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The role of emotional intelligence in achieving success for women in engineering and technology

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THE ROLE OF EMOTIONAL INTELLIGENCE IN ACHIEVING SUCCESS FOR WOMEN IN ENGINEERING AND TECHNOLOGY

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Abstract

With the growing demand for technical talent, more women and men will be needed in the workforce. Given the unique culture they work in, this study examined the use of emotional intelligence (EI) and perceptions of success and burnout among women in technology to better understand what EI competencies are needed to be successful.

A mixed method approach was used, which consisted of three surveys and an interview. Twenty-three female participants who earned a technical degree or who had a minimum of 5 years' experience in a technical field participated in the study. Analyses were performed on the data to answer for women in technology (a) how they define success; (b) what factors influence their success; (c) to what extent is EI utilized; (d) whether there is a relationship between EI and success; and (e) whether definitions of success, success factors, use of EI, and the value of EI differ based on a woman's degree of career success.

In summary, the study found that success was defined as others' favorable perceptions of them, their own feelings of happiness, and making a difference. Nearly all participants (19 of 23) reported that the top factor that influenced their success in engineering and technology was EI, with their competency ranging from neutral to high in self-management, relationship management, and communication. Twenty-one participants identified influence as the most important skill to develop as a woman progresses in her career and strategic relationships as second most important. Participants suggested that there are four EI competencies women in technology lack and need to develop: confidence and assertiveness, self-control, confident communication, and relationship management. It is interesting to note that confidence and assertiveness were mentioned to an increasing degree as participants' perceived success increased, whereas self-control was mentioned to a decreasing degree as perceived success increased.

The study found differences in the results based on a woman's degree of career success. The high perceived success group named intrinsic factors (e.g., confidence) as contributing to their success but judged their success based on extrinsic factors. The low perceived success group believed that traditional intelligence and skills contributed to their success but judged their success based on intrinsic factors. In addition, as the perception of success increased, the level of cynicism decreased and vice versa. Another interesting note is that women in the medium perceived success group experienced burnout to a stronger degree than either of the other groups.

Suggestions for future research include using a larger sample size that includes men, narrowing the focus of the research to gather only the most relevant data, and utilizing 360-degree instruments to avoid self-report bias.

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Chapter 1

Introduction

When I was just a little girl
I asked my mother, “What will I be?
Will I be pretty, will I be rich?”
Here's what she said to me:

“Que Sera, Sera,
Whatever will be, will be
The future's not ours, to see
Que Sera, Sera
What will be, will be.” (Que Sera, Sera, Evans & Livingston, 1956)

In the 1950s, when Doris Day sang “Que Sera, Sera,” only 35% of adult women in the United States were in the workforce (Toosi, 2002). A woman’s primary role at that time was being a caring mother, diligent homemaker, and obedient wife. From 1970 to 2008, the number of women in the workforce rose from 41% to 56%. These statistics suggest that women in the United States have made great strides in gaining equality and equity in the workplace—to the extent that some question if the glass ceiling still exists (Ferris, 2005).

Women’s growing presence in the workforce and the upper ranks of organizations is evidenced by a visit to any Borders bookstore, which reveals that women have their pick of books to help them succeed in work, ranging from *Going to the Top* (Gallagher & Golant, 2001), *Nice Girls Don’t Get the Corner Office* (Frankel, 2010), and *Through the Labyrinth* (Eagly & Carli, 2007). Other books cover communication styles, risk taking, and how to play the game at work. All of these are targeted at women who want to get ahead in their organizations. The problem is that not all women or all jobs are the same. For example, the shelves are barren when it comes to books on women in science

and technology, books on climbing the technical ladder, or the interpersonal skills and success factors needed to work in technology.

According to U.S. Department of Labor (2007) statistics, women comprise only 25.6% of American computer and math occupations and only 8% of engineering management positions. The possible reason for this under-representation is that engineering and information technology organizations historically have been male-dominated fields and populated with “geeks” who are obsessed with computers and technology (Margolis & Fisher, 2003). The stereotype that engineers and computer professionals are geeky males is created and reinforced by media depictions and popular Western culture. This stereotype may discourage girls and young women from considering these as possible professions (Simard, 2007).

Organizations like the Clayman Institute for Gender Research and the Anita Borg Institute recognize that women have a harder time entering into technical careers and are devoted to the study of gender and women in technology (Simard, 2007). Institutes like these are continually conducting research to better understand why mid-level women are not progressing into management and what barriers could be removed to attract and retain technical women.

In addition, other researchers have been concerned with the pipeline of women and needs for the future. Vick (2004) interviewed 16 Generation X women in seven high-technology companies in the United States to explore these women’s relationship to work, success, and fulfillment. Vick concluded that Generation X women defined professional success in tangible and intangible

ways. She, in turn, concluded that relationships, making a difference, learning and challenges were success factors for these women, whereas male-dominated companies, ageism, and political maneuvering in organizations acted as barriers.

Klawe, Whitney, and Simard (2009) observed that 56% of women leave high technology companies at crucial points in their careers. This suggests that women in technical fields may face a unique set of challenges. Simard and Gilmartin (2010) observed that these challenges are well documented and stressed that women could be better prepared for them. At the same time, evidence exists to suggest that women may be particularly positioned for success due to their generally stronger interpersonal competencies, as compared their male counterparts (Kelly, 1995).

Nevertheless, other researchers have found that women lack career-related self-confidence and self-esteem (Brainard & Carlin, 1997; Margolis & Fisher, 2003) and, further, that the number of women in technology is steadily shrinking (The National Center for Women in Technology, 2009; Simard, 2007; U.S. Department of Labor, 2010). These findings suggest that more needs to be discovered about the role and impact of interpersonal skills and how women perceive and experience success and burnout in technology fields. In particular, this study focuses on the role of emotional intelligence (EI), which refers to an individual's ability to perceive, understand, and manage their emotions and behaviors.

EI became popular in 1996 after Daniel Goleman (1995) published *Emotional Intelligence: Why it Can Matter more than IQ*. His interest in the topic began in 1990 when, as a science reporter for *The New York Times*, Goleman

read an article by Mayer and Salovey about the first formulation of EI (Goleman, 2011). Though other scientists have studied other intelligences, Mayer and Salovey along with Goleman sparked a phenomenon.

The exact science of EI, what it is and how to measure it is not agreed upon. Salovey and Mayer (1990) describe EI as "a form of social intelligence that involves the ability to monitor one's own and others' feelings and emotions, to discriminate among them, and to use this information to guide one's thinking and action" (p. 189). Goleman (1995) defined EI as "the capacity for recognizing our own feelings and those of others, for motivating ourselves, and for managing emotions well in ourselves and in our relationship" (p. 317). What has been agreed upon and is slowly growing in business and education is the importance of EI—so much so that engineering schools are incorporating EI into the curriculum. It is widely agreed that the interpersonal skills needed to communicate and bridge gaps with people from other cultures are relevant in the workplace (Ogando, 2008; Reimer 2003).

With technology and engineering jobs projected to grow by more than 30% by 2018, it is important to understand how women may be supported in being successful in technical fields—particularly given that the number of technology graduates has decreased from 37% to 18% from 1985 to 2008 (U.S. Department of Labor, 2010).

Purpose of the Study

The purpose of this study was to examine the use of EI and perceptions of success and burnout among women in technology careers. The study addressed five research questions:

1. How do women in technology define success?

2. What factors influence success for women in technology?

3. To what extent do women in technology utilize EI?

4. Does a relationship exist between EI and success for women in technology careers?

5. Do the definitions of success, success factors, use of EI, and value of EI vary based on a woman's degree of career success?

Data collection involved the use of surveys and interviews. Surveys were administered to women who had a degree engineering and technology or at least 5 years in a technical field.

Definition of Terms

The following operational definitions are used repeatedly and warrant special attention in this study:

1. Burnout: Burnout is a state of emotional, mental, and physical exhaustion caused by excessive and prolonged stress in which one is cynical about the value of one's occupation and their ability to do their job (Maslach & Leiter, 1997). The Maslach Burnout Inventory conceptualizes burnout as three variables: exhaustion (fatigue from work), cynicism (indifference or a distant attitude toward work), and professional efficacy (an individual's expectations of continued effectiveness at work).

2. EI: People have different abilities to perceive, understand, and manage their emotions and behaviors. These abilities have a role in self-management and relationship management, both of which factor into happiness. For the purposes of this study, the researcher refers to three competency groups of EI as

referenced by the PeopleIndex Assessment: Self-Management, Relationship Management and Communication. Self-management refers to the ability to effectively understand and manage one's own emotions and behavior. Relationship management refers to the ability to effectively interact with others and take actions that demonstrate consideration for the feelings and needs of others. Communication refers to the ability to convey thoughts and ideas orally in a clear and concise manner to facilitate effective interpersonal interactions (K. Nowack, personal communication, February 16, 2011).

3. Science and scientific: Terms that refer to the fields of science, math, engineering, and information technology.

4. Success: A personal standard of achievement related to the attainment of wealth, favor, position, or personal goals, especially as it relates to the fulfillment of career goals.

5. Technology and technical: refers to the fields of engineering and information technology.

Significance of Study

Understanding the EI competencies women need to be successful in technology would allow them to be better prepared to enter a technical field, thereby, increasing the probability that women will progress through the stages of their career and stay in technology. If women stay in the industry, the predicted lack of workers in the future may be avoided. Additionally, understanding the role of EI competency in success could enhance these women's confidence and satisfaction in their jobs and their lives. Thus, this research could inform strategies and programs to develop a woman's EI at work.

Organization of the Study

This chapter provided a background on the current environment of women in technology, presented the purpose of the study and an overview of the method, outlined key terms, and described the value of the research.

Chapter 2 provides a discussion of relevant literature. The chapter reviews existing research and literature on careers in technology, including an overview of the industry, the industry culture, success and satisfaction factors, and a discussion of women in technology. Literature about EI also is reviewed, including a discussion of the value of EI, the use of EI in technology, and the use of EI by women in technology.

Chapter 3 outlines the methods used in this study. Specific topics include the research design and procedures related to sampling, protection of human subjects, measurement, and data analysis.

Chapter 4 reports the research results for satisfaction, burnout, and intent to stay. Results for satisfaction and intent to stay are reported first, followed by a report of the burnout results by success subgroup. The results for each research question, including participants' definitions of success, influencers of success, utilization of EI, and relationship between EI and success then are reported.

Chapter 5 presents a discussion of the results. In particular, conclusions, limitations, suggestions for further research, and implications for organization development practitioners are provided.

Chapter 2

Literature Review

The purpose of this study was to examine the use of EI and perceptions of success and burnout among women in technology careers. This literature review provides an overview of the technology field, including the industry's culture, influencers of success in the field, and women in technology. A review of literature on EI also is provided. Specific topics include the value of EI, EI in technology, and women's use of EI in technology.

The Technology Field

For the purpose of this research, careers in technology are defined according to the Bureau of Labor Statistics (U.S. Department of Labor, 2010) and the Standard Occupational Classification as *computer occupations* and *computer hardware engineers*. To better understand the responsibilities of these careers, the Association for Computing Machinery (n.d.) provided the following definitions for computing:

1. Computer engineering is the design of digital hardware and software systems that contain computers.

2. Computer science involves designing and building software, developing effective ways to solve computing problems, and devising new and better ways of using computers to address particular challenges.

3. Information systems is concerned with the information that computer systems can provide to aid an organization in defining and achieving its goals.

4. Information technology often is used to refer to all of computing. Information technologists often assume responsibility for selecting hardware and

software products to integrate those products with organizational needs and infrastructure.

5. Software engineering is concerned with developing and maintaining software systems that satisfy defined requirements.

According to the Committee on Prospering in the Global Economy of the 21st Century (2007), the vitality and economic prosperity of the United States is largely dependent on its citizens' intellectual talent and ability to innovate scientifically and technically. The report encourages the investment and optimization of knowledge-based resources in science and technology, especially as the competition for jobs with lower-wage workers around the globe increases. The committee strove to understand what actions federal policymakers could take to enhance the science and technology enterprise so that the United States could successfully compete in the global community of the 21st century. The committee recommended that the United States focus on improving secondary education, higher education, research, and economic policy as a means of creating incentives for innovation.

According to the *Occupational Outlook Handbook, 2010-11 Edition* published by the Bureau of Labor Statistics (U.S. Department of Labor, 2010), the shift in the U.S. economy away from goods-producing in favor of service-providing occupations is expected to continue. After healthcare positions, the fastest growing occupations are computer specialists in information technology. Software engineering of computer applications positions also are expected to increase by 45% from 2008 to 2018, accounting for nearly one-

fourth of all new jobs in this industry sector. Demand for workers in computer and mathematical occupations will be driven by the continuing need for organizations to adopt and utilize the latest technologies. Further, given the growth of the Internet, demand for workers who can develop web applications is on the rise. For example, computer and mathematical science occupations are expected to grow more than twice as fast as the average for all occupations in the economy, adding almost 785,700 new jobs from 2008 to 2018.

