

EMOTIONAL AND SOCIAL INTELLIGENCE: A STUDY OF INTERPERSONAL,
INTRAPERSONAL, SOCIAL AWARENESS, AND SOCIAL FACILITY SKILLS OF
INFORMATION TECHNOLOGY PROFESSIONALS IN HIGHER EDUCATION

A Dissertation

by

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This dissertation meets the standards for scope and quality of
Texas A&M University-Corpus Christi and is hereby approved.

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ABSTRACT

Technology is exponentially growing at a rapid pace across all industries, including higher education. Those who support these technologies, information technology (IT) professionals, are susceptible to job pressure factors, such as stress, due to labor shortages and a need for more communication with people other than IT professionals across campuses. This raises concern about their ability to interact according to emotional intelligence (EI). Very little is known about two EI aspects of IT professionals (interpersonal and intrapersonal skills) and their relationship to professional roles. The purpose of the study was to examine the relationships between various roles of IT professionals in higher education and their interpersonal and intrapersonal skills of EI.

The study employed an ex-post facto design. The independent variable consisted of IT personnel's professional roles, education, and social intelligence. The dependent variable was emotional intelligence, consisting of interpersonal and intrapersonal EI. Data were analyzed according to *t*-test, ANOVA, and correlation statistics. The participants were IT professionals at 20 four-year public universities in the Texas A&M and University of Texas systems. There were 94 IT professionals who participated in the study.

The findings showed that IT professionals with a degree in technology had lower stress levels and lower self-esteem than IT professionals whose degree was in business. However, there were no statistical differences in IE among IT professionals as it related to job titles, number of years on the job, or highest degree earned. Further analyses revealed social intelligence was correlated to emotional intelligence, although the relationship was weak.

The study showed that IT professional are socially awkward. Since results revealed that as social intelligence decreased so did their emotional intelligence, IT leaders should be cautious

about which IT professionals they want to interact directly with students, staff, faculty, and administrators. Furthermore, IT departments may need to change hiring practices. Those IT professionals who have technical expertise coupled with good people skills can be called upon to interact with other campus personnel.

DEDICATION

I dedicate my dissertation to my parents, Juan and Rimalda Trevino, my brothers and sister, Richard, Edward, and Melissa, my three sons, Daniel, Andres, and Eian, and my stepchildren, Susan, Jordan, and Cain. A big dedication goes to my wife, Rhonda, who supported me at my lowest and was my sunshine throughout the last part of this journey. You are all the reasons I chose to accept and continue this doctoral journey. To my sons and stepchildren, I hope that my accomplishments will inspire each of you to do your very best and to never let anything get in the way of your dreams. The path to those dreams is never easy, but always know that you have someone in your corner to help and guide you. Remember that I will always love you.

To my wife, thank you for your support over the last three years. There have been so many events that have happened in that time to fill the lives of others. Nevertheless, through all the difficulties, we still stood by each other. I love you!

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CHAPTER I: INTRODUCTION

Background and Setting

The current global work environment has made employees more accountable for the success of an organization. The accountability placed on employees is at an unprecedented high. Gardner and Stough (2003) explained how emotional intelligence (EI) in the workplace reduced stress and gave workers the ability to communicate their emotions for the good of not only themselves, but for the whole organization. Therefore, any stress on an employee coupled with a lack of emotional intelligence could lead to an undesirable work place prone to failure (Ramesar, Koortzen, & Oosthuizen, 2009).

Information technology (IT) professionals and their work environments are no exception to these pressures. Raghavan, Skaguchi, and Mahaney (2010) explained that IT professionals are even more susceptible to stress factors due to a shortage of labor in the IT profession. Another factor that adds to this experience is the lack of EI skills among IT professionals. Tang and Mu-Shang (2008) characterized IT professionals “as a group of people displaying unique ideologies, norms, beliefs and values systems which differ from professionals in other organizations” (p. 108). Their study placed emphasis on IT professional’s lack of interpersonal and intrapersonal skills when compared to other EI competency areas such as personal leadership and self-management skills. More research is needed.

Glen (2003) stated that IT professionals are moving from the backroom to the forefront more and more, therefore, there is a greater need for them to develop “people” skills, which historical they have not needed. There exists a need to communicate via “self-expression” which is something that most IT professionals lack in terms of dealing with non-IT professionals (p.

34). In addition, IT professionals would rather choose their computer over true personal interaction and are “engrossed” with what is on their screen than what surrounds them (p. 33).

Gillard (2009) noted that the workplace in an IT environment is diverse. Many IT professionals now have to interface with people in different contexts, including interaction with international colleagues. So workplace interactions, such as communication issues, stress, or anxiety can be more compounded by the language or culture barriers, which can often be true of IT professionals on college and university campuses. The study further cited the need for interpersonal or “soft skills” to be effective. These soft skills are even more sought after than technical skill or “hard skills” (p. 575).

Emotional intelligence can be defined as an individual’s ability to “integrate emotions and reason” which in turn manages emotions cognitively (Yukl, 2002, p. 196). Further review of research indicated that the use of emotional intelligence to promote an individual’s self-awareness of their emotions enhanced their ability to discriminate those feelings and often were looked upon as a better predictor of success than academic testing measurements (Goleman, 1995; Nelson & Low, 2010).

Within the EI construct, there are four competencies. Nelson and Low (2010) identified these competencies as self-management skills, personal leadership skills, interpersonal skills, and intrapersonal skills. A review of the literature shows that the interpersonal and intrapersonal are more often used to describe team collaboration and communication in comparison to the other competencies (leadership and self-management) of the EI construct (Gillard, 2009; Tang & Mu-Shang, 2008; Yukl, 2002).

The competency of interpersonal skills is the ability for one to either receive or transmit the feeling among others and often referred to as an “open loop” (Goleman, Boyatzis, & McKee,

2002, pp. 6-8). Interpersonal skills can actually have lingering effects beyond the actual experience of the emotion (Yukl, 2002, p. 196). Goleman, Boyatzis, and McKee (2002) termed this phenomenon as “Mirroring” (p. 7). In mirroring, Goleman, Boyatzis, and McKee (2002) reference the heart rates between two patients as they interact in conversation. During this conversation, their heart rates synchronize as one indicating that physically separate biological systems can become one through communication and collectivism.

The intrapersonal competency involves being in tune with self-esteem and stress management skills (Nelson & Low, 2010). The authors described “self-defeating and “self-destructive behaviors” that can have an impact on not only an individual’s mental and physical health, but the health of the organization (p. 111). They also note that becoming self-aware of several inter-related emotions that comprise stress and self esteem are important when trying to improve this competency.

In the context of Information Technology (IT) environments, some research on EI indicates that IT professionals may exhibit characteristics different from those working in other fields (Tang & Mu-Shang, 2008, p. 108). Gillard (2009) explained that good “interpersonal” or “soft skills” would ensure success in an IT organization rather than solely using a technical skill set as a measurement (p. 723). Tang and Mu-Shang (2008) added to the importance of recognizing the ability of the IT professional’s “soft skills” which they defined as not only interpersonal skills (the ability to communicate with others socially) but also the ability to handle job related stress.

Although, EI has received considerable notoriety in the past decade (Conte, 2005), the review of literature has shown the use of EI to help lead IT professionals in organizations is lacking (Tang & Mu-Shang, 2008). This study will examine the emotional intelligence of

information technology professionals in colleges and universities with regard to EI constructs (intrapersonal and interpersonal) or “Soft Skills” (Gillard 2009).

Theoretical Framework

The frameworks that were used in the research are Nelson and Low’s (2010) EI theory as measured by the Emotional Skills Assessment Process (ESAP) and Goleman’s (2006) Social Intelligence theory. Emotional intelligence has been described as the “most influencing variable” to success in one’s career (Nelson & Low, 2010, p. xxiii). It is a learned ability that can be individually nurtured and developed. Nelson and Low explained that this nurturing and development begins with the cognitive mind as it protects the emotional mind and that balance between the two must be maintained in order to make clear and socially rational decisions. Emotional intelligence also explains “the capacity for recognizing our own feelings and those of others, for motivating ourselves, for managing emotions well in ourselves and in our relationships” (Goleman, 1985). The five domains that Goleman identified as the construct for EI are: (a) self-awareness, (b) managing emotions, (c) motivating self; and (d) empathy, (e) handling relationships. Nelson and Low’s EI construct are shortened into four competencies: (a) self-management skills; (b) personal leadership skills (c) intrapersonal skills (d) interpersonal skills. The ESAP provides the foundation for the survey instrument that will be used in this research. Part of the ESAP uses the emotional learning system (ELS), which is a five-step process to assist in coping with stressful experiences. However, for the purposes of this study, the ELS will not be used since it is a post assessment exercise. This instrument was condensed using Nelson and Low’s ESAP A format to more accurately reflect the working conditions consistent with the literature research findings as related to IT professionals’ need to develop interpersonal and intrapersonal skills (Gillard 2009; Tang & Mu-Shang, 2008).

Social Intelligence theory, according to Goleman (2006), falls into two categories. They are social awareness and social facility. Social awareness is described as when a person can instantaneously sense or empathize with a person's feelings. It goes beyond recognizing the feelings to accurately identify what another person is feeling. In addition, it relates to how these feelings play into the context of the situation. The other category is social facility. This category calls for properly steering a social interaction into a non-confrontational situation.

The additional need to use social intelligence was due to the limitations of emotional intelligence. Emotional intelligence seeks to explain the soft skills needed within IT professionals as they engage in social interactions (Gillard 2009; Goleman, 1995), whereas social intelligence seeks to further explain the social interactions between individuals (Goleman, 2006).

Statement of the Problem

Tang and Mu-Shang's (2008) study found IT professionals to be deficient in the EI competency areas of interpersonal and intrapersonal skills. They asserted that an EI intelligence skill under the interpersonal competency was lacking in their findings and provided an insight to the possibility that IT professionals have difficulty being comfortable around their peers. Another finding showed that stress management, an EI intelligence skill of the intrapersonal competency, was lower among IT professionals, indicating their lack of stress coping skills with increased workloads. They suggested, for further research, to replicate their study on more experienced IT professionals since their sample of IT professionals were undergraduate students enrolled in information technology disciplines at a university. Very little is known about how EI relates to IT professionals in general, particularly in colleges and universities. Very little is known about the EI aspects of interpersonal and intrapersonal skills of IT professionals and their relation to professional roles and educational level of the professionals. Additionally,

perspectives of the IT professionals regarding such skills are not documented. This study focused on the EI areas of interpersonal and intrapersonal skills as well as the SI areas of social awareness and social facility in more experienced IT professionals. For the purpose of this study, the theoretical model has been reconfigured to integrate both the ESAP and SI. It is limited to a reduced number of EI subscales (Figure 1.1). Emotional intelligence self-management and personal leadership were not measured, as they were not in scope for this study.

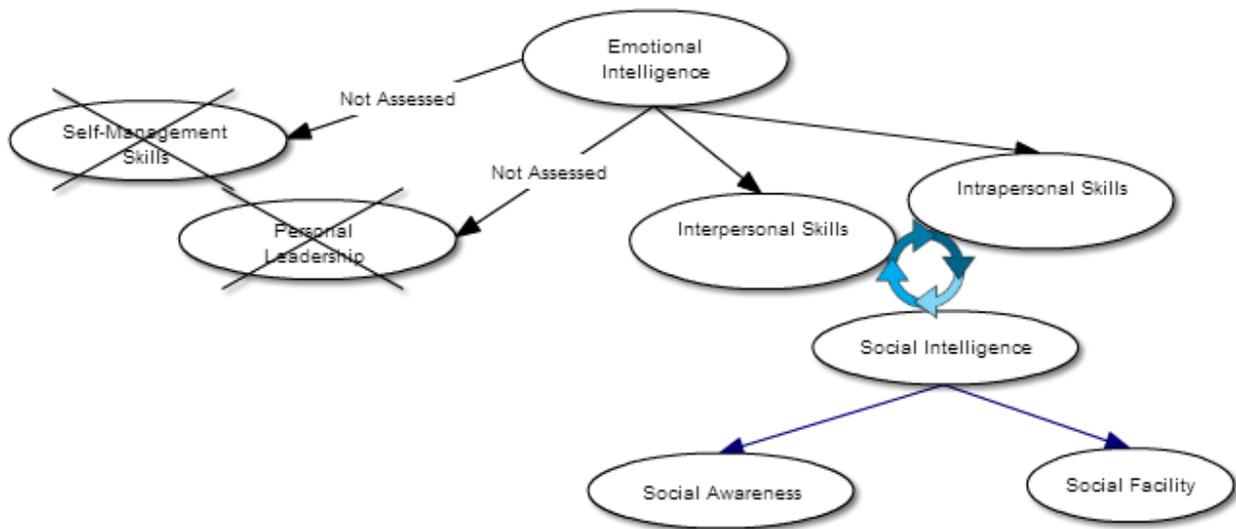


Figure 1.1 EI and SI Theoretical Frameworks

Purpose of the Study

The purpose of the study was to examine the relationships between various roles of IT professionals in higher education and the interpersonal and intrapersonal skills of EI, along with the social awareness and social facility of SI. As technology has become more high stakes in higher education, the old adage of only managing the technology changed to one based on leading technology with ideas rather than managing it through the short term (Katz, 1998). Financial imperatives have become an issue because the methods to deliver technology industry wide have grown. The people that have to run these technologies are those that have to be highly skilled in their areas and have some form of adequate communication skills (Gillard, 2009).

Katz (1999) stated that financial support for higher education initiatives from state and local governments have decreased since the 1980s. The impact of this change was an increase in tuition in the 1990s to make up for the lack of state and federal funding. As a result, a limit on how much that could be spent in areas such as central IT decreased. The other result of this change are that IT professionals in higher education being asked to do more with less, which has put them in social situations outside of their comfort zone.

Research Questions

There were two major variables: (a) independent; and (b) dependent. There were three specific independent variables. The first independent variable was the professional roles of IT professionals in higher education according to job title and number of years on the job. The second independent variable was education level. Education consists of level of education and academic discipline in the highest degree awarded. Social intelligence was the third independent variable. It consists of social awareness and social facility. The dependent variable was emotional intelligence. It has two aspects: (a) interpersonal skills (b) intrapersonal skills. Figure 1.3 provides an overview of the research values.

The study was guided by the following research questions:

1. How do professional roles relate to Interpersonal Skills?
 - 1.1 How does job title relate to Interpersonal Skills?
 - 1.2 How does number of years on the job relate to Interpersonal Skills?
2. How do professional roles relate to Intrapersonal Skills?
 - 2.1 How does job title relate to Intrapersonal Skills?
 - 2.2 How does number of years on the job relate to Intrapersonal Skills?
3. How does education relate to Interpersonal Skills?

- 3.1 How does level of education relate to Interpersonal Skills?
- 3.2 How does academic discipline of highest degree awarded relate to Interpersonal Skills?
- 4. How does education relate to Intrapersonal Skills?
 - 4.1 How does level of education relate to Intrapersonal Skills?
 - 4.2 How does academic discipline of highest degree awarded relate to Intrapersonal Skills?
- 5. How does social intelligence relate to Interpersonal Skills?
 - 5.1 How does social awareness relate to Interpersonal Skills?
 - 5.2 How does social facility relate to Interpersonal Skills?
- 6. How does social intelligence relate to Intrapersonal Skills?
 - 6.1 How does social awareness relate to Intrapersonal Skills?
 - 6.2 How does social facility relate to Intrapersonal Skills?

