed by EI research in other disciplines, both in and outside of the United States.

*The Emergence of Emotional Management Curricula*

A similar shift was occurring in the role of emotions in education. Within early childhood curricula, an interest emerged in teaching children about emotions, relationships, communication, leadership and teamwork. Programs in the United States such as the “Self Science Curriculum” became popular vehicles for this new approach to childhood education. This reflected an increasing interest in the United States in the role
of emotions in learning and in the classroom. This was followed by similar curricula for adults.

*Societal Attitudes Toward Intelligence Measurement*

By the late 1900s, a societal shift was underway in the United States with regard to use of intelligence testing in "high-stakes" decision making, such as admission to schools of learning and in the job application process. There was a growing question about the ability of traditional intelligence testing to adequately and accurately predict performance in academia or in the work setting. Traditional intelligence and aptitude tests were criticized as measuring test-taking skills instead of "real world" skills. This reflected a trend toward measuring abilities in context, for example, demonstrating a skill on the job as opposed to taking a test about the skill. This trend reflected a philosophical shift toward the idea that ability assessment is a social activity operating within a social-cultural-political context, the influence of which affects both test processes and test outcomes (Wilhelm & Engle, 2005).

*Cultural Emergence of the Concept of Emotional Intelligence*

In 2000, Daniel Goleman, psychologist and journalist, published the book "Emotional Intelligence." Despite criticism from many intelligence researchers, including those quoted in his book, it achieved U.S. best-seller status and was widely distributed internationally. By that time, considerable work on emotional intelligence had already been done, chiefly by Reuven Bar-On in South Africa and Drs. Mayer and Salovey at the University of New Hampshire. The popularization of Dr. Goleman’s book brought emotional intelligence to the forefront of U.S. culture. Many claims about emotional intelligence that had little or no grounding in research findings were popularized. The
new visibility of the concept, however, brought new attention to the research that had been done and fueled interest in new research studies.

Although Drs. Bar-On, Mayer and Salovey later claimed that Dr. Goleman had overstated the conclusions of their research, they would come to agree that the cultural phenomenology reflected in the book’s wide acclaim represented strong intuitive affirmation of the concept of emotional intelligence. Thus, there were two clear phenomena of EI; the unfolding science of EI in research and the “zeitgeist”, or cultural phenomenology that surrounded EI (Mayer, Salovey & Caruso, 2002).

Three Major Models of Emotional Intelligence

From the research that followed, there emerged three main models of emotional intelligence. They differ in terms of their roots, their view of the essential nature of emotional intelligence, their understanding of how EI works intra- and interpersonally, how EI is defined, and the instruments that are used to measure the construct.

An early model of EI was the “personality” model, which emerged in the mental health setting. Reuven Bar-On, in his work with various life satisfaction measures, developed what he first called “Emotional Quotient” (EQ). Dr. Bar-On considered EQ (a term he later abandoned in favor of “emotional intelligence”) to be a set of personality traits that enable individuals to adapt emotionally and socially. Within the “personality” model, emotional intelligence is understood as primarily a function of personality and emotional adaptation. In Dr. Bar-On’s model, there are five facets of emotional intelligence: intrapersonal, interpersonal, stress management, adaptability and general mood. Each of these facets has a number of constituent traits. The five facets of EI, along with their associated traits, are summarized graphically in Table 1 (Bar-On, 1997).
Table 1

*Emotional intelligence: The personality model (Bar-On & Parker, 2000)*

<table>
<thead>
<tr>
<th>Facet of Emotional Intelligence</th>
<th>Constituent Traits</th>
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<tbody>
<tr>
<td>Intrapersonal</td>
<td>Emotional self-awareness, Assertiveness, self-regard, self-actualization, independence</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>Empathy, interpersonal relationships</td>
</tr>
<tr>
<td>Stress Management</td>
<td>Problem solving, reality testing, flexibility</td>
</tr>
<tr>
<td>Adaptability</td>
<td>Stress tolerance and impulse control</td>
</tr>
<tr>
<td>General mood</td>
<td>Happiness and optimism</td>
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</table>
The measurement instrument that was derived from Dr. Bar On's model is the EQ-i, a self-report instrument for measuring emotional intelligence (Bar-On & Parker, 2000).

The second major model of EI, the "ability model," postulates that emotional intelligence is a set of abilities that may be taught, learned and improved (Mayer, et al., 2000). This model grew out of the field of cognitive psychology and was originated by psychologists John Mayer and Peter Salovey, who were interested in the differences in how people reason. The ability model is based on the supposition that EI is a group of mental abilities with which emotions and emotional interactions are processed. This model defines EI as "an intelligence that processes and benefits from emotions" (Mayer et al., 2000, p. 105).

Mayer and Salovey describe a "four-branched model" of emotional intelligence. In this model, EI has two main aspects: experiential EI and strategic EI, indicated in red in Figure 1. These two aspects are measured by four basic abilities (called "branches"), that reflect the skills of perceiving, using, understanding and managing emotions. The four branches are illustrated in Figure 1.

![Figure 1. The four-branch ability model of emotional intelligence (Mayer, Salovey & Caruso, 2002)]
The first instrument designed to measure the "four branch" ability model of EI was the Multibranch Emotional Intelligence Scale (MEIS). After extensive testing and revision, the instrument was shortened and adapted. The instrument derived from the MEIS revision is the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), now in its second version (MSCEIT 2.0) (Mayer et al., 2002). A summary of the four-branch model is found in Table 2.

The third, "mixed" model of emotional intelligence combines aspects of both ability and personality models of EI. This model was conceived by Daniel Goleman as a "competence" model of EI. The model was developed in the organizational setting and was used to understand and measure effectiveness of organizational relationships (Goleman, 1998). The competencies in this model are divided into personal and social competencies, which are further divided into competency clusters which correspond to specific EI skills. This model is summarized in Figure 4. The most widely used instrument for measurement using this model of EI is the ECI, a 360 degree instrument which includes evaluations from employees and supervisors to construct an overall score of emotional intelligence (Goleman, 2000). A summary of this model is found in Table 3.

By the year 2006, more models beyond these original three had been developed. Many tools for measuring EI exist, based on these three models as well as others. A graphic representation of the evolution of EI and its variants is found in Figure 2.

The Ability Model of Emotional Intelligence

The ability model of emotional intelligence, specifically the "four-branch" model of Mayer, et al. (2002), was selected as the conceptual basis for this study. The model was selected for the following reasons:
Table 2

The “Four Branch” Ability Model of Emotional Intelligence (Mayer et al., 2002)

<table>
<thead>
<tr>
<th>Area EI</th>
<th>Branch EI</th>
<th>Branch Definition</th>
</tr>
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<tbody>
<tr>
<td>Experiencing Emotion</td>
<td>Perceiving Emotions</td>
<td>The ability to accurately perceive emotions in self and others</td>
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<tr>
<td></td>
<td>Using Emotions</td>
<td>The ability to use emotions to facilitate thought, problem-solving and reasoning</td>
</tr>
<tr>
<td>Strategizing with Emotions</td>
<td>Understanding Emotions</td>
<td>The ability to comprehend emotions, their changes and blends</td>
</tr>
<tr>
<td></td>
<td>Managing Emotions</td>
<td>The ability to manage emotions and emotional situations involving self and others</td>
</tr>
</tbody>
</table>


1) The ability model offers superior construct validity when compared with the other two models. The personality dimension of the personality and mixed models, for example, overlaps significantly with existing personality instruments.

2) The instrumentation used with the selected model has undergone the most rigorous validity and reliability testing of all the emotional intelligence instruments. This testing has been repeated by the test authors, as well as their critics and supporters alike.

3) The instrument used with this four-branch model is an actual test of ability, unlike other EI instruments, which use either self report or 360-degree reports by an individual’s employees, peers and supervisors. Both these approaches are replete with confounds related to self image, mood, and interpersonal confounds resulting from power differential relationships.

4) The MSCEIT 2.0 offers superior research comparison possibilities. Much of the rigorous organizational research has utilized the MSCEIT instrument (Mayer, et al., 2000). Much of the nursing research on EI has utilized the ability model of emotional intelligence.

5) As the field of emotional intelligence continues to develop, promising new models will emerge (Tett, 2006). One such model describes a hierarchy of emotional intelligence that includes aspects of the three models described above (Chang, 2006). These models are as yet still underdevelopment and require both testing and instrumentation.
Table 3
Emotional Intelligence: The “Mixed Model” (Goleman, 1998)

<table>
<thead>
<tr>
<th>General EI Competency</th>
<th>EI Clusters</th>
<th>Subset EI skills</th>
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<td>Personal Competencies</td>
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<td>Self Awareness</td>
<td>Accurate self assessment</td>
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<td>Emotional awareness</td>
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<td>Self confidence</td>
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<td>Achievement orientation</td>
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<td>Social Competencies</td>
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<td>Social Awareness</td>
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<td>Organizational awareness</td>
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<td>Leadership</td>
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<td>Conflict management building bonds</td>
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<td>Collaboration</td>
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<td>Developing others</td>
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<td>Influence</td>
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Figure 2. The evolution of emotional intelligence and its variants (Concept Map)

Intelligence Theory: Thorndike, 1920

- Social Intelligence
- Abstract Intelligence
- Concrete Intelligence

Intelligence Theory: Wechsler, 1940s

"Nonintellective" Intelligence
- Personal Intelligence
- Social Intelligence
- Affective Intelligence

"Intellective" Intelligence

Intelligence Theory: Gardner 1980s: Theory of Multiple Intelligences

- Intrapersonal
- Interpersonal
- Kinesthetic
- Musical
- Mathematical
- Linguistic
- Spatial
- Existential
- Naturalistic

Emotional Intelligence

Personality Model (Bar-On)
- Test: EQi- (self)

Ability Model (Mayer et al)

Mixed Model (Goleman)
- MSCEIT (performance)
- ECI (360-degree)
The historical background, social context and general evolution of the ability model of emotional intelligence has been summarized in this chapter. The remainder of this chapter will be devoted to an expansion of the descriptions already presented, with specific examples.

As previously described, in the ability model of emotional intelligence, EI is considered a construct with two general aspects. The first aspect is related to experiencing emotions. For example, some individuals are highly skilled in awareness of their emotions, in the identification of emotions and their use of emotions in the reasoning processes. Similarly, they may have strong skills in accurately identifying the emotions of other people. Different individuals may be less skilled in identifying the emotions of themselves and others, and be less able to use their emotions to facilitate thought. The experiential aspect of EI is illustrated in Figure 3.

The second aspect of EI is related to the strategic use of emotions. Individuals with these abilities are skilled at understanding emotions and effectively using them to manage both their own emotions and those of other people. Other individuals may have difficulty understanding emotional processes and may have less skill in managing their own emotions or those of others. This strategic aspect of EI is illustrated in Figure 3.

Each of the two aspects of emotional intelligence are made up of two emotional abilities, referred to as “branches.” The four abilities are the core of the ability model of emotional intelligence. For this reason, this model is sometimes called the “Four Branch” model. The branches are illustrated in Figure 3.
Emotional Intelligence

Experiential EI
- Branch Perceiving Emotions
- Branch Using Emotions

Strategic EI
- Branch Understanding Emotions
- Branch Managing Emotions

Figure 3. Ability EI areas and branches (Mayer et al., 2002)

1. **Perceiving Emotions**: This branch represents the ability to accurately perceive the emotions of self and others. This ability could be illustrated by a nurse working with the parents of a child who is dying. Accurately identifying the anger of the parents at the unfairness of their child's illness would be crucial for effectively working with the parents' grieving process. Similarly, the nurse's ability to recognize his/her own anger at the unfairness of a child's death would be equally important.

2. **Using Emotions**: This branch represents the ability to use emotions in reasoning. In the example mentioned above, the nurse could, after recognizing his/her own anger, integrate the emotional experience of anger into reasoning about the parents' situation. In this ability branch, experiencing emotions and reasoning with emotions are integrated.

These two branch abilities, Perceiving Emotions and Using Emotions, reflect skills used in "experiential" EI. This is illustrated in Figure 4.
3. **Understanding Emotions**: This branch represents the ability to understand emotions, to comprehend emotions and the way they change and connect with other emotions. In the example of the nurse working with the parents of a dying child, the nurse could recognize that anger is a part of the grieving process, that it is often related to feelings of shock, bargaining, and other emotions common to grief. Using this ability, the nurse could understand that the emotions of the grieving process don’t progress in a stepwise manner, that shock isn’t “over” when anger begins, but rather that the two emotions may blend and merge as the grieving process continues.

2. **Managing Emotions**: This branch represents the ability to manage emotions in self and others. In the example above, having recognized emotions in self and others, reasoned with them, and developed an understanding of them, the nurse may then manage the emotions of his/herself and the parents. The skills of this branch in action could be teaching the parents about the grieving process, or the nurse developing a plan for dealing with his/her own grief so that it could be a positive learning experience.

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**Figure 4.** Experiential EI branches: Branch Perceiving Emotions and Branch Using Emotions (Mayer, et al., 2002)
These two abilities, Understanding Emotions and Managing Emotions, reflect skills of "strategic" EI, and are illustrated in Figure 5.

![Emotional Intelligence Conceptualization Diagram]

**Figure 5.** Strategizing EI Branches: Understanding Emotions and Managing Emotions (Mayer, et al., 2002)

Conceptualization of Clinical Staff Performance: The Clinical Ladder

For the purposes of this study, level of clinical staff performance was conceptualized and operationalized using the clinical ladder. The clinical ladder for staff nurses provides for recognition of graduated levels of increasing performance in clinical staff nurses. Originally conceived by Benner (1982), the clinical ladder is widely used for recognition of increased performance levels in clinical staff nurses. To apply for clinical ladder positions, a staff nurse must achieve objectively determined performance criteria. To maintain their clinical ladder position, staff must continue to perform at the required level. In most institutions, clinical ladder status is evaluated on an annual basis and continued performance at the level required of the level on the clinical ladder is required.
Chapter 2: Review of the Literature

The research literature on emotional intelligence has been divided as follows: organizational research on EI, the psychology research on EI, and nursing research on EI. There is also a large body of educational research on emotional intelligence that is only indirectly related to the topic of this research and will not be reviewed in this chapter.

Emotional intelligence: The Organizational Research

Introduction and Background

"Traditional intelligence is a necessary but not sufficient predictor of success" (Wilhelm & Engle, 2005). Literally thousands of organizational research studies support the first part of this statement. The research on Emotional Intelligence is, in part, inspired by the latter half. The limitations of traditionally understood intelligence measurement within organizational contexts are of interest for the following reasons: 1) Traditional intelligence tests do not account for the influence of motivation, relationship, emotions or personality. It is apparent that in a given situation, for example, a person of lesser intelligence who is highly motivated and interpersonally adroit may well outperform a person of higher intelligence. 2) There is considerable controversy over the effectiveness of traditional intelligence tests in "high stakes" decision making (who to hire, who to enroll, etc). Two "high-productivity" cultures, the United States and Germany, have essentially opposite approaches to this (Wilhelm & Engle, 2005). 3) Simply put, intelligence alone does not appear to explain enough of the variability among people when examining performance, productivity, teamwork, leadership and a wide range of other organizational phenomena.
Overview of the Organizational Research on EI

The literature review of organizational research on emotional intelligence will focus on research on emotional intelligence and the following: leadership, performance, teamwork, quality improvement, conflict, problem solving/task performance/goal orientation, hiring, turnover, retention, interpersonal work relationships, work stress, job satisfaction, organizational, pro-social behavior, morale, burnout, and general well-being.

The research summarized in this section covers a wide range of types of organizations and professions, including the following: counseling professionals, college students, factory employees, salespeople in manufacturing, furniture retail, insurance sales, the cosmetic industry, racing yacht crews, nurses, call-center employees, management consultants, military recruiters, entrepreneurs, debt collectors, industrial executives and pub employees. The research also took place in over a dozen countries and used a wide range of EI tools. This diversity both speaks to the broad potential applicability of EI and to the limitations in generalizability of any one study.

EI and Leadership

The earliest EI research was on the emotional intelligence of leaders, and on this subject the research is unequivocal. Repeated studies indicate that the highest-performing leaders demonstrate significantly higher measured emotional intelligence than their peers (Ashforth & Humphrey, 1995; Cavallo & Brienza, 2001). The strength of this research has been sufficient for one author to refer to emotional intelligence as the “sine qua non” of leadership (Rao, 2006). In one study, when executives were hired using EI criteria as part of the selection process, 87% of the high EI executives were later rated in the top third of all executives in the organization, based on specific performance criteria. On
average, they outpaced their performance targets by as much as 20% (McClelland, 1999). Strong EI skills have been demonstrated to be greater predictors of executive success than either IQ or previous experience. It has been demonstrated that the higher in the organization the leader is, the more true this is (Goleman, 1998). Leadership advancement and career success have also been related to higher-than-average levels of EI (Cooper & Sawaf, 1997; Dulewicz & Higgs, 2003). In a seven-year study of 58 general managers, EI accounted for 36% in advancement variance, above that accounted for by IQ (27%) and management competency (16%) (Dulewicz & Higgs, 2000).

This does not mean that IQ is not important. In the research mentioned above, all the executives had high IQs. The research concluded that high IQ alone did not explain the variance in leaders' performance. In earliest writings about emotional intelligence, the claim was made that EI was more important than IQ. The consensus of the research is that above a certain level of IQ, EI may better explain performance variance, not that EI is more important.