Based on this literature, the technology industry is vital to the health and strength of the U.S. economy (Committee on Prospering in the Global Economy of the 21st Century, 2007). Further, the industry statistics suggest that the field is growing steadily and rapidly, resulting in high demands for qualified workers (U.S. Department of Labor, 2010). Given that women account for roughly 48% of the total workforce, female workers may represent a valuable and largely untapped resource for technical workers (The U.S. Equal Employment Opportunity Commission, 2009). The next section of this chapter examines the culture of technical fields and considers the opportunities and barriers this culture may introduce for women.

Technology Culture

> Normal people believe that if it ain't broke, don't fix it. Engineers believe that if it ain't broke, it doesn't have enough features yet. Scott Adams (BrainyQuote, 2011, para. 15)

Since 1989, the Dilbert comic strip has entertained American readers with the office humor of an engineer named Dilbert, who is a caricature of a typical

employee in the engineering field. The comic has been labeled *geek-related humor* and the prevailing stereotype is that geeks populate the field. Varma (2007) defined a *geek* as someone who has encyclopedic knowledge of computing and is obsessively fascinated by it, but is socially inept, exhibits odd personality traits, is absent of normal social and human interests, and spends his or her free time being social on a computer. Similarly, a participant in Margolis and Fisher's (2003) 4-year study of 100 male and female engineering students at Carnegie Mellon described an engineer as "a person in love with computers, myopically focused on them to the neglect of all else, living and breathing the worlds of computing, [and] 'at the computer 24/7'" (p. 65).

Further, Margolis and Fisher (2003) found that the dominant computer science culture does not allow space for other interests; consequently, students and employees in the field believe that an obsessive interest in computing is required for success. Wentling and Thomas' (2009) survey of 25 technical women further found that this field tends to be highly results-driven; competitive; challenging; fast-paced; and focused on intellectualism, logic, and problem solving. Participants also mentioned that the field requires a high level of accountability for their work. Kunda (1992) added that overload, long work days, and the ambiguity and uncertainty of work in technology places further pressure on these professionals. Due to these factors, high technology engineers often exhibit burnout. Ronen and Pines (2008) similarly found in her survey of 118 high-technology engineers in six Israeli firms that engineers exhibit higher levels of burnout than the national average.

The geek stereotype and the pressure to display single-minded devotion to computing may be particularly difficult for women. For example, although a substantial number of male and female students in Margolis and Fisher's (2003) study professed to reject the geek stereotype, twice as many women than men were distressed by the stereotype. Further, Ronen and Pines (2008) found that women engineers exhibited higher levels of burnout than men. Hewlett et al. (2008) elaborated that women in technology were more likely than women in all other industries to be coping with 100-hour workweeks (8% versus 3%), responding to 24/7 customer demands (36% versus 26%, and working across multiple time zones (54% versus 14%). In addition, women in technology tend to be in the minority in their departments, thus, leading to feelings of isolation.

In Margolis and Fisher's (2003) study, women attributed their burnout to family and time pressures, while men attributed their burnout to work-related factors. The study also found that men received more support from their peers, while women received more support from their families. Ronen concluded that women experience particular challenges in technical careers and simultaneously receive less support at work than men.

Further challenges for women in computing may be found in the historical roots of the field. Levy (1984) claimed that hackers founded the field and he depicted these individuals in his book, *Hackers: Heroes of the Computer Revolution*. He described a hacker's world as one without women, horribly inefficient and wasteful beings who take up precious memory space. While this might be considered a demonstration of a geek's social ineptness and personality quirks, this view of women has made its way into geek culture (Levy,

2010). Acceptance of the book in the industry is evidenced by Ben Fried, Google's chief information officer, who credited the book with his interest and success in the field.

Influencers of Success in the Field

Several studies have been conducted to determine the factors that lead to employees' success in technical fields. For example, Simard, Henderson, Gilmartin, Schiebinger, and Whitney (2008) surveyed 1,795 technical professionals (65.8% men, 34.2% women) to identify success factors and core work values among mid-level technologists. Joshi and Kuhn (2007) interviewed 40 information technology consultants (60% male, 40% female) identify the attributes of top performers in the field, from entry-level to upper-level consultants. Aasheim, Williams, and Butler (2009) surveyed 600 IT managers and workers to examine the knowledge and skills required of entry-level information technology workers.

These studies found that in addition to simply putting in long hours (Simard & Gilmartin, 2010), both hard technical skills as well as interpersonal competencies were believed to enhance success. One hard technical skill is analytical ability (Aasheim et al., 2009; Joshi & Kuhn, 2007; Simard & Gilmartin, 2010; Wentling & Thomas, 2009). In Simard et al.'s (2008) study, participants elaborated that employees needed to be engaged thinkers who work closely together. Maintaining and updating one's technical skills, working on cutting-edge technology, doing innovative work, and staying competitive also were important for success (Joshi & Kuhn, 2007; Simard & Gilmartin, 2010; Simard et al., 2008; Wentling & Thomas, 2009). Having these competencies in place also leads to

another employee success factor, which is having a reputation as technical expert and an identity as a technologist (Simard et al., 2008). Other factors related to hard skills include leadership ability (Joshi & Kuhn, 2007) and understanding how one's work contributes to the team's or organization's goals (Simard et al., 2008).

The research on success factors also pointed to several Interpersonal traits and competencies, including the ability to be collaborative and work in teams (Aasheim et al., 2009; Simard & Gilmartin, 2010; Simard et al., 2008; Wentling & Thomas, 2009) and the ability to network, which includes building and managing credible relationships (Joshi & Kuhn, 2007; Wentling & Thomas, 2009). Personality traits related to interpersonal competence include strong communication skills, honesty and integrity, and flexibility or adaptability (Aascheim et al., 2009; Simard & Gilmartin, 2010; Wentling & Thomas, 2009). Simard and Gilmartin (2010) added that taking risks, being entrepreneurial, and being assertive was necessary for success. Aascheim et al. observed that 9 of the 12 skills that participants ranked as important in their research concerned personal or interpersonal skills (rather than hard technical skills). Besides leadership and entrepreneurial traits, all other interpersonal and personal skills had a higher mean score than the highest ranked items in the technical skills category.

Reflecting on their findings, Joshi and Kuhn (2007) concluded that the factors needed for success were stereotypically masculine. However, they pointed out that softer skills, such as building relationships also were needed for success in information technology. . A participant in Kelly's (1995) survey study

of 426 women in engineering commented that women tend to be particularly gifted with essential communication and people skills that are needed for success.

In Simard et al.'s (2008) study, both men and women perceived dissonance between what it takes to be successful and who they were. Yet, a later study by Simard and Gilmartin (2010) found that women were comparable to men in having these attributes of success. For example, 77.8% of senior technical women stated they perceived themselves as analytical—similar to the proportion (84.6%) reported by their male colleagues. In addition, 77.8% of the women perceived themselves as questioning (compared to 77.1% of their male colleagues). Senior women also were significantly more likely to perceive themselves as working long hours and being more assertive than entry- to mid-level women

These collected findings emphasize the importance of interpersonal skills for success in technology (Aasheim et al., 2009; Joshi & Kuhn, 2007; Simard & Gilmartin, 2010; Simard et al., 2008; Wentling & Thomas, 2009). Additionally, findings by Simard and Gilmartin (2010) suggest that women in technology are equally able to be successful in these positions, although men and women alike may question their ability (Simard et al., 2008). Given the need for strong soft skills, it is possible that women may be even better equipped to succeed in the field than men. The next section more closely examines women in technology.

Women in Technology

The U.S. Department of Labor (2010) found that women comprise only 24.8% of computer and mathematical occupations and only 8.6% of the

computer hardware engineering occupations. Thus, it appears that science, engineering, and technology are male-dominated fields. Further, it appears that women's interest in these fields may be waning, as the Information Technology Association found that the proportion of women in technology fields decreased from 41% in 1996 to 32% in 2004 (cited in Simard, 2007). Similarly, women earned 37% of all technology degrees awarded in 1985 but only 18% of all technology degrees awarded in 2008 (The National Center for Women in Technology, 2009). This is even more startling given that women actually earned 57% of all bachelor's degrees awarded in 2008.

Two key studies have been conducted with the aim of understanding why women are not seeking computer science degrees in greater numbers: Margolis and Fisher (2003), who interviewed 100 male and female computer science students at Carnegie Mellon University from 1995 to 1999, and Brainard and Carlin (1997), who conducted a 6-year study of women in science and engineering classes at the University of Washington. Both studies concluded that a major factor affecting women in the field is lack of self-confidence and self-esteem. This was the factor that distinguished male and female students (rather than any differences in ability). Brainard and Carlin (1997) elaborated that many women suffered a drop of self-esteem in their skills during their first year of college and their self-esteem never recovered. In Margolis and Fisher's (2003) study, participants achieved roughly equal performance (men earned a mean grade point average of 2.83 versus women, who earned a mean grade point average of 2.89); yet, the women had less confidence than men. The researchers found that women who attribute their success to hard work rather

than to their ability started to doubt themselves when they perceived others not working as hard but achieving the same results as themselves.

Additional insights for the lack of women in the field may be found in Wentling and Thomas' (2009) study, in which participants reported that these fields are male-dominated and rather homogenous and not valuing of diversity. As a result, women themselves may feel outnumbered and undervalued. For example, in Kelly's (1995) study of women in engineering, some participants reported that their work environments were not welcoming due to the *old boys club,* a term that suggests that men are insiders at work and women are outsiders who are excluded. Similarly, Table 1 reports findings by Cummings, Sabattini, and Carter (2008) regarding the barriers women face in the technology field. Examination of the barriers suggests that women in this field face four types of obstacles:

1. Lack of role models, mentors, and social network. Lacking these resources limits the exposure women have to important opportunities and people within their organizations. It also means that they lose an important source of guidance and support as they seek to advance in their field.

2. Limited opportunities and career development support. Lacking opportunities for development means that women will have limited opportunities to build their skills and advance in their careers.

3. Stereotypes. Stereotypes refer to others in the organization having prejudgments about the women's ability and interest to excel. Stereotypes also can affect whether the women are included in the company.

Table 1

Individual Barriers to Career Advancement: Overall Sample

Barrier
Lack of role models, mentors, and social network Lacking role models in the company who are similar to me (38% of participants) Not having a mentor, sponsor, or champion who makes my accomplishments known to important people in the company (34% of participants) Being excluded from the important network of key decision makers (32% of participants)
Limited opportunities and career development support Having a limited number of important or special job assignments that are highly valued by higher-level managers (27% of participants) Not getting sufficient feedback that would allow me to improve my performance (20% of participants) Being seen as not having been in the pipeline long enough to be promoted (20% of participants)
Stereotypes Facing stereotypes about my commitment or abilities based on my gender (19% of participants) Not fitting the company image of how a leader should look and behave (18% of participants) Feeling like an outsider in the company because of my race, ethnicity, or nationality (7% of participants)
Limited flexibility and awareness of culture Not understanding the "unwritten rules" or norms of my company or department (21% of participants) Not having the necessary flexibility to manage work and personal life (12% of participants)

Note. Based on *Women in Technology: Maximizing Talent, Minimizing Barriers*, (p. 25), by H. Cummings, L. Sabattini, and N. Carter, 2008, Washington, DC: Catalyst.

4. Having limited flexibility and awareness of culture: Women often bear the brunt of family responsibilities (Hewlett & Luce, 2005); thus, they may have limits on their availability outside of normal work hours. Additionally, due to the other barriers women face, they may lack awareness of the organization culture and how to navigate their careers accordingly.

The researchers concluded based on their findings that the lack of women colleagues is a substantial obstacle to the advancement and success of women in technology.

The statistics and findings reviewed in this section reveal that the number of women in technology is steadily shrinking (The National Center for Women in Technology, 2009; Simard, 2007; U.S. Department of Labor, 2010). Key factors for this decline may be low self-confidence in women (Brainard & Carlin, 1997; Margolis & Fisher, 2003) and not feeling included or valued (Wentling & Thomas, 2009). They also face systemic barriers endemic to the nature of the field and organizations, including lack of role models, mentors, and a social network; limited opportunities and career development support; and stereotypes (Cummings et al., 2008). Additionally, their limited flexibility and lack of awareness of the organization's culture may further hamper their success and advancement.

Despite the findings that women are under-represented in technology and face significant barriers, it also is true that women may possess unique strengths in the essential soft skills needed for success in the field (Kelly, 1995). It is possible that women may leverage this in a manner that benefits their careers. The remainder of this chapter explores EI, including its role in technology and how women may utilize and leverage this to the benefit of their technical careers.