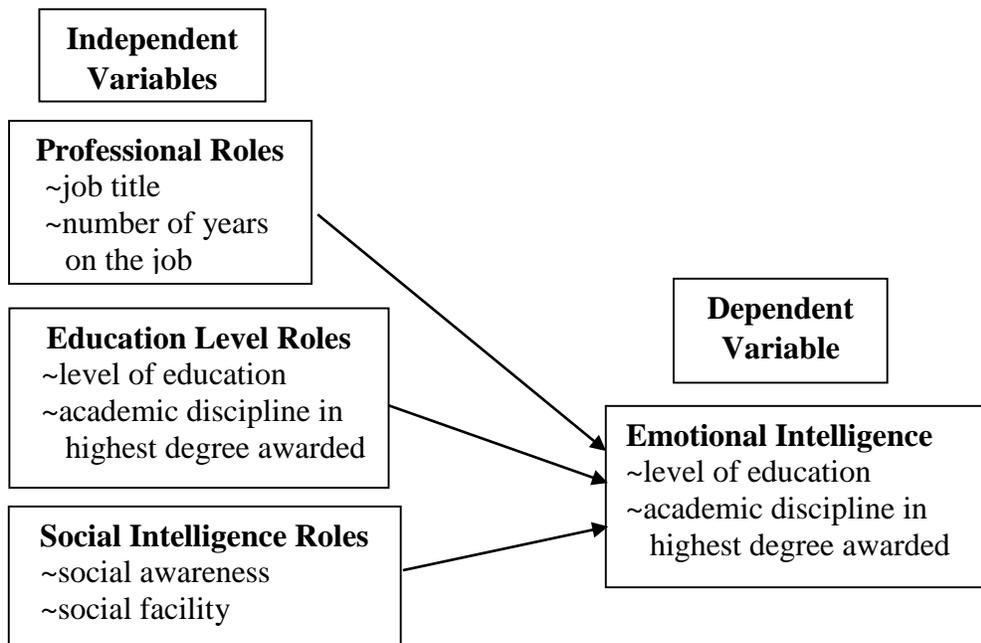


Figure 1.2 Research Variables

Definition of Terms

The following are a set of operational definitions for independent variables and dependent variables. In addition, terms related to Information Technology (IT).

Independent Variables

Professional Roles

Job title. The construct definition of a job title is any IT job performed in a higher education institution (Katz, 2004). The operational definition is based on one choice of 11 IT job titles on the survey.

Number of years on the job as an IT professional. The construct definition of number of years on the job as an IT professional is limited to the time an IT professional has spent doing his or her job in higher education collectively (Katz, 2004). The operational definition is based on one choice from four options on the survey.

Education Roles

Level of education. The construct definition of level of education is the highest level of education the IT professional has attained (Arroway, Davenport, & Guangning, 2010). The operational definition is one choice from 5-degree options on the survey.

Academic discipline. The construct definition academic discipline is what academic field of study the IT professional obtained their degree (Arroway, Davenport, & Guangning, 2010). The operational definition is based on one choice from seven academic disciplines options on the survey.

Social Intelligence Roles

Social Awareness. The construct definition of social awareness is “a spectrum that runs from instantaneously sensing another’s inner state” (Goleman 2006, p. 84). The operational

definition is derived from 4 statements on the survey on a 6 point scale: 1= Completely disagree; 2 = Strongly disagree; 3 = Disagree; 4 = Agree; 5 = Strongly agree; 6 = Completely agree. A sample statement is “I have a strong sense of accurately perceiving non-verbal emotional signals of others.”

Social Facility. The construct definition of social awareness is “sensing how another feels, or knowing what they think or intend; does not guarantee fruitful interactions” (Goleman 2006, p. 84). The operational definition is derived from 4 statements on the survey on a 6 point scale: 1 = Completely disagree; 2 = Strongly disagree; 3 = Disagree; 4 = Agree; 5 = Strongly agree; 6 = Completely agree. A sample statement is “Most of the time I respond very well to non-verbal cues.”

Dependent Variables

Interpersonal Skills

Assertion. The construct definition of assertion is “the ability to clearly and honestly communicate your thoughts and feelings to others in a straight forward and direct manner. It is a way of talking to people that lets you express your thoughts and feelings in a way that is not hurtful” (Low & Nelson, 2010, p. 42). The operational definition is based on nine situational statements on a three-point scale. An example of a situational statement is: “When I am really angry at someone, I usually feel some tension” (p. 43). Statements were measured on the following 3-point scale: M = Most like; S = Sometimes like; L = Least like.

Aggression. The construct definition of aggression “is the degree to which an individual employs a personal communication style or pattern that violates, overpowers, dominates, or discredits another person’s right, thoughts, feelings, or behaviors” (Low & Nelson, 2010, p. 51). The operational definition is based on nine situational statements on a three-point scale. An

example of a situational statement is: “When I am really angry at someone, I usually feel hostile or the need to verbally attack” (p. 52). Statements were measured on the following 3-point scale: M = Most like; S = Sometimes like; L = Least like.

Deference. The construct definition of deference “is the degree to which an individual employs a communication style or pattern that is indirect, self-inhibiting, self-denying, and ineffectual for the accurate expression of thoughts, feelings, or behaviors” (Low & Nelson, 2010, p. 58). The operational definition is based on nine situational statements on a three-point scale. An example of situational statement is: “When I’m really angry at someone, I usually feel anxious or confused about what to say” (p. 58). Statements were measured on the following 3-point scale: M = Most Like; S = Sometimes Like; L = Least like.

Intrapersonal Skills

Self-Esteem. The construct definition of self-esteem “is the ability to view self as positive, competent, and successful. Positive Self-Esteem is the foundation for achievement and a general sense of well-being” (Low & Nelson 2010, p.136). The operational definition is based on six statements that are most applicable to the way one views the Self on a three-point scale. An example of a situational statement is “I am a cheerful person” (p. 137). Statements were measured on the following 3-point scale: M = Most like; S = Sometimes like; L = Least like.

Stress Management. The construct definition of stress management “is the ability to choose and exercise health self-control in response to stressful events. This skill requires that you regulate the level of emotional intensity and use cognitive coping strategies during difficult and stressful situations” (Low & Nelson 2010, p. 144). The operation definition is based on six situational statements that are most applicable to the way one copes with stress on a three-point scale. An example of a situational statement is “Even though I have worked hard, I do not feel

successful” (p. 145). Statements were measured on the following 3-point scale: M = Most like; S = Sometimes like; L = Least like.

Limitations and Delimitations of the Study

Limitations

There were several limitations to the study of which could not be controlled. First, the participants had chosen, for whatever reason, their positions in IT. Their decision as to whether they felt they were a good fit or not with their respective work requirements may have influenced the results. Second, job title, number of years on the job, level of education, highest degree awarded, and participants’ social situation were unique to each individual. Third, the study took place in a variety of institutional types. Institutional culture often influences how a person interacts. Fourth, timing for the distribution of the instrument could have posed an issue. The best time was not known as to when IT professionals would be most willing to complete the survey. Fifth, there might have been variability in actual job functions to where less interaction is required of some IT professionals, thus emotional intelligence becomes less of an issue. Finally, due to non-probability nature of sampling, external validity was limited to participants of the study.

Delimitations

There are several choices that are controlled which set the boundaries for the study. First, the theoretical frameworks were established because they tend to represent the most recognized explanations of what may be occurring as IT professionals were asked to interact more and more with non-IT professionals on college and university campuses. Second, the literature review included only studies or articles referencing interpersonal and intrapersonal EI information. It did not include EI personal leadership or EI self-management skills, because the focus was only

on the interpersonal and intrapersonal EI skills of IT professionals. Third, IT professionals were selected for the study because the literature suggests they tend to lack emotional intelligence in areas of interpersonal and intrapersonal skills that make them more effective in their interaction with non-IT professionals. College and university IT professionals were selected because there was very little in the literature about IT professionals in higher education and EI. Fourth, only IT professionals in Texas A&M and University of Texas System were surveyed because they had the most schools with central IT organizations. Finally, the type of statistical analyses were chosen to correspond to the types of data collected according nominal and ordinal scales. Since very little was known about the subject, the study examined the relationships with common statistical analyses. This approach provided an indication of whether more in depth types of analysis would be warranted.

Significance of the Study

This study was significant because it provided useful data about IT professionals working in higher education and their emotional intelligence skills. If the study could provide information of the relationship of the EI competencies, interpersonal and intrapersonal, and their impact on the success of an IT organization, it may provoke more effort and support towards the application of EI in IT departments in higher education. Glen (2003) described IT professionals as people that are no longer hidden in the backrooms that have little interaction with the customer or others within their organizations. They are now more in the spotlight and demand a different management approach because their deliverables are value based rather than behavioral based. So the more we understand the competencies, the easier we can work with this unique group of individuals.

Conclusion

This study consists of five chapters. The introduction to the study and the overview of the problem was presented in Chapter I. A review of the literature supporting the study was provided in Chapter II. Chapter III described the methodology, procedures, instrumentation, and analysis of the data. An analysis and results of the data collected for the study are presented in Chapter IV. Chapter V presents the summary, conclusion, and recommendation resulting from the study.

CHAPTER II: REVIEW OF LITERATURE

Introduction

The review of literature relates to Emotional Intelligence (EI), Social Intelligence (SI), and Information Technology (IT). The purpose of the study was to examine the relationships between various roles of IT professionals in higher education and the interpersonal and intrapersonal skills of EI, along with the social awareness and social facility of SI. This chapter reviewed the literature with respect to the development of IT in higher education, an overview of EI and the Emotional Skills Assessment Process instrument (ESAP), EI in the workplace and higher education, and Social intelligence.

Development of IT in Higher Education

Information Technology (IT) has brought about a change across many industries including academics. As technology has become a daily tool or utility to conduct work, it has become an importance in day-to-day operations for all those involved in higher education (Altbach, Gumport, & Berdahi, 2011). There are several factors that have influenced IT development in higher education. Molnar (1997) forecasted that the economy, globalization, and emerging technologies affected IT in higher education. While Pacciano (2012) identified support for technology as another influencing factor. In addition, Gumport and Chun (2011) noted that the social organization with respect to teaching and learning as another contributing factor. These areas of influence have transformed higher education into a much faster and demanding environment (Molnar, 1997). Development of IT higher education is described in several sections: (a) the economy; (b) globalization; (c) emerging technologies; (d) social organization of teaching and learning; (e) technology support.

The Economy

As the cost of computing has decreased, “investments in information technology and higher education stand out as the most important sources of growth” facing our modern economy (Jorgenson, Ho, & Stiroh, 2005, p. 467). The relationship of IT and the higher education have helped contribute to the technological growth that has created an environment where education has become the beneficiary of its own contributions that in turn has helped to promote new forms of technology for our society (Jorgenson, Ho, & Stiroh, 2005). For example, email systems that were created and designed for faculty research are now an integral part of a university’s day-to-day function that is now commonly relied upon for the rest of the world’s industries to conduct business (Gumport & Chun 2005). The private sector has also benefited throughout history from technology developed in higher education through investments in research grants and from the graduates that are produced from technology disciplines as future employees (Pacciano, 2012). Schools such as MIT have led the way in the advancements of digital computing technologies, such as the mini-computer in the 1950s, which led to the large use of small computing beginning in the late 1970s and early 1980s and to the World Wide Web Consortium that is now known as the foundation of the Internet in the early 1990s (Fevolden, 2013). The resources needed to make these technologies happen depend on IT professionals that are no longer behind the scenes as they once were a few decades ago (Glen, 2003). The role of the economy and how it impacts the IT professional’s EI in higher education are lacking in the current literature and present an opportunity for examination.

Globalization

Globalization, with respect to higher education, is defined as the removal of geographic boundaries across the areas of economics, curriculum, technology, and students (Duderstad,

Weber, & Glion, 2008). The impact of globalization on higher education has transformed and delivered it to the world stage. Universities across the world now have to compete with each other and are no longer isolated entities that have led to the perspective of education as a commodity (Duderstad, Weber, & Glion, 2008). The competition for research in the United States is now shared or in competition with other countries universities. Research technology is now influenced by outside progress made from foreign influences. The upside of globalization is that the United States has benefited by moving production of computing hardware overseas turning IT in the U.S. into a services-centered business (Slaughter & Rhoades, 2004). However, universities are asked to compete with less money or budgets that have remained stagnant. Some of the consequences are that higher education cannot adequately plan or forecast budgets, pay IT staff to compete with the deeper pockets of private industry to retain qualified IT professionals, thus hindering day-to-day IT operations, projects, and initiatives that heavily rely on these operations to either produce quality research (Norbury, 2013). This substantially puts the responsibility of these operations on the IT professional running these systems. The literature provides very little insight on how these individuals perform this role domestically or internationally with respect to EI in higher education.

Emerging Technologies

The effects of cheaper computing has promoted easier and faster access to technology within the classroom. As Katz (1997) pointed out, there would be evolution of technologies that would enhance the curriculum and provide for radical change. Many emerging technologies noted by Katz were the areas of delivery methods and hardware changes that would alter the technology landscape in higher education. Emerging technologies is described in several

sections: (a) integrated classroom technologies; (b) comprehensive educational information systems; (c) social networks.

Integrated Classroom Technologies (ICTs). Integrated Classroom Technologies (ICTs) are technologies that have expanded beyond older types, such as the big screen projector and desktop computer, to more scalable technologies like laptops, personal mobile devices, and tablet computing (Delgado-Almonte, Andreu, & Pedraja-Rejas, 2010; Pacciano, 2012). These technologies, according to Schwartz (2013), have made the delivery of the curriculum content move much quicker and become more accessible through the digitization of curriculum. Even the standard hardcopy textbooks are now considered an ICT product since the arrival of their electronic forms allowing for the ease of accessibility and decreased costs (Schwartz, 2013). In addition, an ICT is viewed from the perspective of an agent for proper Knowledge Management (KM) that can properly deliver processes and procedures in order to be effective in teaching (Omona, Van Der Weide, & Lubega, 2010).

However, with ICTs there are barriers that universities encounter when deploying technology in the classroom, especially when faculty are apathetic to the change and lack clear e-learning strategies (Schneckenberg, 2009). A collaborative effort is needed to surround a clear and concise strategy to utilize and provide meaningful use of ICT technology. An example of apathy or the lack of acceptance of ICTs by the faculty is highlighted in a study conducted by Collis and Wende (2002), which examined ICT integration in the college classroom. They supported the theory that some faculty were slower to embrace the newer forms of technology. The results of the study concluded that the use of ICTs could significantly increase the grades of students in comparison to those students who would not have had access to such devices. Further suggested was that universities should not use technology for the sake of using

technology, especially if faculty and even students are not ready to embrace technology. There must be plan in place to utilize and integrate technology in the classroom effectively. Collis and Wende (2012) indicated this responsibility should be that of the university's central IT. Central IT should provide a collaborative effort that surrounds a clear and concise strategy to utilize and provide meaning to the use of ICTs through proper delivery and policy by the leadership (Safar, 2013). Due to the academic freedoms of higher education, there has been little or no true enforcement of governance on how these technologies are to be delivered (Schneckenberg, 2009). Universities' central IT has to deal with these ICT deliverables with fewer resources, such as money, infrastructure, and employees.

Comprehensive Educational Information Systems. Renfro and Neal (2012) described one legacy technology, academic computing, that emerged from the old hierarchal organization of one administrator for one isolated system that handled library, human resource, and student information systems. This pitted the old model of academic computing verses the need for collaboration across multiple campus IT services. According to Renfro and Neal (2012), central IT managed other services offered such as email, networking, and telecommunications. However, as the convergence of data as a singular piece now located for use across many organizations in higher education, collaboration became important to manage this centralization of information systems.

Nelson, Meyers, Rizzoli, Rutar, Proto, and Newbold (2006) went further and categorized this new landscape of computing in higher education as two parts of student information systems that began as separate components. They identified the two parts as the Comprehensive Educational Information Systems (CEIS) and Academic Computing (AC). CEIS is defined as “a complex administrative infrastructure supports the primary mission for all institutions of higher

learning: the education of students” (p. 248). Academic Computing is defined as the centerpiece of the administrative systems such as the Enterprise Resource Planning (ERP) system that is constructed of different applications accessing one database with multiple instances related to institutional integration. These types of applications that consist of both the CEIS and AC either are made up of open source software or closed proprietary software. Each requires some level work from application specialists, system administrators, and database administrators. The study mentioned little about the technical personnel and focused its term of support on the leadership in higher education.