Executive performance success translates into positive fiscal outcomes both directly and indirectly. High EI leaders in one large study outperformed their fiscal targets by 15% to 20%. In the same study, the leaders who lacked EI skills underperformed by nearly 20% (McClelland, 1999). When comparing companies of the same size, the companies with high EI CEOs performed better financially, when measured by both company profit and growth (Williams, 1994). When tested for EI, the leaders in one organization who scored above the median on more than half the EI competencies tested produced $1.2 million more profit than did leaders with lower scores. That represented a 139% profit gain (Boyatzis, 1999). Financial advisors at
American Express whose supervisors had undergone EI training were compared to an equal number whose managers had not. The former grew their businesses by 18.1% the year following EI training, as compared to 16.2% for advisors whose managers had not been trained in EI.

Subset characteristics of EI alone have been demonstrated to have a positive fiscal impact. One study demonstrated that strengths in the self awareness cluster of EI skills (Mixed Model of EI) added 78% to profit margins. The self management cluster similarly added 390% profit, and the relationship management cluster, 110% (Boyatzis, 1999).

There is also evidence of an indirect impact of EI on fiscal performance. One company’s EI leadership innovation program resulted in a “savings” of $6 million through decreased accident and injury (Boyatzis & Van Oosten, 2002). A similar “indirect” fiscal impact is illustrated in other organizations whose EI programs focused on employee safety programs and stress reduction programs, both of which resulted in savings in the form of fewer work related accidents, injuries and lost work time.

EI and Employee Performance

Historically, organizational performance has been conceptualized as the execution and completion of well-defined tasks. Over the last 25 years, this notion of performance has evolved to encompass a broader vision. This expanded concept of organizationally effective performance includes, among other things, organizational citizenship behaviors, contextual performance, pro-social organizational behavior and professional extra role behavior. These indicators of contextual performance over and above task performance are regarded as critically important for effective organizational performance. In a recent study that reflects this distinction, EI was not found to be a predictor of optimum task
performance. It was, however, found to predict positive contextual performance indicators and pro-social behaviors (Shaffer & Shaffer, 2005). Other studies have demonstrated a specific relationship between emotional intelligence and organizational citizenship (Day & Carroll, 2004).

An illustration in nursing of the importance of this contextual view of performance comes out of the work of one of the foremost patient safety experts in the United States, Dr. Maria O’Rourke. Her research has concluded that medical errors result not only from the “wrong” thing being done to the “right” patient, but also the “right” thing done to the wrong patient, or the “right” thing done in the “wrong” context, clear examples of the importance of not just correct task performance, but correct contextual performance (O’Rourke, 2004).

This definition of performance carries over into a debate over traditional measures of performance. There is a large body of research that concludes that cognitive ability alone does not explain the variability in employee performance levels from one employee to another. Across studies, cognitive ability was found to account for only 4% to 25% of the variance in job performance. At best, 75% of the performance variability remains unaccounted for (Sternberg, 1998). Numerous studies suggest that this relatively low “known” percentage is increased when including other kinds of intelligence (Sternberg, 1998; Zeider & Roberts, 2004).

Higher-than-average measures of EI have been associated with high levels of performance in research studies of such divergent professions as corporate leaders, business entrepreneurs, factory workers, sales people, military recruiters, high school and college students, mental health workers, ITS staff, debt collectors, airline personnel,
counseling professionals, sports teams, and furniture manufacturing workers (Ashforth & Humphrey, 1995; Bachman, Stein, Campbell & Sitarenios, 2000; Boyatzis, Goleman & HayMcBer, 1999; Cavallo & Brienza, 2001; Cherniss, 2002; Cooper & Sawaf, 1997; Cross & Travaglione, 2003; Deeter-Schmelz & Sojka, 2003; Douglas, Frink & Ferris, 2004; Dulewicz & Higgs, 2000; Dulewicz, Higgs & Slasky, 2003; Fox & Spector, 2000; Higgs, 2004; Jordan & Troth, 2004; Lyons & Schneider, 2005; McClelland, 1999; Shaffer & Shaffer, 2005; Sosik & Megerian, 1999; Sy, Tram & O'Hare, 2006; Wong & Law, 2002; Wong, Law & Wong, 2004). One meta analysis of 57 EI performance research studies and a total sample size of 12,666 (with sample sizes in individual studies ranging from 13 to 1,125) concluded that there is a positive correlation between EI and measures of performance (Van Rooy, et al., 2003).

Other studies have demonstrated a relationship between EI and team performance (Abraham, 1999; Ashkanasy, Ashton-James & Jordon, 2003; Feyerherm & Rice, 2002; Jordan, Ashkanasy, Hartel & Hooper, 2002; Rapisarda, 2002; Rice, 1999). Research on EI and team dynamics has provided evidence for a relationship between EI and team cohesiveness (Molter, 2001; Rapisarda, 2002). Emotional intelligence has also been related to team productivity and team leader effectiveness (Feyerherm & Rice, 2002; Rice, 1999). It is interesting to note that studies of EI and teamwork have concluded that only one team member with high levels of EI, and not necessarily in a leadership role in the team, is enough to positively affect the team performance outcomes (Wolff, Pescosolido, & Druskat, 2002).

High levels of EI have also been associated with a diverse set of positive organizational behaviors. Several studies related high levels of EI to nondomineering,
constructive conflict styles (Feyerherm & Rice, 2002; Jordan, et al., 2002; Quebberman & Rozell, 2002; Rahim et al., 2003). Another study related EI to improved problem solving (Rahim et al., 2003). Still another study related EI to management of the frustration involved in difficult or complex tasks (Schutte, et al., 2000). Emotional intelligence has been related to organizational quality outcomes (Feyerherm & Rice, 2002; Rahim, Psenicka, Polychroniou, Zhao, Yu, Chan, Yee et al., 2003). There is research evidence that even employee behaviors such as conscientiousness and goal setting have been related to high levels of EI (Douglas, et al., 2004; Martinez-Pons, 1997; Spence, Oades & Caputi, 2004).

EI and Levels of Performance

Emotional intelligence has been demonstrated in repeated studies to distinguish between average employees and outstanding ones (Cherniss, 2000; Snow, 2001; Spencer & Spencer, 1993; Vitello-Cicciu, 2003). In one study of 30 organizations, EI competencies distinguished top performers from average ones (McClelland, 1999; Spencer, et al., 1997). Emotional intelligence also appears to be one of the characteristics of “star” performers. These high functioning, or “star performers”, function with higher-than-average innovation, high productivity, and highly effective organizational impact (Boyatzis, 1999; McClelland, 1999; Merlevede, 1997). In a survey of several hundred organizations, high EI was one of the most frequently identified characteristics of star performers. When the profile of such star performers was compiled and examined, EI was as much as two times more prevalent in the star performer’s profile than technical or cognitive skills (Goleman, 1998).
Competency research in more than 200 companies worldwide suggests that of the differences between performance level groups, (average, above average, outstanding performers) less than one-third of the difference is due to technical and cognitive abilities. Fully two-thirds of the difference is related to emotional competence. In one study, greater than 80% of the difference in individual performances was attributed to EI (Goleman, 1998).

The differences among substandard, average, outstanding, and star performers have direct fiscal impact. This impact has to do with the relationship of productivity, job complexity, level of performance, and economic value estimates. Top performers doing work of medium complexity (sales clerks and mechanics, for example) have been estimated to be 85% more productive than average performers doing the same work. Top performers doing the most complex jobs are 127% more productive than average performers (Hunter & Hunter, 1990).

No studies exist in the nursing literature comparing levels of performance and tested EI, nor ones on the fiscal impact of varying levels of performance. However, by job complexity criteria, nursing is classified as a high-complexity job. Projecting the impact of nurses with a high level of EI on patient length of stay, mortality/morbidity and safety, it is easily conceivable that such nurses could demonstrate a significant fiscal impact on the organizations in which they are employed. Investigation into the EI of nurses is a first step into this important area of research.

The Fiscal Impact of Emotional Intelligence

Several large organizational studies have demonstrated that high levels of EI correlate with positive fiscal outcomes (Deeter-Schmelz & Sojka, 2003; Pesuric &
Byham, 1996; Porras & Anderson, 1981). As an example, in a multinational consulting firm, high EI-scoring consultants delivered $1.2 million more in profit from their accounts than lower-scoring consultants (Boyatzis et al., 1999). In the discussions of EI and performance, it should be noted that any performance over and above the standard mean can have profound fiscal implications. One study concluded that, depending on the complexity of the job, performance at one standard deviation above the mean translated directly to positive fiscal outcomes. This translated to 19% to 48% added economic value added in non-sales jobs and 48% to 120% added economic value in sales jobs. These percentages reflect dollars, economic "value-added performance" (Hunter & Hunter, 1990). In one sales study, high scorers in subsets of EI were demonstrated to contribute to profit margins. Strengths in the self awareness cluster of EI added 78% to baseline profit. Strengths in self management 390%, and the EI relationship cluster, 110% (Boyatzis, 1999).

**Star Performers**

EI has been demonstrated in repeated studies to distinguish between performance levels of employees (Cherniss, 2000; Spencer & Spencer, 1993: Vitello-Cicciu, 2003; Snow, 2000). In one study of 30 organizations, EI competencies distinguished top performers from average ones (McClelland, 1999; Spencer & Spenser, 1993). Emotional intelligence appears to be one of the characteristics of high-functioning, or "star", performers in organizations. The performance of these "star performers" is characterized by innovation, high productivity, and highly effective organizational impact (Boyatzis, 1999; McClelland, 1998; Kelly, 1998; Merlevede, 1997). In a survey of several hundred organizations, high EI was one of the most frequently identified characteristics of star
performers. It was as much as two times more prevalent in a star performer’s profile than technical or cognitive skills (Goleman, 1998).

**EI and Workforce Issues**

The results of one workforce study of over 300 businesses (n = 20,000) reported that nearly 50% of newly hired employees in the study failed within 18 months of hiring because of poor interpersonal skills. Causes of these failures included the following: 26% could not accept feedback, 23% were unable to understand and manage emotions, 17% lacked motivation, and 5% were of the “wrong temperament” for the job. Only 11% failed for reasons related to technical skills (King, 2005). The problem of traditional measures of intelligence and hiring outcomes is illustrated in a study of policemen in which IQ only determined 7% of successful hiring decisions (Aylward, 1985).

Numerous studies have concluded that utilizing EI evaluation during the hiring process improves hiring outcomes. Benefits result from both direct positive outcomes that result in fiscal benefits, and indirect outcomes that result from avoiding negative fiscal outcomes. (Connolly, 2002; Hay/McBer et al., 1997; McClelland, 1999; Spencer, McClelland & Kelner, 1997; Wong & Law, 2002). An example of a direct positive outcome is hiring a high-EI applicant whose hiring results in improved organizational fiscal performance. Indirect benefits that avoid negative fiscal outcomes can be illustrated using the example of employee turnover. In one organization, employees selected with EI criteria had a 63% lower turnover rate than those hired without them (Wong & Law, 2002). Monies saved with improved retention has a huge impact on an organization once the cost of temporary replacement, recruitment, application, rehiring and training costs are considered.
EI has been related to other important workforce issues. High-EI employees, when compared with lower-EI employees, have been found to exhibit constructive conflict resolution skills, better attendance, improved retention on the job, positive adaptation to work stress, greater job satisfaction, stronger organizational commitment, greater career success, and lower burnout rates (Abraham 2000, 2005; Boyatzis, 1982; Dulewicz & Higgs, 2003; Carson, Carson, Fontenot & Burdinjr, 2005; Geery, 1997; Gerits, Derksen, Verbruggen, & Katzko, 2005; Gohm, Corser & Dalsky, 2005; Hay/McBer, 1997; Jordan et al., 2002; Jordan & Troth, 2004; Law, Chi-Sum & Song, 2004; Lusch & Serpkeenci, 1990; Nikolaou & Tsaousis, 2002; Pellitteri, 2002; Poon, 2004; Slaski Spencer & Spencer, 1993; Spencer, et al., 1997; Wong et al, 2002; Wong, Law & Wong, 2004 ). Emotional intelligence has also been demonstrated to be significantly associated with positive workplace interpersonal skills ranging from mentorship to adaptive behaviors in aggressive environments. (Bennett, 2002: Clarke, 1996; Cooper & Sawaf, 1997; Quebbeman & Rozell, 2002; Rozell, Pettitjohn & Parker, 2004; Schutte, Malouff, Bobik, Coston, Greeson, & Jedlicka et al., 2001).

On some workplace variables there is less consensus. Some studies on workplace morale and workplace well-being have concluded that there is a correlation between these variables and EI (Dulewicz & Higgs, 2003; Weisinger, 1998; Dewe, 2004), other studies have concluded that there is not (Donaldson-Feilder & Frank, 2004). Some studies have positively correlated EI with job satisfaction (Law, et al., 2004; Wong & Law, 2002); others have not (Donaldson-Feilder & Frank, 2004). One study concluded that although EI was related to affective organizational commitment (stated intention to remain in
current organization), though this did not translate into actual retention in the organization (Carmelli, 2003).

**EI Education: The Organizational Impact**

Numerous studies have demonstrated the positive impact of EI employee education programs on various organizational objectives. In one study on job safety, after EI education, on-the-job injuries decreased by 43% annually, number of accidents decreased by 41%, and time lost from accidents was reduced by 50% (Boyatzis & Van Oosten, 2002). In another study, EI education for Canadian military recruiters improved rates of successful recruitment (Spenser & Spenser, 1994). Other studies have demonstrated a reduction in employee grievances after EI education (Pesuric & Byham, 1996; Porras & Anderson, 1981).

In a study of human service employees working in halfway houses and group homes, an emotional intelligence-based support program was designed and instituted to assist the employees in improving their ability to deal with work-associated stress. The study enrolled 1,000 staff of varying roles and responsibilities at 50 agencies. After the emotional intelligence training, the staff members were retested with a variety of tools. The study results indicated positive work related employee outcomes such as improved ability to give supportive feedback on the job, greater ability to handle disagreements and work overload, and better team climate when compared with the control group (Heaney et al., 1995).

**Psychological Research on Emotional Intelligence**

The first researchers of emotional intelligence were psychologists, but the psychological research on EI has lagged behind the organizational and educational
research. The rate of new research in this area has greatly increased since 2004. The psychology research on EI has wide breadth, ranging from studies of psychopathologies such as substance use, somatoform disorders, eating disorders, anxiety disorders, spouse abuse, alcoholism, drug use and aggressive behavior, to general descriptive studies on EI and research relating EI to traditional measures of intelligence. Other psychological research has been done on the physiology of EI and the EI norms in various populations.

*EI and the Brain*

Discussion of the physiology of the brain and cognition is beyond the scope of this presentation, but several representative studies on EI and the brain will be mentioned. One study of individuals with normal IQ scores correlated low EI scores with defective somatic markers in the individual’s prefrontal cortex (Bar-On, Denburg, & Bechara, 2003). A study demonstrated EEG differences between an individual performing skills requiring traditionally understood cognitive activity and skills requiring the use of emotional skills (Jausovec & Jausovec, 2005a). These may be gender related (Jausoveck & Jaurovec, 2005b). In another study, emotional tasks such as face recognition were related to cortical activation over and above that which is associated with traditional cognitive functions (Freudenthaler, Fink, & Neubauer, 2006).

*EI and Physiological/Psychological Health*

Emotional intelligence has been demonstrated to be positively related to psychological well being (Brackett & Mayer, 2003). Several studies have reflected the relationship between emotional intelligence and various specific indicators of physiological, psychological and social health (Bastian, Burns, & Nettelbeck, 2005). Emotional intelligence has been demonstrated to be a significant predictor of both drug
and alcohol use (Brackett, Mayer, & Warner, 2004). Lower EI scores have been correlated with smoking in adolescents (Trinidad, Unger, Chou, & Anderson-Johnson, 2004). In one study, low EI scores were related to spouse abuse offenders. This study also demonstrated a significant negative correlation among certain subsets of EI and the test used to predict the potential for abuse (Winters, Clift & Dutton, 2004). Low EI scores have also been related to “deviant” behavior and levels of psychopathology in a prison population (Petrides, Fredrickson & Furnham, 2004).

High EI scores have been related to general health, positive mood and general life satisfaction (Brown & Schutte, 2006; Cooper & Schwaf, 1997; Gannon & Ranzijn, 2005; Jain & Sinha, 2005; Law, et al., 2004; Martinez-Pons, 1997; Palmer, Gardner & Stough, 2003; Schutte, Malouff, Simunek, McKenley & Hollander, 2002; Saklofske, Austin & Minski, 2003; Slaski & Cartwright, 2002). In a 2006 study, higher levels of EI were related to both lower levels of fatigue and improved transition skills in a population of college students. Studies report high EI scores to be related to less overall stress and higher levels of self esteem and self esteem “rebound” after negative experiences (Brown & Schutte, 2006; Nikolaou & Tsaousis, 2002; Parker, Hogan, Estabrook, Oaks et al., 2006; Schutte et al., 2002). Negative correlations have been made between EI and depression, as well as alexithemia (the inability to express emotions) (Martinez-Pons, 1997; Petrides, et al., 2004; Saklofske, et al., 2003).

**Personality Research and EI**

Research on the role of personality in the organizational sciences has evolved since the mid-1960s when Guion and Gottier (1965) issued a statement concerning the predictability of job performance in organizations on the basis of personality. Beginning
in the mid-1980s, the field witnessed a re-emergence of personality research in organizations, which has continued to the present time. Promoting this increased research activity has been the emergence of the Five-Factor Model (FFM), often referred to as the "Big 5" model of personality, which has dominated personality research in organizations (Mount & Barrick, 1995). Factor analytic studies consistently have identified and confirmed the five dimensions (i.e., conscientiousness, agreeableness, extroversion, openness to experience, and emotional stability) across situations, time, and cultures (Langhorne, 2004; McCrae, 1992).