EI

Intelligence testing and possibly the beginning of rigorous study of intelligence date back to 1905 when Alfred Binet developed the first intelligence test for the French Ministry of Public Instruction (Cherniss, 2000). Over the years,

many scientists have tried to understand and accurately measure capability and intelligence. Psychologists have discovered that individuals who do well on one kind of intelligence test usually do well on other tests, leading them to believe there is another factor involved besides general intelligence. In 1940, Wechsler (cited in Cherniss, 2000) classified intelligence as *non-intellective* (consisting of affective and conative elements) and *intellective* (consisting of analytical, logical, and other elements). Wechsler argued that non-intellective abilities were essential for predicting ability to succeed in life. He emphasized that the non-intellective forms comprise a necessary aspect of intelligence. He added, "We cannot expect to measure total intelligence until our tests also include some measures of the non-intellective factors" (as cited in Cherniss, 2002, p. 103).

Gardner (1995) expanded on Wechsler's work, suggesting there are seven primary intelligences: linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, and intrapersonal. The last two of these intelligences Gardner referred to as social intelligence or EI. A review of literature indicates that an agreed upon and uniform definition for EI is lacking (Bar-On, 1997; Goleman, 1995; Mayer, Salovey, & Caruso, 2000; Salovey & Mayer, 1990). Current leading researchers and writers on this topic are Daniel Goleman, Reuven Bar-On, John Mayer, and Peter Salovey.

Goleman (1995) defined EI as "the capacity for recognizing our own feelings and those of others, for motivating ourselves, and for managing emotions well in ourselves and in our relationship" (p. 317). He categorized these competencies into four domains of skill: self-awareness, self-management, social awareness, and relationship management (Goleman, McKee, & Boyatzis, 2002).

Bar-On (1997) defined EI as “an array of non-cognitive capabilities, competencies, and skills that influence one’s ability to success in coping with environmental demands and pressures” (p. 2). Mayer et al. (2000) defined EI as “a type of social intelligence that involves that ability to monitor one’s own and other’s emotions, to discriminate among them, and to use the information to guide one’s thinking and actions” (p. 189). What all these definitions share in common is a combination of cognitive and emotional abilities in regards to one’s self and others.

Value of EI

Cherniss (2000) argued that EI has value in the workplace because competence with EI has benefits in handling stress, expressing emotion, and having empathy. These can translate into improved performance. Rosenthal (Rosenthal, Hall, DiMatteo, Rogers, & Archer, 1979) discovered that people who were able to identify with other’s emotions were more successful in both their personal and work lives. Lusch and Serpkenci (1990) found in their study of retail store performance that store managers who had the ability to cope with stress had better net profits. Gibbs (1995) found in his study of engineers at AT&T that interpersonal skills were rated by top performers as being more important than general intelligence. Barsade (1998) found that actors who projected enthusiasm were able to influence a group to improve cooperation and performance. Lopes, Grewal, Kadis, Gall, and Salovey (2006) conducted a study of 44 analysts and clerical employees in Fortune 400 insurance companies to test if EI contributed to work performance (as reflected in salary and rank) by enabling people to build positive work relationships. They found that EI was related to several indicators

of work performance, including company rank, percent of merit increase, and interpersonally oriented behaviors that contribute to organizational goal accomplishment.

Vigoda-Gadot and Meisler (2010) surveyed 809 employees and managers to examine the effects of EI at work. They found that employees with a high level of EI are more dedicated and satisfied at work, making themselves valuable assets to their organizations. Those employees high in EI also tended to be lower in burnout and have fewer intentions to leave their current position.

Goleman (1998), a psychologist and author on EI, asserted that EI abilities were about four times more important than general intelligence in determining professional success and prestige, even for those with a scientific background. The next section examines the role of EI in technology in more detail.

EI in Technology

Rosenbaum (1986) explored what critical skills technical professionals needed to be successful. He concluded that technologists would increasingly need to work effectively on teams and interact with people with varying backgrounds, which require effective interpersonal skills. His research concluded that effective communication skills were critical to read others' cues, empathize with others, test for acceptance, clarify their own and others' needs, communicate their ideas and their projects' benefits, gain commitment from others, reinforce others' positive responses, create need awareness, and handle objections. These concepts relate to competence in EI.

Molen, Schmidt, and Kruisman (2007) suggested that inventing, designing, and building is only part of an engineer's role. They also have to

convince us to use the technology they create. Interested in the stereotype of an engineer as a male nerd, Molen et al. studied 103 engineers (100 men and 3 women) to better understand their personality characteristics. They found that engineers were more autonomous and less friendly than ordinary people. Their recommendation was that during their education, more attention should be paid to developing interpersonal skills. It is notable that their sample was almost exclusively male. It is possible that had the sample been more balanced, the researchers may have found the women engineers to be more personable (Kelly, 1995).

Similar to Molen et al. (2007), Riemer (2003) suggested that engineering students could benefit from EI and, specifically, that EI could enhance a student's learning ability. Reimer states that EI is important for the following reasons:

1. Individuals differ in their ability to harness their own emotions in order to solve problems.

2. Emotions and moods can subtly (but systematically) influence one's approaches to problem solving.

3. Positive emotion can affect memory organization so that cognitive material is actually better integrated and diverse ideas are seen as being more interrelated.

4. Emotions and moods may be used to motivate and assist in improved performance at complex intellectual tasks.

5. Mood swings may contribute to a wider generation of potential future outcomes—including failure as well as success.

6. Positive moods can facilitate more creative responses.

Summarizing the arguments of these authors who span 20 years of study, emotionally intelligent individuals are able to solve problems adaptively, are more competent in integrating emotional considerations when considering their alternatives, and are more effective at working with others. Given that interpersonal competencies have been named as critical success factors for careers in technology (Aasheim et al., 2009; Joshi & Kuhn, 2007; Simard & Gilmartin, 2010; Simard et al., 2008; Wentling & Thomas, 2009), it follows that EI is important for engineers and other technical professionals. The next section examines women's use of EI in technology.

Women Use of EI in Technology

Alborghetti (1998) wrote about the shortage of quality assurance engineers and how these positions can be the most rewarding in engineering. He cited Warwick, a quality control engineering manager, who emphasized the importance of interpersonal skills. Warwick stated that the stereotype of the intense engineer is inaccurate and that with the humanizing of the test and quality control field, women are in an ideal position to fill these roles.

Lerouge, Newton, and Blanton (2005) surveyed 124 systems analysts to gain an understanding of the system analyst skill set and the impact of age and gender. For the research, Lerouge measured interpersonal skills, political skills and knowledge, system development task skills, technology skills, and business task knowledge to assess the perceptions of importance and preference to use that particular skill. The results stated that systems analysts recognized the requirement of mental, manipulative, and interpersonal skills. Both genders rated interpersonal skills as more important than system development task skills.

Lerouge further found that women had raised awareness of the importance of these skills and considered them more important than men did.

Although there is a paucity of studies examining the use of EI among women in technology, there is strong indication that women may be particularly effective in using EI competencies. Therefore, women may actually face distinct advantages in the historically male-dominated and "geeky" technical fields. The purpose of this study was to examine the use of EI and perceptions of success and burnout among women in technology careers. Therefore, this study should make an important and needed contribution to the literature.

Summary

There has been an increasing amount of research on what skills are needed to be successful in a technical field. These findings have pointed to the need for a diverse set of skills. There has also been an increase in research to understand the differences between men and women in technology. The aim of much of this research has been to better understand the impact of a male-dominated field on women. While several studies have suggested that interpersonal and, specifically, EI skills are related to success in technical professions, there is little research on women's use of EI in technology.

This study examined the use of EI and perceptions of success and burnout among women in technology careers. The remaining chapters document the exploration of this topic. This study added to the body of knowledge regarding the ways these women define success, use EI, and can use EI to be successful. The knowledge gained can be useful in further exploring and enabling the success of women in engineering.

Chapter 3

Methods

This chapter describes the methods used in this study. Specific topics include the research design, the research sample and procedures related to sampling, measurement, and data analysis.

Research Design

This study used a mixed method design, which involves both quantitative and qualitative approaches to gather data (Creswell, 2003). This study gathered data using three surveys and one interview. Quantitative research focuses on identifying and gathering data to measure a relatively small number of variables from a rather large population. Statistical calculations and tests are then used to assess and determine the relationships among the variables. In contrast, qualitative research focuses on gathering data about a wide range of variables from a rather small sample. The variables may or may not be fully identified at the start of the research in qualitative approaches. Content or thematic analysis approaches are then used to determine the results.

The qualitative and quantitative portions of the research may be conducted sequentially or simultaneously (Creswell, 2003). If conducted sequentially, either form of research may precede the other. The decision of how to conduct both forms of research typically depends upon purpose and the nature of the research. A sequential approach is helpful when the researcher uses one form or phase of research to inform the next form or phase of research.

This study utilized a simultaneous design, as no data were analyzed until all data collection was complete. First, quantitative and qualitative data were

collected using a custom-designed survey. Second, quantitative data then were collected from this sample using two surveys and qualitative data were collected using one in-depth interview. This approach allowed the researcher to generate a broad understanding of the variables being studied; namely, their definitions of success, perceived success factors, use of EI, and relationship between EI and perceived success.

A primary benefit of mixed method approaches are their flexible use of both quantitative and qualitative data to draw insights about the phenomena being studied. Further, the qualitative data can be used to help interpret the quantitative data and vice versa (Creswell, 2003). However, caution should be taken when selecting a mixed method approach, as its use of multiple forms of research requires that the researcher be at least conversant in both qualitative and quantitative research approaches. Further, conducting multiple phases of research and gathering more than one form of data can mean that the research takes more time and effort to complete.

Sampling Procedures

Sampling procedures concern issues of sample size, sampling strategy, selection criteria, selection procedures, and ethical considerations. These aspects of sampling are described in the sections below.

Sample Size

Quantitative sample sizes are generally large, whereas qualitative sample sizes are relatively small. The target sample size for this study was 20 to 25 participants, due to concerns of being minimally sufficient and manageable for the interview portion of the study. The ultimate sample size was 23.

Strategy

A combined strategy of convenience and criterion sampling was used for this study (Miles & Huberman, 2004). Convenience sampling involves locating potential participants through the researcher's personal and professional networks, while criterion sampling means that the participants must meet certain selection criteria to qualify to take part in the study.

Selection Criteria

Participants had to satisfy the following qualifications to take part in the study:

1. The participant needed to be female, as the study focused on women's experiences in technology.

2. The participant needed to have graduated from college with a technical degree from the School of Engineering, School of Computer Science, or a similar school or the participant needed to work or needed to have worked in a technical position (e.g., engineer, technology, information technology or a similar organization) for 5 years or more. This criterion assured that the participant had ample educational or professional experience in a male-dominated technical field.

Selection Procedures

The researcher sent an invitation to participate in the study to her personal network (see Appendix A). A total of 157 women responded, met the study criteria, and completed the initial survey. A total of 23 of these respondents were randomly selected for inclusion in the study. These 23 respondents then received an invitation to proceed with the second phase of data collection (see Appendix

B), which consisted of two surveys and an interview. This second invitation reiterated the purpose of the study, what this phase of participation included, and details to facilitate the scheduling for the interview. A reminder email was sent 2 weeks after the initial invitation to any participants that had not scheduled their interview. Following completion of the data analysis, a thank-you letter was emailed to all participants.

Participant Demographics

Roughly half the participants were aged 31 to 35 years (see Table 2). Additionally, more than half were Caucasian and married.

Table 2

General Demographics

Age	Ethnicity	Marital and Family Status
20-25 (1)	Caucasian (14)	Married (13)
26-30 (4)	Asian (6)	Significant Other (3)
31-35 (11)	Black (1)	Single (6)
36-40 (3)	Hispanic (1)	Divorced (1)
41-45 (2)	Middle Eastern (1)	
46-50 (0)		1 or more children (8)
51-55 (0)		No children (15)
56-60 (2)		
60+ (0)		

N = 23

The highest educational achievement for approximately half the sample was a computer-related bachelor's degree (see Table 3). Seven participants had earned a master's and two had earned a doctorate.

Half the participants were on a technical track (see Table 4). A range of technical industries were represented, including Internet (*N* = 8) and computer hardware or software (*N* = 4) companies. Nearly half (*N* = 10) of the participants reported to an engineering organization within their companies.