Social Networks. Social networks are defined as the knowledge used to build and share a body of information, and any new forms of collaboration to emerge. Together they “offer a means of facilitating team-work and constructing knowledge. The underlying technologies fade into the background while collaboration and communication are paramount” (THR, 2005, p. 3). Anderson (2008) identified the first social networking application affecting higher education in the early part of the new millennium was educational gaming. An example given was Second Life, which is a virtual reality application, used to facilitate learning through virtual representation of the user called avatars. The use of second life in higher education was the simulation the classroom through an Internet based application. At the time, this was beyond any other distance learning software’s capability.

Currently, most recent integration of social networking in higher education is outside the realm of central IT. Plumb (2013) proclaimed technologies such as blogs, wiki’s, Facebook, Google docs, and storage-as-a-service, are seen as supplemental classroom tools often referred to as Social Network Sites (SNS). This a far different approach than ICTs that are relatively classroom based. Plumb (2013) noted that students are still the primary users over faculty, but

that adoption from instructors is edging upwards slowly. This is the role or gap that central IT must fill. They must provide consistent and reliable uptime of network connectivity on campuses and in some case provide identity management that leverages their organization's authentication services to interact with these social networking sites (Lester & Perini, 2010).

Social Organization of Teaching and Learning

Interaction between the teacher and student has been greatly altered by technology in higher education where the center of the curriculum is placed on the student (Gumport, & Chun 2011). This student centered learning is present in Web 2.0 applications labeled as Cyber Learning and has been described by Lemoine and Richardson (2013), as a knowledge acquiring method which agnostic or unrelated to any particular technology. Their research has shown that through Cyber Learning, social interaction is very important since it is the key component that drives these applications in acquiring knowledge through collaborative methods between instructors and students. The instructor must move from traditional instructional methods of lecturing and setting students free to complete tasks through facilitation of how to find information and by what technological means. However, Lemoine and Richardson (2013) acknowledged the potential for teacher resistance to embrace Cyber Learning technologies. Their study puts the onus on central IT to provide essential application support to faculty and students directly while performing and providing operational support for these technologies on campus. Unfortunately, the literature provides little information about the role of IT professionals in application support as they move from the back offices to the forefront

Technology Support

With the many types of technologies present in higher education (databases, email systems, social networks, and network infrastructure) it is very important that adequate support is

provided in order to properly deliver valuable information to the university's stakeholders (Venable, 2010). This means employing IT professionals to provide technology support of the multifaceted environments of present in higher education.

Katz and Gail (2004) described IT professionals as highly educated people that are highly motivated by the intellect that is inherit to the university's environment, and are often more apt to address the many duties of the job that involve administering new and emerging technologies. Because IT has moved so rapidly, current IT professionals are often examples the history of IT in higher education. Unfortunately, they are showing their age. This drawback is due in part to their demographics. IT professionals in higher education are white males and their numbers overshadow females and other ethnic groups. Since they are fast approaching retirement, universities face the challenge of a major drain in knowledge and talent. Currently, knowledgeable and talented IT professional tend to take jobs in the private sector instead of working for colleges and universities. If universities cannot compete on pay, the dilemma is how to attract and retain the kind of IT talent needed to usher higher education into the 21st century (Norbury, 2013). It has been suggested that human resources develop or include behavioral assessment to assist in the hiring of IT professionals to reduce attrition. Although this study promotes EI and perhaps measure it, the topic remains absent in the areas of higher education and the IT professional (Lynch, 2004).

Overview of Emotional Intelligence

Emotional Intelligence (EI), as Mayer, Salovey, and Caruso (2004) have described, is a different view of social intelligence. It is a much different perspective of intelligence than the traditional Intelligence Quotient (IQ). Mayer and Salovey (1990) explained that within EI, we are presented with a subset of skills or intelligences. These intelligences are emotions described

to be relevant or important to an individual. It was defined as the “ability to monitor one's own and other's feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions” (p. 5). They placed these EI skills into five domains and are identified and defined as the following: self-awareness; managing emotions motivating self; empathy; and handling relationships. In addition, under each major domain of EI skills, there are subsets of skills that help define the major EI domains. Furthermore, their definition of EI was one of the first that more succinctly defined the differences of EI from IQ.

Low and Nelson (2010) categorized Salovey's and Mayer's five domains of the EI construct and integrated it into their Emotional Skills Assessment Process (ESAP). This integration led to the further development of a different theory of EI. They approached the concept of EI using the Emotional Skills Assessment Process (ESAP) and created a framework that not only measures four major emotional skills (Self-Management, Personal Leadership Skills, Intrapersonal Skills, and Interpersonal Skills), but have also developed a process, the Emotional Learning System to increase the emotional quotient in order to help achieve career, social, and academic success.

Emotional Skills Assessment Process

The emotional skills assessment process (ESAP) is described by the following areas: (a) description; (b) academic success; (c) career success; (d) social success.

Description

The Emotional Skills Assessment Process (ESAP) developed by Low and Nelson (2010) is a self-reporting instrument consisting of 213 items that cover four domains of the known EI constructs (Self-Management, Personal Leadership Skills, Intrapersonal Skills, and Interpersonal Skills). Two other variants of the ESAP are the college version (ESAP-CV). The ESAP-CV is a

lighter survey targeted for assessing EI in academic institutions. The other type of ESAP is the corporate version. The corporate version is also streamlined in the number of assessment questions covering the four major EI skills areas, and is meant for private business institutions. It has only 77 self-report items, and meant for larger target populations.

Other alternatives to the ESAP exist and they are the Bar-On Emotional Quotient Inventory (EQ-i) and the Mayer-Salovey-Caruso EI Test (MSCEIT). The EQ-i is an instrument that measures EI competency areas described by (Conte, 2005) as the Big Five (intrapersonal, interpersonal, adaptability, general mood, and stress management). The drawback that Conte discovered is its reliability to actually measure EI in a consistent manner. The MSCEIT is more of an ability-based survey that Matthews, Zeidner, and Roberts (2007) concluded as a valid measure of EI when compared to other conceptual measures of the core competencies.

Academic Success

A study by Nelson and Low (Spring 2004) has shown that the ESAP provided a good indicator in predicting the success of students in their academic lives. The findings from the instrument produced results that EI skills, such as Time Management (self-management), Drive Strength (achievement drive), and Commitment Ethic (personal responsibility) are important in achieving academic success in high school and beyond into higher education. There have been several studies that have provided good examples of how the ESAP has been successful in using it as an EI indicator.

Vela (2003) used the ESAP to gauge the EI of freshman college students in higher education. The study identified that those students with higher EI had also exhibited greater academic achievement. His findings were based on using the ESAP self-reporting tool given to 760 freshman college students. The study measured academic achievement by correlating high

GPA in relation to the ESAP competency areas. His study demonstrated a strong and significant correlation among students who exhibited greater EI and GPA.

In another study, Reyes-Dominquez (2008) used the ESAP to approach the topic of leadership in an organization to measure the leadership excellence and its effect on student success. A non-experimental descriptive study was used to carry out the ESAP instrument on over 367 students enrolled in over five degree programs at Hall Mark College. Along with the students, all faculties were given the ESAP. This allowed the study to be two-leveled. The outcome showed that faculty with more self-awareness of their emotional intelligence tended to form stronger and healthier relationships with their colleagues. This, in effect, created better careers and career success. Students who also used the ESAP to measure the EI, displayed traits of a successful student by learning to work with others and developing the areas measured in the EI competencies.

Career Success

Tang and Mu-Shang (2008) conducted a study using the ESAP on students that were identified as future IT professionals and determined that EI was significant factor in determining future career success. The study also mentions that that EI is much needed construct in order to deal with the new work environment of modern times that is becoming more collaborative (Lynch, 2004). Graduates are at a greater advantage if they are prepared for what they are about to face beyond academics and it was concluded that they must become a greater part of this community to achieve career success (Kaluzniacky, 2004). In the case of the IT professional, the study also concluded that the areas of interpersonal and intrapersonal skills are the areas in need of improvement.

Social Success

As Low and Nelson (2010) promote the ESAP as the EI theory for overall success in academics and career, it can promote social success. Tang and Mu-Shang's (2008) study of future IT professionals provided findings in the areas of EI skills utilizing the ESAP. The study's main findings were IT students being deficient in two areas, interpersonal and intrapersonal skills. However, they did very well in other areas such as time management and drive strength. They further added that the areas of EI deficiencies needed to be strong for IT students to become socially adapt. Lynch (2004) explained that the earlier these skills are developed prior to entering the workforce, the easier it will be perform better in socially collaborative processes.

Emotional Intelligence in Higher Education and IT

Emotional intelligence in higher education and IT was described by the following: (a) overview; (b) interpersonal skills in the workplace; (c) intrapersonal skills in the workplace (d)

Overview

Downey (2008) explored the correlation of EI and its effects in higher education. The results of the study provided that there were significant and relevant results that displayed emotion as factor in the job satisfaction of an administrator in higher education. Emotional intelligence, as Downey explained, is a construct that colleges could not ignore. The phenomena in higher education, as Humphrey, Curran, Morris, Farrell, and Woods (2007) also analyzed, presented its importance of EI that can prove essential for adults in general to function in socially led emotions situations in our society. Although there have been arguments about the validity of EI and its use in education, Barchard (2003) analyzed data of the EI in higher education and did find select groups, such as graduate students, counselors, and other areas that involve social interaction that could yield more evidence of the application in EI and its effectiveness.

Cherniss, Extein, Goleman, and Weissberg (2006) offered a rebuttal to critics. Emotional Intelligence has a valid construct due to the fact that there were so many approaches as how to define the theory. It had been acknowledged as a relatively new theory, but the critique was refuted due to the lack of actual journal or peer reviewed publications cited calling the theory invalid. Cherniss, Extein, Goleman, and Weissberg (2006) noted that IQ as a theory had gone through several construct versions before it was a widely accepted. The reason that EI is important as a theory or construct is that it picks up where IQ cannot go. IQ alone cannot predict success because of its focus on only one aspect of human intelligence.

Interpersonal Skills in the Workplace

Nelson and Low (2010) defined interpersonal skills as a person's interactions between an individual and others. These associations consist of intelligence skills of assertion, anger control, and anxiety management. These skills are considered important in effectively working and communicating with others.

In the workplace, lack of interpersonal skills can complicate the effectiveness of teams. Gillard (2009) noted that the workplace in an IT environment is diverse since there are different roles within the work environment. For example, there are different roles within an IT division. There are people who handle computer network operations, server administrators, and project planners. Gillard also mentions the global environment has grown among IT. So many IT professionals now have to interface with people in different countries. So any workplace communication issues, stress, or anxiety can be more compounded by the language or culture barriers. The study further cited the need for interpersonal or "soft skills" to be effective. These soft skills are even more sought after than technical skill or "hard skills" (p. 575).

Pant and Baroudi (2008) noted in the PMBOK, the handbook for Project Management International (PMI), the focus in its early years of publication were primarily based on the theme of project management skill sets called “hard skills” (p. 125). Jackson (2010) noted PMI’s initial use of hard skills were due in large part to the use of System Theory. System Theory has long held that the Project Development Life Cycle (PDLC), regardless of the project’s subject nature, as an isolation for each part of the process. In Jackson’s research, as a person moves to towards collaboration, he or she must engage in soft skills as the complexity and divergence of values increases. He referred to this social and critical theory as the Critical Theory Process (CSP). The CSP introduces the handling of emotional situations, similar to EI, and are guided by interpersonal traits in the areas that benefit project teams both ethically and socially.

Interpersonal skills, with respect to higher education, affected information technology by the move from the central authority figure in higher education to a more social management style forcing centralized IT management further out to the edges of the institution (Marcial, 2012). Since soft skills share similarities to EI, they are now important skills that managers must have to foster for collaboration. Soft skills and professional skills are both needed in order for a leader to effectively communicate in their areas of expertise and learn about the behavioral needs of their subordinates, the faculty, and students (Marcial, 2012).

As the EI competency of interpersonal skill is becoming more common in the literature, it is still exclusive to upper IT management (Kaluzniacky, 2004). This gap in the literature provides an opportunity for further study and measurement of the individual IT professional, in particular higher education, where there is even less literature.

Intrapersonal Skills in the Workplace

Nelson and Low (2010) defined intrapersonal skills as a person's awareness of "their value and worth as a person" (p. 135). These associations are made up intelligence skills self-esteem and stress management. These skills, as Liu (2009) described, are the ability to handle internal and external individual emotions.

Stress management. Low and Nelson (2010) define stress management as the "ability to choose and exercise healthy control" over anger and anxiety. In order to work within the team, an individual must learn handle any internal stressors and become comfortable with one's self. This differs with the perceptions of interpersonal skills. Internal anger due to low stress management, a subscale of intrapersonal skills, was presented in Liu's study as being a "cause of more contentious behavior and less helping behavior" (p. 162). The lingering effects of internal anger motivated a participant to be driven, but it had negative lasting impressions. On the positive side, anger provides humans the ability to prepare for imminent danger (Epstein, 2003). Sinaceur and Tiedens (2006) further added that in negotiations, anger helps claim ground and show toughness, but the downside has an effect on the recipient's emotional behavior verses emotional expression. In the short term, this approach helps to move or motivate or influence work or production but cannot be sustained in the long term. Recognition of employee behavior and a less angered approach is beneficial in the long term.

Self-esteem. Epstein (2003) expressed that self-esteem, a sub skill of the intrapersonal EI skill, in the workplace is an assessment of how employees encounter emotional obstacles and should be observable by those who manage them. The assessment of employee self-esteem should be observed as how an individual overcame an obstacle not just by intelligence but also through inner and personal emotional means. Employee performance should not be a black or

white label, such as good or bad. Epstein (2003) added that personal employee self-esteem should be nurtured and not diminished by intimidation to improve performance.

Another area that has impact on self-esteem is depression. Within IT, Nakamura, Okino, Ogasawara, Shibamoto, and Nakayama (2012) have termed depression, within the technology workplace as “Techno-Stress” (p. 186). Their study focused on the high demands placed on IT employees to deliver products faster and more efficiently. They linked these demands to high rates of depression among IT individuals. IT professionals spent longer hours at work than their non-IT counterparts and it presented personal issues such as, strain on family and social lives. As the EI competency of interpersonal skill is becoming more common in the literature, it is still exclusive to upper IT management (Kaluzniacky, 2004).

Social Intelligence Theory

Social Intelligence (SI) is defined as a diverse and non-cognitive set of skills present in most social settings (Goleman, 2006). From the elementary playgrounds to the corporate boardroom, social intelligence is the way to handle oneself in social environments using “neural jujitsu” to combat the irrational mind from taking over the rational mind (p. 83). Social Intelligence is constructed not just as a mesh of the IQ and the EI constructs but rather they are interactions with a range or degree of ability categorized into two parts, social awareness and social facility (Goleman, 2006). Social Intelligence is described in several sections: (a) social awareness; (b) social facility; (c) social behavior and IQ; (d) social intelligence in higher education.

Social Awareness

The social awareness subscale of SI is an individual’s internal ability to sense another person’s “inner state” in order to obtain a better perspective of social interaction with that person

(Goleman, 2006, p. 84). Social awareness empathizes the use of “primal empathy” along with “attunement” and “social cognition” to help an individual go beyond verbal communication for a deeper assessment of the true feelings or intentions of another individual (pp. 86-90). An example guided by Goleman’s description of social awareness can be used to view the way IT professionals react when they are asked to go beyond their intended tasks. There is the possibility that the IT professional’s body language could be missed when a customer asks a them to work on another IT issue that wasn’t in an original request. Alternatively, it could be also be interpreted by customer that they are being seen as a nuisance further alienating the two.

Social Facility

The social facility subscale of SI is a supplement to the SI social awareness subscale. It builds up self-image in order to have a significant “effect” in social interactions (Goleman, 2006, p. 84). Social facility focuses on the use of synchrony, self-presentation, and influence to build on true “fruitful” social interactions (p. 84). Goleman mentioned that being in harmony in both body language and verbal communication is important to move “smoothly” through a social interaction (p. 91). This, along with self-presentation and influence, are the foundations of effectively getting others to buy-in to what you are presenting. An example, guided by Goleman’s description of social facility, can be used to view the ways IT professionals handle themselves in situations that depend on image and presentation. In a situational setting where the IT professional has to explain himself or herself, such as to what the root cause was to a customer’s IT issue, good social facility could lead to an positive social interaction where the customer understands what the IT professional is saying. However, if the IT professional stumbles awkwardly on their words or displays bad body language, the customer could walk away with a negative experience viewing the IT professional as condescending or inept.