EI and Personality

One of the critical issues for construct development in emotional intelligence is the relationship between EI and personality. This issue is significant for several reasons. First, in terms of the development of EI as a concept, it must be determined to be distinct from personality. Secondly, there is broad consensus that for EI to be considered a form of intelligence, it must also be demonstrated to be distinct from personality (Bar-On, 1997; Davies, Stankov & Roberts, 1998; Mayer, et al., 2000; Mayer, Caruso & Salovey, 1999; Wolfradt, Felfe & Köster, 2002). Lastly, in terms of explanatory value, it must be demonstrated that whatever affect EI has on a particular variable, the effect is over and above the effect of personality variables.

Numerous studies have addressed the issue of whether EI is a personality trait or a form of intelligence. This issue is largely dependant on the model and instrument that is used. Ability-based tests of EI have been demonstrated to have little overlap with personality measures. The personality models and "mixed" models of EI have greater overlap with personality measures (Caruso, Mayer & Salovey, 2002; Ghorbani, Mark,
Watson, Davison, Kristl & Mack, 2002; Law, et al.; 2004; Roberts, Zeidner & Matthews, 2001; Van Der Zee, Thijs & Schakel, 2002; Van Rooy, Viswesvaran & Pluta, 2005; Law et al., 2004; Schutte, Malouff, Hall, Haggerty, Cooper, Golden & Dornheim, 1998). One study compared two EI tests and found differences in the EI scores in the same participants. In that study, EQ-i scores (personality model of EI) were significantly related to personality, but the MSCEIT (ability model of EI) scores were not (Livingstone & Day, 2005). Personality model tests and mixed model instruments have clear overlap with existing personality tests such as the Big 5. Ability model tests have little or no overlap with these personality tests.

EI and Psychopathology

Alexithemia is a recently identified construct, identified in individuals with serious inability to experience, identify and express emotions (Coffey, 2003). Some studies have identified a statistically significant, negative relationship between EI and alexithemia, as would be expected (Fijkunishi, Kidachi & Yamauchi, 2003; Lumley, Britta, Partridge, Ty & Labouvie-Vief, 2005; Parker, Sakalofske, Shaughnessy, Huang, Wood & Eastabrook, 2005; Parker, Taylor & Bagby, 2001; Saklofske et al., 2003; Lumley, et al, 2005). Given that alexithemia is one of the predictors of negative outcomes in therapy as well as failure to achieve positive outcomes, EI testing could be important in treatment selection, entry into treatment criteria, and perhaps could be considered as part of skill building for improved outcomes in alexithemia.

High levels of EI have been associated with better individual coping (Furnham, Petrides, & Spencer-Bowdage, 2002). Low levels of tested EI have been associated with
undesirable coping behaviors (Engleberg & Sjoberg, 2003; Palmer, Donaldson & Strough, 2002).

Low EI scores have been correlated with personality disorders, depression and suicidal ideation, as well as higher rates of relational dysfunction and greater difficulty with social function (Bar-On et al., 2003; Brackett et al., 2004; Ciarrochi et al., 2002; Leible & Snell, 2004; Martinez-Pons, 1997; Saklofske, Austin & Minski, 2003; Taylor, 2001). High EI scores have been associated with fewer post traumatic stress symptoms in PTSD patients (Hunt & Evans, 2004).

EI in Families and Relationships

High levels of EI have been associated with high levels of satisfaction with relationships, including marital relationships, fewer negative interactions with friends, and both larger and higher-quality social networks (Ciarrochi, Forgas & Mayer, 2001; Lopes, Brackett, Nezlek, Schutz & Salovey, 2003). EI appears be related to positive family function. High parental EI has been correlated with positive effects on children and perceptions of parental support (Lopes et al., 2003; Martinez-Pons, 1999; Schutte et al., 2001). In studies of EI and partnering, high EI was associated with higher scores for empathic perspective taking and self-monitoring in social situations, more cooperative responses toward partners, higher scores for close and affectionate relationships, and higher levels of partner marital satisfaction (Schutte et al., 2001). There is some evidence that individuals from larger families have higher EI than those from smaller families (Morand, 1999). Recent research indicates that the EI of adult children and their parents are correlated and that individual’s who grew up with at least one parent at home had higher EI than those who did not (Wong & Foo, 2006).
On the basis of a literature review, one nursing researcher concluded that EI was an important skill for the development of therapeutic relationships (McQueen, 2004). There is also research on negative outcomes resulting from low levels of EI in various helping or therapeutic professionals. Overall, low EI appears to be related to lower interpersonal skills (Lopes et al., 2003).

EI and Demographic Profiles

The research on EI and aging is conflicting. Several studies report changes in EI with age (Kafetsios, 2004). One study reported that EQ increased with age, rising significantly in the third decade of life, peaking in the fifth, and declining slightly in the seventh and eighth decades. This study was conducted in Canada but reflected reported similar trends demonstrated in Britain (Higgs, 2004). In a different study, EQ-i scores peaked in the 35 to 44 age bracket then decreased (Ciarrochi, Dean & Anderson, 2002). A study of first-year medical students reported an inverse relationship between age and EI (Austin, Evans, Goldwater, & Potter, 2005).

There have also been conflicting conclusions about EI and gender from the beginning of the study of emotional intelligence. Several issues are related to this which are not EI concept or test specific. For example, a gender stereotype persists in western culture that men are “cognitively smart” and women are “emotionally smart” (Petrides, et al., 2004). This finding was validated in a study which also concluded that the intensity of this stereotyping is diminished when individuals are asked to score themselves on specific subsets of EI as apposed to a general score (Petrides, et al., 2004). This more specific observation supports a gender heuristic. There appears to be a reliance on gender
stereotypes when target and situation specific information is lacking (Engleberg & Sjoberg, 2005).

Some EI studies have demonstrated gender differences between men and women in their study samples (Amelang & Steinmayr, 2005; Austin, et al.; Brackett et al., 2004; Charbonneau & Nicol, 2002; Pandey & Tripathi, 2004; Ciarrochi et al., 2001; Higgs et al, 2004; Humpel, Caputi & Martian, 2001; Kafetsios, 2004; 2005; Lyons & Schneider, 2005; Petrides et al., 2004; Reiff, Hatzes, Brammel & Gibbon, 2001; Van Rooy et al., 2005). Other studies have not found EI gender differences in their study populations (Roothman, Kirsten & Wissing, 2003; Saklofske et al., 2003; Jaeger, 2001). Numerous studies have reported gender differences in the subset EI scores but have not correlated these with differences in total EI scores (Livingstone & Day, 2005; Petrides et al., 2004). One study of teenage students reported gender differences in low EI scoring groups but not in high EI scoring groups (Zeidner, Shani-Zinovich, Matthews, & Roberts, 2005).

**EI and Culture**

Studies of EI have been done in Latin America, Iran, China, Germany, New Zealand, Asia, the UK, Iran, Malaysia, Canada, Australia and Japan (Chan, 2004; Ghorbani, et al., 2002; Palmer et al., 2003; Parker, Hogan, Estabrook, Oak & Wood, 2006; Shipper, Rotondo, & Hoffman, 2003; Watson, Ghorbani, Davison, Bing, Hood & Ghamaleki, 2002; Wong, et al., 2004). Some of these studies report similar results when compared with studies done in the United States. (Cherniss, 2004; Higgs, 2004; Svyantek & Rahim, 2002; Wong et al., 2004). Other studies report significant differences cross culturally and describe important distinctions (Cadman & Brewer; Chan, 2004; Leung, 2005; Parker et al., 2005; Rahim et al., 2003; Shipper et al. 2003; Kaushal & Kwantes,
2006). One study of cross-cultural dexterity and adaptability suggests that higher levels of EI increase cross-cultural adjustment and may decrease the work team conflict resulting from cultural differences (Jassawalla, Truglia & Garvey, 2004). Another study of Chinese managers concluded that the Western concept of emotional intelligence could not be applied in a Chinese work setting (Leung, 2005; Tett, Fox & Wang, 2005). Few studies comparing EI among cultures exist. In a comparison of Iranian and American students, overall EI scores were similar but subset scores varied (Ghorbani, et al., 2002).

One serious problem with cross-cultural EI studies is that they utilize instruments that have not been adapted or tested for use between cultures. This testing problem affects the validity of the test. For example, when EI is studied in multinational settings, one conclusion that has been drawn is that relationships with a power differential manifest differently across cultures. In EI studies, this affected EI scores and comparisons between individuals (Shipper et al., 2003).

There have been few studies relating EI and racial/ethnic differences. In one study of racial group differences in EI, the minority participants (African-American and Hispanics) demonstrated higher EI scores than the racial majority participants (Van Rooy et al., 2005).

**Nursing Research on Emotional Intelligence**

There has been little nursing research on emotional intelligence and clinical nursing practice. A comprehensive literature search in 2006 revealed a total of 18 nursing EI research studies from the United States, Norway, Australia, the Netherlands and Canada. Other studies, from Portugal and China, were noted that did not have English translations available. See Table 4.
In the English language research literature, the earliest nursing EI study was done on the subject of EI, hardiness and job stress (Tjong, 2000). This study was followed by other EI studies on stress and burnout (Budnick, 2003; Farmer, 2004; Gerits et al., 2005; Neal, 2002). On the whole, these studies replicated results demonstrated in the non-nursing research literature.

Several nursing studies on EI and nursing leadership demonstrated similar leadership and employee outcomes as those described in non-nursing leadership EI research (Molter, 2001; Vitello-Cicciu, 2001, 2003). In one Canadian study of over 6,000 nurse leaders identified as having characteristics of high EI (but not measured EI), the employees of the high-EI leaders reported superior outcomes such as increased resiliency amidst the difficulty of organizational change (Cummings, 2005). In a study done on a sample which included nursing leaders, higher EI leaders were found to be better able to adapt their leadership style to the needs of their staff (Moss, 2006).

Several nursing studies demonstrated similar findings as those in the non-nursing EI research. A few studies demonstrated a relationship between high EI in nurses and positive conflict styles (Jordan et al., 2002; Morrison, 2005). Several studies explored EI in the identity construct of nursing (Humpel, et al., 2001; Kooker, Shoultz & Codier, 2006, in press; Akerjordet, 2004). Two studies explored EI in specific clinical patient populations. In one study, EI was found to be related to diabetes self-care management activities and, in men, glycemic control (Samar, 2001). In a second study, low-EI scores
were found in a population of HIV patients whose medication compliance was being studied (Willard, 2003).

Leadership research has been done in both the nursing and non-nursing research literature. Research on patient populations has been done in both the nursing (diabetes and HIV medication compliance) and psychology (alexithemia, alcoholism, drug use, spouse abuse populations). Few performance studies were found in nursing and none on EI and nursing teams.

*Gaps in the Nursing Research and Recommendations for Further Research*

As there are so few studies on Emotional Intelligence in nursing, the gaps in the research are legion. No research exists that explores the measured emotional intelligence of nurses as a group. The most obvious discrepancy between the general EI research and the nursing EI research is in performance research. Of the two nursing studies on EI and performance, only one studied clinical performance and, in it, EI was not measured.

Clearly, the lack of any study on EI and nursing teams also constitutes both a gap and an area for future research. This is of secondary importance to performance research at this time for several reasons. First, in the general research literature, EI team research followed years of individual performance and leadership research. The team research was built upon the individual performance literature. Secondly, there are currently tools under development that are designed to measure team EI. Awaiting their improvement may enhance the quality of future research on the EI of teams.

Another problem evident in the nursing research literature has to do with types of measurement used in the 18 existing nursing EI studies. Although the majority of the nursing research studies on EI are based on the ability model of EI, many of them utilized
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<th>Year</th>
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<td>1999</td>
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<td>2007</td>
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<td>EI and Nurse’s Identity</td>
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self report instruments. Only five studies, two on leadership, two on clinical population studies and one on nursing stress, used instruments that were based on the ability model and measured EI “ability” instruments, not self report or 360 instruments. Of those five studies, two used the MEIS, the early version of the MSCEIT2.0. Of the remaining three studies, which used the MSCEIT, two studies were on nursing leadership, one was on burnout and one on a clinical patient population. In short, there are no nursing studies that utilize both the ability model of EI and a performance instrument such as the MSCEIT 2.0.

Conclusion

Emotional intelligence has emerged as a significant concept as reflected in the organizational, psychological and nursing research. Much progress has been made in the development and validation of the concept in the brief decades since its inception. The performance and leadership research has, to date, offered the most conclusive findings, but studies in other areas raise many important issues and suggest areas for further exploration. Much work remains to be done on clarification of the concept, exploration of the relationship among the three main types of models of EI and further development of the tools used to measure it. The limitations of the concept, its tools, and the existing research notwithstanding, results of the studies so far suggest great possibilities for further research on emotional intelligence in the future. The preliminary research findings in nursing are suggest that much more research in the field of nursing is needed.
Chapter 3: Method

This study utilized an exploratory descriptive design and a quantitative analysis. The exploratory and descriptive design was chosen because of the nascent nature of the concept of emotional intelligence in general and the paucity of research on the concept within the profession of nursing. Exploratory and descriptive studies are particularly appropriate in initial studies of phenomena within a population, when instruments are still in the process of development, for general surveys of phenomena within a population, and when participant characteristics are a primary concern (Chronicle, 2005).

Research Conceptual Model and Instrumentation

The instrument used in this study was developed from the theoretical construct of EI discussed in Chapters 1 and 2. The Mayer, Salovey and Caruso Emotional Intelligence Test (MSCEIT) was created as an instrument to measure the “four-branch” ability model of EI. For this reason, the structure of the EI ability concept discussed in previous chapters is similar to structure of the tool used in this study. The four branch model translates into EI test scores, as summarized in Figure 6.

![Figure 6. Relationship between conceptual and MSCEIT structure (Mayer et al., 2002)](image-url)
This close relationship between the conceptual basis for the study and the operational structure of the MSCEIT instrument is reflected in the substruction diagram. (See Figure 7).

Review of Substruction Diagram

A diagram of the relationship between the research question and the concepts involved in this study, their theoretical linkage and the operational plan for investigating them is illustrated in a study substruction diagram (See Figure 7). On the substruction diagram, the conceptual foundation of the study is diagrammed on the left-hand third of the substruction page. The concept of emotional intelligence is diagrammed as consisting of two general areas, area Experiential EI and area Strategic EI. These two areas are further divided into the branches that comprise them. Experiential EI is made up of branches Perceiving Emotions and Using Emotions. Strategic EI is made up of branch Understanding Emotions and branch Managing Emotions. Two other major conceptual components, the clinical ladder and demographic/career information, are included on that third of the page.

In the center third of the diagram, the operational plan for the study is diagrammed, the Mayer-Salovey-Caruso Emotional Intelligence Test, version 2.0 (MSCEIT 2.0) with its constituent scores. The operationalization of clinical ladder status and the specific variables related to demographic/career information are also diagrammed. On the right-hand third of the page, the specific measures are listed for each of the conceptual and operational portions of the study.
CONCEPTUAL

Emotional Intelligence Ability Model:
- Perceiving Emotions
- Using Emotions
- Understanding Emotions
- Managing Emotions

(Mayer, et al, 2002)

OPERATIONAL

Four Branches of the Ability Model:
- Perceiving Emotions
- Using Emotions
- Understanding Emotions
- Managing Emotions

MEASUREMENT

MSCEIT SCORES:
- Total EI Score
- Experiencing Emotions Score
- Perceiving Emotions Score
- Using Emotions Score

Strategizing With Emotions Score
- Understanding Emotions Score
- Managing Emotions Score

CLINICAL LADDER

(Job Descriptions - Study Sites:
- Staff Nurse
- Clinical Ladder Nurse I-VI

Study Variables:
- Clinical ladder nurse
- Staff Nurse (Non clinical ladder)

Demographic/career factors related to emotional intelligence

Age
Gender
Educational Level
Ethnicity
Clinical Practice Area
Clinical Practice Level
Hospital
Anticipated years in Nursing
Anticipated years in current job
Level of organizational commitment

Figure 7. Study subtruction diagram
Setting

The setting for the study was a private nonprofit multi-facility health care system which consists of 4 hospitals on two islands in the state of Hawaii. Of the 4 hospitals, only the 3 facilities on the island of Oahu participated in the study. A description of the three facilities is as follows: Medical Center #1 is a state's only specialty care facility for women and children. It is a major teaching facility affiliated with the University of Hawaii, John A. Burns School of Medicine, and is the designated perinatal center for Hawaii and the Pacific Basin. The hospital has 232 licensed beds for adults and children and 90 licensed bassinets for both critically ill and well babies. The hospital has 12 nursing units.

Medical Center #2 is a community-based acute care hospital serving leeward Oahu residents. It provides a broad range of services including a cardiac catheterization lab and specialized outpatient surgery care. The hospital has 8 inpatient nursing units and has 92 licensed inpatient beds.

Medical Center #3 is a tertiary-care center located in downtown Honolulu. It is licensed for 159 acute care beds and has a wide variety of specialty care areas, including stroke care and cardiac surgery.