Table 3

Educational Achievement

Educational Attainment	Degree focus
High school (1) Bachelors (13) Masters (7) Doctorate (2)	Bachelor Degree Type • Bachelors of science (17) • Bachelors of art (4) • Bachelors of technology (1) Bachelor's Major • Computer-related (10) • Engineering-related (6) • Business, humanities, or social sciences (3) • Sciences (3) • Unknown (1) Master's Focus • Computer-related (2) • Engineering-related (2) • Business, humanities, or social sciences (4) • Sciences (1)

N = 23

Table 4

Professional Achievement

Career Track	Industry	Organization
Technical (13) Managerial (6) Other (4) • Both • Changing Careers • Self-employed • Technical manager	Internet (8) Computer hardware or software (4) Consulting (2) Defense (2) Finance, insurance, real estate (1) Government (1) Nonprofit (1) Retail (1) Services (1) Semiconductor (1) Unknown (1)	Engineering (10) Information technology (3) Quality Assurance (3) Operations (2) Technology (2) Self-employed (1) Development (1) Unknown (1)

N = 23

Nearly half the participants (*N* = 11) reported having 11 to 15 years experience in the technical field (see Table 5). Participants reported a wide range of tenure with their companies (range: 0 to 28 years, mean = 4.74 years, *SD* =

5.96 years) and a relatively wide range of tenure in their positions (range: 0 to 8 years, mean = 2.22 years, *SD* = 1.86 years). Most participants (*N* = 19) were not currently in management, although 12 reported having management experience in the field.

Table 5

Experience in the Technical Field

Tenure	Management Experience
Years in field 0-5 (2) 6-10 (7) 11-15 (11) 16-20 (0) 21-25 (1) 26-30 (2) 30+ (0) Years with Current Company Range: 0-28 years Mean: 4.74 years *SD*: 5.96 Years in Current Position Range: 0-8 years Mean: 2.22 years *SD*: 1.86	Currently in management Yes (4) No (19) Management experience in the field Yes (12) No (11) Years as manager in the field (*N* = 12) 0-5 (7) 6-10 (4) 11-15 (0) 16-20 (0) 21-25 (1) 26-30 (0) 30+ (0)

N = 23

Ethical Considerations

Institutional approval to conduct the study was obtained by the Pepperdine University's Institutional Review Board. In addition, the researcher completed the Protecting Human Research Participants web-based training course sponsored by the National Institute of Health on September 25, 2009 and received the certification number 304847.

The introductory cover letter (see Appendix A) outlined the study and the voluntary nature of participation for study candidates. Participants gave consent

to participate in the study by completing the survey. There were no apparent risks, costs, or financial incentives to participate in this study.

All participants' responses were kept confidential. Only aggregate data were reported in the results. The data were safeguarded in a password-protected electronic database on the researcher's computer. Participant data were labeled using a code to conceal their identities. Research data were stored securely on the researcher's personal computer.

Measurement

Four instruments were used to collect quantitative and qualitative data from the participants. These included the Women in Technology Survey, the Maslach Burnout Inventory, the PeopleIndex Assessment, and an in-depth interview. These instruments are described in the sections below.

Women in Technology Survey

The researcher developed the Women in Technology Survey to collect participants' demographic data, work history, turnover intentions, perceptions of their satisfaction and success, and perceptions of the value and instrumentality of EI for their careers (see Appendix C). The survey contained a total of 35 short answer and fixed choice questions organized into the following categories:

1. Items 1 through 7 collected participants' contact information and preferences for interview schedules.

2. Items 8 through 11 collected demographic details such as age, marital status, number of children, and ethnicity.

3. Items 12 through 15 collected information about their educational attainment.

4. Items 16 through 18 collected information about participants' career aspirations and general information about their perceived success, satisfaction, and burnout.

5. Items 19 through 24 collected their perceptions about EI and its role in achieving success in the technical field.

6. Items 25 through 35 collected information about participants' work experiences, including current employer, industry, current organization, title, years worked, career stages, years in current field, and manager status.

Data analysis for the Women in Technology Survey consisted of the following steps:

1. Demographic data were tabulated to provide a profile of the participants.

2. Participants' self-evaluations of their career success were used to create subgroups for continued analysis.

3. Perceptions of the value of EI for their careers was tabulated and analyzed by participant subgroup.

Maslach Burnout Inventory

The Maslach Burnout Inventory was developed by Christina Maclach and Susan E. Jackson (Maslach & Leiter, 1997) and was purchased from Mind Garden, Inc., for use in this study. The survey measures burnout in human service, education, business, and government professions. This study utilized the Maslach Burnout Inventory—General Survey, which measures three variables:

1. Emotional exhaustion, which assesses the participant's fatigue from work.

2. Cynicism, which assesses the participant's indifference or distant attitude toward work.

3. Professional efficacy, which measures the participant's expectations of continued effectiveness at work.

The researcher emailed participants an invitation to complete the online survey and were asked to do so before their interview. The survey was scored by Mind Garden, Inc., which returned each participant's scores to the researcher for the three burnout variables that were measured. These scores were analyzed for the whole group and compared by subgroup as an indicator of participants' level of success.

PeopleIndex Assessment

The PeopleIndex Assessment was developed by Kenneth M. Nowack, Ph.D., and purchased from Envisia Learning for use in this study. The PeopleIndex Assessment allows for a self-assessment of 17 EI competencies (see Appendix D) grouped into three core EI competencies of self-management, relationship management, and communication. Participants were emailed an invitation to complete the online assessment and were asked to do so before their interview. Envisia Learning analyzed the results and provided the researcher with a report of each participant's scores for the 17 EI competencies and the three core competencies. These scores were used to indicate the participants' utilization of EI. Scores were reported for the group as a whole and compared across the success subgroups.

Interview Procedures

Each participant took part in a one-on-one, 1-hour, in-person interview. Interviews were held at a mutually convenient time and place. Before the interview began, the researcher confirmed that the participant had completed the PeopleIndex Assessment and the Maslach Burnout Inventory and had signed a consent form (see Appendix E).

At the start of the interview, the researcher reiterated the purpose of the study, the participant's rights, and an overview of the interview. Time also was provided for the participant to voice any questions they had.

The researcher then asked permission to audio-record the interview. When the participant consented to the recording, the researcher placed a digital voice recorder on the table and began the recording.

The researcher followed the interview script (Appendix F) and took handwritten notes. The researcher refrained from sharing any her personal views about EI or the technology field during the interviews. The interview script consisted of 10 questions designed to gather information about participants' perceptions and definitions of success (Questions 1-4), experiences with and perceptions about EI (Questions 5-7), and turnover intentions (Questions 8 and 9). The final question asked participants for suggestions of other study candidates.

The following steps were used to analyze the interview data:

1. The researcher reviewed her interview notes and listened to the audio-recordings to develop a general understanding of the nature of the data gathered.

2. The researcher then identified the themes evident for each question.

3. Themes were then analyzed across interview questions to determine the broad themes participants reported for definitions of success (Research Question 1), success factors (Research Question 2), use of EI (Research Question 3), and relationship between EI and success (Research Question 4).

4. The number of participants reporting each theme was calculated when the analysis was complete.

5. A second coder reviewed the results of the data analysis to confirm the validity of the analysis.

Data Analysis

The data from each instrument was analyzed as described in the measurement section. The data from all four instruments then were combined to provide an assessment for each research question, as indicated in Table 6.

Table 6

Data Analysis Procedures

Research Question	Analysis Procedures
1. How do women in technology define success?	• Content analysis of interview data
2. What factors influence success for women in technology?	• Content analysis of interview data
3. To what extent do women in technology utilize EI?	• PeopleIndex Assessment results • Content analysis of interview data
4. Does a relationship exist between EI and success for women in technology careers?	• Women in Technology results • Content analysis of interview data • Correlational analyses among PeopleIndex results, Maslach Burnout results, and perceived success
5. Do the definitions of success, success factors, use of EI, and value of EI vary based on a woman's degree of career success?	• Comparison of the results for each research question by subgroups created based on participants' perceived career success

In addition to generating a report of the results, the data were analyzed and compared across subgroups based on the participants' perceived level of career success. A correlational analysis also was completed for key variables. This step was taken to gain insight about how the women's views may vary based on the level of success they believe they have achieved in answer to Research Question 5.

Summary

This study utilized a mixed method approach consisting of three surveys and one in-depth interview. The surveys utilized included a custom-built Women in Technology survey, the Maslach Burnout Inventory, and the PeopleIndex Assessment. A total of 23 female participants who earned a technical degree or who had a minimum of 5 years' experience in a technical field participated in the study. Content and statistical analyses were performed on the data to answer the research questions. The next chapter reports the results.

Chapter 4

Results

This study examined the use of EI and perceptions of success and burnout among women in technology careers. This chapter reports the results. First, participants' satisfaction and intent to stay are reported by subgroup. Second, participants are placed into low, medium and high subgroups based on their self-reports of low, medium, and high-perceived success in the Women in Technology survey and burnout results are reported. Third, the results for each research question, including participants' definitions of success, influencers of success, utilization of EI, and relationship between EI and success are reported.

Satisfaction and Intent to Stay

Most participants (70% of the sample) agreed or strongly agreed that they were satisfied with their careers in technology. Four were neutral and three disagreed with this statement. Over half the participants generally did not have plans to leave the technical field, as 16 participants reported it was very unlikely, unlikely, or somewhat unlikely that they would leave within 0 to 2 years and 14 provided similar responses for the 3- to 5-year range (see Table 7). Only within the projected 5 to 10 year range showed a shift, as 39% participants were undecided regarding their turnover intentions and 30% were somewhat likely, likely, or very likely to leave the field.

Burnout: Participants Grouped by Perceived Success

This study aimed to determine whether participants' use of EI varied based on their perceived level of career success. Therefore, a first step in analysis was dividing the total sample into subgroups based on their self-

Table 7

Intention to Leave the Industry

Turnover Intention	Within 0-2 years	Within 3-5 years	Within 5-10 years
Unlikely	16 (71%)	14 (61%)	7 (30%)
Very unlikely	8	3	1
Unlikely	7	5	3
Somewhat unlikely	1	6	3
Undecided	3 (13%)	4 (17%)	9 (39%)
Likely	4 (17%)	5 (22%)	7 (30%)
Somewhat likely	3	3	2
Likely	1	1	1
Very likely	0	1	4

N = 23

reported and self-evaluated career success. On the Women in Technology survey, four participants (30% of the sample) neither agreed nor disagreed they were successful. This subgroup was labeled the *low perceived success* group. Twelve participants (52% of the sample) agreed they were successful. This subgroup was labeled the *medium perceived success* group. The remaining four participants (17% of the sample) strongly agreed they were successful and comprised the *high perceived success* group. The following sections provide a report of the burnout results for each group. The definitions and rating scales for the burnout variables were as follows:

1. Exhaustion: Degree of fatigue experienced. Rating scale: low = 0-7 moderate = 8-15, high = 16 or over.

2. Cynicism: Coping with work demands through indifference or having a distant attitude toward work. Rating scale: low = 0-5, moderate = 6-12, high = 13 or over.

3. Professional efficacy: Expectations of continued effectiveness at work. Rating scale: low = 0-23, moderate = 24-29, high = 30 or over.

Low Perceived Success Subgroup

The low perceived success subgroup consisted of four participants. When asked whether they felt successful today, two answered affirmatively, one responded that she was sometimes successful, and the remaining participant reported that she was not successful. On average, the group reported moderate exhaustion, high cynicism, and moderate professional efficacy (see Table 8). Two participants shared that their burnout manifested as a lack of motivation, energy, and focus. One of these participants also mentioned that her burnout manifested as poor eating habits.

Table 8

Degree of Burnout: Low Perceived Success Subgroup

Component	Scale	Range	Mean	*SD*
Exhaustion	Low = 0-7, Moderate = 8-15, High = 16 or over	3-21	14.5	7.94
Cynicism	Low = 0-5, Moderate = 6-12, High = 13 or over	5-28	19.75	10.24
Professional Efficacy	Low = 0-23, Moderate = 24-29, High = 30 or over	21-33	25.75	5.50

N = 4

Medium Perceived Success Subgroup

The medium perceived success subgroup consisted of 12 participants. On average, the group reported high exhaustion, high cynicism, and moderate professional efficacy (see Table 9).

This group reported five key ways that their burnout manifested. Seven of the 12 participants stated they lacked motivation, energy, and focus. One participant elaborated, “At some point, you lose your motivation. There isn’t a light at the end of the tunnel. I don’t see how it is possible. It’s overwhelming.”

Table 9

Degree of Burnout Experienced: Medium Perceived Success Subgroup

Component	Scale	Range	Mean	*SD*
Exhaustion	Low = 0-7, Moderate = 8-15, High = 16 or over	4-30	27.08	8.47
Cynicism	Low = 0-5, Moderate = 6-12, High = 13 or over	4-28	23.25	7.82
Professional Efficacy	Low = 0-23, Moderate = 24-29, High = 30 or over	21-36	28.5	5.76

N = 12

Another shared, “I’m just not excited to go to work. The day drags on and it takes me much longer to do anything. I’ll check my email twice as much.” Three participants mentioned that when they are burned out, they have a negative attitude characterized by irritability, complaining, and a short temper. Other manifestations included physical ailments and trouble sleeping (two participants) and interpersonal problems (one participant). These results are shown in Table 10.