Social Behavior and IQ

Thorndike (1920), who first took a closer look at of social situations beyond IQ, concluded that these types of situations required further research. At the time, Thorndike observed that humankind had made many accomplishments in the fields of science that produced many benefits to society but were only acknowledged by because of personal IQ. He suggested that the improvements in the study of social behavior within organizations be led from a social construct that went beyond IQ. An example by Thorndike was conversations through interviews among enlisted military personnel that were driven on how they obtained their higher ranks. These conversations revealed only topics dealing with intellectual factors for any success and had little information about any social interactions that may have influenced their journey to a higher rank. However, when the participants were asked the question of intelligence, the responses were very diverse and unique. This uniqueness, as Thorndike pointed out, was different and observable in areas of subjects that people study. It was concluded that there were more than one type of intelligences. Thorndike tried to view such intelligences as “triad of the mechanical, abstract, and social intelligence” but measurement of the social was where he failed (Goleman 2006, p. 330). It was not until the measurement of non-cognitive social traits in EI, that social intelligence could become measurable.

Goleman (2006) mapped SI to the EI construct and demonstrated that it was closely related to the interpersonal competency of Darwin and Low (2010). Self-awareness aligned with social awareness in the areas of primal empathy, empathic accuracy, listening, and social cognition. Self-management aligned with social facility in the areas of synchrony, self-presentation, influence, and concern.

Social Intelligence in Higher Education

In higher education, SI has been used primarily in the context of the curriculum and the interactions of faculty and students (Arghode, 2013). It has been established that most, if not all, studies of EI or SI in the curriculum have been student centered and that SI, along with EI, should be merged together to form what Arghode called the Emotional and Social Intelligence Competence (ESIC). Crowne (2009) further added that in academia, student academics would benefit from such as combination of the two theories from the perspectives of cultural views that would normally be unmeasured if only viewed through EI perspectives. Therefore, not only is EI considered, but also SI in order to measure the effects of EI across the different environments that SI can provide insight. Morrison (2003) asserted that social diversity is one of the many key components of leadership in higher education and that awareness of different cultures is another factor when working towards effective leadership. However, the literature does not provide sufficient information regarding higher education personnel such as IT professional and their SI skills and the potential benefits of SI in their higher education roles.

Conclusion

There are many more initiatives and issues driving the state of EI among IT professionals, from the globalization of IT to the stressors that did not exist two decades ago. In higher education, IT professional are not immune to the overall impacts of these changes but face some different issues when having to deliver IT services. They are expected to develop teams, collegiality, and projects similar to their corporate counterparts. Unfortunately, higher education intuitions must do this with less funding, training, and strategic planning. The literature reflects that any type of behavior-based approach related to EI tends to primarily fall into the categories of leadership and not on the individual IT professional. The focus of this study is to understand the interpersonal and intrapersonal levels of the individual IT professional.

CHAPTER III: METHOD OF PROCEDURE

Introduction

The purpose of the study was to examine the relationships between various roles of IT professionals in higher education and the interpersonal and intrapersonal skills of EI, along with the social awareness and social facility of SI. Chapter III, reviewed the research questions and hypothesis, outlined the procedures and methods used to gather data, and described the statistical operations and data analysis that was utilized in the study.

Research Questions

A total of six research questions were developed based on the purpose of the study. The study examined how IT professionals in higher education rate their emotional intelligence based on interpersonal communication and intrapersonal development. The independent variables are IT personnel's professional roles, which consists of job title or position, education levels, and social intelligence. The dependent variable consisted of emotional intelligence in two areas: interpersonal and intrapersonal skills. The analyses examined the relationship between IT professionals' role in higher education and their emotional intelligence with ANOVA, and correlations. Figure 3.1 provides an overview of the research values.

The study was guided by the following research questions:

1. How do professional roles relate to Interpersonal Skills?
 - 1.1 How does job title relate to Interpersonal Skills?
 - 1.2 How does number of years on the job relate to Interpersonal Skills?
2. How do professional roles relate to Intrapersonal Skills?
 - 2.1 How does job title relate to Intrapersonal Skills?
 - 2.2 How does number of years on the job relate to Intrapersonal Skills?

3. How does education relate to Interpersonal Skills?
 - 3.1 How does level of education relate to Interpersonal Skills?
 - 3.2 How does academic discipline of highest degree awarded relate to Interpersonal Skills?
4. How does education relate to Intrapersonal Skills?
 - 4.1 How does level of education relate to Intrapersonal Skills?
 - 4.2 How does academic discipline of highest degree awarded relate to Intrapersonal Skills?
5. How does social intelligence relate to Interpersonal Skills?
 - 5.1 How does social awareness relate to Interpersonal Skills?
 - 5.2 How does social facility relate to Interpersonal Skills?
6. How does social intelligence relate to Intrapersonal Skills?
 - 6.1 How does social awareness relate to Intrapersonal Skills?
 - 6.2 How does social facility relate to Intrapersonal Skills?

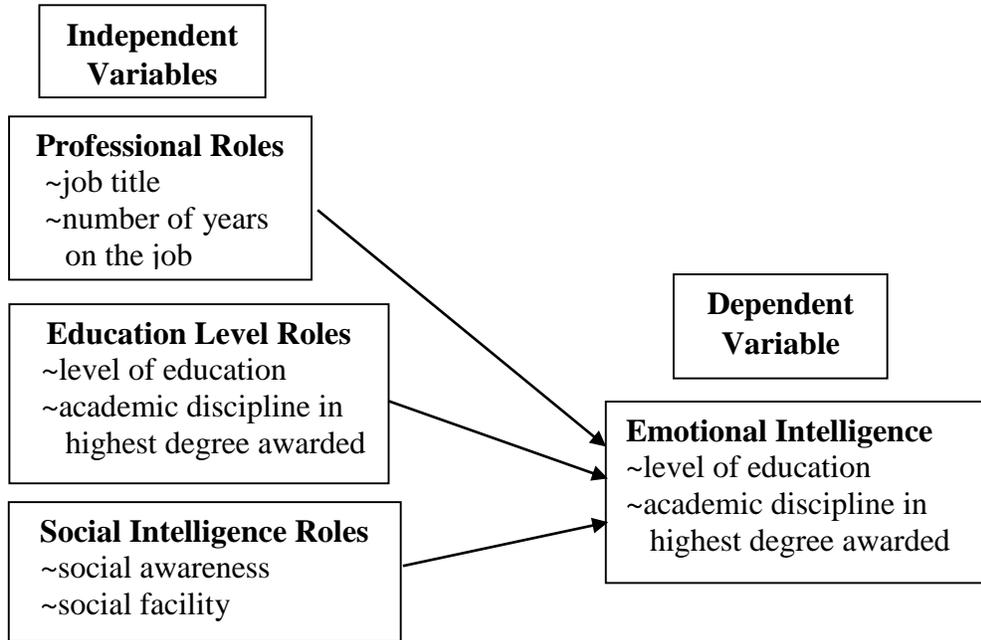


Figure 3.1 Research Variables

Design

The study employed an ex-post facto design, which was classified as a non-experimental study (Gravetter & Wallnau, 2010) with two types of variables. First, the independent variable consists of IT personnel’s professional roles; education; and social intelligence. Second, the dependent variable was emotional intelligence with two components: (a) interpersonal EI and intrapersonal EI. Interpersonal EI had three subscales: (a) assertion; (b) aggression; and (c) deference. Intrapersonal EI had two subscales: (a) self-esteem; and (b) stress management.

Participant Selection

The participants were selected from Texas four year public universities. The focus was on participants that are IT professionals across their respective central IT organization. The number of universities that were involved were 20 located within the Texas A&M and University of Texas systems. The number of participants were 94. Each institution’s IT department was

accessed through their university website. Names and email addresses of IT professionals at each institution were accessed for data collection.

Data Collection

The data for the study were collected through a survey (see Appendix A). The survey had two parts. The first part was designed to gather information about IT personnel's professional roles and social intelligence. The second part comes from the Emotional Skills Assessment Process (ESAP) survey (Nelson & Low, 2010). Participants are part of cluster sampling. Cluster sampling refers to the division of the population into groups (Babbie, 2010). Participants came from all four-year institutions in the Texas A&M and University of Texas systems, therefore were grouped according to institution. The advantage of cluster sampling is it targets a specific area for study. A disadvantage is that the results can be biased. Since this study is examined only IT professionals, bias could be mitigated by the different types of backgrounds they may possess. The participants were contacted via email to ask for their participation in the study. If they choose to participate, they were given a link to access Texas A&M Corpus Christi's survey application to begin the assessment. They had to provide consent to participate in the study and were at least 18 years of age. The survey provided an explanation of why the study was being conducted and along with thorough instructions to complete the instrument. In addition, an assurance that their participation was confidential and no individual data would be shared or reported. The participants were contacted in the summer of 2014 for a period of one month.

Instrumentation

The survey had two parts. The first part had 12 items to collect IT personnel data: (a) job title or position; (b) level of education; and (c) social intelligence. The second part, the Emotional Skills Assessment Process (ESAP) survey (Nelson & Low, 2010) was the instrument

used to measure emotional intelligence. The full instrument measures interpersonal EI; personal leadership; self-management in life and career; and intrapersonal EI. Since the study was only looking at interpersonal and intrapersonal issues, only two aspects of the ESAP were used: interpersonal communication and intrapersonal development. The validity of the ESAP has been conducted by the Emotional Intelligence Learning Systems Institute.

Cox and Nelson (2008) provided information regarding the ESAPs reliability and validity through several studies. The main findings of their study associated the ESAP is closely related to the Constructive Thinking Inventory (CTI) that was developed and validated by Seymour Epstein in the 1950s. Nelson and Low's (2003) research on the ESAP began in 1977 and studies presented this instrument as a valid measurement of the ESAP in the EI cognitive and emotional process. The Vela (2003) study of university freshman student EI produced results that consisted with the four factors of the ESAP. Those factors concluded that time management and commitment ethic, along with interpersonal and intrapersonal skills were effective in predicting academic success. Cox and Nelson also referenced Stotlemeyer's 2002 study that measured EI and its relationships with academic success with subject areas in math and reading of high school students. Although math had a small correlation with math success and EI, reading success showed significant correlation when measured using the ESAP.

Data Analyses

Data was obtained from the participants and entered into the SPSS (Statistical Package for the Social Sciences) for statistical analysis. SPSS is commonly used for statistical analysis and well respected in the behavioral and social science community for its accuracy and comprehensiveness (Babbie, 2010). The statistical analyses were initiated with data. Descriptive statistics were used to summarize the results. The descriptive statistics summarized

results so the data could be portrayed in meaningful and convenient ways (Coladarci, Cobb, Minium, & Clarke, 2011). Included in the descriptive statistics were frequency distributions, which displayed results according to how data were associated by assigned values (Coladarci, Cobb, Minium, & Clarke, 2011).

For research questions one through four, further statistical analyses included ANOVA (analysis of variance). Analysis of variance (ANOVA) was used to analyze differences of means among groups where there are three or more groups. If there is statistical significance, follow up analyses will be completed using Tukey post hoc tests. Tukey post hoc analyzes patterns of significance among subgroups (Glass & Hopkins, 2008). For research questions five and six, Pearson's product moment correlation was used. It measures a degree of linear dependence between two variables according to direction and strength of dependence (Coladarci, Cobb, Minium, & Clarke, 2011). Pearson's correlation coefficient r and Cohen's d are common analyses for correlations and effect sizes (Field, 2009). Vogt (2007) stated there are no useful statistical rules conclusions about large or small correlations coefficients. However, Frankfort-Nachmias (1999) considered the following criteria for interpreting correlation coefficients: (a) weak ($r = .22<$); (b) moderate ($r = .52$); and (c) strong ($r = .82>$). Cohen's d , calculated as the mean difference divided by the standard deviation of all participants, provides an evaluation of effect size in terms of standard deviations. Field (2009) noted effect sizes: (a) small ($r = .10<$); (b) medium ($r = .30$); and (c) large ($r = .50>$). As Vogt (2007) related for educational research, Cohen's d is the standard calculation for effect size. All analyses were performed at the $p < .05$ level of significance.

Assumptions

There were a number of assumptions associated with statistical analyses. Assumptions addressed conditions that must be met in order to help ensure the accuracy of results (Glass & Hopkins, 2008). The first assumption is that categories are mutually exclusive, that is, there is a single entry in an observation. For example, an IT professional does not work for two colleges or universities where his or her sole participation would be counted twice. A second assumption deals with sampling. Each participant has an equal opportunity to participate. They were each contacted and could select whether or not to complete and return the survey. The third assumption was that the data must be nominal/ordinal. The first part of the survey (IT personnel's professional role) is nominal. The first part of the survey also contains ordinal data pertaining to social intelligence, measured on a 6-point scale: 1 = completely disagree; 2 = strongly disagree; 3 = disagree; 4 = agree; 5 = strongly agree; 6 = completely agree. The second part of the survey (emotional intelligence) is ordinal on a three-point scale: 0 = most like or descriptive of yourself; 1 = sometimes like or descriptive of you and sometimes not; 3 = least like or descriptive of you. The fourth assumption is independence of observation. In other words, it is assumed each participant worked independently to complete the survey. The fifth assumption is normality. It relates to the evaluation of histograms, skewness, kurtosis. A normal distribution will be expected. Variables with scaled scores will be examined for skewness and kurtosis. Homogeneity of variance is the next assumption. It refers to how scores are distributed around a mean for equality. Finally, there are no empty cells. This also was determined when the calculations were complete (AcaStat, n.d., Assumptions section, para. 3; Glass & Hopkins, 2008).

Summary

The methodology was related to the process of data collection and analyses. The information was utilized to examine the relationship of IT personnel's professional roles and emotional intelligence. The importance of this study was to determine interpersonal and intrapersonal skills that has been identified as deficient in the EI construct among IT professionals (Tang and Mu-Shang, 2008). Chapter Four described the results of the analyses.

CHAPTER IV: RESULTS

The purpose of the study was to examine the relationships between various roles of IT professionals in higher education and the interpersonal and intrapersonal skills of EI, along with the social awareness and social facility of SI. The study relied on survey data of the Emotional intelligence areas of intrapersonal skills, interpersonal skills, and social intelligence of IT professionals among 20 universities across Texas university systems. There were 737 number of emails sent to IT professionals. There were 94 usable responses. This was a response rate of 13%.

Assumptions

There were several assumptions associated with statistical analyses. Assumptions related to conditions to be met help ensure accuracy of results (Glass & Hopkins, 2008). The first assumption related independence of observations where participants do collaborate with each other when completing the survey. The second assumption concerns normality. Histograms, skewness, and kurtosis show the assumption. The expectation is that scored are normally distributed. A third assumption related to homogeneity of variance. It pertains to equality of scored around a mean score. Levene's statistic tested equality. If the groups are determined unequal, results can be interpreted according to Levene's unequal pairing. By examining descriptive statistics and assumptions for their acceptability, data can be further analyzed. The data were considered clean for further analyses.

Although Vogt (2007) argued that there are no useful statistical rules for deciding about large or small correlations coefficients, Frankfort-Nachmias (1999) considered correlation coefficients to be (a) weak ($r = .22$), (b) moderate ($r = .52$), and (c) strong ($r = .82$). Field (2009) reported that the widely used effect sizes are (a) small ($r = .10$), (b) medium ($r = .30$), and

(c) large ($r = .50$). Vogt (2007) noted that in educational research, Cohen's d is referred to as the measure of effect size. Cohen's d , calculated as the mean difference divided by the standard deviation of all participants, provides an evaluation of effect size in terms of standard deviations. Evaluations of the magnitude of effect size with Cohen's d are (a) small ($d = 0.2$), (b) medium ($d = 0.5$), and large ($d = 0.8$) (Gravetter & Wallnau, 2008).