Study Participant Sample, Selection Procedure and Inclusion Criteria

The study participants consisted of clinical staff registered nurses licensed to practice in the state of Hawaii, and employed at one of the three study hospitals. The study participants were recruited by posters placed on each of the nursing units, which briefly described the study and invited study participation (See Appendix A). Some of the
study participants were clinical nurses who were not on the clinical ladder, others were on the clinical ladder. Participation was voluntary. Incentive for participation in the study was provided in the form of a gift certificate to a boutique coffee distributor, participant access to their emotional intelligence scores and interpretation of the scores, as well as a report of the final study findings. Study participants had to have access to a personal computer they could use to access both the study web site and the MSCEIT instrument site. These sites were not accessible from hospital-based computers. Participants were required to have sufficient skills to access and navigate the study site and MSCEIT instrument site.

Operationalization of Performance

For the purposes of this study, performance was operationalized using the RN clinical ladder. The clinical ladder, which grades clinical performance at various levels, provides nurses with a way to be recognized for increasing levels of clinical performance. For this reason, the clinical ladder was chosen as a means of identifying various levels of performance in clinical staff nurses.

Data Collection

Data were collected in two ways. First, demographic/career information data were collected on a secure study web site. Secondly, the emotional intelligence instrument was administered via a secure online testing site. The study web site was constructed by the principal investigator under the direction of a University of Hawaii Information Technology professor. The web site consisted of eight pages with four additional
informational pages. These pages guided the participant through the informed consent and demographic/career information gathering portions of the data collection. The informed consent, demographic/career information, and study follow up requests, when completed on the study web site, were automatically sent by e-mail to the researcher. On the final page of the web site, the participant was directed by a hyperlink to the MSCEIT testing site. A map of the web site is summarized in Figure 8. Representations of the web site pages may be found in Appendices B-O.

Data Collection Process: Demographic/Career Information

After following the URL link on the study solicitation poster, study participants were connected to page 1 of the study web site, which presented a welcome message, a definition of emotional intelligence and a brief description of the study. On page 2 of the study site a complete description of study involvement was presented. If the participant continued in the study, they were asked to select a code name to use for the entirety of the study. Participants were directed to use the code name for the data gathering phase of the study as well as on the emotional intelligence testing instrument.

On page four, the participant was presented with the informed consent process. After informed consent was completed, the completed form was automatically sent electronically to the study researcher by e-mail. Once informed consent was completed, the demographic/career information for the study was collected on study web site page five. On this page, data was collected regarding age, gender, ethnicity, education level, years in nursing, clinical practice area, practice level (graduate nurse, staff nurse, clinical ladder III, IV, V, or VI), anticipated years in current job, anticipated years in nursing and
Figure 8: Map of research study website
degree of organizational commitment. Once the data was complete, it was electronically sent to the study researcher by e-mail.

Page six offered the participant several options for the study follow up. Study web page 7 offered the study participant the option of learning more about emotional intelligence. This page contained links to 5 additional information pages on the study web site, each of which addressed specific questions about emotional intelligence. On the final page of the study web site, the study participant was invited to finish the study by completing the MSCEIT instrument by way of a hyperlink to the instrument testing site. The necessary codes and passwords for accessing the MSCEIT were listed on the final study web page.

*MSCEIT Testing Site*

Once connected to the MSCEIT web site, the participant entered the study code and password and provided his or her study code name and demographic information. They then completed the MSCEIT instrument. Upon completion of the instrument, an e-mail was automatically sent to the study researcher with notification of the participant’s completion of the instrument. The study researcher was then able to go to the testing site, provide a private access code, and select the participant’s test for scoring.

Once the instrument was evaluated, scores were entered along with the participant’s demographic/career information on a study data sheet. This data was then entered in the study data excel file for later analysis using SPSS.
Study Follow Up

On the study follow up page, the participant had the option of selecting what if any follow up they wanted from the study. Each participant had the option of selecting any, none, or all of the following: his or her emotional intelligence score, an interpretation of their emotional intelligence score, a copy of the study results, and a $10 gourmet coffee coupon. If the participant desired their score, its interpretation, or a copy of the study, an e-mail address was requested. If the participant requested the coffee coupon, a name and address was required for mailing purposes. Study data was kept separate from the secure file with real names/addresses.

All study participants were sent an e-mail acknowledging their participation in the study as soon as their participation was completed. In this note, they were told that EI scores and interpretation, if requested, would be sent within two weeks and that the study results, if requested, would be sent in the fall of 2006. Each study participant was sent a follow up letter thanking him or her for participation in the research study. Study participants who requested their emotional intelligence scores received them by e-mail or US post within two weeks of completing the study. Participants who requested an interpretation of their scores were sent an explanation of the scores and sub scores (area, branch, scatter and positive/negative) according to the guidelines recommended by MSCEIT administration training materials. The feedback included a brief explanation of the meaning of each score, graphic representation of the score, and score referencing within the below average-average-above average range. A summary of study findings was sent to study participants in the fall of 2006.
Participants who did not complete the study were sent two reminder e-mails, a week apart, reminding them that they had not completed the study and requesting that they do so. The e-mail contained directions on connecting with the site's URL for the MSCEIT testing and site password/entry code information. In several cases, this prompted study participants to complete the study. A final reminder was sent prior to the end of the study. One participant responded to that final reminder to complete the study.

Instrumentation

*Introduction*

Two instruments were utilized for this study. The first was a demographic/career information tool constructed by the researcher, which was designed to collect information on the following variables: Participant age, gender, years in nursing, highest level of education, ethnicity, hospital of employment, clinical practice area, clinical practice level, anticipated years in nursing, anticipated years in current job, and level of organizational commitment. The second study instrument used was the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), version 2.0, an EI ability measurement instrument based on the four branch ability model of Mayer and Salovey.

The instrument that was utilized for this study was the MSCEIT 2.0, an EI ability measurement instrument based on the four branch ability model of Mayer and Salovey. The MSCEIT version 2.0 consists of 141 items and takes approximately 35 minutes to complete on line. The instrument is administered by Multi-Health Systems, Inc. (MHS), an on line psychological testing serviced based in Canada. The MSCEIT 2.0 instrument
consists of a set of tasks intended to objectively assess emotional perception, facilitation, understanding and management (Mayer et al., 2000). This instrument requires performance of emotional tasks rather than relying on self or other reports. The instrument responses represent actual emotional skills and problem solving abilities. These study tasks include rating emotions that are depicted on faces or in pictures, explaining emotional and social situations, and relating emotions to other phenomena.

Instrument Scoring

The 141 questions on the MSCEIT are used to "build" the test scores. Each of the test questions is scored then combined with other questions to make one of the "task" scores. The task scores are combined with other task scores to make the branch scores, the branch scores are grouped with another branch score to make an area score, and the area scores are combined to make the total emotional intelligence score.

Emotional intelligence can be indicated by one total EI score which indicates an overall performance level. It can also be described using subsets of EI. The MSCEIT 2.0 provides 15 scores: Total EI score, two area scores, four branch scores, and eight task scores (illustrated in Figure 9).

Scoring Ranges

Emotional intelligence scores are categorized in several ways. For the purposes of this study, the scores were categorized as "below average," "average" and "above average." Within the "average" category, "low average" and "high average" were also used.
**Supplemental Scores**

In addition to these 15 scores, the MSCEIT included three supplemental scores. The Scatter Score measures the degree of consistency in test responses. The Positive/Negative Score reflects the tendency of the test taker to respond positively or negatively to emotional stimuli in the form of instrument questions. The third supplemental score, the percentile score, compares the participant to the MSCEIT normative sample.

**Scoring Methods: Consensus, Expert, and Target Scoring**

Unlike other kinds of instruments, there are not “right” answers for the kind of questions that the MSCEIT 2.0 poses. For this reason, answer criteria are developed using three methods. The first method is called consensus scoring. This type of scoring arrives
at the "correct" test answers on the basis of the answers from the MSCEIT normative sample (n=5000). The "correct" answers are the ones most commonly selected by the normative sample participants. The second method is called "expert scoring". In expert scoring, the "correct" answers are based opinions given by an "expert" panel of psychology professionals. These two scoring criteria both utilize a series of the "best" answers to a question. The study participant gets a certain number of points credit for the "best" answer, and lesser numbers of points for the second best answer, etc. In comparisons of scoring by consensus and expert criteria, scores are roughly similar.

There is little research on differences between the two scoring methods. It has been suggested that individuals who score higher with consensus scoring over expert scoring may have more conventional emotional responses than those who score better using expert scoring. Those who score better with expert scoring agree more with "experts" than a typical population of people. It has been suggested that they may have more sophistication in their emotional responses (Mayer et al., 2002).

The third scoring method, used in some but not all of the questions on the MSCEIT instrument, is called target criteria scoring. In target criteria scoring, the "target" of the question indicates what the correct answer should be. An example of this is the Faces task. In this task, a picture of a person’s face is presented and questions are asked about what emotions are indicated by the person’s facial expression. In target scoring, the person in the picture provides the "right" answer by indicating what they were feeling as the picture was being taken (Mayer et al., 2002).
Description of the MSCEIT Normative Sample

A normative sample was used to establish means and standard deviations for the MSCEIT instrument. The normative sample (n=5,000) was collected at over 50 research sites throughout the world. The instrument was administered in English at all 50 sites. There were 2599 (52%) women in the sample as opposed to 1866 (37%) males. The mean age was 24, with a range of 17 to 79. Although most of the sample was under 30, there were adequate numbers in each of the age groups. Over half the normative sample was Caucasian, but 920 (26%) were Asian. Most of the sample, 2902 (58%) had some college education, an additional 1203 (26%) were baccalaureate or masters degree graduates.

MSCEIT: Population Suitability

The MSCEIT instrument has been used with populations in the US, Canada, Israel, Australia, France, China, South Africa, Switzerland, the Philippines, Sri Lanka and Great Britain, among others. The test is considered to have basic cross cultural utility. This is an important characteristic considering the cultural diversity of Hawaii. It is considered appropriate for a wide range of different populations and has been used not only in the corporate setting, but in educational, sports, and commercial settings. The instrument has been normed for ages over 17, with no upper limit on age. The instrument has been analyzed for readability using the Dale-Chall formula, which is based on the difficulty of terms used and on sentence complexity (Chall & Dale, 1995). The test can be done by computer or on paper (Mayer et al., 2002).
**Instrument Reliability and Validity**

The MSCEIT 2.0 has undergone rigorous validity and reliability testing by a wide range of researchers, both those who support the concept of EI and those who do not. Validity and reliability testing results are summarized in Table 5.

Discriminant validity: Because EI proposes to be a new concept which is distinct from other kinds of intelligence and conventional personality measures, discriminant validity is particularly important. Measuring overlap between instruments, correlations range from \( r = -1 \) to \( r = 1 \). Minimal to moderate relationship between tests is reflected in \( r = .00 \) to \( r = .25 \). A moderate to high overlap is reflected in \( r = .5 \) to \( r = .75 \). Highly overlapping to essentially equivalent instruments are reflected in \( r = .75-1.00 \). Most of the tests of discriminant validity for the MSCEIT are in the minimal-moderate range. (Brackett et al., 2003; Shaffer & Shaffer, 2005).

There appears to be no significant correlation between standard personality instruments such as the NEO (Neuroticism, Extraversion and Openness Inventory, or “Big Five” and the MSCEIT 2.0 (Brackett & Mayer, 2003; O’Conner, 2003; Shaffer & Shaffer, 2005b). The same is true of comparisons between the MSCEIT 2.0 and instruments which measure general well being (Brackett & Mayer, 2003). Comparison of the MSCEIT (ability model of EI) and the EQ-I (personality model of EI) demonstrated \( r = .12-.18 \) (Brackett & Mayer, 2003; Mayer, et al., 2002; Pellitteri, 2001).

The MSCEIT 2.0 correlates \( (r = .34-.38) \) with the Army Alpha Vocabulary Scale, which indicates a relationship with but independence from general intelligence (Mayer et al., 1999). Correlation with EI and cognitive measures has demonstrated that
there is minimal to low moderate overlap (Mayer et al., 1999; Ciarrochi, Chan & Caputi, 2000; Pellitteri, 1999).

The incremental validity of emotional intelligence instruments has been most frequently measured by examining criteria thought to reflect life success, such as professional success, cognitive performance, and academic achievement. Recent studies have also demonstrated incremental validity for life achievement outcomes, but inconsistent results continue for academic performance (Amelang, 2006). In one report, however, incremental validity could not be demonstrated over job/life satisfaction after personality was controlled for (Livingston & Day, 2005).

**Construct Validity**

Strong evidence exists for construct validity of the MSCEIT v 2.0 (Brackett & Mayer, 2003; Livingston & Day, 2005; Mayer et al. 2002)

**Predictive Validity**

MSCEIT scores predict social deviance positive team management, some academic outcomes, and job performance in a wide variety of environments (Brackett, 2003; Mayer et al., 2002).

**Factor Analysis**

Confirmatory factor analysis has demonstrated a good fit with the MSCEIT 2.0 model by several sources (Day & Carroll, 2004; Livingston & Day, 2005). There is strong evidence established for content and construct validity (Brackett & Mayer, 2003; Livingstone & Day, 2005). Factor structure has been confirmed (Brackett, Mayer & Warner, 2004).
Instrument Reliability

The MSCEIT total EI score has a reliability of .91. The area score reliabilities are .90 for Experiential EI and .91 for Strategic EI. The branch reliability scores range from .74-.89 (Brackett & Mayer, 2003; Mayer et al., 2002). Scores at the task level are much lower than the total, area, and branch scores, although they are still comparable to the reliability of other instruments (Parker et al., 2005, Mayer et al., 2002). They are considered to be most useful when they represent specific skills that are particularly relevant for an individual, or when feedback is given to encourage skill development. For the purposes of this study, task scores were not reported to the study participants, but were used only for descriptive analysis.

Test-retest reliability for the total EI score has been reported as $r = .86$ (Brackett & Mayer, 2003). Split half reliability is .90-.91 (Brackett et al. 2004; Mayer et al., 2002).

How Validity and Confounding Issues Will be Addressed in the Study

Particular attentions to threats to validity were considered when designing the study. Novelty and disruption effects, as well as concerns related to compensatory equalization, compensatory rivalry and resentful demoralization were all taken into consideration in the study design. The study was presented to staff in a neutral manner. An attempt was made to emphasize the positive aspects of study participation and avoided language involving negative comparisons or judgments related to groups being compared.

Because gender differences in EI scores have been demonstrated in many studies, analysis of the data had been planned to begin with comparisons of both total EI scores and sub scores between the men and the women in the study. If there had been significant
Table 5: Reliability and validity testing of emotional intelligence instrument

MSCEIT (Mayer, et al., 2002) Page 1 of 2

<table>
<thead>
<tr>
<th>Criteria Examined</th>
<th>MSCEIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability</td>
<td>1. Moderate (mean Cronbach’s ALPHA=.71</td>
</tr>
<tr>
<td></td>
<td>3. Scoring reliability: Total scale, area and branch levels to be good, but much lower in the model subscales (Parker et al., 2005)</td>
</tr>
<tr>
<td></td>
<td>4. High level of convergence between the alternative scoring methods (Parker et al., 2005)</td>
</tr>
<tr>
<td></td>
<td>5. r = .91 (Brackett, Mayer, &amp; Warner, 2004)</td>
</tr>
<tr>
<td></td>
<td>6. Split half reliability test=.90-.91 (Brackett, Mayer, &amp; Warner, 2004; Mayer, 2002).</td>
</tr>
<tr>
<td>Content validity</td>
<td>Established (Brackett, Mayer, &amp; Warner, 2004)</td>
</tr>
<tr>
<td>Construct validity</td>
<td>Strong evidence (Livingstone &amp; Day, 2005)</td>
</tr>
<tr>
<td>Concurrent/criterion-related validity</td>
<td>Confirmatory factor analysis demonstrated a good fit with the MSCEIT model (Livingstone &amp; Day, 2005)</td>
</tr>
<tr>
<td>Discriminant validity</td>
<td>1. Discriminated from personality and well being tests (Brackett, 2003).</td>
</tr>
<tr>
<td></td>
<td>2. Correlates mildly (.34 and .38) with the Army Alpha Vocabulary Scale (indicates a relationship with but independence from) generic intelligence</td>
</tr>
<tr>
<td></td>
<td>3. Distinct from Big 5 personality test (Shaffer &amp; Shaffer, 2005)</td>
</tr>
<tr>
<td>Factor structure</td>
<td>Confirmed (Brackett, Mayer, &amp; Warner, 2004)</td>
</tr>
<tr>
<td>Gender comparison; reliability/validity</td>
<td>Studies conflict on intergender comparisons. Gender related to Emotional Perception subscale only but not total MSCEIT score (Livingstone &amp; Day, 2005)</td>
</tr>
<tr>
<td>Comparison with personality tests</td>
<td>No correlation: (O'Connor &amp; Little, 2003)</td>
</tr>
<tr>
<td>Compared to tests of cognitive ability</td>
<td>Correlation demonstrated: (O'Connor &amp; Little, 2003) Slight correlation with two subscale scores (Livingstone &amp; Day, 2005)</td>
</tr>
<tr>
<td>Criteria Examined</td>
<td>MSCEIT</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Comparison with other EI instruments | 1. Does not correlate with well with EQ-i; relationship “weak”; the two tests reveal different scores on the same participants (Mayer, 2003; Brackett, 2003).  
2. “Modestly” related to EQ-i (Dawda & Hart, 2000)  
| Psychometric concerns          | Branches not well represented in subscales of instrument. (Matthews, Zeidner, & Roberts, 2002)                                      |
| Social Desirability confounds  | Nonsignificant correlation ($r = .02$) with impression management scale of the 16PF (supports contention that the tool is not biased by socially desirable responding) (Mayer, 2002). |
| Msc Problems                   | Not affected by Concerns about the accuracy of self report tools in general (faking, self image confounds; under and over evaluation of skills may also be gender specific.) (Davis, Stankov & Roberts, 1998; Mayer, Caruso & Salovey, 2000) (MacCann, Matthews, Zeidner, & Roberts, 2003) |
differences demonstrated, the two groups would have been analyzed separately. In the study sample, however, 24(92%) of the participants were female. The size of the male sample 3(8%) was not sufficient for significant comparison.