Table 10

Signs of Burnout Exhibited: Medium Perceived Success Subgroup

Sign of Burnout	*N* (%)
Lack of motivation, energy, and focus	7 (58%)
Negative attitude	3 (25%
Physical ailments	2 (17%)
Interpersonal problems	1 (8%)
Professional errors	1 (8%)
No response	3 (25%)

N = 12

High Perceived Success Subgroup

The high perceived success subgroup consisted of seven participants. Nearly three quarters (71%) of these participants reported that they felt successful today, while 29% reported that they are sometimes successful. On

average, the group reported moderate exhaustion, moderate cynicism, and high professional efficacy (see Table 11).

Table 11

Degree of Burnout Experienced: High Perceived Success Subgroup

Component	Scale	Range	Mean	*SD*
Exhaustion	Low = 0-7, Moderate = 8-15, High = 16 or over	0-14	9.14	4.98
Cynicism	Low = 0-5, Moderate = 6-12, High = 13 or over	5-14	9.14	3.08
Professional Efficacy	Low = 0-23, Moderate = 24-29, High = 30 or over	26-36	31.71	3.20

N = 7

This group reported five key ways that their burnout manifested (see Table 12). Three of the seven participants stated that when they are burned out, they have a negative attitude characterized by irritability, complaining, and a short temper. One explained, “Apathy sets in. I simply don’t care anymore.” Two participants cited physical ailments and trouble sleeping. Other manifestations of burnout included interpersonal problems, professional errors, and poor eating habits.

Table 12

Signs of Burnout Exhibited: High Perceived Success Subgroup

Sign of Burnout	*N* (%)
Negative attitude	3 (43%)
Physical ailments	2 (29%)
Interpersonal problems	1 (14%)
Professional errors	1 (14%)
Poor eating habits	1 (14%)
No response	3 (43%)

N = 7

Comparison of the Subgroups

Comparing the degree and manifestations of burnout across the subgroups surfaced some differences (see Table 13). The highest exhaustion and cynicism was reported by the medium perceived success subgroup, while the highest professional efficacy was reported by the high perceived success group.

Table 13

Comparison of Burnout across Subgroups

	Low *N* = 4 *N* (%)			Medium *N* = 12 *N* (%)			High *N* = 7 *N* (%)		
Component	Range	Mean	*SD*	Range	Mean	*SD*	Range	Mean	*SD*
Exhaustion	3-21	14.5	7.94	4-30	27.08	8.47	0-14	9.14	4.98
Cynicism	5-28	19.75	10.24	4-28	23.25	7.82	5-14	9.14	3.08
Professional Efficacy	21-33	25.75	5.50	21-36	28.5	5.76	26-36	31.71	3.20

Although the analysis of variance results suggested that these differences in means by subgroup were not statistically significant (see Table 14), the Pearson correlation results (see Table 15) suggested there was a negative and significant relationship between believing one has had a successful career and cynicism (p = 0.03). This suggests that as the perception of success increases, the level of cynicism decreases and vice versa. Importantly, causality and the direction of influence cannot be determined based on a correlational analysis.

Table 14

Analysis of Variance for Burnout Variables by Subgroup

Variable	df	F	Significance
Exhaustion	2,20	2.48	.11
Cynicism	2,20	2.75	.08
Professional Efficacy	2,20	1.87	.18

Table 15

Correlation between Perception of Successful Career and Burnout Variables

Variable	Correlation	Significance
Exhaustion	-0.30	0.16
Cynicism	-.46*	0.03
Professional Efficacy	0.40	0.06

Comparing the manifestations of burnout across subgroups reveals that more participants in the medium perceived success group reported burnout symptoms and a greater number of symptoms than participants in any other group (see Table 16). The burnout statistics (see Table 13) combined with the reported burnout symptoms suggest that the medium perceived success group experienced burnout to a stronger degree than the low perceived success group or the high perceived success group.

The remaining sections in this chapter provide a report of the data for each research questions. Definitions of success are provided first, followed by influencers of success, utilization of EI, and the relationship between EI and success.

Table 16

Comparison of Burnout Symptoms across Subgroups

Sign of Burnout	Low *N* = 4 *N* (%)	Medium *N* = 12 *N* (%)	High *N* = 7 *N* (%)
Number of participants reporting symptoms	2 (50%)	9 (75%)	4 (57%)
Symptoms			
Lack of motivation, energy, and focus	2 (50%)	8 (67%)	0 (0%)
Negative attitude	0 (0%)	3 (25%)	3 (43%)
Physical ailments	0 (0%)	2 (17%)	2 (29%)
Interpersonal problems	0 (0%)	1 (8%)	1 (14%)
Professional errors	0 (0%)	1 (8%)	1 (14%)
Poor eating habits	1 (25%)	0 (0%)	1 (14%)

Research Question 1: How do Women in Technology Define Success?

Participants were asked to define success. Their responses suggested that success was comprised of eight components (see Table 17): others' perceptions (mentioned by 70% of all participants); feelings of happiness and excitement (mentioned by 52% of all participants); making a difference (mentioned by 39% of all participants); internal satisfaction (mentioned by 26% of all participants); reaching set goals (mentioned by 22% of all participants), helping to develop others (mentioned by 22% of all participants); work life balance (mentioned by 17% of all participants); and money, rewards, and promotion (mentioned by 9% of all participants).

Table 17

Participants' Definitions of Success

Definition	*N* (%)
Others' perceptions	16 (70%)
Feelings of happiness and excitement about work	12 (52%)
Making a difference	9 (39%)
Internal satisfaction	6 (26%)
Reaching set goals	5 (22%)
Helping to develop others	5 (22%)
Work life balance	4 (17%)
Money, rewards, and promotions	2 (9%)

N = 23

Regarding others' perceptions and feedback (mentioned by 70% of participants), participants explained that feedback from peers, recognition, and having their own opinions valued were signs of success. One participant explained it as "being competent and seen as competent—known as solving problems and knowing what I'm talking about."

Regarding feelings of happiness and excitement (mentioned by 52% of participants), one participant described it as “being in a position I truly enjoy.” Another noted, “If I am successful, I am waking up energized and enthusiastic.” Sample quotes for each of the identified themes are provided in Appendix G.

Differences emerged when comparing the definitions of success by subgroup (see Table 18). The theme of others’ perceptions was mentioned more frequently by the medium and high perceived success groups: only 25% of the low perceived success group reported this theme, compared to 67% of the medium success group, and 100% of the high success group. Additionally, work-life balance was mentioned more often by the low success group: 50% of the low perceived success group reported this theme, compared to only 8% of the medium success group and 14% of the high success group.

Table 18

Participants’ Definitions of Success by Subgroup

Definition	Low *N* = 4 *N* (%)	Medium *N* = 12 *N* (%)	High *N* = 7 *N* (%)
Others’ perceptions	1 (25%)	8 (67%)	7 (100%)
Feelings of happiness and excitement about work	2 (50%)	7 (58%)	3 (43%)
Making a difference	1 (25%)	5 (42%)	3 (43%)
Internal satisfaction	1 (25%)	3 (25%)	2 (29%)
Reaching set goals	0 (0%)	3 (25%)	2 (29%)
Helping to develop others	0 (0%)	3 (25%)	2 (29%)
Work-life balance	2 (50%)	1 (8%)	1 (14%)
Money, rewards, and promotions	0 (0%)	1 (8%)	1 (14%)

Research Question 2: What Factors Influence Success for Women in Technology?

Participants were asked to define the key components of their success. They reported eight key components (see Table 19): EI (mentioned by 83% of

participants); support (mentioned by 39% of participants); professional drive (mentioned by 35% of participants); skills, talent, and education (mentioned by 35% of participants); cognitive ability (mentioned by 26% of participants); dedication and ability to deliver (mentioned by 22% of participants); confidence (mentioned by 17% of participants); and the ability to negotiate (mentioned by 13% of all participants).

Regarding factors that promote success, the most commonly cited success factor was EI competency (see Table 19). Participants described networking and relationship management behaviors, self-management behaviors, and communication. One participant explained that her "ability to build effective relationships and foster those relationships" influenced her success. Sample quotes for each of the identified themes are provided in Appendix G.

Table 19

Factors that Promote Success

Definition	*N* (%)
Emotional intelligence • Relationship management (16) • Self-management (12) • Communication (6)	19 (83%)
Support from a manager, mentor, or family member	9 (39%)
Professional drive and ambition	8 (35%)
Skills, talent, and education	8 (35%)
Cognitive ability	6 (26%)
Dedication and ability to deliver	5 (22%)
Confidence	4 (17%)
Ability to negotiate	3 (13%)

N = 23

Differences emerged when comparing the factors that promote success by subgroup (see Table 20). The high perceived success group stressed EI (mentioned by 71% of the high success group) and professional drive and

ambition (mentioned by 57% of the high success group). The medium perceived success group also stressed the importance of EI (mentioned by 100% of the medium success participants). The low perceived success group stressed skills, talent, and education (mentioned by 75% of the low success participants).

Table 20

Factors that Promote Success by Subgroup

Definition	Low *N* = 4 *N* (%)	Medium *N* = 12 *N* (%)	High *N* = 7 *N* (%)
Emotional intelligence	2 (50%)	12 (100%)	5 (71%)
Support	2 (50%)	5 (42%)	2 (29%)
Professional drive and ambition	0 (0%)	4 (33%)	4 (57%)
Skills, talent and education	3 (75%)	3 (25%)	2 (29%)
Cognitive ability	1 (25%)	4 (33%)	1 (14%)
Dedication and ability to deliver	2 (50%)	3 (25%)	0 (0%)
Confidence	0 (0%)	2 (17%)	2 (29%)
Ability to negotiate	1 (25%)	2 (17%)	0 (0%)

Participants also were asked to define factors that hinder their success (see Table 21). Their responses suggested five key barriers challenges due to gender (mentioned by 39% of participants); unsupportive managers (mentioned by 35% of participants); self-imposed limitations (mentioned by 26% of participants); working excessive hours (mentioned by 13% of participants); and not being appreciated (mentioned by 9% of participants). Additionally, 13% of the participants stated that they had not experienced any barriers to their success. Notably, each challenge was cited by less than one fifth of the total group.

Regarding gender-related challenges, participants cited difficulties with making friendships with men, meeting the personal demands of motherhood, having to prove their value, competing with other women, and lacking female role models. One participant expressed,

Table 21

Factors that Hinder Success

Barrier	*N* (%)
Challenges due to gender • Challenges making friendships with men (3) • Personal demands of motherhood (3) • Having to prove your credibility and value because you are a woman (3) • Competition with other women (2) • Lack of female role models (1)	9 (39%)
Unsupportive managers	8 (35%)
Self-imposed limitations • High expectations (3) • Taking on too much or experiencing burnout (2) • Low confidence and not taking risk (1)	6 (26%)
Working excessive hours	3 (13%)
Not being appreciated	2 (9%)
None	3 (13%)

N = 23

> I can talk forever about having to do work in a man's world. I was a single mother. . . . Guys ignore everything that I said. They still do. To the guys who are younger, I have to prove myself all over again.

Sample quotes for each of the identified themes are provided in Appendix G.

Differences emerged when comparing the factors that hinder success by subgroup (see Table 22 and Figure 1). Participants in the low perceived success group equally mentioned all five barriers, while participants in the medium perceived success emphasized gender-related challenges. The high perceived success group perceived fewer barriers and fewer participants in this group overall identified any barriers.

Table 22

Factors that Hinder Success by Subgroup

Barrier	Low *N* = 4 *N* (%)	Medium *N* = 12 *N* (%)	High *N* = 7 *N* (%)
Challenges due to gender	2 (50%)	7 (58%)	0 (0%)
Unsupportive managers	1 (25%)	5 (42%)	2 (29%)
Self-imposed limitations	2 (50%)	2 (17%)	2 (29%)
Working excessive hours	2 (50%)	1 (8%)	0 (0%)
Not being appreciated	2 (50%)	0 (0%)	0 (0%)
None	0 (0%)	1 (8%)	2 (29%)

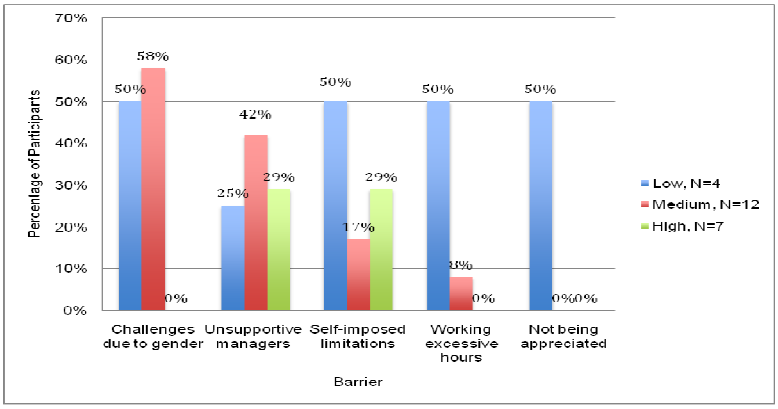

Figure 1

Factors that Hinder Success by Subgroup

Research Question 3: To What Extent do Women in Technology Utilize EI?