The study was guided by the following research questions:

1. How do professional roles relate to Interpersonal Skills?
 - 1.1 How does job title relate to Interpersonal Skills?
 - 1.2 How does number of years on the job relate to Interpersonal Skills?
2. How do professional roles relate to Intrapersonal Skills?
 - 2.1 How does job title relate to Intrapersonal Skills?
 - 2.2 How does number of years on the job relate to Intrapersonal Skills?
3. How does education relate to Interpersonal Skills?
 - 3.1 How does level of education relate to Interpersonal Skills?
 - 3.2 How does academic discipline of highest degree awarded relate to Interpersonal Skills?
4. How does education relate to Intrapersonal Skills?
 - 4.1 How does level of education relate to Intrapersonal Skills?
 - 4.2 How does academic discipline of highest degree awarded relate to Intrapersonal Skills?
5. How does social intelligence relate to Interpersonal Skills?
 - 5.1 How does social awareness relate to Interpersonal Skills?
 - 5.2 How does social facility relate to Interpersonal Skills?

6. How does social intelligence relate to Intrapersonal Skills?

6.1 How does social awareness relate to Intrapersonal Skills?

6.2 How does social facility relate to Intrapersonal Skills?

Data were gathered on IT professionals across two Texas University systems and categorized. There were too few cases in the categories of computer tech, help desk, lab admin, classroom tech, and audio visual. They were recoded into one group labeled Techs. There were too few cases in the categories of network admin, system admin, programmer, and security. They were recoded into one group labeled admins. The management title was not recoded. The results are provided in Table 1.

Table 1

Job Descriptions, N=94

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Techs	33	35.1	35.1	35.1
Admin	41	43.6	43.6	78.7
management	20	21.3	21.3	100.0
Total	94	100.0	100.0	

Data were gathered on IT professionals across two Texas university systems and categorized into the number of years each IT professional were on the job. The results are presented in Table 2.

Table 2

Years on the Job, N=94

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0 to 3 yrs	22	23.4	23.4	23.4
3+ to 8 yrs	15	16.0	16.0	39.4
8+ to 13 yrs	24	25.5	25.5	64.9
13+ to 18 yrs	33	35.1	35.1	100.0

Total	94	100.0	100.0
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Data were gathered on IT professionals across two Texas university systems and categorized by highest degree attained. There were too few cases in high school, therefore it was removed and recoded as undergraduate. There were too few cases in associates therefore, it was removed and recoded into the undergraduate category along with bachelor's degree. Too few cases for doctoral along with masters and both were recoded into the graduate category. The results are presented in Table 3.

Table 3

Highest Degree, N=94

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid undergrad	54	57.4	57.4	57.4
Grad	40	42.6	42.6	100.0
Total	94	100.0	100.0	

Data were gathered on IT professionals across two Texas university systems and categorized by education discipline. There were too few cases in the categories of general studies, liberal arts, education, and social sciences. These were recoded as social science. There were too few cases in business and sciences. These were recoded as business. Technology was not recoded. The results are presented in Table 4.

Table 4

Education Discipline, N=94

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid social sciences	26	27.7	27.7	27.7
Business	28	29.8	29.8	57.4
Technology	40	42.6	42.6	100.0
Total	94	100.0	100.0	

Data were gathered on IT professionals across two Texas University school systems and descriptive statistics were generated out the survey results on each participant. The results are presented in Table 5.

Table 5

Descriptives, N=94

	M	SE	SD	Skewness	Kurtosis
job title	-	-	-	-	-
years on the job	-	-	-	-	-
highest degree	-	-	-	-	-
education discipline	-	-	-	-	-
SI Aware	4.62	.07	.66	.53	-.28
SI Facility	4.52	.07	.73	.22	-.72
EI Inter Assertion	1.70	.04	.35	-.21	-.54
EI Inter Aggression	2.63	.04	.34	-.93	-.04
EI Inter Deference	2.22	.04	.42	-.16	-.82
EI Intra Self Esteem	1.45	.04	.42	.95	.72
EI Intra Stress Management	2.38	.05	.46	-.42	-.76

Research Questions

Research Question 1: Professional Roles

How do professional roles relate to Interpersonal Skills? Results for the statistical analysis for each individual sub research question were presented.

Research Question 1.1: What relationship does interpersonal assertion have on the different job types in IT? For job title and interpersonal assertion, there was homogeneity of variances, as assessed for Levene’s test for equality of variances ($p = .52$). There was no statistically significant mean difference among job titles as it relates to the assertion subscale of interpersonal EI assertion, $F(2, 93) = .03, p = .97$. Results are reported in Table 6.

Table 6

ANOVA: EI Interpersonal Assertion as It Relates to Job Title

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.008	2	.004	.031	.969
Within Groups	11.696	91	.129		
Total	11.704	93			

Research Question 1.1: What relationship does interpersonal aggression have on the different job types in IT? For job title and interpersonal aggression, there was homogeneity of variances, as assessed for Levene's test for equality of variances ($p = .23$). There was no statistically significant difference among job titles as it relates to the assertion subscale of interpersonal EI aggression, $F(2, 93) = .15, p = .87$. Results are reported in Table 7.

Table 7

ANOVA: EI Interpersonal Aggression as It Relates to Job Title

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.035	2	.018	.146	.865
Within Groups	10.995	91	.121		
Total	11.030	93			

Research Question 1.1: What relationship does interpersonal deference have on the different job types in IT? For job title and Interpersonal assertion, there was homogeneity of variances, as assessed for Levene's test for equality of variances ($p = .23$). There was no statistically significant mean difference among job titles as it relates to the assertion subscale of interpersonal EI deference, $F(2, 93) = .15, p = .87$. Results are reported in Table 8.

Table 8

ANOVA: EI Interpersonal Deference as it Relates to Job Title

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.046	2	.023	.130	.878
Within Groups	16.151	91	.177		
Total	16.197	93			

Research Question 1.2: What relationship does interpersonal assertion have on the numbers of years on the job in IT? For years on the job and Interpersonal assertion, there was homogeneity of variances, as assessed for Levene’s test for equality of variances ($p = .68$). There was no statistically significant mean difference among job titles as it relates to the assertion subscale of interpersonal EI deference, $F(3, 93) = .01, p = .998$. Results are reported in Table 10.

Research Question 1.2: What relationship does interpersonal aggression have on the number of years on the job in IT?

For years on the job and interpersonal aggression, the assumption of homogeneity of various was violated, as assessed by the Levene’s test of homogeneity of variance ($p = .009$), therefore unequal groups were reported. The group sizes are unequal. The harmonic mean of the group sizes is used. Results are reported in Table 9.

Table 9

EI Interpersonal Aggression as it Relates to Number of Years on the Job

		Subset for alpha = 0.05
yrs in profession	N	1
8+ to 13 yrs	24	2.6435
13+ to 18 yrs	33	2.5522
3+ to 8 yrs	15	2.6667
0 to 3 yrs	22	2.6970
Sig.		.513

Research Question 1.2: What relationship does interpersonal assertion have on the numbers of year on the job in IT?

For years on the job and interpersonal assertion, there was homogeneity of variances, as assessed for Levene’s test for equality of variances ($p = .90$). There was no statistically significant mean difference among job titles as it relates to the assertion subscale of interpersonal EI deference, $F(3, 93) = 2.3, p = .99$. Results are reported in Table 10.

Table 10

ANOVA: EI Interpersonal Deference and Assertion as it Relates to Years on the Job

		Sum of Squares	df	Mean Square	F	Sig.
EI Inter Assertion	Between Groups	.005	3	.002	.012	.998
	Within Groups	11.700	90	.130		
	Total	11.704	93			
EI Inter Deference	Between Groups	1.149	3	.383	2.290	.084
	Within Groups	15.048	90	.167		
	Total	16.197	93			

Research Question 2: Professional Roles and Intrapersonal EI

How do professional roles relate to intrapersonal Skills? Results for the statistical analysis for each individual sub research question were presented.

Research Question 2.1: What relationship does intrapersonal self-esteem have on the different job types in IT?

For job title and interpersonal self-esteem, there was homogeneity of variances, as assessed for Levene's test for equality of variances ($p = .76$). There was no statistically significant mean difference among job titles as it relates to the self-esteem subscale of interpersonal EI, $F(2, 93) = .05, p = .95$. Results are reported in Table 11.

Research Question 2.2: What relationship does intrapersonal stress management have on the different job types in IT?

For job title and intrapersonal stress management assertion, there was homogeneity of variances, as assessed for Levene's test for equality of variances ($p = .13$). There was no statistically significant mean difference among years on the job as it relates to the stress management subscale of interpersonal EI, $F(2, 93) = .05, p = .36$. Results are reported in Table 11.

Table 11

ANOVA: EI Intrapersonal Self-Esteem and Stress Management as it Relates to Job Title

		Sum of				
		Squares	Df	Mean Square	F	Sig.
EI Intra Self Esteem	Between Groups	.019	2	.009	.052	.949
	Within Groups	16.493	91	.181		
	Total	16.512	93			
EI Intra Stress Mgt	Between Groups	.441	2	.220	1.041	.357
	Within Groups	19.260	91	.212		
	Total	19.701	93			

Research Question 2.2: What relationship does Intrapersonal self-esteem have on the years on the job in IT?

For years on the job and intrapersonal self-esteem, the assumption of homogeneity of variances was violated, as assessed by the Levene's test of homogeneity of variance ($p = .02$), therefore unequal groups were reported. The group sizes are unequal. The harmonic mean of the group sizes is used. Results are reported in Table 12.

Table 12

EI Intrapersonal Self Esteem as it Relates to Years on the Job

Yrs in profession	N	Subset for alpha = 0.05
0 to 3 yrs	22	1.2652
3+ to 8 yrs	15	1.3111
8+ to 13 yrs	24	1.5278
13+ to 18 yrs	33	1.5707
Sig.		.070

Research Question 2.2: What relationship does Intrapersonal self-esteem have on the years on the job in IT?

For years on the job and intrapersonal self-esteem, the assumption of homogeneity of variances was violated, as assessed by the Levene's test of homogeneity of variance ($p = .06$), therefore unequal groups were reported. The group sizes are unequal. The harmonic mean of the group sizes is used. Results are reported in Table 13.

Table 13

EI Intrapersonal Stress Management as it Relates to Years on the Job

yrs in profession	N	Subset for
		alpha = 0.05
		1
13+ to 18 yrs	33	2.2980
8+ to 13 yrs	24	2.3125
0 to 3 yrs	22	2.4697
3+ to 8 yrs	15	2.5444
Sig.		.291

Research Question 3: Education and Interpersonal EI

How does education discipline relate to interpersonal skills? Results for the statistical analysis for each individual sub research question were presented.

Research Question 3.1: What relationship does interpersonal EI have on different education levels?

An independent samples *t*-test for equality reported equal variances was assumed on the EI Interpersonal assertion $p = .16$. There was no statistical difference: $t(92) = 1.4, p = .16$. The independent samples *t*-test is reported for equal variances not assumed on EI interpersonal aggression $p = .06$. There was not statistical difference: $t(90.99) = -2.49, p < .05$. There is a statistical significance between graduate students and undergraduate students. IT professionals with a graduate degree scored higher on the aggression scale than those with an undergraduate degree: graduate degree, $M = 2.73$; undergraduate degree, $M = 2.56$. The effect size of Cohen's $d = -.51$ and a strength of $r = -.25$. The independent *t*-test for EI Interpersonal deference was assumed $p = .67$. There was no statistical difference: $t(92) = .56, p = .58$. Results are reported in Table 14.

Table 14

T-Test: Group Statistics on Interpersonal EI as it relates to Education Level

		Levene's Test for Equality of Variances		<i>t</i> -test for Equality of Means			
		F	Sig.	<i>t</i>	df	Sig. (2- tailed)	Mean Difference
EI Inter Assertion	Equal variances assumed	1.968	.164	1.402	92	.164	.10319
	Equal variances not assumed			1.371	76.759	.174	.10319
EI Inter Aggression	Equal variances assumed	3.525	.064	- 2.419	92	.018	-.16944
	Equal variances not assumed			- 2.492	90.999	.015	-.16944
EI Inter Deference	Equal variances assumed	.187	.666	.562	92	.576	.04907
	Equal variances not assumed			.558	82.110	.578	.04907

Research Question 3.1: What relationship does interpersonal EI have on different education disciplines? Descriptives are reported in Table 15.

Table 15

Descriptives: N=94

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max
						Lower Bound	Upper Bound		
EI Inter Assertion	social sciences	26	1.66	.41	.08	1.49	1.83	1.00	2.67
	Business	28	1.63	.36	.07	1.50	1.77	1.00	2.33
	technology	40	1.78	.30	.05	1.68	1.87	1.11	2.33
	Total	94	1.70	.35	.04	1.63	1.77	1.00	2.67
EI Inter Aggression	social sciences	26	2.66	.37	.07	2.51	2.81	2.00	3.00
	Business	28	2.70	.25	.05	2.61	2.80	2.00	3.00
	technology	40	2.56	.38	.06	2.43	2.67	1.56	3.00
	Total	94	2.63	.34	.04	2.56	2.70	1.56	3.00
EI Inter Deference	social sciences	26	2.27	.38	.08	2.11	2.42	1.56	2.89
	Business	28	2.23	.43	.08	2.07	2.40	1.33	3.00
	technology	40	2.18	.44	.07	2.04	2.32	1.33	3.00
	Total	94	2.22	.42	.04	2.13	2.31	1.33	3.00

For education discipline and interpersonal assertion, the assumption of homogeneity of variance was met, $p = .17$. There was no statistical differences: $F(2, 93) = 1.55, p = .22$. Results are reported in Table 16.

For education discipline and interpersonal aggression, the assumption of homogeneity of variance was violated, as assessed by the Levene's Test of Homogeneity of Variance ($p = .01$), therefore unequal groups were reported. There were no statistical differences, $F(2,93) = 1.66, p = .22$.

For education discipline and interpersonal deference, there was homogeneity of variances, as assessed for Levene's test for equality of variances ($p = .88$). There was no

statistically significant mean difference among job titles as it relates to the deference subscale of interpersonal EI, $F(2, 93) = .40, p = .67$. Results are reported in Table 16.

Table 16

ANOVA: EI Interpersonal skills as it relates to education discipline

		Sum of Squares	df	Mean Square	F	Sig.
EI Inter Assertion	Between Groups	.389	2	.195	1.565	.215
	Within Groups	11.315	91	.124		
	Total	11.704	93			
EI Inter Aggression	Between Groups	.388	2	.194	1.661	.222
	Within Groups	10.641	91	.117		
	Total	11.030	93			
EI Inter Deference	Between Groups	.140	2	.070	.396	.674
	Within Groups	16.057	91	.176		
	Total	16.197	93			

Research Question 4: Education and Intrapersonal EI

How does education level relate to intrapersonal skills? Results for the statistical analysis for each individual sub research question are presented. Group statistics are reported in Table 17.

Table 17

Group Statistics: Education Level and Intrapersonal EI

		N	Mean	Std. Deviation	Std. Error Mean
EI Intra Self Esteem	highest degree undergrad	54	1.4784	.44161	.06010
	grad	40	1.4042	.39384	.06227
EI Intra Stress Mgt	highest degree undergrad	54	2.4506	.42784	.05822
	grad	40	2.2875	.49064	.07758

Research question 4.1: How does education level relate to Intrapersonal Skills? Results for the statistical analysis for each individual sub research question were presented.

An independent samples *t*-test for equality reported equal variances was assumed on the EI Interpersonal self-esteem, $t(92) = .84, p = .56$. The independent *t*-test reported for equal variances was assumed on EI Intrapersonal self-esteem $t(92) = -1.72, p = .27$. There is no statistical significance between education levels as it relates to intrapersonal skills. Results are reported in Table 18.

Table 18

Independent Samples T-Test: Education as it Relates to EI Interpersonal Self-Esteem

	highest degree	N	Mean	Std. Deviation	Std. Error Mean
EI Intra Self Esteem	Undergrad	54	1.4784	.44161	.06
	Grad	40	1.4042	.39384	.06
EI Intra Stress Mgt	undergrad	54	2.4506	.42784	.06
	Grad	40	2.2875	.49064	.08

Levene's Test for Equality of Variances		<i>t</i> -test for equality
F	Sig.	<i>t</i>
.345	.559	.843
		.858
1.258	.265	1.717
		1.682

Research question 4.2: How does education discipline relate to intrapersonal skills? Results for the statistical analysis for each individual sub research question were presented.