Data Analysis Plan

Introduction to the Analysis Plan

The data analysis plan consisted of the following parts: 1) Analysis of the study participants. This portion of the data analysis will include descriptive statistics and frequency distributions. 2) Analysis of the 18 EI scores of the MSCEIT v 2.0. This portion of the analysis will include descriptive statistics and both univariate and bivariate analysis. This portion of the plan will be described in detail below. 3) Analysis of covariance between the 12 demographic/career information variables.

Data analysis plan for the 18 EI Scores

This portion of the analysis will have the following parts:

1) Description and analysis of the Total EI scores for the study population, including analysis of correlations with demographic/career information variables. This level of analysis is illustrated in Figure 10.

2) Description and analysis of the Area Scores (Experiential EI and Strategic EI) for the study group scores, including analysis of correlations with demographic/career information variables. This level of scoring analysis is illustrated in Figure 10.
3) Description and analysis of the Branch scores for the study population, including analysis of correlations with demographic/career information variables. This level of analysis is illustrated in Figure 10.

![Figure 10: MSCEIT Score diagram (Mayer et al., 2002)](image)

4. Description and analysis of the Task Scores for the study group, including analysis of correlations with demographic/career information variables. This level of analysis is illustrated in Figure 11.

5. The final portion of the emotional intelligence scores analysis will be the description and analysis of scores supplemental MSCEIT scores. These supplemental scores consist of percentile scores, scatter scores, and positive/negative scores. This section will conclude with a comparison of expert and general scoring results.
**Figure 11: MSCEIT: Task Scores (Mayer et al., 2002)**

*Introduction to the MSCEIT Scoring Structure*

The MSCEIT instrument consists of 141 questions. Each of these questions represents one of 8 types of emotional tasks. The tasks are as follows, from (Mayer, et al., 2002).

1. **Task Faces**—in these questions, the nurse was asked to interpret the emotions reflected in pictures of people’s faces.

2. **Task Pictures**—in these questions, the nurse was asked to interpret the emotional content of pictures.

1. **Task faces**—in these questions, the nurse was asked to interpret the emotions reflected in pictures of people’s faces.

2. **Task pictures**—in these questions, the nurse was asked to interpret the emotional content of pictures.

<table>
<thead>
<tr>
<th>Perceiving Emotions Score</th>
<th>Using Emotions Score</th>
<th>Understanding Emotions Score</th>
<th>Managing Emotions Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task Faces Score</td>
<td>Task Sensations Score</td>
<td>Task Blends Score</td>
<td>Task Emotional Management Score</td>
</tr>
<tr>
<td>Task Pictures Score</td>
<td>Task Facilitation Score</td>
<td>Task Changes Score</td>
<td>Task Emotional Relations Score</td>
</tr>
</tbody>
</table>
3. Task sensations—In these questions, the nurse was asked to relate emotions to sensory stimuli.

4. Task facilitation—in these questions, the nurse was asked to relate emotions to various kinds of thinking.

5. Task blends—in these questions, the nurse was asked to identify the ways in which simple feelings and complex emotions relate.

6. Task changes—in these questions, the nurse was asked to identify the transitions between emotional states.

7. Task emotional management—in these questions, the nurse was asked to identify actions to take in situations in which they must regulate or manage their emotions.

8. Task emotional relations—in these questions, the nurse was asked to evaluate the effectiveness of various actions in achieving goals related to other people.

The MSCEIT tasks are the foundation for the EI scores. All the MSCEIT scores are constructed from the tasks scores. First, the task scores are paired to create a score for each of the branches. Note the figure below. The scores for task faces and task pictures questions combine to make the branch Perceiving Emotions score. This is diagrammed in yellow in Figure 12. The scores for task sensations and task facilitation questions combine to make the branch Using Emotions score, diagrammed in green in Figure 12. The scores for the task changes and task blends questions make up the score for branch Understanding Emotions, diagrammed in blue in Figure 12. Scores for the task emotional management and task emotional relations questions are combined to make the score for branch Managing Emotions, illustrated in Figure 12.
Figure 12: MSCEIT: Task and Branch Scores (Mayer et al., 2002)

Figure 13 illustrates how the remaining EI scores are constructed. The branch scores are combined to make the "area" scores (Experiential EI and Strategic EI). For example, the score for branches Perceiving Emotions and Using Emotions are combined to make the Experiential EI score, illustrated in Figure 13. The scores for branches Understanding Emotions and Managing Emotions are combined to make the Strategic EI score, diagrammed in pink in Figure 13. Finally, the total Emotional Intelligence score is constructed by combining the scores for Experiential EI and Strategic EI (diagrammed in Figure 13).
The proposal for this study was reviewed by both the University Of Hawaii Protection Of Human Subjects Committee and the Protection of Human Subjects Committee for the three study hospitals. Protection of Human subjects training was required through the NIH training website and on site University of Hawaii Protection of Human Subjects training. Both committees approved the study with minor corrections required.

Strict confidentiality was maintained throughout the study, using several means to protect the information provided by study participants. Informed consent was obtained prior to study participation according to the rules and guidelines established by both University of Hawaii and Hawaii Pacific Health Research Institute. Emotional intelligence scores were held strictly confidential by the MHS testing institute, whose privacy policy is available on their website. Similarly, the study web site was protected by the commercial web design company who housed the study web site under
their privacy own and confidentiality policy. Only the study researcher had access to the study scores and identifying information. The study participants utilized a study code to identify themselves. Only when they requested a coffee coupon were name and address required. This information, when obtained, was kept separate from study data and such identifier information was destroyed after it was used for coupon distribution.

Both EI scores and demographic/career information data were viewed only by the study researcher. When manually entered into the study SPSS data base, data was coded and no identifiers used. When the study was reported, results were not presented in a manner which could reveal the identity of any individual in the study.

Hard copy materials related to the study were kept in a locked and secure location for the duration of the study and all hard copy data summaries were destroyed at the conclusion of the study. The study web site was deconstructed at the end of the study and no records retained with individual identifiers of study participants.
CHAPTER 4: Findings

The following findings are reported in this chapter: 1) description and analysis of the study population, 2) description and analysis of the emotional intelligence scores, including analysis of covariation between EI scores and demographic/career information variables, and 3) analysis of covariation for the study career/demographic information variables alone. Data were analyzed according to the data analysis plan in Chapter 3.

The first part of the chapter presents findings related to the sample population. The research variables included in this section are those gathered in the demographics/career page of the study website.

Findings: Study Population Description

Introduction

All the nurses participating in the study in the study were residents of the state of Hawaii and living on the island of Oahu. All participants were registered nurses licensed to practice nursing in Hawaii.

Study Population

A total of 27 nurses completed all parts of the study. Sixteen nurses in the study population (59%) were employed at the largest of the three study hospitals, Medical Center #1. Of the remainder of the nurses, 5 (19%) were employed at Medical Center #2, and six (22%) at Medical Center #3. Throughout the three institutions, 14 (52%) of the participants worked in critical care areas (ICU, CCU, NICU, Telemetry, and ER). Ten nurses (37%) were medical/surgical nurses. The remaining three (11%) participants represented other specialties such as OB 2 (7%) and hemodialysis two (4%). If grouped into Medical/Surgical and “Specialty Area” nurses, the 10 Medical/Surgical nurses
represented 37% of the sample, and the 16 “Specialty Area” nurses (Critical care, OB, hemodialysis) represented 63% of the sample. This distribution is illustrated in Figure 14.

![Pie chart showing clinical specialty distribution](image)

**Figure 14: Clinical specialty distribution in the study sample**

**Age**

The mean age of participants in the study sample was 37 years. The range of ages was 22 to 60 years. The largest single age group was the 30- to 34-year-old group, which represented 11 participants, or 41% of the study sample population. Nurses in their 30s totaled 15, or 56% of the study sample. Nurses in their 20s, 40s and those >50 numbered four, representing 15% in the study sample. Age distribution is graphically illustrated in Figure 15.

![Pie chart showing age distribution](image)

**Figure 15: Age distribution in the sample study sample**
Gender

The study sample had only three male participants (n = 3), making the study sample (89%) female (n = 24) and (11%) male (n = 3).

Ethnicity

The major ethnicities reported by participants were Hawaiian/part Hawaiian, Asian, Filipino, Caucasian (non Hispanic), Black (non-Hispanic) and mixed ethnicities (Chinese/Portuguese/Samoan, Japanese/Caucasian, Okinawa/Hispanic/French). The largest ethnic group reported was Caucasian/Non-Hispanic 16 (56%). The second largest group was “Asian/Pacific Islander,” six (22%), followed by three (11%) reported for “mixed” ethnicity, two (7%) for Filipino, and one (3%) for Hawaiian. Mixed ethnicities were reported by participants Chinese/Portuguese/Samoan, Japanese/Caucasian, and Okinawan/Hispanic/French). When the mixed ethnicity groups are combined with their closest ethnic constituency (for example, Chinese/Portuguese/Samoan included in Asian/Pacific Islander group), the Asian/Pacific Islander group increased to nine (33%). See Figure 16 for a graphic representation of the study sample ethnicity distribution.

Figure 16: Distribution of ethnicity in the study sample
Years in Nursing

The number of years engaged in nursing ranged from <1 year of experience to 35 years in nursing, with a mean of 11 years. There were 11 participants who had been nurses for four years or less, representing 41% of the study sample. Of the study participants, 15 (56%) had been nurses for nine years or less, 6 (22%) for 10 to 19 years and 6 (22%) for 20 to 35 years.

Education Level

Baccalaureate-prepared nurses outnumbered nonbaccalaureate nurses by over two to one in this study. Baccalaureate-prepared nurses numbered 18 (67%) of the study population with 9 (33%) representing nonbaccalaureate preparation.

Clinical Practice Level

Clinical Practice Level was divided into several categories: new graduate, staff nurse, and four levels of the clinical ladder (Clinical Nurse III, IV, V, and VI). For the purposes of this analysis, two categories of performance, staff nurse and clinical ladder nurses, were analyzed. Of the respondents, eight (30%) were clinical ladder nurses. The remaining 19 (70%) were staff nurses. All of the clinical ladder nurses except for two were employees of Medical Center #1.

Anticipated Years in Current Job

The range of years reported for “Anticipated Years (total) in Current Job” ranged from <2 years to >10 years. The largest group represented nurses who anticipated >10 years in their current job eight (30%). The second largest group was nurses who projected that they would spend a total of two to four years in their current job, seven (26%). Nurses who anticipated remaining five to seven years in their current jobs and those who
anticipated eight to 10 years each numbered 5 (18%) of the study sample. The smallest study group was two nurses (7%) who anticipated less than two years in their current job.

**Anticipated Career Length**

In an analysis of total career length, eight (30%) of the nurses anticipated career lengths of 20 years or less, and six (22%) reported that they anticipated a career of between 21 and 30 years. More than 30 year careers were anticipated by 13 (48%) nurses.

**Organizational Commitment**

In the study population, 12 (44%) of the participants described themselves as “very committed” to the hospital they worked for. An additional 11 (41%) described themselves as “moderately committed.” Three (11%) participants reported being “Not very committed”, and one participant described him/herself as “not committed at all”. When the variable was divided into two responses, committed or not committed, 23 (85%) of the participants were categorized as committed and four (15%) not committed.

**Incomplete Data Population**

One characteristic of the study population was that there was a significant subset (n=9) of the total study sample (n=36) that did not complete the emotional intelligence testing portion of the study. These individuals signed on to the study web site, completed informed consent, completed the demographic and career information section of the study, and provided requests for EI test results, study results, etc. They provided study follow up contact information in the form of e-mails and home addresses. They did not, however, complete the emotional intelligence instrument. These study participants were contacted through their follow up information. Only one of the 10 original individuals in
the group, after repeated encouragement and reminders sent to the entire group, completed the study. This group is referred to as "incomplete data population."

Because this group was so large (nine out of the 36 total study participants), it is considered a separate population in the study. In the portions of the study analysis in which data from the incomplete data group is analyzed, the two samples, (study population and incomplete data population) is analyzed separately. A comparison of the two groups is summarized in Table 6.

The incomplete data population (n=9) was different from the study sample (n=27) in several respects. The mean age of the incomplete data sample was 45 years, eight years older than the study sample mean. The gender of this group was different from the study sample, with n =5 (56%) of this group women and n =4 (44%) men.

Most of the nurses in this group were employees of Medical Center #1, six (67%), and the remainder three (33%) Medical Center #2. No nurses in this group were employees of Medical Center #3. As a group, their mean years in nursing was 16 years, five years older than the study sample. This population had a larger percentage of baccalaureate nurses, seven (78%) compared to 16 (60%) in the study sample.

The anticipated career length was also different in this population. Three nurses (33%), anticipated staying in their current jobs for five to seven years, and 3(33%) anticipated a career of >35 years. No one in the group anticipated a career length of less than 20 years.

Career commitment reports for the incomplete data group demonstrated that five (56%) of the group were very committed to their hospital. With an additional three (33%)
Table 6
Comparison of the population characteristics: Study population and the incomplete data population

<table>
<thead>
<tr>
<th>Variable</th>
<th>Incomplete Data</th>
<th>Study sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Group n=9</td>
<td>n =2</td>
</tr>
<tr>
<td>Age</td>
<td>M= 45</td>
<td>M= 37</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>4 (44%)</td>
<td>3 (11%)</td>
</tr>
<tr>
<td>Female</td>
<td>5 (66%)</td>
<td>24 (89%)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>4 (44%)</td>
<td>15 (56%)</td>
</tr>
<tr>
<td>Asian/PacIsl.</td>
<td>2 (22%)</td>
<td>6 (22%)</td>
</tr>
<tr>
<td>Filipino</td>
<td>1 (11%)</td>
<td>2 (7%)</td>
</tr>
<tr>
<td>Mixed Ethnicity</td>
<td>1 (11%)</td>
<td>3 (11%)</td>
</tr>
<tr>
<td>Black</td>
<td>1 (11%)</td>
<td>0 (0 %)</td>
</tr>
<tr>
<td>Hawaiian</td>
<td>0 (0 %)</td>
<td>1 (3%)</td>
</tr>
<tr>
<td>Hospital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KMCWC</td>
<td>6 (67%)</td>
<td>6 (22%)</td>
</tr>
<tr>
<td>Pali Momi</td>
<td>2 (22%)</td>
<td>25 (60%)</td>
</tr>
<tr>
<td>Straub</td>
<td>0 (0 %)</td>
<td>5 (18%)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NonBaccalaureate</td>
<td>2 (22%)</td>
<td>9 (33)%</td>
</tr>
<tr>
<td>Baccalaureate</td>
<td>7 (78%)</td>
<td>18 (67%)</td>
</tr>
<tr>
<td>Clinical Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical Care</td>
<td>5 (56%)</td>
<td>14 (52%)</td>
</tr>
<tr>
<td>Med/Surg</td>
<td>4 (44%)</td>
<td>10 (37%)</td>
</tr>
<tr>
<td>Other</td>
<td>-</td>
<td>3 (11%)</td>
</tr>
<tr>
<td>Clinical Practice Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff Nurse</td>
<td>7 (78%)</td>
<td>19 (70%)</td>
</tr>
<tr>
<td>Clinical Ladder</td>
<td>2 (22%)</td>
<td>8 (30%)</td>
</tr>
<tr>
<td>Yrs. In Nursing</td>
<td>Mean 16</td>
<td>Mean 11 yrs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yrs. Anticipated in Current Job</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;4yrs</td>
<td>3 (33%)</td>
<td>7 (26%)</td>
</tr>
<tr>
<td>5-7yrs</td>
<td>3 (33%)</td>
<td>5 (18%)</td>
</tr>
<tr>
<td>8-10yrs</td>
<td>3 (33%)</td>
<td>5 (18%)</td>
</tr>
<tr>
<td>&gt;10yrs</td>
<td>0 (0%)</td>
<td>10 (30%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yrs. Anticipated in Nursing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;20yrs</td>
<td>0 (0%)</td>
<td>8 (30%)</td>
</tr>
<tr>
<td>21-30yrs</td>
<td>5 (55%)</td>
<td>6 (22%)</td>
</tr>
<tr>
<td>&gt;30yrs</td>
<td>4 (44%)</td>
<td>13 (48%)</td>
</tr>
<tr>
<td>Organizational Commitment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Committed</td>
<td>8 (89%)</td>
<td>23 (85%)</td>
</tr>
<tr>
<td>Not Committed</td>
<td>1(11%)</td>
<td>4(15%)</td>
</tr>
</tbody>
</table>
reporting “moderate commitment” to the organization, a total of eight (89%) of the group reported “committed” vs. one (11%) “not very” committed.

Findings: Emotional Intelligence Scores

*Total Emotional Intelligence Scores*

Total EI scores for the study population ranged from 83 to 130, with a mean of 99 and a standard deviation of 15. A frequency distribution of total EI scores demonstrated that 10 (37%) participants scored below average. A total of 11 (41%) nurses scored “average”. Of those 11 nurses, four scored “low average”, and the remaining seven scored in the “high average” range. A total of six (22%) participants scored in the above average range.