Participants completed the PeopleIndex Emotional Intelligence Assessment, which provides a self-assessment of 74 EI behaviors organized into 17 EI competencies. These 17 competencies are further grouped into three competency factors of self-management (the ability to manage your own behavior), relationship management (the ability to manage relationships with others), and communication (the ability to share information with others). The results are presented in Table 23. Participants reported a rather high response for all three factors: mean scores ranged from 5.19 (*SD* = 0.79) for relationship

management to 5.50 (*SD* = 0.74) for communication. The overall mean across all three factors for all participants was 5.34 (*SD* = 0.69).

Table 23

PeopleIndex—Emotional Intelligence Assessment Results

	Range	Mean	*SD*
Self-Management	4.07-6.60	5.33	0.64
Relationship Management	3.59-6.70	5.19	0.79
Communication	4.02-6.80	5.50	0.74
Overall	3.89-6.70	5.34	0.69

N = 23; Scale: 1 = low, 7 = high

The self-management factor consisted of six competencies: self-development, adaptability, self-control, trust, strategic problem solving, and achievement orientation (see Table 24). Across all six competencies, the participants' mean responses ranged from neutral to high. The lowest mean score was reported for self-development (mean = 4.87, *SD* = 0.86) and the highest mean score was for achievement orientation (mean = 5.84, *SD* = 0.76).

Table 24

PeopleIndex Emotional Intelligence Assessment Results—Self-Management

	Range	Mean	*SD*
Self-development	3.00-6.50	4.87	0.86
Adaptability	3.20-6.40	4.99	0.85
Self-control	4.00-6.60	5.05	0.75
Trust	4.25-6.75	5.70	0.75
Strategic problem solving	4.20-7.00	5.50	0.80
Achievement orientation	4.50-7.00	5.84	0.76

N = 23; Scale: 1 = low, 7 = high

The relationship management factor consisted of six competencies: building strategic relationships, conflict management, leadership and influence, empathy, team and interpersonal support, and collaboration (see Table 25).

Across all six competencies, the participants' responses ranged from neutral to high. Conflict management received the lowest score (mean = 4.90, *SD* = 0.78) and the highest score was reported for collaboration (mean = 5.84, *SD* = 0.83).

Table 25

PeopleIndex Emotional Intelligence Assessment Results —Relationship Management

	Range	Mean	*SD*
Building strategic relationships	3.00-7.00	4.93	1.11
Conflict management	3.80-6.60	4.90	0.78
Leadership and influence	3.20-6.60	4.97	0.95
Empathy	3.00-6.80	5.52	1.02
Team and interpersonal support	3.40-6.80	5.28	0.89
Collaboration	3.83-7.00	5.54	0.83

N = 23; Scale: 1 = low, 7 = high

Communication factor consisted of five competencies: written communication, feedback, oral communication, oral presentation, and listening (see Table 26). Listening received the lowest score (mean = 5.13, *SD* = 0.84) and written communication was rated highest (mean = 6.01, *SD* = 0.95).

Table 26

PeopleIndex Emotional Intelligence Assessment Results —Communication

	Range	Mean	*SD*
Written Communication	4.00-7.00	6.01	0.95
Feedback	4.00-7.00	5.64	0.85
Oral Communication	4.00-7.00	5.49	0.91
Oral Presentation	4.00-6.75	5.22	0.90
Listening	3.75-6.75	5.13	0.84

N = 23; Scale: 1 = low, 7 = high

These self-reported results indicate that participants had moderate to strong EI skills. However, these scores were not statistically significant for any of

the 17 competencies across the three subgroups based on the analysis of variance (see Table 27).

Table 27

Analysis of Variance for Emotional Intelligence Variables by Subgroup

Variable	df	F	Sig.
Self-Development	2,20	1.12	0.35
Adaptability	2,20	0.89	0.43
Self-Control	2,20	2.90	0.08
Trust	2,20	0.69	0.51
Strategic Problem Solving	2,20	0.34	0.72
Achievement Orientation	2,20	1.59	0.23
Building Strategic Relationships	2,20	2.58	0.10
Conflict Management	2,20	0.10	0.91
Leadership/Influence	2,20	1.24	0.31
Interpersonal Sensitivity/Empathy	2,20	1.79	0.19
Team/Interpersonal Support	2,20	0.27	0.77
Collaboration	2,20	1.79	0.19
Written Communication	2,20	0.22	0.80
Two-Way Feedback	2,20	0.78	0.47
Oral Communication	2,20	0.37	0.69
Oral Presentation	2,20	1.76	0.20
Listening	2,20	1.65	0.22

Participants were asked what EI competencies women in technology lack and needed to develop. Their responses suggested four EI competencies (see Table 28): confidence and assertiveness (mentioned by 61% of all participants); self-control (mentioned by 43% of all participants); confident communication (mentioned by 26% of all participants); relationship management (mentioned by 22% of all participants); and self-development (mentioned by 13% of all participants). Additionally, 13% of participants did not believe women needed to develop any EI competencies.

Regarding confidence and assertiveness, one participant explained that women need to play a man's game. She advised, "Gain your self-confidence. If

you don't have the confidence, find a way to grow it." Another shared, "You have to be able to stick up for yourself. You're just as good as everyone in a room."

Table 28

Emotional Intelligence Competencies Women Lack or Need to Develop

Competency	*N* (%)
Confidence and assertiveness	14 (61%)
Self-control	10 (43%)
Confident communication	6 (26%)
Relationship management	5 (22%)
Self-development	3 (13%)
None	3 (13%)

N = 23

Differences emerged when comparing needed EI competencies by subgroup (see Table 29). The low perceived success group cited self-control, while the medium and high perceived success groups stressed confidence and assertiveness. The high perceived success group also cited confident communication. It is interesting to note that confidence and assertiveness were mentioned to an increasing degree as perceived success increased, whereas self-control was mentioned to a decreasing degree as perceived success decreased.

Table 29

Emotional Intelligence Competencies Women Lack or Need to Develop by Subgroup

Competency	Low *N* = 4 *N* (%)	Medium *N* = 12 *N* (%)	High *N* = 7 *N* (%)
Confidence and assertiveness	1 (25%)	7 (58%)	6 (86%)
Self-control	3 (75%)	6 (50%)	1 (8%)
Confident communication	0 (0%)	2 (17%)	4 (57%)
Relationship management	0 (0%)	3 (25%)	2 (29%)
Self-development	1 (25%)	1 (8%)	1 (14%)
None	1 (25%)	1 (8%)	1 (14%)

Research Question 4: Does a Relationship Exist between EI and Success for Women in Technology?

On the Women in Technology survey, participants were asked to rank the importance of the six self-management competencies of self-development, adaptability, self-control, trust, strategic problem solving, and achievement orientation to a woman's success in a technical field. A rank of "1" was given to the competency that was most important and "6" was given to the least important competency. Table 30 displays the results. Examining which competencies were most often rated in the top three suggests that achievement, self-development, and strategic problem solving were considered most important to a woman's success in a technical field. Examining which competencies most frequently were rated in the bottom three rankings, self-control and trust were considered least important to a woman's success in a technical field.

Table 30

Perceived Importance of Self-Management Emotional Intelligence Competencies

	Self-Development	Adaptability/ Stress	Self-Control	Trust	Strategic Problem-Solving	Achievement
Ranking						
1	3 (13%)	3 (13%)	3 (13%)	4 (17%)	4 (17%)	6 (26%)
2	5 (22%)	4 (17%)	2 (9%)	0 (%)	7 (%)	5 (22%)
3	5 (22%)	3 (13%)	1 (4%)	1 (4%)	4 (17%)	3 (13%)
4	1 (4%)	6 (26%)	2 (%)	4 (17%)	3 (13%)	1 (4%)
5	3 (13%)	2 (9%)	5 (22%)	6 (26%)	0 (0%)	1 (4%)
6	2 (9%)	1 (4%)	6 (26%)	4 (17%)	1 (4%)	3 (13%)
No response	4 (17%)	4 (17%)	4 (17%)	4 (17%)	4 (17%)	4 (17%)
Top 3 Skills Needed for Progression	13 (57%)	12 (52%)	5 (22%)	12 (52%)	15 (65%)	12 (52%)

N = 23; Scale: 1 = most important, 6 = least important

Participants also were asked to select the top three competencies that were most important for a woman to develop to be successful as she progresses in her career (see Table 30). Participants responded that strategic problem solving (mentioned by 65% of all participants) was the most important for a woman to develop as she progresses in her career. Self-control was identified by the least number of participants (22%). The remaining competencies of self-development adaptability, trust, and achievement orientation were identified by roughly equal proportions of the sample.

The Women in Technology survey also asked participants to rank the importance of the six relationship management competencies of building strategic relationships, conflict management, leadership and influence, empathy, team and interpersonal support, and collaboration to a woman's success in a technical field. They ranked the most important competence as "1" and the least important competence as "6." The results are presented in Table 31.

Table 31

Perceived Importance of Relationship Management Emotional Intelligence Competencies

	Strategic Relationships	Conflict Management	Influence	Empathy	Interpersonal Support	Collaboration
Ranking						
1	10 (43%)	4 (17%)	2 (9%)	1 (4%)	3 (13%)	2 (9%)
2	2 (9%)	4 (17%)	10 (43%)	0 (0%)	1 (4%)	4 (17%)
3	3 (13%)	4 (17%)	2 (9%)	2 (9%)	3 (13%)	5 (22%)
4	0 (0%)	6 (26%)	2 (9%)	3 (13%)	1 (4%)	5 (22%)
5	3 (13%)	0 (0%)	1 (4%)	5 (22%)	6 (26%)	2 (9%)
6	0 (0%)	1 (4%)	2 (9%)	8 (35%)	5 (22%)	1 (4%)
No response	5 (22%)	4 (17%)	4 (17%)	4 (17%)	4 (17%)	4 (17%)
Top 3 Skills Needed for Progression	20 (87%)	11 (48%)	21 (91%)	2 (8%)	5 (22%)	10 (43%)

N = 23; Scale: 1 = most important, 6 = least important

Examining which competencies were most often rated in the top three suggests that strategic relationships, influence, and collaboration were considered most important to a woman's success in a technical field. Examining which competencies most frequently were rated in the bottom three rankings, reveals that empathy, interpersonal support, and conflict management were considered least important to a woman's success in a technical field.

Participants also identified the top three competencies they considered most important for a woman to develop to be successful as she progresses in her career (see Table 31). Nearly all participants (91%) identified influence. The second most frequently mentioned competence was strategic relationships (mentioned by 87% of participants). Empathy was identified the least (mentioned by 8% of participants).

Finally, the Women in Technology survey asked participants to rank the importance of the five communication competencies of written communication, two-way feedback, oral communication, oral presentation, and listening to a woman's success in a technical field. They ranked the most important competence as "1" and the least important competence as "6." The results are presented in Table 32.

Examining which competencies were most often rated in the top three suggests that oral communication and written communication were considered most important to a woman's success in a technical field. Examining which competencies most frequently were rated in the bottom three rankings reveals that oral presentation and two-way feedback were considered least important to a woman's success in a technical field.

Table 32

Perceived Importance of Communication Emotional Intelligence Competencies

	Written Communication	Two-Way Feedback	Oral Communication	Oral Presentation	Listening
Ranking					
1	6 (26%)	2 (9%)	7 (30%)	7 (30%)	4 (17%)
2	4 (17%)	3 (13%)	7 (30%)	1 (4%)	3 (13%)
3	6 (26%)	3 (13%)	2 (9%)	3 (13%)	3 (13%)
4	0 (0%)	8 (35%)	2(9%)	2 (9%)	5 (22%)
5	3 (13%)	3 (13%)	1 (4%)	6 (26%)	4 (17%)
No response	4 (17%)	4 (17%)	4 (17%)	4 (17%)	4 (17%)
Top 3 Skills Needed for Progression	16 (70%)	9 (39%)	18 (78%)	14 (61%)	12 (52%)

N = 23; Scale: 1 = most important, 5 = least important

Participants identified the top three communication competencies that are important for a woman to develop as she progresses in her career as oral communication (mentioned by 78% of participants), written communication (mentioned by 70% of participants), and oral presentation (mentioned by 61% of participants). Two-way feedback was selected the least (mentioned by 39% of participants).