For education discipline and Interpersonal self-esteem, there was homogeneity of variances, as assessed for Levene's test for equality of variances ($p = .55$). There was

statistically significant mean difference among education discipline as it relates to the assertion subscale of interpersonal EI, $F(2, 91) = 3.24, p < .05$. Tukey post hoc showed the difference between business ($M = 1.33$) and technology ($M = 1.57$). Results are reported in Table 19.

For education discipline and intrapersonal stress management, there was homogeneity of variances, as assessed for Levene's test for equality of variances ($p = .26$). There was statistically significant mean difference among job titles as it relates to the deference subscale of interpersonal EI, $F(2, 91) = 4.43, p < .05$. Tukey post hoc showed the difference between business ($M = 2.57$) and technology ($M = 2.25$). Results are reported in Table 19.

Table 19

ANOVA: EI Intrapersonal as it Relates to Educational Discipline

		Sum of				
		Squares	Df	Mean Square	F	Sig.
EI Intra Self Esteem	Between Groups	1.098	2	.55	3.242	.044
	Within Groups	15.414	91	.17		
	Total	16.512	93			
EI Intra Stress Mgt	Between Groups	1.747	2	.87	4.426	.015
	Within Groups	17.955	91	.20		
	Total	19.701	93			

Academic discipline does make a difference on both scales. For both, the difference is between technology and business disciplines. For self-esteem, IT professionals with a technology degree scored higher. For stress management, IT professionals with a business degree scored lower.

Research Question 5: Social Intelligence as it relates to Interpersonal Skills.

Research question 5.1: How does social awareness relate to interpersonal skills? 5.2 How does social facility relate to Interpersonal Skills? There were two areas of statistical significance. Social intelligence awareness was negatively correlated with emotional intelligence assertion, ($r = -.28, p < .01$). Social intelligence facility was negatively correlated to emotional intelligence assertion ($r = -.31, p < .01$). Both relationships are considered weak. Results are reported in Table 20.

Table 20

Independent Samples T-Test: Social Awareness as it Relates to EI Interpersonal Assertion

Variables	EI Assertion	EI Aggression	EI Deference
SI Awareness	-.282**	-.037	.083
SI Facility	-.313**	.039	.117

$p < .01^{**}$

Research Question 6: Social Intelligence is it Relates to Intrapersonal Skills

6.1 How does social awareness relate to intrapersonal skills? 6.2 How does social facility relate to intrapersonal skills?

There was one area of statistical significance. Social intelligence facility was negatively correlated with emotional intelligence self-esteem, ($r = -.18, p < .01$). The relationship is considered weak. Results are reported in Table 21.

Table 21

Independent Samples T-Test: Social Awareness as Relates to Intrapersonal Skills

Variables	EI Self-Esteem	EI Stress Management
SI Awareness	-.181	.141
SI Facility	-.333**	.167

$p < .001^{**}$

Summary

The study was limited to only those IT professionals between two Texas university systems. The analysis of the data from the survey indicated that there are no significant differences in EI interpersonal and intrapersonal for IT participants as it related to job role or years on the job. However, there were areas in the descriptive statistics that were more offered more insight into the EI scores among the individual IT professional.

CHAPTER V: CONCLUSIONS, DISCUSSION, IMPLICATIONS, AND FURTHER RESEARCH

Introduction

The current global work environment has made employees more accountable for the success of an organization. The accountability placed on employees is at an unprecedented high. Gardner and Stough (2003) explained how emotional intelligence (EI) in the workplace reduced stress and gave workers the ability to communicate their emotions for the good of not only themselves, but for the whole organization. Therefore, any stress on an employee coupled with a lack of emotional intelligence could lead to an undesirable work place prone to failure (Ramesar, Koortzen, & Oosthuizen, 2009).

Information technology (IT) professionals and their work environments are no exception to these pressures. Raghavan, Skaguchi, and Mahaney (2008) explained that IT professionals are even more susceptible to stress factors due to a shortage of labor in the IT profession. Another factor that adds to this experience is the lack of EI skills among IT professionals. Tang and Mu-Shang (2008) characterized IT professionals “as a group of people displaying unique ideologies, norms, beliefs and values systems which differ from professionals in other organizations” (p. 108). Their study placed emphasis on IT professional’s lack of interpersonal and intrapersonal skills when compared to other EI competency areas such as personal leadership and self-management skills. More research is needed.

Gillard (2009) noted that the workplace in an IT environment is diverse. Many IT professionals now have to interface with people in different contexts, including interaction with international colleagues. So workplace interactions, such as communication issues, stress, or anxiety can be more compounded by the language or culture barriers, which can often be true of

IT professionals on college and university campuses. The study further cited the need for interpersonal or “soft skills” to be effective. These soft skills are even more sought after than technical skill or “hard skills” (p. 575).

Technology in higher education is more demanding and rapidly growing than in the past. Glenn (2003) described IT professionals as people that are no longer hidden in the backrooms that have little interaction with the customer or others within their organizations. They are now more in the spotlight and demand a different management approach because their deliverables are value based rather than behavioral based. The more we understand the competencies surrounding IT professionals and their ability to interact with customers, the easier we can work with this unique group of individuals.

The study examined the relationships between various roles of IT professionals in higher education and the interpersonal and intrapersonal skills of emotional intelligence. The research questions that guided the study were:

1. How do professional roles relate to Interpersonal Skills?
 - 1.1 How does job title relate to Interpersonal Skills?
 - 1.2 How does number of years on the job relate to Interpersonal Skills?
2. How do professional roles relate to Intrapersonal Skills?
 - 2.1 How does job title relate to Intrapersonal Skills?
 - 2.2 How does number of years on the job relate to Intrapersonal Skills?
3. How does education relate to Interpersonal Skills?
 - 3.1 How does level of education relate to Interpersonal Skills?
 - 3.2 How does academic discipline of highest degree awarded relate to Interpersonal Skills?

4. How does education relate to Intrapersonal Skills?
 - 4.1 How does level of education relate to Intrapersonal Skills?
 - 4.2 How does academic discipline of highest degree awarded relate to Intrapersonal Skills?
5. How does social intelligence relate to Interpersonal Skills?
 - 5.1 How does social awareness relate to Interpersonal Skills?
 - 5.2 How does social facility relate to Interpersonal Skills?
6. How does social intelligence relate to Intrapersonal Skills?
 - 6.1 How does social awareness relate to Intrapersonal Skills?
 - 6.2 How does social facility relate to Intrapersonal Skills?

Conclusions

Research Question 1

How do professional roles relate to Interpersonal Skills?

The study presented survey results of IT professionals working in higher education with questions that pertained to skills related to the interpersonal a skill of EI. There were 94 IT professionals surveyed in higher education that worked in a university across two Texas university systems. The two sub research questions looked at the relationship between all interpersonal subscales as it related to job title and number of years currently on the job. The participants surveyed, showed no statistical significance of difference as it related to the job they held or the number of years on the job.

Emotional Intelligence (EI) in the workplace is great indicator of job placement within the organization (Goleman, 2004). EI has shown to be a better indicator over IQ since IQ is often associated with technical skills which are often reserved for those in job that require a

narrow focus (Goleman, 1998). Low and Nelson (2010) have tied EI interpersonal skill to the success for not just in leadership situation, but also for the personal development across an organization. Their use of the ESAP provides a mapping of emotions through situational questions.

In the case for the IT professional, Tang and Mu-Shang (2008) provided data, supporting that IT professionals did well in the EI areas of drive strength and time management but had significantly lower scores in interpersonal and intrapersonal skills. Their study also provided a control group of students whose discipline was outside of information technology, such as English majors. The lack of statistical significance indicates that IT professionals, as a group, have a particular mindset. Regardless of the type of job they have or the number of years they have been on the job, there are no differences in their view of EI emotional intelligence even though participants rated themselves fairly high on the subscales. For example, EI for interpersonal skills was rated on a 3-point Likert-type scale, (1 = Most like, 2 = Sometimes like, 3 = Least like). For assertion, the mean score was 1.70, the aggression score was 2.63, and deference was 2.22.

With a score of 1.70 in assertion, it indicated that IT professionals perceive themselves, somewhat lacking “the ability to clearly and honestly communicate [their] thoughts and feelings to others in a straight forward and direct manner. It is a way of talking to people that lets [them] express [their] thoughts and feelings in a way that is not hurtful” (Low & Nelson, 2010, p. 42). They scored between least like and sometimes like about being able to express themselves, which was low. This further indicates that IT personnel have a difficult time with their interaction with other campus personnel on the assertion subscale when they direct anger towards others. Gillard (2009) noted that the workplace in an IT environment is diverse since

there are different roles within the work environment. IT professionals are moving from the backroom of technical support to having to interact with people more. There is a need for interpersonal or “soft skills” to be effective. These soft skills are even more sought after than technical skill or “hard skills” (p. 575). The results of the study indicated that EI skills in assertion, although present, are not highly perceived: 1.70.

With the score of 2.63 in aggression, the study indicated that IT professionals are more likely to respond and perceive to hostile situations with good communication. Aggression “employs a personal communication style or pattern that violates, overpowers, dominates, or discredits another person’s right, thoughts, feelings, or behaviors” (Low & Nelson, 2010, p. 51). Overall, interpersonal skills in higher education influence IT professionals since many of the central authority figures in higher education have become social managers and IT professionals are pushed towards collaborative settings (Marcial, 2012). IT professionals in the study scored closer to least like on the EI aggression subscale when questioned. The results of the study indicated that EI skills are present and IT professionals deal well with anger management as it relates to aggression in collaborative work environment: 2.63.

With the score of 2.22 for deference, the study indicated that IT professionals are more likely to be individuals that could possibly work with less stress or anxiety. Deference “employs a communication style or pattern that is indirect, self-inhibiting, self-denying, and ineffectual for the accurate expression of thoughts, feelings, or behaviors” (Low & Nelson, 2010, p. 58). IT professionals scored closer to least like on the EI deference. As the central authority, an IT manager becomes the social manager (Marcial, 2012). There is need for the IT professional to employ a better set of stress management skills when dealing with management or a higher authority figure. The study indicated that IT professionals with deference scores leaning towards

sometimes like, which is a normal score, are most likely to handle stressful work situations in a collaborative environment. The results of the study indicated that EI skills on the deference subscale are perceived normal: 2.22. Even though there was no statistical difference among groups, the descriptive data provided insights into the IT professionals' EI as a whole.

Research Question 2

How do professional roles relate to Intrapersonal Skills?

This portion of the survey looked at intrapersonal skills as it related professional job roles in IT and higher education. There were no statistically significant mean differences among professional roles as it related to intrapersonal EI. Nelson and Low (2010) defined intrapersonal skills as a person's awareness of "their value and worth as a person" (p. 135). The subscales that consisted of intrapersonal skills are self-esteem and stress management. Liu (2009) described this as the ability to handle an individual's internal emotions as well as an indicator of high productivity among IT professionals.

As with the interpersonal skills in the context of the study, IT professionals in Tang and Mu-Shang (2008) study provided data supported that IT professionals did well in the EI areas of drive strength and time management but had significantly lower scores in intrapersonal skills. The lack of statistical significance in intrapersonal skills and their subscales of self-esteem and stress management indicated that IT professionals had similar group mindset. EI for intrapersonal skills on the self-esteem subscale was rated on a 3-point Likert-type scale, (3 = Most like, 2 = Sometimes like, 1 = Least like). For stress management subscale of intrapersonal EI it was rated on a 3-point Likert scale, (1 = Most like, 2 = Sometimes like 3 = Least like). The mean scores as it related to interpersonal EI were 1.45 for self-esteem and 2.38 for stress management.

With the score of 1.45 on self-esteem, the study indicated that IT professionals have lower perceptions of themselves. The intrapersonal subscale of self-esteem “is the ability to view Self as positive, competent, and successful. Positive Self-Esteem is the foundation for achievement and a general sense of well-being” (Low & Nelson 2010, p. 136). IT professional’s scored between sometimes like and least like. The results of the study indicated that IT professionals had issues in overcoming an obstacle through inner personal and emotional means (Epstein, 2003). Ogasawara, Shibamoto, and Nakayama (2012) called this “techno stress” among IT professionals, which leads to depression and lower self-esteem due to higher demands placed on IT professionals to deliver products or deliverables more quickly with efficacy (p. 186). The score for this study indicated that while EI skills were present in the self-esteem subscale, it was perceived low: 1.45.

With the score of 2.38 for stress management, IT professionals perceived themselves low in “the ability to choose and exercise health self-control in response to stressful events” lacking the skill required to “regulate the level of emotional intensity and use cognitive coping strategies during difficult and stressful situations” (Low & Nelson 2010, p. 144). Low and Nelson (2010) stated that good control of stress management gives one the ability to work within the team to overcome an individual’s internal stress and anxiety. In the literature, Liu (2009) presented that while anger or anxiety are somewhat beneficial to increase productivity among IT professionals, in the long term the negative effects outweigh the short term. The study indicated that IT professionals with stress management scores leaning towards sometimes like, which is a low score, are most likely unable to handle personal anxiety or stress in the workplace. The results of the study indicated that EI skills on the stress management subscale are perceived low: 2.38.

Research Question 3

How does education relate to Interpersonal Skills?

The study presented results of IT professionals working in higher education with questions that pertained to skills related to the interpersonal a skill of EI and education. The subscales that make up interpersonal EI are assertion, aggression, and deference. There were 94 IT professionals surveyed in higher education that worked in a university between two Texas university systems. The two sub research questions looked at the relationship between all interpersonal subscales as it related to level of education and education discipline. The participants surveyed, showed statistical significance as it related to the education level as it related to EI interpersonal aggression. There was statistical significance in the EI area of interpersonal skills as it related to education level. The statistical significance was between employees who had a graduate degree and those who had a bachelor's degree. IT professionals with a graduate degree scored lower on the aggression scale, which means they displayed more aggression, than those with an undergraduate degree: graduate degree, $M = 2.73$; undergraduate degree, $M = 2.56$. EI for interpersonal skills was rated on a 3-point Likert-type scale, (1 = Most like, 2 = Sometimes like, 3 = Least like).

Nelson and Low (2010) mentioned that EI interpersonal subscale, aggression, when high is rarely ever a viable or sustainable solution to solving conflict. Glen (2003) explained that the IT professional is often a person who values the passion for reason. In the case of the IT professional, there is never a shortage of events that help fuel these passions. The importance to keep aggression under control is important to avoid situations of high aggression, which is more likely to lead to short-term employment, or being dismissed (Goleman, 2005). With respect to education, Kiss, Kotsis, and Kun (2014) found that good EI in coordination with high IQ

increased academic success with higher levels of education. In addition, there was lower academic success outcome when EI dropped. Therefore, there is the probability that aggressive behavior in IT professionals with higher degrees is a reflection of more IQ involvement rather than a balance with EI. The results of this study indicated that the overall interpersonal EI scores were low for IT professionals. The IT professionals are able to handle most perceived hostile collaborative work environments regardless of the role of education. However, the study also indicated that IT professionals with undergraduate degrees were more aggressive than those with graduate degrees.

Research Question 4

How does education relate to Intrapersonal Skills?

The study presented results of IT professionals working in higher education with questions that pertained to skills related to the intrapersonal skill of EI and education. There were 94 IT professionals surveyed in higher education that worked in a university between two Texas university systems. The two sub research questions looked at the relationship between all intrapersonal subscales as it related to level of education and education discipline. The participants that were surveyed showed statistical significance as it related to the education discipline as it related to EI interpersonal self-esteem. The statistical significance was between technology and business majors. IT professionals with a business degree scored lower on self-esteem scale than those with a technology degree: business degree, $M = 1.33$; technology degree, $M = 2.56$. The participants surveyed showed statistical significance when education discipline is related to EI interpersonal stress management. The statistical significance was between technology and business majors. IT professionals with a business degree scored lower on the self-esteem scale than those with a technology degree: business degree, $M = 2.57$; technology

degree, $M = 2.25$. EI for intrapersonal skills for the self-esteem and intrapersonal skills subscales were rated on a 3-point Likert-type scale, (1 = Most like, 2 = Sometimes like, 3 = Least like). The results from IT professionals showed no statistical significant differences of intrapersonal skills on the subscale between EI as it relates to level of education. However, the study indicated academic discipline does make a difference on both scales of stress management and self-esteem when it comes to IT professionals with a technology and business major.