Correlations between the emotional intelligence scores and all the demographic/career variables were examined. One significant relationship (r=.46) was demonstrated between total EI and clinical practice level. This was significant at the p<.05 level. This finding indicated that nurses on the clinical ladder had higher EI scores than those who were staff nurses.

*Area scores: Experiential EI and Strategic EI*

The total emotional intelligence score is subdivided into two scores referred to as “area” scores. These two scores reflect the conceptual division of EI into Experiential EI and Strategic EI and are diagrammed on Figure 17.

*Figure 17: Area EI scores*
The mean score for area Experiential EI was 97, with a standard deviation of 15. A frequency distribution of area Experiential EI scores showed that 10 (37%) study participants scored below average, 12 (44%) average and 5 (19%) in the above-average range. In this analysis, 17 (63%) of the nurses scored average or above.

The range for Strategic EI was 88 to 118, with a mean of 101 and a standard deviation of 15. In a frequency distribution, one (4%) in the study sample scored below average, 21 (78%) scored in the average range and five (18%) scored above average.

Correlations between each of the separate area scores and the 12 demographic/career information variables were examined. One significant finding was the positive correlation between Clinical Practice Level and both Experiential EI ($r = .48$) and Strategic EI ($r = .40$). These findings were both significant at the $p<.05$ level. This finding indicated that nurses on the clinical ladder had higher scores for both Experiential EI and Strategic EI than those who were not on the clinical ladder.

**Branch Scores**

*Introduction*

As described previously, the two area scores are each made up of two branch scores. The MSCEIT reports the four branch scores. The four branch scores for emotional intelligence are: 1) Perceiving Emotions, 2) Using Emotions, 3) Understanding Emotions, and 4) Managing Emotions. These scores are summarized in Figure 18.
Figure 18: Branch Scores

<table>
<thead>
<tr>
<th>Branch Perceiving Emotions</th>
<th>Below Average</th>
<th>Average</th>
<th>Above Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>11(41%)</td>
<td>Mean Score 98</td>
<td>6(15%)</td>
</tr>
<tr>
<td>90</td>
<td>12(44%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Branch Using Emotions to Facilitate Thinking</th>
<th>Below Average</th>
<th>Average</th>
<th>Above Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>7(26%)</td>
<td>Mean Score 98</td>
<td>17(63%)</td>
<td></td>
</tr>
<tr>
<td>11(41%)</td>
<td></td>
<td>1(12%)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Branch Understanding Emotions</th>
<th>Below Average</th>
<th>Average</th>
<th>Above Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>3(11%)</td>
<td>Mean Score 99</td>
<td>21(78%)</td>
<td></td>
</tr>
<tr>
<td>17(63%)</td>
<td></td>
<td>3(11%)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Branch Managing Emotions</th>
<th>Below Average</th>
<th>Average</th>
<th>Above Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>6(22%)</td>
<td>Mean Score 102</td>
<td>12(44%)</td>
<td></td>
</tr>
<tr>
<td>12(44%)</td>
<td></td>
<td>9(33%)</td>
<td></td>
</tr>
</tbody>
</table>
Figure 19: Branch scores

Branch Perceiving: Score Description and Correlations

Note branch Perceiving Emotions, illustrated in Figure 19. The mean score for the branch Perceiving was 98, with a range of 73 to 127. Frequency distribution analysis demonstrated that 11 (41%) scored below average, 12 (44%) average and four (15%) above average. This branch correlated with Clinical Practice Level (r=.42) at a p<.05 level of significance. This means that nurses on the clinical ladder demonstrated higher scores on the branch Perceiving Emotions than nurses who were not on the clinical ladder.

Branch Using: Score Description and Correlations

Note branch Using Emotions, illustrated in Figure 19. The mean score for this branch was 98, with a standard deviation of 12.5, and a range of 73 to 127. Frequency distribution analysis demonstrated that seven (26%) of the participants scored below average, 17 (63%) average and three (11)% above average. Correlation analysis demonstrated that the branch Using Emotions was positively correlated with Clinical Practice Level (r=.40). This finding was demonstrated at a p<.05 level of significance.
This means that nurses on the clinical ladder demonstrated higher branch Using Emotions scores than nurses who were not on the clinical ladder.

**Branch Understanding: Score Description and Correlations**

Note branch Understanding Emotions, illustrated in Figure 19. The mean score for the branch Understanding was 99, with a standard deviation of 8.2, and a range of 86 to 112. In a frequency distribution of scores, three (11%) of the participants scored below average, 21 (78)% average and three (11%) above average.

Correlation analysis demonstrated a significant positive correlation between branch Understanding Emotions scores and Anticipated Years in Current Job (r=.52). This finding was significant at the p<.01 level. This means that higher branch Understanding scores were associated with greater longevity in the nurse’s current job. This correlation was analyzed for covariation with age. No covariation was identified. No other significant correlations were demonstrated between branch Understanding Emotions scores and any other of the demographic/career information variables. This correlation was analyzed for covariance with age. No covariance was identified.

**Branch Managing: Score Description and Correlations**

Note branch Managing Emotions, illustrated in Figure 19. The mean score for the branch Managing Emotions was 102, a standard deviation of 11.3 and a range from 81 to 114. Of the participants, six (22%) scored below average, 12 (44%) average, and nine (33%) in the above average range. Correlation analysis failed to demonstrate any significant correlations between the branch Managing Emotions scores and any of the demographic/career information variables. Graphic representation of the branch score findings may be found described and are tabulated in comparison in Figure 18.
Analysis of High and Low Branch Scores

The mean scores for the four branches all fell in the average range. An analysis was undertaken to describe the nurses' areas of highest and lowest scores (areas of greatest strength and weakness).

For 10 (37%) of the participants, the highest branch score was Managing Emotions. For nine (33%) of the nurses, the branch Understanding was the highest score. Branches Using Emotions and Previewing were each the highest score for four (15%) participants. See Figure 20 for a graphic representation of the highest branch scores for the study.

![Branches of Highest Score (Greatest Strength)](image)

*Figure 20: Highest branch scores*

The lowest branch scores were also analyzed. The branch Perceiving Emotions was the lowest score for 11 (41%) of the nurses. The branch Using Emotions was the lowest score for seven (26%), branch Understanding Emotions for seven (26%) and
Managing Emotions for two (7%) of the nurses. Summary of this data may be found in Figure 21.

![Branches of Lowest Scores (Greatest Weakness)](image)

*Figure 21: Lowest branch scores*

**Combined Branch Scores: Highest and Lowest Scores**

An analysis was performed to explore the possibility that certain combination of branches occurred frequently as the two highest scores. In this analysis, the top-two scoring branches were summarized for each participant. The top three combinations (Illustrated in Figure 22) were as follows:

1. Management of Emotions & Using Emotions, eight (30%) of all nurses
2. Management of Emotions & Perceiving Emotions, five (20%) of all nurses
3. Management of Emotions & Understanding Emotions, four (17%) of all nurses
A similar analysis was performed to identify the lowest-scoring combinations of branch scores. No clear patterns emerged from this analysis.

**High and Low Scorer Profile**

An analysis was performed to describe the branch high and low score patterns of nurses who scored above and below average. For the nurses who had above-average total EI scores, the two highest scores always included either branch Perceiving Emotions or Branch Managing Emotions or both. Among the nurses who scored a below-average total EI score, 12 (44%) shared a profile. The two highest scores for these nurses were branches Managing Emotions & Understanding Emotions. The lowest two scores were branches Perceiving Emotions & Using Emotions.

**Task Scores**

**Overview**

The task scores have been described previously in this chapter. In this section of the chapter, the task scores are described. These are described in Figure 23.
Emotional Intelligence

Experiential EI
- Perceiving Emotions
  - Task Faces
  - Task Pictures

Using Emotions
- Task Sensations
- Task Facilitation

Understanding Emotions
- Task Blends
- Task Changes

Managing Emotions
- Task Emotional Management
- Task Social Management

. Figure 23: Emotional tasks

Task Scores

The mean, standard deviation and range of the eight task scores are now described. A summary of the task scores may be found in Table 7.

Task Faces scores, illustrated in Figure 23, demonstrated a mean of 98, a standard deviation of 30 and a range from 62 to 143. A frequency distribution demonstrated that 11 (40%) of the study sample scored below average, eight (30%) average, and eight (30%) above average.

Task Pictures scores, illustrated in Figure 24, demonstrated a mean score of 97, a standard deviation of 9 and a range of 81 to 112. On task faces, seven (26%) of participants scored below average, 19 (70%) average, and one (4%) scored above average.

Task Sensations scores, illustrated in Figure 24, demonstrated a mean of 96, a standard deviation of 11 and a range of 71 to 114. On task sensations, 4 (15%) of the participants scored below average, 22 (81%) average, and one (4%) above average.
Task Facilitation scores, illustrated in Figure 24, had a mean of 103 and a standard deviation of 15, with a score range of 69 to 133. Of the participants, four (15%) scored below average, 16 (59%) average, and seven (26%) above average.

Task Changes scores, illustrated in Figure 24, had a mean of 100, a standard deviation of 8 and a range of 85 to 118. Of the participants, two (7%) scored below average, 21 (78%) average, and four (15%) above average.

Task Blends scores, illustrated in Figure 24, demonstrated a mean of 97, a standard deviation of 8, and a range of 80 to 115. On this task, four (15%) of the participants scored below average, 22 (81%) average, and one (4%) above average.

Task Emotional Management scores, illustrated in Figure 24, demonstrated a mean of 101, a standard deviation of 11 and a range of 84 to 117. In this task area, seven (26%) of the participants scored average, 16 (59%) below average and four (15%) above average.

Task Social Management scores, illustrated in Figure 24, demonstrated a mean of 101, a standard deviation of 9 and a range of 82 to 111. On this task, four (15%) scored average, 19 (70%) below average and four (15%) above average.

Task Scores: Task strengths and Task Weaknesses—Description and Analysis

An analysis was undertaken to identify nurses' highest and lowest task scores.

For 12 (44%) of the nurses, task Faces was the lowest score. Three tasks were highest score for 5(19%) participants; tasks Facilitation, Emotional Management, and Faces. Another analysis was undertaken to identify combinations of high and low score areas. Task Faces (highest score) and task Blends (lowest score) occurred in five (19%) of the study participants.
Table 7
Descriptive Analysis of Task Scores

<table>
<thead>
<tr>
<th>Task</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
<th>&lt;Average</th>
<th>Average</th>
<th>&gt;Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task Faces</td>
<td>98</td>
<td>30</td>
<td>60-143</td>
<td>11(40%)</td>
<td>8(30%)</td>
<td>8(30%)</td>
</tr>
<tr>
<td>Task Pictures</td>
<td>97</td>
<td>9</td>
<td>81-112</td>
<td>7(26%)</td>
<td>19(70%)</td>
<td>1(4%)</td>
</tr>
<tr>
<td>Task Sensations</td>
<td>96</td>
<td>11</td>
<td>71-114</td>
<td>4(15%)</td>
<td>22(81%)</td>
<td>1(4%)</td>
</tr>
<tr>
<td>Task Facilitation</td>
<td>103</td>
<td>15</td>
<td>69-133</td>
<td>4(15%)</td>
<td>16(59%)</td>
<td>7(26%)</td>
</tr>
<tr>
<td>Task Changes</td>
<td>100</td>
<td>8</td>
<td>85-118</td>
<td>2(7%)</td>
<td>21(78%)</td>
<td>4(15%)</td>
</tr>
<tr>
<td>Task Blends</td>
<td>97</td>
<td>8</td>
<td>80-115</td>
<td>4(15%)</td>
<td>22(81%)</td>
<td>1(4%)</td>
</tr>
<tr>
<td>Task Emotional</td>
<td>101</td>
<td>11</td>
<td>84-117</td>
<td>7(26%)</td>
<td>16(59%)</td>
<td>4(15%)</td>
</tr>
<tr>
<td>Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task Social</td>
<td>101</td>
<td>9</td>
<td>82-111</td>
<td>4(15%)</td>
<td>19(70%)</td>
<td>4(15%)</td>
</tr>
</tbody>
</table>
**Task Scores: Correlation Analysis**

An analysis of the correlation between task scores and the demographic/career information variables was performed. Task Emotional Changes was positively and significantly correlated with participant age ($r = .49$), years in nursing ($r = .46$), and anticipated years in current job ($r = .42$). All these finding were demonstrated at the $p < .05$ level of significance. These findings mean that older participants had higher task Emotional Changes Scores. Participants who had higher scores on tasks Emotional Changes anticipated longer years in their current job than those nurses with lower scores. Finally, those nurses with more years in nursing also scored higher on task Emotional Changes.

Anticipated years in current job was correlated positively and significantly with Task Blends ($r = .38$) at a $p < .05$ level of significance. This means that individuals who scored higher on task Blends also reported anticipating longer years in their current job.

**Supplemental Scores: Percentage, Scatter and Positive/Negative Bias Scores**

Scores for the MSCEIT are available as percentile scores, which offer the advantage of comparing the study sample with that of a normative population ($n = 5000$) that have taken the MSCEIT. The range of percentile scores in the study group demonstrated a low of 13%, meaning that 77% of the normative population scored higher than that study participant. The highest percentile score was 98%, which means that only 2% of the normative population scored higher than that participant. In a frequency analysis, 15 (56%) of the study participants scored 50% or lower on percentile score.

*Positive/Negative Bias Scores*
The MSCEIT instrument provides two supplemental scores. The first of those scores is the "Positive/Negative Bias Score." This score reflects the tendency of an individual taking the test to respond in either a positive or negative manner to questions on the tests. A high score (>115) reflects a tendency to respond to stimuli with positive emotion. A low score (<85) reflects a tendency to respond with negative emotion.

The range for Positive/Negative Scores for the study sample was 80 to 121, with a mean score of 102. A frequency distribution for the study participants' Positive/Negative scores demonstrated that seven (26%) of study participants had scores >115.

**Scatter Scores**

The "Scatter Score" measures variability among the instrument scores. A high scatter score (>115) reflects a large variation among the task scores. A low scatter score (<85) reflects a high degree of consistency among the various skills. The range of Scatter Scores for the study sample was 72 to 114, with a mean of 96. A frequency distribution scatter scored demonstrated that four (15%) of the study participants had scatter scores of <85. A correlation analysis demonstrated a significant negative relationship between the scatter score and Clinical Practice Area (r = -.41). This negative correlation was significant at the <.05 level. This means that the lower scatter scores, which reflect a high degree of consistency, were related to a higher level of clinical practice.

**Expert vs. Consensus Scoring**

In this study, both consensus and expert scoring methods were used. The consensus scoring mean was 99 with a standard deviation of 12 and a range of 83 to 130. The mean for expert scoring was 102, with a standard deviation of 15 and a range of 80 to 143. The overall correlation between the two scoring methods was a significant
This has also been demonstrated in other studies (Mayer, et al., 2002).

**Analysis of Correlation Among Demographic/Career Data Variables**

Finally, an analysis was performed to explore correlations among the demographic/career information variables. In this analysis, two populations, the study population that completed the study and the incomplete data population, were analyzed separately. In the study population, the following significant, positive correlations were demonstrated:

1. Age and years in nursing ($r=0.64$) This unsurprising finding was reported at a $p<0.01$ level of significance. This means that the older the nurse, the longer they had been in nursing.

2. Years in nursing and years anticipated in current job ($r=0.41$) This finding was demonstrated at a $p<0.05$ level of significance. This finding means that the longer a participant had been a nurse, the longer they anticipated remaining at their current job.

3. Anticipated years in current job and practice level ($r=0.34$). This finding was demonstrated at a $p<0.05$ level of significance. This finding indicates that nurses on the clinical ladder anticipated staying at their current job longer than those nurses who were not on the clinical ladder.

4. Organizational commitment and anticipated years in nursing ($r=0.48$) This was a significant negative correlation. This means that the longer the nurse anticipated being a nurse, the lower their reported level of organizational commitment.

In the incomplete data population ($n=9$), only one significant correlation was identified, organizational commitment and anticipated years in nursing ($r=-0.67$).
This was a significant negative correlation, demonstrated at the .05 level of significance. This means that, as in the study population, the longer the participant anticipated being a nurse, the lower their reported level of organizational commitment.
CHAPTER 5: DISCUSSION AND CONCLUSIONS

The purpose of this study was to explore the emotional intelligence of a volunteer, self selected sample of clinical staff nurses. This chapter will be divided into four sections. Initially, the study findings and conclusions will be discussed, including the emotional intelligence scores, the analysis of correlations findings, and the study population. Then, the study limitations will be discussed. Finally, the implications for nursing and recommendations for future research will be discussed.

Study Conclusions

Study Sample

The sample was not generalizable or representative. Nonetheless, several demographic characteristics of the group should be noted. The ethnicity of the sample was representative of urban Hawaii in its diversity but not in its proportional representation. The sample population was much more predominantly Caucasian than is typical of either Hawaii in general or the nursing population in specific. The study population was younger than the mean age of nurses in Hawaii as well, and had many fewer male nurses than are representative in nursing either in Hawaii or in the profession as a whole.

Emotional Intelligence and Clinical Practice Level

A significant positive correlation was demonstrated between total EI score and clinical practice level (p < .05). This finding is significant because in this study, clinical practice level (staff nurse vs. clinical ladder nurse) was used as a measure of level of performance. This significant finding supports the evidence in other professions that
higher levels of EI are related to higher levels of performance. Further research will be needed to determine if EI is predictive of level of performance in nurses.

Emotional intelligence has been found, in a wide range of professions, to be related to higher levels of performance and positive organizational outcomes.