In the interview, participants were asked if EI competencies were important for success for women in technology. All participants answered affirmatively. One participant emphasized, “I think we could have better results and happier people . . . if we paid more attention to the EI aspect, especially in technology.” Another explained that EI “helps one navigate the mind fields that are there. It’s important to any role in any industry. In technology it’s more discounted.” Yet another emphasized,

> Absolutely! Your IQ will come into question and you are going to have to demonstrate your capabilities even more. If you don’t have the emotional intelligence to rise above that preconceived notion, it will be difficult for you to be accepted.

Participants were then asked which EI competencies they used to be successful in technology. Their responses suggested that they use eight competencies (see Table 33): relationship management (mentioned by 83% of all participants); communication (mentioned by 52% of all participants); self-control (mentioned by 35% of all participants); social awareness (mentioned by 35% of all participants); self-awareness (mentioned by 26% of all participants); strategic problem solving (mentioned by 14% of all participants); and adaptability and stress tolerance (mentioned by 35% of all participants). Regarding relationship management, one participant emphasized, “Building a better relationship with employees was important for me.” Another participant stated, “You don’t succeed if people don't succeed.” In terms of communication, one participant noted, “It’s hard to get by if you can’t effectively communicate with other people.”

Table 33

Components of Emotional Intelligence Used to Enhance Success

Component	*N* (%)
Relationship management	19 (83%)
Communication	12 (52%)
Self-control	8 (35%)
Social awareness	8 (35%)
Self-awareness	6 (26%)
Strategic problem solving	4 (17%)
Adaptability and stress tolerance	4 (17%)

N = 23

Differences for EI use by subgroup were reported (see Table 34). Both the low and medium perceived success groups mentioned relationship management and communication the most. The high perceived success group mentioned relationship management and social awareness most.

Table 34

Components of Emotional Intelligence Used

Component	Low *N* = 4 *N* (%)	Medium *N* = 12 *N* (%)	High *N* = 7 *N* (%)
Relationship Management	3 (75%)	11 (92%)	5 (71%)
Communication	3 (75%)	6 (50%)	3 (43%)
Self-Control	1 (25%)	5 (42%)	2 (29%)
Social Awareness	1 (25%)	3 (25%)	4 (57%)
Slf-Awareness	1 (25%)	4 (33%)	1 (14%)
Strategic Problem Solving	1 (25%)	2 (17%)	1 (14%)
Adaptability/Stress Tolerance	1 (25%)	2 (17%)	1 (14%)

N = 23

The Pearson correlation results for perceived career success versus self-reported suggested that no statistically significant relationships existed between EI competence and perceiving one has had a successful career (see Table 35). The Pearson correlation results for self-reported EI competency and their self-reported burnout showed several significant relationships (see Table 36). Several significant negative relationships were found with exhaustion: adaptability (correlation = -.53, sig. = 0.01), building strategic relationships (correlation = -.45, sig. = 0.03), interpersonal sensitivity and empathy (correlation = -.45, sig. = 0.03), collaboration (correlation = -.53, sig. = 0.01), and listening (correlation = -.49, sig. = 0.02). This suggests that as the level of exhaustion increases, the participants' competency in these five EI competencies decrease, and vice versa. Importantly, correlation does not indicate causality or direction of influence among these variables.

Table 35

Correlation between Career Success and Emotional Intelligence Competencies

Variable	Correlation	Significance
Self-Development	0.15	0.51
Adaptability	0.11	0.62
Self-Control	-0.15	0.48
Trust	0.10	0.65
Strategic Problem Solving	0.17	0.44
Achievement Orientation	0.28	0.20
Building Strategic Relationships	0.35	0.11
Conflict Management	0.01	0.97
Leadership/Influence	0.33	0.13
Interpersonal Sensitivity/Empathy	0.07	0.76
Team/Interpersonal Support	0.12	0.60
Collaboration	0.27	0.22
Written Communication	0.07	0.76
Two-Way Feedback	0.16	0.46
Oral Communication	-0.07	0.75
Oral Presentation	0.01	0.97
Listening	-0.17	0.45

Table 36

Correlation between Emotional Intelligence and Burnout Variables

	Exhaustion	Cynicism	Professional Efficacy
Self-Development	-0.31 (0.15)	-0.09 (0.68)	0.15 (0.49)
Adaptability	-.53** (0.01)	-0.15 (.0.51)	0.09 (0.68)
Self-Control	-0.24 (.26)	0.04 (.87)	0.31 (.15)
Trust	-0.37 (0.08)	-0.02 (0.93)	0.07 (0.76)
Strategic Problem Solving	-0.13 (0.54)	-0.11 (0.61)	.49* (0.02)
Achievement Orientation	-0.36 (0.09)	-0.23 (0.29)	.47* (0.02)
Building Strategic Relationships	-.45* (0.03)	-0.32 (0.14)	0.32 (0.13)
Conflict Management	-0.40 (0.06)	-0.12 (0.58)	.43* (0.04)
Leadership/Influence	-0.28 (0.20)	-0.28 (0.19)	.72** (0.00)
Interpersonal Sensitivity/Empathy	-.45* (0.03)	0.08 (0.71)	0.11 (0.61)
Team/Interpersonal Support	-0.33 (0.12)	-0.05 (0.83)	0.24 (0.28)
Collaboration	-.53** (0.01)	-0.22 (0.31)	0.36 (0.10)
Written Communication	-0.27 (0.22)	-0.20 (0.37)	.50* (0.02)
Two-Way Feedback	-0.29 (0.19)	-0.32 (0.14)	.48* (0.02)
Oral Communication	-0.37 (0.08)	-0.18 (0.40)	0.24 (0.26)
Oral Presentation	-.51 (0.01)	-0.15 (0.50)	0.30 (0.16)
Listening	-.49* (0.02)	-0.13 (0.56)	0.32 (0.14)

*Indicates a significant relationship at the .05 level; **Indicates a significant relationship at the .01 level

No significant relationships were found between cynicism and the EI competencies. Significant positive relationships were found between professional efficacy and six EI competencies: strategic problem solving (correlation = .49, sig. = 0.02), achievement orientation (correlation = .47, sig. = 0.02), conflict management (correlation = .43, sig. = 0.04), leadership and influence (correlation = .72, sig. = 0.00), written communication (correlation = .50, sig. = 0.02), and two-way feedback (correlation = .48, sig. = 0.02). This suggests that as the level of professional efficacy increases, participants' competency in these six areas also increases.

Success Factors, EI, and Degrees of Success

The research shows that participants in the low perceived success group defined their success through intrinsic factors such as feelings of happiness and their perception of work-life balance (see Table 37 and Figure 2). In contrast, others' perceptions were a more prominent feature of the medium and high success groups' definitions of success.

Table 37

Participants' Significant Definitions of Success by Subgroup

Definition	Low *N* = 4 *N* (%)	Medium *N* = 12 *N* (%)	High *N* = 7 *N* (%)
Others' perceptions	1 (25%)	8 (67%)	7 (100%)
Feelings of happiness and excitement about work	2 (50%)	7 (58%)	3 (43%)
Making a difference	1 (25%)	5 (42%)	3 (43%)
Work-life balance	2 (50%)	1 (8%)	1 (14%)

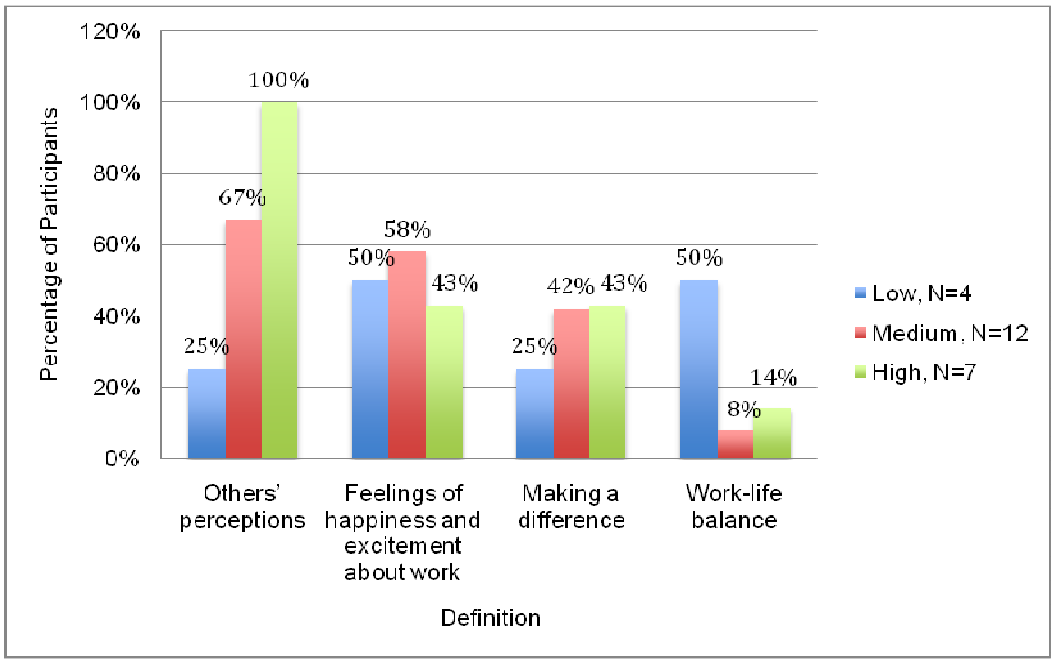

Figure 2

Participants' Significant Definitions of Success by Subgroup

The low perceived success group mentioned that traditional intelligence and skills promoted their success (see Table 38 and Figure 3). In contrast, far more participants in the medium and high perceived success groups attributed their success to EI.

Table 38

Top Three Factors that Promote Success by Subgroup

Definition	Low *N* = 4 *N* (%)	Medium *N* = 12 *N* (%)	High *N* = 7 *N* (%)
Emotional intelligence	2 (50%)	12 (100%)	5 (71%)
Professional drive and ambition	0 (0%)	4 (33%)	4 (57%)
Skills, talent, and education	3 (75%)	3 (25%)	2 (29%)

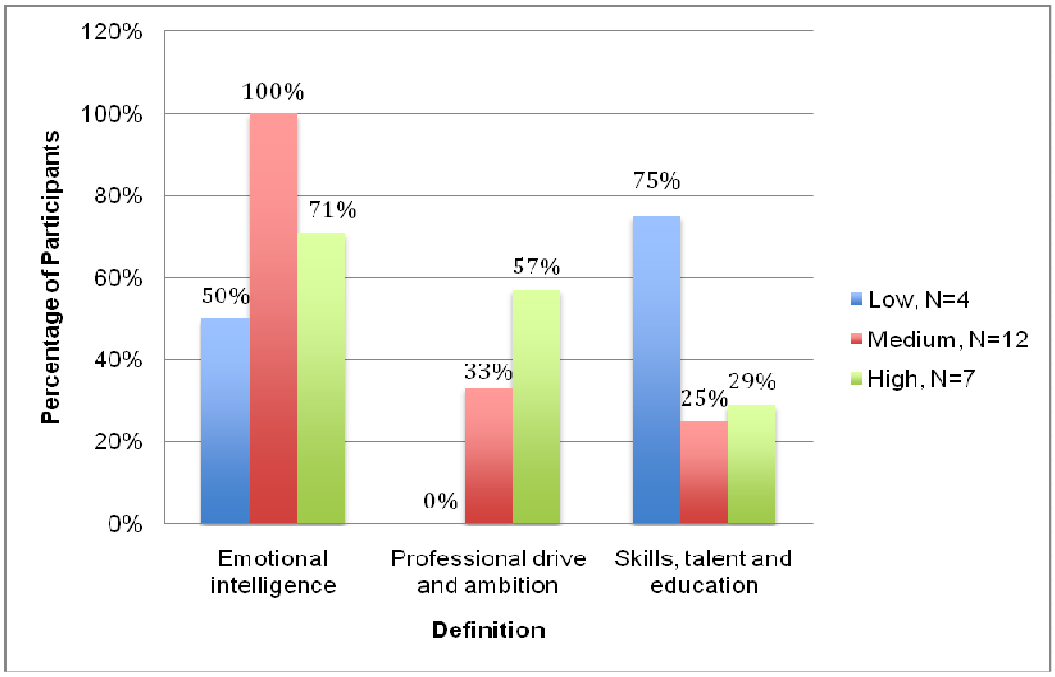

Figure 3

Top Three Factors that Promote Success by Subgroup

The low perceived success group reported a number of external factors that hindered their success, such as challenges due to their gender, long work hours and not being appreciated (see Table 39 and Figure 4). In contrast, the medium perceived success group cited gender challenges as a main barrier and the high perceived success group reported few barriers.