Glen (2003) stressed that IT professionals yearn for purpose in the work they do. If the purpose is not there, it can and will affect their attitude, their ability to maintain focus, and their sense of worth. Nelson and Low (2010) presented that self-esteem is an important skill that has to be constantly nurtured, while stress-management is control over anger and anxiety. When an individual has a decrease in self-esteem, it affects all aspects of life. In the case of the IT professional, it diminishes the value of one's self worth. Lounsbury, Smith, Levy, Leong, and Gibson (2009) presented the business world as filled with more stress from the globalization. Their research presented business professionals that displayed stability in areas of emotional or trait skills similar to strong self-esteem. However, as IT professionals move from the backroom to the forefront of interaction with professionals, the source of stress may be related more to the type of interaction they are required to perform than globalization. The results of this study on EI intrapersonal with relationship to education indicated that IT professionals with business degrees had higher stress and lower self-esteem than those IT professionals with technology degrees.

Research Question 5

How does social intelligence relate to Interpersonal Skills?

The study presented results of IT professionals working in higher education with questions that pertained to skills related to the interpersonal skill of EI and Social Intelligence (SI). The subscales that consist of SI are social facility and social awareness. There were 94 IT professionals surveyed in higher education that worked in a university between two Texas university systems. The two sub research questions looked at the relationship between all intrapersonal subscales as it related to social facility and social awareness. There were two areas of statistical significance. Social intelligence awareness was negatively correlated with emotional intelligence assertion. Social intelligence facility was negatively correlated to emotional intelligence assertion. Both relationships are considered weak, $r = -.28$. Thus, as social intelligence facility dropped so would emotional intelligence assertion. However, no causal relationship is to be inferred, thus it could be that as emotional intelligence assertion dropped so does social intelligence facility.

IT professionals with social awareness use “a spectrum that runs from instantaneously sensing another’s inner state” (Goleman, 2006, p. 84). IT professionals with social facility have the ability in “sensing how another feels, or knowing what they think or intend; does not guarantee fruitful interactions” (Goleman, 2006, p. 84). SI was measured on a six-point scale: (Completely disagree = 1, Strongly disagree = 2, Disagree = 3, Agree = 4, Strongly agree = 5, Completely agree = 6). EI for interpersonal skills was rated on a 3-point Likert-type scale, (1 = Most like, 2 = Sometimes like, 3 = Least like).

Goleman (2006) presented that when a conversation stops, social awareness allows the communication to continue via observations of body language or attunement. In the case of the IT professional, the study indicated that IT professionals with low EI interpersonal assertion would not be able to act up upon or even notice a customer’s body queues of either being a

happy or a negative reaction. Gillard (2009) presented that the IT workplace, where communication is needed to tackle issues of stress or anxiety, can be further compounded by the language or cultural barriers. Any lack of soft skills in the areas SI awareness in combination with low EI assertion indicated a possible problem when an IT professional encountered a situation where the customer is of a different cultural background.

Research Question 6

How does social intelligence relate to Intrapersonal Skills?

The study presented results of IT professionals working in higher education with questions that pertained to skills related to the intrapersonal skill of EI and social facility and social awareness. The subscales that consist of SI are social facility and social awareness. There were 94 IT professionals surveyed in higher education that worked in a university between two Texas university systems. The two sub research questions looked at the relationship between all intrapersonal subscales as it related to social facility and social awareness. There was one area of statistical significance. Social intelligence awareness was negatively correlated with emotional intelligence self-esteem. The relationship is considered weak $r = -.33$. Thus, as social intelligence facility dropped so would emotional intelligence self-esteem. However, no causal relationship is to be inferred, thus it could be that as emotional intelligence assertion dropped so does social intelligence self-esteem.

Social awareness and facility were measured on a six point scale (Completely disagree = 1, Strongly disagree = 2, Disagree = 3, Agree = 4, Strongly agree = 5, Completely agree = 6). EI for intrapersonal skills subscale of self-esteem was rated on a 3-point Likert-type scale, (1 = Most like, 2 = Sometimes like, 3 = Least like). The EI intrapersonal skill subscale of stress

management was rated on a 3-point Likert-type scale, (3 = Most like, 2 = Sometimes like, 1 = Least like).

IT professionals with social awareness use “a spectrum that runs from instantaneously sensing another’s inner state” (Goleman, 2006, p. 84). EI intrapersonal self-esteem “is the ability to view the Self as positive, competent, and successful. Positive self-esteem is the foundation for achievement and a general sense of well-being” (Low & Nelson, 2010, p. 136). As the study indicated, IT professionals had overall lower EI intrapersonal self-esteem issues that would in turn lower the SI social facility subscale. Goleman presented that a synchronous bond is formed with good social facility and would allow for a greater ease of communication between people. In addition, “presentation” is important in furthering the ease of those conversations. Nelson and Low (2010) presented EI intrapersonal assertion as needed for clear and direct verbal communication. IT professionals are shown through the literature to have lower scores in the areas of interpersonal skills (Tang & Mu-Shang, 2008). Glen (2003) presented that in the attitudes of IT professionals, they are often more individualistic and lack “emotional commitment” (p. 47). As the study indicated a lower self-esteem in EI intrapersonal and its effect on social facility, a problem arises when IT professionals interacted with customers in their organizations.

Discussion

The results of the study of interpersonal and intrapersonal EI skills with IT professionals provided trends that were close to the literature, in terms of social interactions and internal feelings with those IT professionals that engaged with their campus audience. The results indicated that, while IT professionals are not aggressive or low on deference in the EI interpersonal skill, they did display lower assertiveness, which in turn led to negative effects in

relation of the SI social awareness subscale. In addition, EI intrapersonal skills indicated lower self-esteem among IT professionals as associated to the SI social awareness subscale. EI interpersonal aggression could be related to academic discipline where IT professionals obtained their degree. The study showed a difference between those who had a degree in business and those with a degree in technology. It suggests that those with a degree in technology are more comfortable with the IT problems they face, therefore are more comfortable interacting with customers.

Overall, the study indicated that professional roles and education do not have a significant statistical impact on EI in both the interpersonal and intrapersonal areas. There were, however, areas of both the EI and SI subscales that provided insight into certain areas. For example, the results of the descriptive statistics of the study indicated a more telling description of EI with respect to the individual IT professional. This is due in part to the nature of the ESAP survey. The areas of the survey that dealt with EI interpersonal and intrapersonal questions were not only a means to measure EI, but were also designed to elicit results from individuals for further reflection and self-improvement of their EI scores (Nelson & Low, 2010). The descriptive statistics allowed for insight into the areas of EI interpersonal and intrapersonal subscales. The results defined the IT professional as a non-aggressive person that displayed low self-esteem and assertiveness along with an inability to manage stressful situations.

On the SI subscales, IT professionals had social intelligence awareness scores that were negatively correlated with EI assertion. Thus, as social intelligence awareness dropped so would emotional intelligence assertion. It suggests that IT professionals, while displaying comfort in customer interaction, were most unlikely to be assist the campus customer's IT needs to their fullest social capacity. The same was true for EI intrapersonal self-esteem and SI social

awareness. While both had negative correlations, it suggests that IT professionals with low self-esteem would more likely provide customer service lacking the best social interaction.

There were no statistical differences in many areas of the results of the study. Relationships between job title and EI did not result in any difference. This suggests that IT professionals display the same group mindset. The literature described IT professionals as introverts that normally do not join formal groups, however they do favor project settings that allowing for demonstration of skills among their peers (Glen, 2003). In addition, there were no statistical differences in the results of the number of years on the job the IT professional had in relationship to EI. This suggests that the workplace environment in IT is dynamic and does not allow the IT professional to engage into any type of comfort level.

Implications

The study was conducted to examine the relationship of EI interpersonal and intrapersonal skills on IT professionals. The results of the study were intended to gain insight into the areas of EI that were not fully represented in the literature with respect to IT professionals.

The findings, which concern the EI areas of interpersonal and intrapersonal, can provide IT leadership with valuable information that can assist them in organizing and understanding the unique behaviors of IT professionals. The results of the study provided information on an IT professional's individual interpersonal and intrapersonal skills. The IT leader is the social manager and must understand the issues facing his or her employees (Marcial, 2012). However, there is a balance to be maintained. Those leaders of IT professionals who micro-manage can often compound the issues by creating a toxic environment since the focus is on the smaller tasks rather than the long-term goal. Where as a strategic manager can lead to might be too far

removed and likely to miss the social cues of the IT professional in need of guidance (Davenport, 2013). A lack of social skills by IT professionals does not mean that they cannot be effective leaders and managers as they interact with colleagues across campuses.

Nelson and Low (2010) described that EI can be increased and developed. However, IT professionals will only be able to increase their EI interpersonal and intrapersonal scores to a certain level. The ESAP survey was meant to elicit responses that could lead to further analysis by the individual in the emotional learning assessment option of the ESAP. In the case of the IT professional, IQ and intellect are the majority of what their core job entails which, at times, is not collaborative or social (Gillard, 2009; Glen 2003).

The findings, which concerned the relationship of EI to the professional roles and education of IT professionals, were shown by the study to have little effect with one another. IT job roles and experience were shown not to have an effect. This finding is somewhat surprising, since technology is dynamic. The expectation is that IT professionals would need to have the most recent training and job experience to stay current with changing technologies (Kavitha & Kavitha, 2012). However, the nature of the work itself provides a training ground. Most IT workplaces that used to rely on colleges to fill their workforce training needs, now need to keep a never ending and internal knowledge based training system within their employee base (Khosrowpour, 2000). This leads to an IT work environment that will always have IT professionals having to engage in situations that will involve continuous education on the latest technologies.

The findings concerning the descriptive elements of the individual IT professional were more telling. The results revealed that the IT professional was an individual with low aggression, with low assertion, and susceptible to high stress and low self-esteem. There are

implications that should be acknowledged regarding these findings should initiate a look at gaps in the data regarding why IT professionals are scoring low in the social areas and how to remediate those deficiencies.

One implication is that the study revealed IT professionals more likely to be socially awkward with their campus audience since they reported low EI interpersonal assertion. Socially awkward people have traits such as difficulty developing relationships, and a low sense of well-being or self-worth (Channon, Collins, Swain, Young, & Fitzpatrick, 2012). The coping skills that can help those IT professionals who are socially awkward usually include becoming self-aware of behaviors that are detrimental and developing the ability to demonstrate assertive behavior, such as the ability to ask questions when a task is unclear even though they fear being humiliated (Nelson & Low, 2010).

Another implication the study revealed is that IT professionals are more likely to be stressed and have low self-esteem. The symptoms of stress are negative behavior patterns, such as engaging in overeating, abuse of drugs or alcohol, and decline in overall health (Nelson & Low, 2010). The effects on already socially awkward IT professionals could result in further alienation from collaborative groups, decline in task delivery, and increased health risks.

Low self-esteem alone can lead to depression in an individual. Couple this result with low coping skills related to stress and there exists a hostile environment that not only affects productivity, but the well-being of the IT professional. Signs of low self-esteem are self-defeating behaviors such as depression and anxiety (Nelson & Low, 2010). Recognizing signs of low self-esteem and stress can be mitigated by adding an employee assistance program that has a counseling component. Top IT leaders and other campus leaders can also become more aware of the nature and uniqueness of the IT professional that will lead to understanding their social

limitations. This could assist management to help keep customer interaction to a minimum for IT professionals who struggle in these areas (McAfferty, 2014; Kavitha & Kavitha 2012).

However, limiting IT professionals' interaction with campus personnel could reduce the effectiveness of that IT professionals need to have to keep systems functioning. Therefore, IT departments should consider different types of hiring practices. The interview process could involve different type of emotional intelligence and/or social intelligence assessments. Those IT positions that require skills and abilities for interaction with people across campuses on a regular basis may need applicants to score higher on EI and SI assessments. Those positions that are primarily technical in nature could have lower EI and SI scores by applicants. However, this type of approach could limit one's opportunities for advancement if EI and SI skills are not developed by those whose positions are primarily technical with little interaction with others across campus.

Finally, social intelligence, as it is related to EI interpersonal and intrapersonal, presented further results that solidified the presence of low interpersonal and intrapersonal skills of the individual IT professional. The implication is that when social awareness is low, EI interpersonal and intrapersonal skills will be, too. The results showed that functioning on a social level among IT professionals is low. This does not mean that IT professionals are not social. They can be quite social among other IT professionals. It means that their interaction with other non-IT professionals is awkward. Normally, individuals with like mindsets are needed for instances of collective influence, such as representation in a union or social group to further a cause (Reinders, Klapwijk, De Cremer, & Van Lange, 2012). IT professionals on the other hand, have a different perspective of group mindsets. Their preference are groups that cater to their area of job expertise where technology is the topic and draws upon their interest. In

addition, it allows them to display their IT skills within a community of their peers as part of a technology project (Glen, 2003). Open source projects are an example of an extreme community mindset that is project oriented where its goal is to maintain free software and requires less face-to-face talks and more communication via email or discussion boards. This affects the IT professional's environment by providing a unique subculture to their current work environment. This subculture is led by technology and not ideology (Glen, 2003, p. 48).

Future Research

As technology becomes even more prevalent globally and continues dynamically to change to suit the needs of industry, there are behaviors of IT professional that need to either change or be managed to go along with these technology dynamics. This study identified emotional intelligence skills in the areas of interpersonal and intrapersonal that were lacking among IT professionals. As a result of the study, questions for future research were raised.

First, the lack of statistical significance on job role and education effect on IT professional's EI. A larger sample size should be examined to get an understanding if job role and education do not have an effect or if it was related to this sample. IT professionals did indicate a variety of job position and education backgrounds. If they are not statistically significant, it suggests IT professionals might have a personality characteristic that is more prominent for career choice than education or job function.

Second, research should examine other EI tools aside from the ESAP. Since the nature of the ESAP is that of measurement of EI for the purpose of self-awareness and development, it would be beneficial to see if other EI measurements would provide the same statistics as it related to job role and education. Not only could the ESAP be correlated to factors of other EI scales to see if there are significant relationships, but they could compared to each other

according to demographic characteristics. If statistical significance is found, it might reveal specific areas of strengths and weakness in EI among IT professionals.

Third, a qualitative approach could explore dimensions of low self-esteem and stress among IT professionals. Qualitative data from focus groups with IT professionals could enrich the literature with data into the mindset of the IT professional when facing various situations in the work environment. The ESAP used in this study provided participants with generalized situations for responses. Even though Cronbach's alpha showed strong reliability, the questions were not specific to the work of IT professionals. A qualitative approach could look at specific work conditions and reveal issues more relevant to IT professionals and their work.

Fourth, further research is needed to look into the employee assistance programs within the IT workplace environment to measure if they meet the emotional needs that are unique to the IT professional. The study focused only on IT professionals in a university campus where there is diversity in employment. A study into a targeted program for those in the IT profession could provide more information for those that lead IT professionals or hire them. This may be a highly sensitive issue, particularly when dealing with human resource privacy laws. Without violating them, research could investigate stress levels and coping mechanisms used by IT professionals. Other variables can include their awareness of assistance programs and the services they offer.

Fifth, an expansion of the EI and SI surveys of IT professionals in higher education outside of Texas is needed to elicit more responses from IT professionals across the country. A broader study could provide data from a regional perspective in terms of culture, university size, and state funding. This would be important in providing more visibility into the EI skills of IT professionals across the country to foster more interest in EI personal development. It should provide more in depth data to where specific characteristics of EI and SI as they apply to

demographic characteristics. If it does not, then it suggests IT professionals are most likely “cut from the same mold” and leads to a long-term problem of poor social interaction among IT professionals and their non-IT colleagues.