In this explorative, descriptive, quantitative study, emotional intelligence correlated positively with performance level. This finding is significant because it provides the first evidence in nursing that the emotional intelligence of clinical staff nurses in the United States may be related to performance as it is in many other professions.

As a subset of this finding, area Experiential EI and area Strategic EI were significantly positively related to Clinical Practice Level at a p < .05 level of significance. In the branch scores, Perceiving Emotions and Using Emotions were also positively correlated with Clinical Practice Level, both at p < .05 level of significance.

The clinical ladder nurses within the study hospital system are required to perform at a higher level clinically than staff nurses, to facilitate team conferences and to participate in team leadership activities on the unit. Experiential EI, Strategic EI, and branches Perceiving Emotions and Using Emotions all represent skills that would be expected to be demonstrated by a nurse performing at a high level. It is interesting that more branch skills related to area Experiential EI correlated significantly with Clinical Practice level than branch skills related to Area Strategic EI.

One other finding, the Scatter Score, was demonstrated to be significantly negatively correlated with Clinical Practice Level. This indicates that lower scatter scores, which reflect greater levels of score consistency among the EI scores, were
correlated with higher levels of EI. This finding is not surprising, as consistency in any skill is expected of practitioners at higher levels of performance. This may be an important finding as consistency of clinical practice skills is related to both standards of practice and patient safety outcomes.

*Emotional Intelligence Scores: Correlation with Demographic Information*

Total EI score did not correlate significantly with any of the main demographic variables. Total EI has been found in other studies to correlate significantly with age, for example, but this was not the case with this study. One branch subset of EI score did, however, correlate significantly. Age correlated significantly with the branch Understanding Emotions \((r=.39)\), at a \(p<.05\) level of significance. This may reflect the maturational effect of aging on the understanding of emotions.

*Emotional Intelligence Scores: Total EI Score*

In the study population, the mean Total EI score was in the midpoint of the average range; 40% of the nurses in the study scored within the average range of scores. A total of 37% of the participants scored below average, and 23% scored in the above-average range. In summary of the distribution, 63% of the nurses scored average or above.

Little research exists in any profession that describes a typical distribution of scores for that profession. No research study has compared the emotional intelligence of various professions. This having been said, the skills that are reflected in the four-branch ability model of EI are skills required of a clinical nurse. For this reason, it was of concern that 37% of the participants scored in the below-average range.
It should be remembered when considering these percentages that the below average-average-above average range was constructed based on a normative sample that consisted of a general population. This normative group consisted of "average" people, not health care professionals or indeed professionals of any description. The normative group was younger, had more male representation, and was less educated that the study population. The study population varied considerably from the normative sample.

Why were the emotional intelligence scores not higher? It might be assumed that nurses, by the very nature of nursing, would be highly emotionally intelligent. Several possibilities could be considered, which include the education of nurses, testing methodology, the nature of the nursing work environment, hiring practices, and issues related to the construct of emotional intelligence.

Nursing education includes substantial time in the curricula related to assessment, understanding and intervention in the emotional life of patients and their families. There is little time in most nursing school curricula that is similarly devoted to the emotional life of nurses. Emotional self awareness, self assessment, and self management may be referenced in passing, but they are rarely skills that are specifically presented and evaluated throughout nurses' educations.

The same may be said of education in the clinical setting after graduation. In the increasing regulatory pressure to demonstrate employee competency in a wide range of both general and specialty skills, there is little time devoted to emotional competencies related to patients, and less to the emotional competencies related to the nurse. In clinical multidisciplinary rounds, management of the emotional condition of the patient is usually
only referenced if there is a problem affecting medical care, and the team’s emotional relationship with the patient, even when difficulties are present, is rarely mentioned.

There may be also issues related to test validity in a nursing population. For example, nurses are trained to be highly attuned to the emotional responses of patients, particularly verbal and behavioral responses. Perceiving emotions may be a highly interpersonal phenomena for nurses. However, on the MSCEIT, in branch Perceiving Emotions for example, some test questions involved interpretation of the emotional content of pictures of art and scenes in nature. This type of test methodology may not test as effectively the interpersonal component of emotional perception upon which nurses tend to focus. Further investigation into the appropriateness of the MSCEIT for testing the EI of nurses is warranted.

It could also be suggested that nurses are not selected for education or for work on the basis of emotional intelligence skills. Most nursing schools place an emphasis on traditional measures of intelligence for entry into nursing school. Although letters of recommendation, etc., are often adjuncts to this, the type of skills reflected in the ability model of EI are not typically included in the selection process for nurses. Depending on the interview priorities of the prospective supervisor, they may not be included in the selection process for prospective nursing employees either. The bias that emotional skills are of lower importance than academic and technical skills may have an influence as well.

There is also a strong possibility that EI is affected by factors related to the current nursing work environment. Many nurses complain that with the increased acuity of patients, increased workloads, and increased dependence on technology in the care
environment, the interpersonal care of their patients has suffered. There is simply less time for interpersonal emotional interaction in a care environment that is not conducive to it. A finding from nursing research on EI and burnout supports this suggestion. Budnick (2003) found that as depersonalization and emotional exhaustion increased, nurses’ EI decreased. It may be that increased workloads and increasing patient acuity has a cumulative negative affect on nurses’ emotional intelligence.

The skills of emotional intelligence have been demonstrated to improve with education, practice and life experience. Although there is no specific research literature on the subject, it may be that individuals become less skilled when working in an environment where the skill is not valued, taught, evaluated, encouraged or regularly practiced.

Lastly, there is the possibility that the model of emotional intelligence that was used in this study does not capture the whole range of emotional intelligence capabilities of nurses. Characteristics of emotional intelligence that are included in other models of emotional intelligence, such as empathy, flexibility, assertiveness, relationship skills, collaboration, building bonds, etc., may measure aspects of the emotional intelligence of nurses that the ability model does not.

Emotional Intelligence Scores: Area Scores

In this study, the descriptive patterns of sub skill scores also provided some interesting data in this population of nurses. The mean scores for the two general ability areas (Experiential EI and Strategic EI) were very similar, both in the middle of the average range. However, when the scores were analyzed along a range from below average to average and above average, several interesting observations emerged. Nearly a
third of the nurses scored below average in area of Experiential EI, whereas very few (4%) scored below average in the area of Strategic EI. In the area of Experiential EI, 44% of the nurses scored average compared with 78% of the nurses in the area of Strategic EI. Sixty-three percent of the nurses scored average or above in area Experiential EI, compared with 96% scoring average or above in the area of Strategic EI. Nurses in this study clearly demonstrated greater ability in Strategic EI than in Experiential EI.

There are several possibilities that may be suggested to explain this observation. First, as mentioned above, there is a greater emphasis on a nurse’s understanding and managing of emotions, particularly in patients, than there is on accuracy of perception and use of emotions in the nursing process. Secondly, in high-stress environments, there is a tendency to “shut out” stressful stimuli. This is a common phenomena in burnout. It may be that decreased skills of emotional perception when compared with those of emotional strategizing follow this pattern.

*Emotional Intelligence Scores: Branch Scores*

In the analysis of branch scores, the mean scores for all four branch abilities fell in the average range, but there were large differences in the ranges of the branch scores from below average to above average. In the study sample, 89% of the nurses scored average or above average on the branch Understanding Emotions. In the branches Managing Emotions and Using Emotions, scores were average or above average in 77% and 74% of the nurses, respectively. In the branch Perceiving Emotions, scores were average or above average for 59% of the nurses.
This data suggests that nurses who participated in the study demonstrated ability in the branch Understanding of Emotions far above the other branches and demonstrated far less skill in the branch Perceiving Emotions.

These observations continue to indicate the traditionally cognitive approach to nursing skills. The greatest area of skill demonstrated by the study population was in the understanding of emotions. Managing emotions, developing a plan for what to do with an emotional situation, was the second highest skill. The actual experience of emotions, perceiving and using emotions for reasoning, scored much lower.

*Emotional Intelligence Scores: Task Scores*

The mean scores for all eight emotional tasks fell within the average range. The scores for the task Emotional Changes reflected the highest levels of performance. Again, this task reflects a more traditionally cognitive approach to emotions. Nurses are trained to understand that, in the grieving process, shock gives way to anger and bargaining. This type of emotional skill probably represents the best of what nursing curricula teach with regard to emotional intelligence skills.

Task Faces was the lowest-scoring task with only 60% of the nurses scoring average or above average. When a patient verbally or behaviorally presents emotional data, it may be that the nurse is more able to recognize and respond to it. This study finding could reflect ability deficits in nonverbal communication, and reinforces the importance of including nonverbal communication in assessment data. If deficits in this area were demonstrated by repeat studies to be widespread in clinical staff nurses, educational programs such as the Nursing Clinical Assessment Satellite Training
(NCAST) has material to assess nonverbal communication with particular patient populations (Farel, 1991).

**Emotional Intelligence and Anticipated Career Data**

The total emotional intelligence score was not correlated significantly with either anticipated career length or anticipated length of current employment. The total years anticipated in current job did, however, correlate significantly and positively with branch Understanding Emotions at a .01 level of significance. Task Blends also correlated positively and significantly with the total years anticipated in current job (p<.05). Analysis was performed to evaluate possible covariance with age. No such covariance was demonstrated.

It is possible that the skills reflected in these branch and task scores could be related to positive adaptation to a difficult work environment over time. Understanding the emotional, relational structure of the unit and the types of emotional issues of typical unit patients and comprehending the evolution and changes related to typical unit and patient emotional issues may make it more likely that a nurse would feel comfortable continuing on in his/her current job.

**EI and Anticipated Years in Nursing**

There was no demonstrated correlation between anticipated years in nursing and any EI score. It is interesting, however, that anticipated years in nursing was significantly negatively correlated with organizational commitment (p<.05). Budnick (2002) hypothesized that longer careers in nursing, if a nurse is burned out, could result in negative organizational attitudes. This is not always easy to interpret, however, as organizational commitment does not always translate into organizational longevity.
(Budnick, 2002). This phenomenon may also be related to a negative impact of organizational culture, philosophy, etc., on nurses’ commitment to the organization. In the case of the organization in which this study took place, it is possible that the negative impact of the organizational restructuring could be an example of this.

Another possibility is the phenomena of “golden handcuffs”, in which employees feel compelled to stay in an organization because of pension benefits, accumulated sick leave, etc., even if they are unhappy with their current job. In this case, organizational longevity could also be inversely related to organizational commitment as was illustrated in this sample (Nissley & Hartigan, 1991).

**Correlations Among Career/Demographic Information Variables**

Other significant correlations were found among the demographic/career information variables, such as the following: age and years in nursing (p<.01), years in nursing and years anticipated in current job (p<.05), and Clinical Practice Level and years anticipated in current job (p<.05). These finding may relate to clinical maturity and its relationship to longevity. It also may be that higher practice levels are related to job satisfaction, which results in greater longevity.

**Limitations to the Study**

This study had several limitations that were specific to the method and sample of the study. The sample selection was non-random, voluntary and self selected. This method of selection precludes any claims to sample representativeness or generalizability. Additionally, because sample selection did not require that participants give their real names, there was no way to confirm that those participating in the study were registered nurses, nor to validate their level of clinical practice.
The study population size was much smaller than was hoped at the outset of the study. At least five major factors may have influenced this. First, the researcher utilized a study poster to recruit participants in the study. There were several reasons why this method was chosen. The researcher was, at the time of the study, an employee of the study health system and knew many of the potential study participants. For this reason, there was a concern about biasing the sample by influencing potential participant's involvement on the weight of the researcher's relationship with potential participants. The hope was that a poster soliciting participants would prevent this. In retrospect, this lack of involvement of the researcher more directly in the recruitment process may have limited the study size.

Secondly, this was the first nursing research study to take place at any of the three study hospitals. Participation in nursing research may not have been a part of the hospital culture. Further, although nursing research is now taught routinely in schools of nursing, some percentage of the nurses working in the study hospitals may not have had nursing research in their nursing educational programs. Even those nurses who have studied nursing research and are familiar with its purpose and importance may not have ever participated in a nursing study themselves.

Thirdly, as an organization, the hospital system participating in the study experienced a period of significant reorganization during the time of the study data collection. This was not anticipated at the time the organization was selected to be the study site. This reorganization involved downsizing of staff, reallocation of managerial responsibilities and, in some cases, restructuring of departments. It is not uncommon during this type of reorganization for there to be a higher-than-usual level of
organizational anxiety and uncertainty. New behavior, such as participating in a nursing research study, is more difficult to attempt during insecure and high anxiety situations such as a facility reorganization. It is certainly possible that this contributed to an environment within which potential study participants were less likely to be willing to participate in the study.

Fourth, throughout the study hospital system there is a wide range of on-the-job computer use. The largest study hospital, which also contributed the majority of study participants, uses an almost entirely computerized charting system. The other two hospitals have primarily traditional paper charts supplemented to some degree by computerized record use. The study required a potential participant to have some rudimentary computer skills, and to have access to a personal computer. The participant had to be able to perform the skills of web use, making a URL link, basic computer skills such as cursor use, moving from screen to screen on a web site, and both typing and making manual selections using computer keys. It is possible that the variety of skill levels among the prospective nurses also contributed to the limited sample size. Both the study poster and the web site repeatedly encouraged the prospective participant to contact the study researcher for questions, but perhaps making arrangements for computer support for study participants would have been desirable.

The benefits and burdens of study participation may have limited the sample size. The emotional intelligence test used in this study takes approximately 45 minutes to complete. This information was contained on both the participant solicitation poster as well as the web site. The web site was constructed so that the staff could not enter the website from terminals on the hospital unit. It is possible that the length of time involved
in study participation and restrictions to access at work was another factor that led to sample-size limitation.

Implications for Nursing and Recommendations for Future Research

The implications of this study for nursing have four main foci: the practice environment, nursing research, clinical education and patient outcomes research. Each of these topics will now be addressed.

The clinical practice environment today is one that challenges not just a nurse’s ability to deliver care safely and comprehensively. It also challenges the nurse’s ability to sustain themselves professionally, in a manner such that the nurse continues to grow, learn and thrive in clinical practice. Increasing patient acuity, work overload, stressful work conditions and the lack of meaningful support for nursing practice all work together to not only drive nurses from nursing but to disempower and diminish those nurses who remain in practice. Negative influences in the environment of care have been identified as being related to not only nurse recruitment and retention, but also quality of care, safety, and effective organizational communication (Anthony, M, Standley, T., Glick, J, Duffy, M., Pascall, O’Leary, McCauley, Grenny, Barden & Kerfoot, 2005; Peterson, 2001).

The skills of emotional intelligence, which have been demonstrated in other professions to be related to professional survival and adaptability, may have merit in promoting the qualities needed for nurses to sustain themselves professionally. In light of the worsening nursing shortage, further study is warranted. Skill building in this area may be crucial for building and sustaining the nursing workforce.

Additionally, it may be that the clinical ladder may be itself a means for recognizing, encouraging, rewarding and valuing skills such as emotional intelligence.
If higher levels of emotional intelligence are demonstrated in follow up studies, it may be that clinical ladder nurses serve as both exemplars and role models for emotional intelligence skills.

Several categories of emotional intelligence research are needed in nursing. First, studies of nursing students and nursing curricula are needed to identify if EI skills can be effectively taught and improved in nursing curricula. This has been successfully demonstrated in other professions (Chang, 2006). Secondly, research into specific EI competencies and their impact on clinical outcomes is needed. Relationships among EI and job satisfaction, autonomy, retention, team relationships, patient outcomes, customer satisfaction and professional development need to be explored. Replication of this study in larger groups of nurses and in wider and more diverse populations is needed to expand the understanding of the role of EI in nursing performance. Research into multidisciplinary relationships and organizational outcomes such as retention, organizational commitment and professional advancement should be performed. The case for organizational change must be supported by data.

The relationship of EI and longevity in nursing, retention and pro-social behavior is needed, as is research that relates EI to specific customer and patient outcomes. Clinical research on disease management outcomes could prove valuable in an increasingly challenging fiscal health care climate.

Nursing educators both in the academic setting and in clinical practice areas should consider including the abilities of emotional intelligence in nursing study curricula. Initial strides in this area are already underway in nursing programs such as the University of Wichita, the University of Wisconsin, the University of Georgia, and
McMaster University in New York, to name a few. In some of these nursing programs, the skills of emotional intelligence are taught in specific courses such as in Psych/Mental Health. In other programs, EI is a thread which is carried throughout the curriculum. To date, no research has been done in nursing to evaluate the impact of such curricula, but in the research literature outside of nursing, at least one study has demonstrated the efficacy of such education (Chang, 2006). Performance evaluation in both academic and clinical settings should be developed to include criteria related to emotional intelligence skills. Although it may be undesirable to recruit and hire nurses using EI testing, evaluation of EI criteria may be useful in both in the education of nurses and post graduation recruitment.

Lastly, patient outcomes research may also demonstrate important relationships between both patient satisfaction and disease management outcomes. Two studies, one on glycemic control and EI, and the other on HIV patients’ medication compliance, have provided a beginning to this area of research (Samar, 2001; Willard, 2003).

Next Steps

The next steps for this research is to replicate this study at other hospitals, particularly other facilities which more regularly participate in nursing research studies. Initial queries have been made for this work. Other relationships, such as those between EI and RN satisfaction as well as EI and patient satisfaction could provide additional insights into both patient outcomes and RN practice and retention. Academic research is also needed to identify specific educational outcomes related to emotional intelligence, and to identify the impact of EI education on the emotional intelligence of students.
These and other efforts to identify educational and organizational outcomes related to EI will be the foundation for further work in the future.
Appendix A: Study Poster

The Emotional Intelligence of Nurses: A Nursing Research Study
Be a part of a study on The Emotional Intelligence of clinical staff RN's!
(And receive a 10$ Gourmet Coffee Coupon as your reward!)