Sixth, there should a study that includes a control group to provide a true comparison of IT professionals and those in other fields of employment. This study only focused on IT professionals and any future research would benefit from the suggested control group to validate the true uniqueness of the IT professional. The characteristics of a good control group would be those professions that do not engage in any information technology support, are only based in administrative duties, and are only the consumers of technology. The importance of these characteristics are to create a true control separate from IT professionals in order to maintain the integrity of such study.

Seventh, there should be a study that places emphasis on not only the IT professional’s interpersonal and intrapersonal skills, but also all of the four competency areas of the ESAP EI construct. The study did not examine the ESAP EI skills pertaining to personal leadership and self-management skills since the literature focused on other areas: the lack of soft skills and social interactions among IT professionals. A revisit of all four competency areas could provide more to the literature about the leadership and self-management of IT professionals.

Summary

To summarize, this study examined the EI interpersonal and intrapersonal skills along with the SI social awareness and social facility of the IT professional in higher education. Even though the results of the study did not show a significant difference in relationship to job title and education with EI, there were enough descriptive statistics on the individual IT professional

to confirm that they are have lower scores in the subscales of the interpersonal and intrapersonal skills.

The study displayed that there are areas in an IT professional's behavior that is unique. This information however does pose some questions on how to best solve or work with this behavior. Since EI itself has just become a validated measurement of emotion and behavior in general, the measurement of EI among IT professionals is still new. This study, along with recommendations for further research, should be the beginning for even more studies to contribute to the literature.

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APPENDIX A: Letter of Recruitment - IT Professional

Date

Dear IT Professional,

I, Javier Omar Trevino, am currently a Doctoral Candidate in the Department of Educational Leadership and Research at Texas A & M University-Corpus Christi. I am investigating the emotional intelligence competencies of interpersonal and intrapersonal skills of the Information Technology (IT) professional in higher education. *If you are currently working as an IT professional in higher education and over the age of 18, please continue with the survey. If you are not, please do not continue.*

As an IT professional you have been selected to participate in this educational research study by completing an online survey instrument. This is an opportunity for you to provide information on a topic that describes how you interact with your peers and the higher education community.

Your participation in this survey is completely voluntary. All individual responses to the questionnaire will remain anonymous.

The survey instrument itself follows the Informed Consent Form; completion of the survey should not take more than 15 minutes of your time. I know that your time is extremely valuable at this time of the year however, I value your input.

If there are any questions, you may contact the Principal Investigator, Javier Omar Trevino, at 361-227-0035 or email at Javier.trevino.tx@gmail.com

Clicking on the following link will take you to the Informed Consent Form and the survey instrument.

([https://tamucc.co1.qualtrics.com--specific EI ESAP link will be provided](https://tamucc.co1.qualtrics.com--specific-EI-ESAP-link-will-be-provided))

I thank you in advance for your participation in my research study.

Sincerely,

Javier Omar Trevino

APPENDIX B: Follow-up Letter of Recruitment - IT Professional

Date

Dear IT Professional,

Approximately a week ago, you received an email, inviting you to participate in an important study on investigating the emotional intelligence competencies of interpersonal and intrapersonal skills of the Information Technology (IT) professional in higher education. *If you are currently working as an IT professional in higher education and over the age of 18, please continue with the survey. If you are not, please do not continue.*

If you have already completed the survey, thank you very much. If you have not completed the study, I encourage you to set aside 15 minutes to participate.

This is an opportunity for you to provide information on a topic that describes how you interact with your peers and the higher education community.

Your participation in this survey is completely voluntary. All individual responses to the questionnaire will remain anonymous.

The survey instrument itself follows the Informed Consent Form; completion of the survey should not take more than 15 minutes of your time. I know that your time is extremely valuable at this time of the year however, I value your input.

If there are any questions, you may contact the Principal Investigator, Javier Omar Trevino, at 361-227-0035 or email at Javier.trevino.tx@gmail.com

Clicking on the following link will take you to the Informed Consent Form and the survey instrument.

([https://tamucc.co1.qualtrics.com--specific EI ESAP link will be provided](https://tamucc.co1.qualtrics.com--specific-EI-ESAP-link-will-be-provided))

I thank you in advance for your participation in my research study.

Sincerely,

Javier Omar Trevino

APPENDIX C: Online Informed Consent Form

Emotional Intelligence in Information Technology: A Study of Interpersonal and Intrapersonal Skills of Information Technology Professionals

Introduction

The purpose of this form is to provide you information that may affect your decision as to whether or not to participate in this research study. If you decide to participate in this study, this form will also be used to record your consent. You were selected to be a possible participant because your role as IT professional in higher education. *If you are an IT professional over the age of 18, please continue with the consent and survey. If you are not, please do not continue.*

You have been asked to participate in a research project studying the emotional intelligence competency areas of interpersonal and intrapersonal development. The purpose of the study is to examine the relationships between various roles of IT professionals in higher education and the interpersonal and intrapersonal skills of emotional intelligence.

What will I be asked to do?

If you agree to participate in this study, you will be asked to complete the EI ESAP survey online. You can click the link provided in the email and it will take you directly to the survey. It will take approximately 15 minutes of your time to complete the survey. Upon completion of the consent and the online survey, no further participation is required.

What are the risks involved in this study?

The risks associated with this study are the participants may be inconvenienced by taking part in the survey 15 minute and reading the emails associated with the study. It is the belief that the benefits outweigh the minimal potential risk. The risks associated in this study are minimal, and are not greater than risks ordinarily encountered in daily life.

What are the possible benefits of this study?

The possible benefits of participation are increased self-awareness of one's emotional intelligence, collegial relationships, and support from leadership in higher education.

Do I have to participate?

No. Your participation is voluntary. You may decide not to participate or to withdraw at any time without your current or future relations with Texas A&M University-Corpus Christi Texas A&M University-Kingsville being affected.

Who will know about my participation in this research study?

This study is anonymous and the identity of the participants will not be known since there is no way to identify whether you participated in the study or not. The survey is computer-based and will be completed and analyzed without identifying definite participants or specific schools. The records of this study will be kept private. No identifiers linking you to this study will be included in any sort of report that may be published. Research records will be stored securely

APPENDIX D: EI ESAP Survey

Emotional Intelligence in Information Technology: A Study of Interpersonal and Intrapersonal Skills of Information Technology Professionals

You are being asked to participate in a survey regarding Emotional Intelligence competencies in the areas of Interpersonal and Intrapersonal skills. Your participation is crucial to the understanding of how IT professionals communicate, handle stress, and collaborate with others in higher education. Your responses are confidential and are used for research purposes only. All information will be reported in aggregate form and no individual identifiers are used as part of data collection.

This portion of the survey asks you to describe your current job title in IT
Choose one of the following the most best describes your job.

- Computer Technician (1)
- Network administrator (2)
- Systems Administrator (3)
- Programmer (4)
- Help Desk Support (5)
- Lab Administrator (6)
- Classroom Technical Support (7)
- Audio/Visual (8)
- Security (9)
- Management (10)
- Other (11) _____

This portion of the survey asks you to describe your current how long you have been working as IT professional in higher education.

Choose one of the following that best describes the length of time you have been working as an IT professional in higher education.

- 0 to 3 years (1)
- 3+ to 8 years (2)
- 8+ to 13 years (3)
- 13+ to 18 years (4)

This portion of the survey asks you to describe your current level of degree.

Choose one of the following that best describes your level of education.

- High School diploma (or equivalent) (1)
- Associate's degree (2)
- Bachelor's degree (3)
- Master's Degree (4)
- Doctorate (5)

This portion of the survey asks you which of the following best describes your most recent subject area of study.

Choose one of the following that best describes your subject area of education.

- General Studies (1)
- Liberal Arts (2)
- Social Sciences (3)
- Business (4)
- Education (5)
- Sciences (6)
- Technology (7)

Social Intelligence

This portion of the survey asks you to describe your social intelligence application. You are asked to indicate how often each of the items below is or was true of you. Please use the following scale in answering each item.

- 1 Completely Disagree
- 2 Strongly Disagree
- 3 Disagree
- 4 Agree
- 5 Strongly Agree
- 6 Completely Agree

Please be discriminating. Your results will be more helpful if you think about each item and distinguish the things that you really do or did all the time as an IT professional.

I have a strong sense of accurately perceiving non-verbal emotional signals of others.

- Completely Disagree (1)
- Strongly Disagree (2)
- Disagree (3)
- Agree (4)
- Strongly Agree (5)
- Completely Agree (6)

I listen to others with a high level receptivity where I am attuned to what they are saying.

- Completely Disagree (1)
- Strongly Disagree (2)
- Disagree (3)
- Agree (4)
- Strongly Agree (5)
- Completely Agree (6)

I often empathize with accuracy a person's thoughts feelings or intentions.

- Completely Disagree (1)
- Strongly Disagree (2)
- Disagree (3)
- Agree (4)
- Strongly Agree (5)
- Completely Agree (6)

I am very aware of social interactions around me.

- Completely Disagree (1)
- Strongly Disagree (2)
- Disagree (3)
- Agree (4)
- Strongly Agree (5)
- Completely Agree (6)

Most of the time I respond very well to non-verbal cues.

- Completely Disagree (1)
- Strongly Disagree (2)
- Disagree (3)
- Agree (4)
- Strongly Agree (5)
- Completely Agree (6)

For the most part, Non-IT people on Campus clearly understand what I say to them.

- Completely Disagree (1)
- Strongly Disagree (2)
- Disagree (3)
- Agree (4)
- Strongly Agree (5)
- Completely Agree (6)

I usually look forward to social interactions with people on campus.

- Completely Disagree (1)
- Strongly Disagree (2)
- Disagree (3)
- Agree (4)
- Strongly Agree (5)
- Completely Agree (6)

I genuinely care about others' needs on campus.

- Completely Disagree (1)
- Strongly Disagree (2)
- Disagree (3)
- Agree (4)
- Strongly Agree (5)
- Completely Agree (6)

Exploring Emotional Intelligence Emotional Intelligence is recognized as being critical to the growth and development of healthy, personally, and responsible people. To fully explore, understand, and develop emotional skills, the process needs to be authentic, honest, positive, and self-directed. Instructions: You will be completing an honest, personal assessment of current emotional abilities and skills in 2 separate and related parts (Interpersonal and Intrapersonal). Helpful hints: Your first response is your best response. Let your feelings decide the best response for you. Think of each statement as it relates to you in the setting you feel needs most improvement, for example your job, family, relationships, etc. Be totally honest. Respond to each statement and enter your response.

Your choices are:

M means most like or descriptive of you

S means sometimes like or descriptive of you and sometimes not

L means least like or descriptive of you

Part 1 Interpersonal Skills

This primary performance area of life consists of the communication skills essential to establishing and maintaining a variety of strong and health relationships. You will be presented with situations that cover assertion, aggression, and deference.

ASSERTION

Situation: When I am really angry at someone I...

	M (1)	S (2)	L (3)
I usually feel some tension, but comfortable in expressing exactly what is on my mind. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually think "Okay, I'm angry and need to deal with it constructively". (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually behave by expressing what is bothering me, and working to achieve a constructive resolution. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Situation: When someone is really angry at me.....

	M (1)	S (2)	L (3)
I usually feel tension and the right to understand the person's anger by responding directly. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually think that I have the right and need to understand the person's anger at me and to respond directly to resolve the conflict. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually behave by asking for a further explanation of the anger and dealing with the feelings in a straightforward manner.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Situation: When I communicate to someone as an "Authority" person...

	M (1)	S (2)	L (3)
I usually feel comfortable and straightforward in my approach to the person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually think that my needs are legitimate, and okay to express in a straightforward manner.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually behave comfortably and at ease with the person	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

AGRESSION

Situation: When I am really angry at someone...

	M (1)	S (2)	L (3)
I usually feel hostile, or a need to verbally attack.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually think attack, and powerfully show my anger.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually behave by angrily expressing myself or getting into an argument.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Situation: When someone is really angry at me...

	M (1)	S (2)	L (3)
I usually feel angry and hostile and the need to attack.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually think I need to respond even stronger as not to be overwhelmed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually behave by showing my own anger, or escalating the fight.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Situation: When I communicate to someone as an “Authority” person...

	M (1)	S (2)	L (3)
I usually feel defensive or a need to develop a strategy in my approach to the person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually think that what I want or need is most important and impose myself on the person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually behave pushy or defensively with the person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

DEFERENCE

Situation: When I am really angry at someone...

	M (1)	S (2)	L (3)
I usually feel anxious or confused about what to say.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually think that I should not express my anger directly. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually behave by avoiding saying anything to the person so as not to hurt his/her feelings.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Situation: When someone is really angry at me...

	M (1)	S (2)	L (3)
I usually feel confused and afraid, or the need to avoid him/her.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually think that I am probably at fault, or the person does not like me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually behave by backing off, apologizing, or not really saying what I feel.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Situation: When I communicate to an "Authority" person...

	M (1)	S (2)	L (3)
I usually feel nervous and hesitant about approaching the person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually think that I really shouldn't bother him/her or take up much of their time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually behave apologetically and awkwardly with the person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part 2 Intrapersonal Skills

This primary performance area of life consists of Interpersonal Skills (within you) essential to learning and self-knowledge. You will be presented with questions in the areas of self-esteem and stress management.

SELF ESTEEM

I trust my ability to size up a situation.

- M (1)
- S (2)
- L (3)

I am excited about myself and the potential that I have to develop as person.

- M (1)
- S (2)
- L (3)

I feel in control of my life.

- M (1)
- S (2)
- L (3)

I am an open, honest, and spontaneous person.

- M (1)
- S (2)
- L (3)

I like myself, and I feel very comfortable with the way I am as a person.

- M (1)
- S (2)
- L (3)

For me, anything is possible if I believe in myself.

- M (1)
- S (2)
- L (3)

STRESS MANAGMENT

Even when I try to enjoy myself and relax, I feel a lot of pressure.

- M (1)
- S (2)
- L (3)

My friends often say that I look worried, tense or uptight.

- M (1)
- S (2)
- L (3)

I have become extremely nervous and tense at times, and doctors have advised me to slow down and relax.

- M (1)
- S (2)
- L (3)

I am impatient with myself and others, and I am usually pushing to hurry things up.

- M (1)
- S (2)
- L (3)

I often feel that I have little control over what I think, feel and do.

- M (1)
- S (2)
- L (3)

I feel tense and pressured by the way I have to live.

- M (1)
- S (2)
- L (3)

APPENDIX E: ESAP Permission Letter

September 24, 2010

Mr. Javier Trevino
Educational Leadership Doctoral Program
Texas A&M University-Corpus Christi
Corpus Christi, Texas

Dear Mr. Javier Trevino,

Dr. Darwin Nelson and I are always interested in supporting quality research on topics of emotional intelligence and personal skills so vital to personal, academic, and career performance. We are pleased to grant you permission to use our EI-centric models and positive assessment instrument, the *Emotional Skills Assessment Process* (ESAP), for your doctoral dissertation at Texas A&M University-Corpus Christi.

You may include a copy of the ESAP as an appendix if you decide to do so. Copyrights of all ESAP assessments are retained by Darwin Nelson and Gary Low. We are pleased to support your important research for the Doctorate in Educational Leadership. Your dissertation study of EI skills and competencies with IT professionals will be an interesting and relevant addition to the literature and add to the growing research base of emotional intelligence and doctoral preparation of IT professionals

When your study is completed, we would like a bound copy of your dissertation and one copy of all papers, reports, and articles that make use of the ESAP. We try to keep up with all doctoral studies and papers which use our positive and research derived assessments. Dr. Nelson and I wish you the best as you add to the professional literature and increase the heuristic value of our education and transformative assessment and learning models of emotional intelligence.

If you need additional professional literature references or technical assistance regarding the ESAP assessment, please let us know. Take care and warmest personal regards.

Gary R. Low, Ph.D.
Professor Emeritus of Education
Texas A&M University-Kingsville