WHO?: Study participants will be 210 RN's from 3 HPH hospitals
(approximately 70 from each hospital)….first come, first served!!

WHAT?: Involvement in the study takes about 45 minutes and has 2 steps:
1. Sign on to the URL site listed below and complete a demographic/career information survey
2. The URL site will link the participant to a nationally recognized testing site where the nurse will take an emotional intelligence test.

ALL STUDY INFORMATION IS CONFIDENTIAL. STUDY PARTICIPANTS MAY, IF REQUESTED, RECEIVE THEIR EMOTIONAL INTELLIGENCE SCORES AND INTERPRETATION OF THE SCORES.

If you want to participate in the study, connect to the study url site:
www.alohawaydesign.com/codier For questions? Write to Codier@hawaii.edu

use these tear off tabs for your convenience!

| To connect to study site: | www.alohawaydesign.com/codier | Questions? E mail: Codier@hawaii.edu | To connect to study site: | www.alohawaydesign.com/codier | Questions? E mail: Codier@hawaii.edu | To connect to study site: | www.alohawaydesign.com/codier | Questions? E mail: Codier@hawaii.edu | To connect to study site: | www.alohawaydesign.com/codier | Questions? E mail: Codier@hawaii.edu | To connect to study site: | www.alohawaydesign.com/codier | Questions? E mail: Codier@hawaii.edu | To connect to study site: | www.alohawaydesign.com/codier | Questions? E mail: Codier@hawaii.edu |
Appendix B: Web Site Pages

1. Study web site Page 1: Welcome page — This page welcomed the participant to the web site, provided brief general information about emotional intelligence, and stated the purpose of the study (See Appendix C).

2. Study web site Page 2: Study participation page — This page described the study and specified what participation in the study would involve (See, Appendix D).

3. Study web site Page 3: Study code name page — This page explained one aspect of study confidentiality, the use of a participant code name (See Appendix E).

4. Study web site Page 4: Informed consent page — On this page, the electronic informed consent was presented and opportunities presented to the participant to either exit the site or complete the consent form (Appendix F).

5. Study web site Page 5: Demographics/career information page — On this page, the participant was asked to complete the demographic/career information questions for the study (See Appendix G).

6. Study web site Page 6: Follow up page — On this page, the participant was asked to indicate what follow up they would like from the study (coffee coupon, etc) (See Appendix H).

7. Study web site Page 7: Emotional intelligence information page — On this page, the participant had the option of following links to further pages on the study web site which contained information about emotional intelligence (See Appendix I). The information pages were as follows:

   a. Traditional intelligence and emotional intelligence — how they are similar and different (See Appendix J).
b. Models of emotional intelligence — brief presentation of the three main models of EI (See Appendix K).

c. How EI is measured — a brief review of the types of measurements for EI (See Appendix L).

d. Nursing research and EI — review of the existing EI research in nursing (See Appendix M).

e. Emotional intelligence and the workplace — a summary of existing research (See Appendix N).

8. Final Page: This page contained a hyperlink to the MSCEIT testing site as well as the password and code needed to access the site (See Appendix O).
Welcome to the Emotional Intelligence of Clinical Nurses Study Web Site!

Thanks for considering participation in this study on the Emotional Intelligence of Nurses!!

What? What is Emotional Intelligence? EI is an ability, NOT a personality trait!! It is something many nurses do naturally. Simply, it is made up of 4 basic skills:

1) The ability to correctly identify emotions in self and in others,

2) The ability to use emotions in reasoning

3) The ability to understand emotions in self and others and

4) The ability to manage emotions in self and others

Why? In other professions, Emotional Intelligence has been found to be a predictor of performance, success, and many positive organizational outcomes such as decreased burnout, job turnover, etc. No one knows if this is true for clinical nurses

Purpose: The purpose of this study is to explore the factors that are related to Emotional Intelligence in Clinical Staff Nurses
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Appendix D: Web Page 2: Study Participation

What will study participation involve?

The study takes three easy steps:

1. On this web site you will be asked to do the following:
   * Complete a consent form for participation in the study
   * Complete a demographic and career information sheet

2. If you would like your Emotional Intelligence score or other study feedback, you'll have a chance to request it before leaving the site

3. The site will then forward you to the Emotional Intelligence instrument site, where you will log in and take the Emotional Intelligence test.

Participation in the study should take about 45 minutes. You should complete the study all in one sitting if possible.

More information about Emotional Intelligence is included at the end of this web site
Appendix E: Study Web Site Page 3-Study Code Name

Your Study Code Name

Before beginning the study, you will be asked to select a study "code name". Instead of using your real name to identify yourself, you will use this name on your consent form, on the demographic/career information questions, and when you take the Emotional Intelligence test. Think of a first and last name for your "code name" and be ready to use them as the study progresses. Make sure you use the same code name for each of the three study forms!!

Why do this? Using a "code name" is a way of ensuring your privacy and confidentiality of all information that is gathered.

The only time you will be asked to share your name is if you would like to receive a 10$ coffee purchase coupon as a "Thank you" for completing the study. (We need to know where to send it and to whom, obviously!!). Your name will NOT be added to the data that you have shared; it will be used only to send your coupon and will be deleted after your coupon is sent.
Appendix F: Study Web Site Page 4: Consent Form

Informed Consent

Before completing your participation in this study, you must read the following and indicate your consent for study participation. Please read the following and complete the study consent.

The Emotional Intelligence of Clinical Staff Nurses: Informed Consent

Estelle Codier Primary Investigator 783-1583

Study Purpose: This research project is being conducted as part of a dissertation for a doctoral degree in nursing.

The purpose of the project is to explore the Emotional Intelligence of Clinical Staff Nurses.

Participation in the project has two steps: 1) 11 short multiple choice questions about yourself and your career, and 2) 30 minute questionnaire online of emotional intelligence.

All data from the study will be completely confidential. No personal identifying information will be included with the research results. Your participation will in no way affect your employment nor will study information be shared with anyone at your hospital.

Completion of the multiple choice questions should take no more than 5 minutes. The Emotional Intelligence test takes about ½ hr. Approximately 100-200 people will participate in the study.

Study Risks: The investigator believes there is little or no risk to participating in this research project.

Study Benefits: Participating in this research may be of no direct benefit to you. It may benefit you by giving you feedback on what emotional intelligence skills you have at this point. Your participation may help increase what is known about the Emotional Intelligence of Nurses. As a result, this could benefit nurses in the future.

Confidentiality: No one but the study investigator will have access to your demographic/career information or the results of your EI test. Research data will be confidential to the extent allowed by law. Agencies with research oversight, such as the UH Committee on Human Studies, have the authority to review research data. All research records will be stored in a locked file in the primary investigators office for the duration of the research project. The on line study site will be entry code protected so only you and the study researcher will be able to access your study information and test scores. At the end of the study, all hard copy data sources will be shredded and the study web site dismantled. No electronic copy will be kept of confidential data.

Participation in this research project is completely voluntary. You are free to withdraw from participation at any time throughout the duration of the project with no penalty incurred. If you have any questions regarding this research project, please contact the
researcher, Estelle Codier, at 783-1583.

If you have any questions regarding your rights as a research participant, please contact the
UH Committee on Human Studies at (808) 956-5007, or the

Hawaii Pacific Health Institutional Review Board at (808) 522-4583.

Participant Consent:

I have read and understand the above information, and agree to participate in this
research project.

Study Code Name: ___________________________ Date: ______________

Electronic Signature:  By clicking on this box, I indicate that I have read and
understand this consent instructions and agree to them:
Appendix G: Study Web Site Page 5-Demographic/Career Information

Demographic /Career Information

Please complete the following Demographic and Career Information

1. Age/Gender/Code Name

Age

Study Code Name

Sex  Male  Female

2. How many years have you been a nurse? (Not including nursing school)

3. What is the highest level of education that you have completed?

Diploma Program  BSN  MSN  PhD

4. What is your ethnicity?

Hawaiian or Part Hawaiian  Black, Non-Hispanic  Caucasian, Non-Hispanic  Hispanic  Filipino

Asian/Pacific Islander (Not Hawaiian or Filipino)  American Indian/Alaskan Native  Other (If other, see next question)

5. If you described your ethnicity as "other", please describe
6. At which hospital do you work?

- Medical Center #1
- Medical Center #2
- Medical Center #3

7. What is your current area of clinical practice?

- Medical Surgical Care
- Critical Care
- Pediatrics, non intensive care
- OB
- Operating Room
- PACU
- Clinic
- Outpatient Surgery
- Other (see next question)

8. If you specified "other" in the previous question, what is your area of clinical practice?

9. What is your current clinical practice level?

- New Graduate
- Staff Nurse
- Clinical Ladder III
- Clinical Ladder IV
- Clinical Ladder V
- Clinical Ladder VI

10. How many years do you think you will stay (total) in your current job? (From beginning of employment till leaving the job)
11. How many years total do you think you will practice as a nurse (From year leaving nursing school till retirement)?

- Less than 2 years
- 2-4 years
- 5-7 years
- 8-10 years
- > 10 years

12. Which statement best describes you?

- I am very committed to "hospital"
- I am moderately committed to "hospital"
- I am not very committed to "hospital"
- I am not at all committed to "hospital"

Submit Form | Reset Form
Appendix H: Study Web Site Page 6-Study Follow Up Request Page

Study follow up

Would you like to receive your test score? How about interpretation of what the score means? Would you like to receive a copy of the study results when they are completed? Would you like to receive a 10$ coffee/gift coupon? On the selection screen below, please click on any which you would like to be sent.

<table>
<thead>
<tr>
<th>Emotional Intelligence score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpretation of EI Score</td>
</tr>
<tr>
<td>Results of Study</td>
</tr>
<tr>
<td>Send me a coffee/gift coupon</td>
</tr>
</tbody>
</table>

Where shall these be sent? If you don't want anything, proceed to the final page.
(Note: Coffee Coupons can only be sent to your real name via ground mail)

Reminder: All study information is confidential and will be viewed by no one but the study coordinator and, if you desire, yourself. At no time will the information you share be shared with anyone else in or outside of your place of work.

Name

Study Code Name

E-mail

Address

Address
More Information on Emotional Intelligence and the Emotional Intelligence of Nurses

Here is some information about Emotional Intelligence and the Emotional Intelligence of Clinical Staff Nurses

- What is Emotional Intelligence and how does it relate to traditional intelligence?
  - Click here for more information
- What are the most common models of Emotional Intelligence and how do they differ?
  - Click here for more information
- How is Emotional Intelligence measured and what are the issues related to its measurement?
  - Click here for more information
- What does the current research say about Emotional Intelligence in the work setting?
  - Click here for more information
- What nursing research has been done on Emotional Intelligence?
  - Click here for more information
Appendix J: Study Web Site Page 8: More Information about EI -What is Emotional Intelligence and how does it relate to intelligence as it is traditionally understood?

**Emotional Intelligence Defined:** Emotional Intelligence, as defined in this study, is NOT a personality trait or something you are born with and can't change. Emotional Intelligence is a skill. It can be learned and improved! Emotional Intelligence is made up of four basic skills, which build on each other:

1. The ability to correctly identify emotions in yourself and other people
2. The ability to use emotions to facilitate reasoning
3. The ability to understand emotions in yourself and others
4. The ability to manage emotions in yourself and those around you

**How is this different from traditional intelligence? Why is it important to study Emotional Intelligence?**

1. Traditional measures of intelligence (Grade point average, IQ, class standing, etc) do not well explain the differences in performance, life success, life satisfaction, and happiness. For example, only 4-25% of the difference in the way two different employees perform can be explained by the differences in their intelligence.

2. Traditional measures of intelligence don't predict how well someone will work on the job, how well they will get along with others or work effectively in a team.

3. Traditional measures of intelligence don't well predict important employee outcomes such as retention on the job, retention in the profession, burnout, hardness, resilience to stress, etc.

4. In the Emotional Intelligence research, the factors listed in #1-3 HAVE been found to be related to Emotional Intelligence!!
Appendix K: Web Page 11: More Information on EI: The 3 main models of EI

What are the most common models of Emotional Intelligence and how do they differ?

Historically, three models of Emotional Intelligence have evolved. They differ in their basic understanding of what EI is and how it is properly measured. The three models grew out of very different environments.

**Personality Model**—the earliest Emotional Intelligence research occurred in the mental health setting, within the context of research on personal happiness and satisfaction. Within that context, Emotional Intelligence was conceived as a personality trait. In that context, most EI testing was self-report testing. This model of EI overlaps highly with models of personality and the tests for Personality Model EI overlap greatly with personality tests.

**Ability Model**—The EI ability model theorists developed their theory of EI after extensive research on the way that emotion interfaces with reasoning. This model conceives EI as an ability which can be developed. There are both self-report and performance-based tests of ability EI. The most well-developed test is the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT).

**Mixed Model**—This model of EI conceives EI as a function of both ability and personality. The tests for Mixed model EI are 360 tests which were developed within the context of the business and industry settings.
How is Emotional Intelligence measured and what are the issues related to its measurement?

There are three main ways of measuring Emotional Intelligence.

Self Report Instruments-EI may be measured with self report instruments. The reliability of data obtained from a self report instrument is dependent on the test takers ability to accurately report their abilities. This type of testing is confounded by under and over reporting related to self image issues, and by other confounding variables such as "high stakes" situations where the test score is related to job applications, etc.

360 Tests-These tests are a combination of evaluation done by an individual's superior, subordinates, and coworkers. While in some respects a comprehensive reflection of the individual's abilities, they are most often not based on actual observation of the individual's performance, and thus subject to a wide variety of confounding variables

Performance Tests-Tests such as the MSCEIT require the test taker to actually perform tasks, such as identifying an emotion based on a picture of a facial expression. These tests are not affected by the confounds typical of other types of tests.
Appendix M: Web Page 11-More EI Information-Nursing Research on EI

What nursing research has been done on EI? As of May 2006, there have been only 18 published studies in the world on the Emotional Intelligence of Nurses. Studies have been done in the US, Canada, Australia, Portugal, the Netherlands, Norway, China, and Great Britain. Only a few studies have been done in the US. The results of these studies are tantalizing!! The studies and a brief statement of their conclusions is listed below. Very few studies have been done on clinical staff nurses. That is why your participation in this study is so important!

Nursing Studies on Emotional Intelligence, Job Stress, Burnout and Hardiness. In the non-nursing literature, higher levels of Emotional Intelligence and greater resilience, better adaptation to job stress, less burnout and greater overall hardiness are related to high EI. Researchers Tjiong, Neal, Gertis, Budnick and Farmer have found similar studies in populations of nurses.

Leadership and Emotional Intelligence-In the non nursing literature, a clear relationship has been repeatedly demonstrated over many studies that higher levels of Emotional Intelligence are associated with better leader performance, and many positive organizational outcomes. Nursing research by Molter and Vitello-Cicciu demonstrated similar findings in nurse leaders.

Emotional Intelligence and Communication skills: Nurses with higher Emotional Intelligence Scores were found to have more positive conflict styles than nurses with lower Emotional Intelligence. (Jordan)

Emotional Intelligence and Performance-Perhaps the strongest workplace finding about Emotional Intelligence is that many studies (>70 studies) have demonstrated that there is a relationship between Emotional Intelligence and higher levels of performances across a wide range of types of performance. Some nursing research indicates that the same is true of nurses. (Rochester and Cummings).

Patient Outcomes and Emotional Intelligence-Some studies have looked at the Emotional Intelligence of patients. One study, for example, found a relationship between higher levels of Emotional Intelligence and better glycemic control in diabetics.
What research has been done on EI in the work setting?

Much of the first research on Emotional Intelligence took place in the workplace. Companies such as Johnson & Johnson, American Express, and the US military, were interested in the impact of employees Emotional Intelligence on such factors as productivity, work effectiveness, burnout and turnover, and team relations.

A large body of research, across many different work settings and tens of thousands of employees, have concluded that there is a clear relationship between higher levels of emotional intelligence and workplace performance. Additionally, teams with high levels of emotional intelligence have been demonstrated to outperform other teams.

There is also strong research evidence that higher levels of emotional intelligence in workers has also been related to the following:

- Less turnover
  - Better attendance
  - Less work stress
  - Greater career success
  - Lower burnout rates
  - Pro-social behaviors
  - Positive conflict skills
  - Mentoring
  - Job Safety

Additionally, there is some research evidence that higher levels of emotional intelligence are also related to the following:

- Workplace wellbeing
- Workplace morale
- Better job satisfaction
- Stronger organizational commitment

Go Back to Resources Page
Before you proceed to take the Emotional Intelligence Test, you will need to know how to log on once you get there!

When you Click on "Proceed to Emotional Intelligence Testing Site" you will leave this site and be connected with Multi Health Systems, a professional, totally confidential, testing site.

When you reach the site, it will ask you what test you want to take. Click on EI "MSCEIT" (You might want to write this down)

The site will then ask you for your entry code and password. Your code is: CODIER Your password is: MSCEIT (You might want to write these down!)

The site will then begin your Emotional Intelligence Test. When it asks for your identification, use the "Code Name" that you have selected for this study.

DO NOT USE YOUR REAL NAME.

It is crucial that you use the same name that you used when completing the consent form and demographics/career information sheets

READY????

PROCEED TO EI TESTING SITE OR
References


Geery, L.J. (1997). *A exploratory study of the ways in which superintendents use their emotional intelligence to address conflict in their educational organizations.* La Verne, CA.