Table 39

Significant Factors that Hinder Success by Subgroup

Barrier	Low *N* = 4 *N* (%)	Medium *N* = 12 *N* (%)	High *N* = 7 *N* (%)
Challenges due to gender	2 (50%)	7 (58%)	0 (0%)
Self-imposed limitations	2 (50%)	2 (17%)	2 (29%)
Working excessive hours	2 (50%)	1 (8%)	0 (0%)
Not being appreciated	2 (50%)	0 (0%)	0 (0%)
None	0 (0%)	1 (8%)	2 (29%)

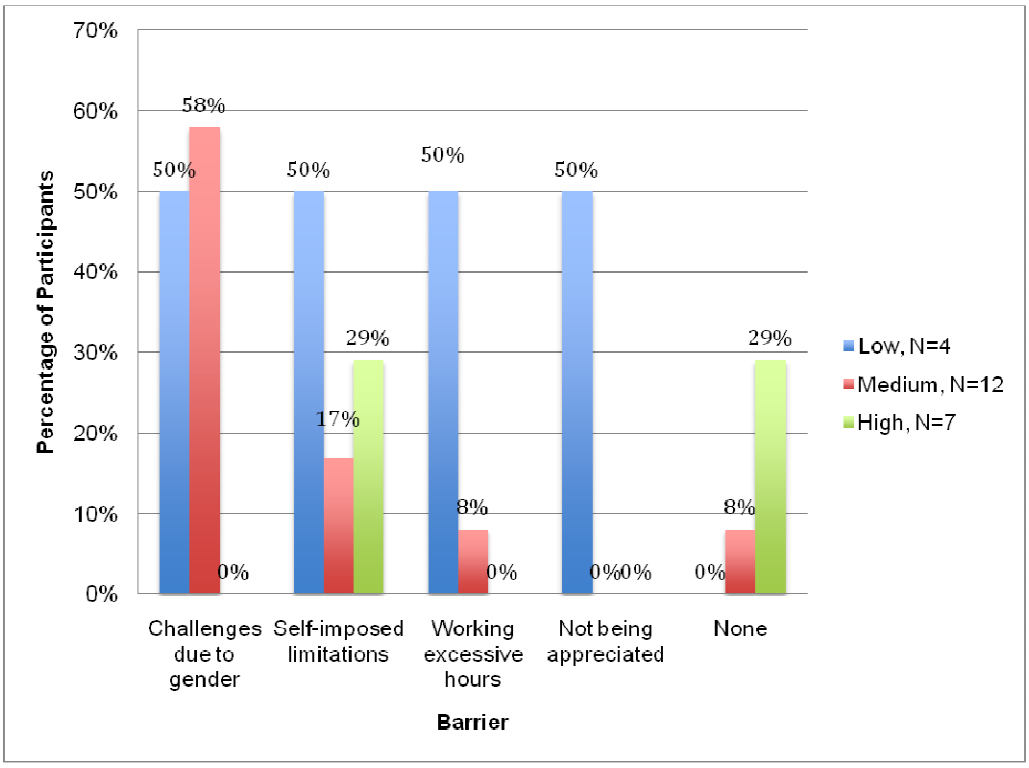

Figure 4

Significant Factors that Hinder Success by Subgroup

In summary, the researcher found that there are differences between the definitions of success and success factors based on the perceived degree of career success. To contrast the high and low perceived success groups, the high perceived success group used intrinsic factors to be successful but judged their success based on extrinsic factors, while the low perceived success group was the opposite. The low perceived success group used traditional intelligence and skills to be successful but judged their success based on intrinsic factors.

Summary

This chapter reported the results of the study. The study found that success was defined as others' favorable perceptions of them, their own feelings of happiness, and making a difference. Nearly all participants (19 of 23) reported

that the top factor that influenced their success in engineering and technology was EI with their competency ranging from neutral to high in self-management, relationship management, and communication. A total of 21 of the participants identified influence as the most important skill to develop as a woman progresses in her career, with strategic relationships second. Participants suggested that there are four EI competencies that women in technology lack and need to develop: confidence and assertiveness, self-control, confident communication, and relationship management.

Chapter 5

Discussion

The purpose of this study was to examine the use of EI and perceptions of success and burnout among women in technology careers. The study addressed five research questions:

1. How do women in technology define success?
2. What factors influence success for women in technology?
3. To what extent do women in technology utilize EI?
4. Does a relationship exist between EI and success for women in technology careers?
5. Do the definitions of success, success factors, use of EI, and value of EI vary based on a woman's degree of career success?

This chapter provides conclusions, recommendations, limitations, suggestions for further research, and implications for organization development practitioners.

Conclusions

Conclusions were drawn for each question. These conclusions are described below.

Definitions of Success

Study findings suggested that women in technology believed success was characterized by others' favorable perceptions of them, their own feelings of happiness, and making a difference. Others' perceptions consisted of positive feedback, appreciation, and being viewed as an expert. These findings also were examined based on participants' self-evaluation of their degree of career

success. All the women in the highest perceived success group mentioned others' perceptions, while fewer women in the moderate perceived success group mentioned this definition, and only 25% of lowest perceived success group mentioned it. Half the lowest perceived success group mentioned work-life balance, while only one person in the moderate success and one person in the high success group mentioned work-life balance.

These findings suggest that women in the lower perceived success groups appeared to favor intrinsic measures to judge their success (e.g., feelings of happiness and excitement, work-life balance). In contrast, the highest perceived success group appeared to favor extrinsic measures to judge their success (e.g., others' perceptions, making a difference, reaching set goals). This might be explained by the nature of internal and external measurements of success. Specifically, intrinsic success may be harder to quantify and measure, whereas external measurements of success based on goals and feedback may provide more concrete and formalized evidence of progress. Therefore, those who focus on external measures of success may feel more successful because they can point to external, concrete feedback, whereas those who focus on internal measures of success may feel less successful because they are relying on more abstract ideas and measures of success. Alternately, women who feel or are more successful may tend to focus on external measures of success, while women who feel or are less successful may tend to focus on internal measures of success.

These findings are largely consistent with Simard et al. (2008), who studied perceptions of success and found that women in technology defined their

success as being related to others' perceived recognition as a technical expert and professional identity as technologists as well as their understanding of how their work contributes to the team's or organization's goals. However, this study's findings did not suggest that technologists defined their success in relation to innovation and teamwork, as indicated by Simard.

These findings suggest that the measures women use to define and measure their success are linked to their perceptions of success, although the direction of influence is unclear. It would be helpful to continue researching this link to understand whether one's success (or perceptions of success) influence how success is defined or whether one's definition of success influences one's success (or perception of success). What is recommended based on this research is that human resources and technology managers should explore how female technologists define success and perceive their own success. For example, employees could be guided through a process of clearly describing what success means and looks like for them. They may also be supported in designing ways to measure their progress. These activities may help women technologists feel more successful, effective, and satisfied in their careers.

Factors that Influence Success

Nearly all participants reported that the top factor that influenced their success in engineering and technology was EI. Notably, EI was mentioned by only half of the lowest perceived success group, while participants in each of the higher success groups mentioned EI more frequently. Support was mentioned by half of the lowest support group, while it was mentioned by fewer participants in the other groups. Drive was not mentioned by the lowest perceived success

group and was mentioned increasingly by the other two groups, with half of the highest perceived success group mentioning it. In addition, skills were mentioned by three quarters of the lowest perceived success group, but only by one quarter of the highest perceived success group. The barriers to success identified by participants in the lowest perceived success group included gender differences, excessive work hours, and not being appreciated. Notably, these were not mentioned by the highest perceived success group. Gender differences and unsupportive managers were mentioned as barriers by approximately half of the medium perceived success group.

These findings suggest that the women in the highest perceived success group attributed their attainment of success (and failure) to intrinsic factors, such as EI or self-imposed limitations, whereas women in the lowest perceived success group attributed their attainment of success and failure to external factors, such as support, skills they have attained, gender, excessive hours, and lack of appreciation. This further suggests that women consider both internal and external measurements of success. The perception and evaluation of these factors and barriers of success may align with the amount of success a woman has felt.

The research also found that women in the lowest perceived success group cited work-life balance as a success factor and working excessive hours as a barrier to their success. This could suggest that women who perceive they are less successful at work are investing less time in their professional lives and looking to their personal lives for fulfillment. It also may suggest that women who perceive less success at work desire more personal time or that woman who do

not perceive a balance between their work and life feel unsuccessful. Further examining the relationship between one's actual or perceived success and one's success factors and barriers is an important direction for additional research. For example, it would helpful to more deeply understand when and why women attribute internal versus external factors for their success. Research also could examine whether a relationship exists between one's success and one's perception of barriers or ability to overcome those barriers.

The researcher was unable to find previous literature that specifically examined the success factors and barriers to women in technology. Therefore, these findings represent a contribution to the literature.

Human resources and technology managers can build upon these findings to help women technologists to develop or utilize the success factors they are lacking or not fully leveraging. Additionally, attempts could be made to reduce the identified barriers women are experiencing in their careers. For example, companies could seek to learn more about perceived barriers to success and either remove the barriers or enable women with the skills or knowledge to cope with and overcome the barriers.

Use of EI

Based on this study, women in engineering and technology do utilize EI. The assessment found that the women's self-reported EI ranged from neutral to high in the measured competencies of self-management, relationship management, and communication. This indicates that women in engineering and technology perceive themselves as being emotionally intelligent. No statistically significant differences in EI scores were found across the subgroups, implying

that the level of EI competency doesn't change with a woman's perception of success.

During the interviews, participants were asked to identify the EI skills that women generally lacked. More than half of all participants (and 86% of the highest success group) reported that women lack confidence and assertiveness. Self-control, meaning the ability to manage one's emotions and behaviors, also was mentioned as a competency women lacked—particularly among the low perceived success group. The researcher concludes that self-control is the behavior of appropriate reservation, while confidence is the behavior of appropriate assertion. Thus, women who perceive themselves as more successful view women as not asserting themselves enough, while women who perceive themselves as less successful view women as not being reserved enough. These views might help explain the degree of success the participants have achieved (or believe they have achieved) in their careers. Study findings also suggested that women found themselves to be lacking in strategic relationship management skills, confident communication, and self-development.

The researcher was unable to find previous literature that specifically examined women technologists' use of EI; therefore, these findings comprise an important contribution to literature. Human resources and technology managers could use these results to gain better insight about the EI skills women technologists may possess and those they need to develop to a greater degree. Additionally, companies could examine each position for its EI needs, then evaluate and develop employees according to the EI demands of the positions they hold. This represents a direction for additional research.

Relationship between EI and Success

All participants in this study agreed EI was important for success. During the interviews, lowest and medium perceived success groups cited relationship management and communication as EI competencies they used to enhance their success. Women in the highest perceived success group mentioned relationship management and social awareness as EI competencies they used to enhance their success. On the Women in Technology survey, women across all three groups mentioned influence; building strategic relationships, a competency of relationship management; strategic problem solving; and oral communication as the top EI competencies they used to enhance their success.

Two discrepancies across the survey and the interviews are notable. First, strategic problem solving was mentioned by 65% of the participants as being one of the top three skills needed to progress in their career, while only 17% of the participants mentioned it during the interviews. Self-control was rated as rather lower importance (only 22% of participants cited it as being one of the top three competencies needed to progress in their career). Self-control was ranked behind self-development, adaptability, trust, and achievement orientation. Yet, during the interview, 35% of participants mentioned the importance of self-control behaviors. Perhaps having more time to think about the role of these competencies prompted participants to change their answers by the time of the interview.

Statistical analysis of the survey data revealed no significant relationships between the perception of career success and EI competencies. Significant negative relationships were found between exhaustion and the EI competencies

of adaptability, building strategic relationships, empathy, collaboration, and listening. This suggests that exhaustion may erode a women's EI in these areas, or that having these competencies helps to prevent exhaustion, or both.

Significant positive relationships were found between professional efficacy and the EI competencies of strategic problem solving, achievement orientation, conflict management, leadership and influence, written communication, and two-way feedback. Similarly, on the survey, participants ranked all of these competencies (except conflict management and two-way feedback) as being highly important for success. These results suggest that EI skills do help bolster women technologists' success.

These findings are consistent with Lerouge et al. (2005), Goleman (1998), and Rosenbaum (1986), who stated that technical professionals need interpersonal skills to be successful. The present researcher concludes that although the level of EI may not impact a women's perceived success, EI is a factor of success for women in a technical field. Further, it appears that exhaustion and professional efficacy may influence a woman's EI (and vice versa).

Given the importance of EI for success, Rosenbaum's (1986) and Riemer's (2003) recommendations for integrating EI and interpersonal skills into collegiate curricula seem well founded. Companies also can use these research results to justify ongoing education and training on EI. Companies also could train managers to better understand EI so they can give ongoing feedback to women on how to improve these critical competencies.

Limitations

Five key limitations affected this study: a small sample size, negative perceptions of EI in technical fields, hypothesis guessing, self report, and researcher bias. First, this study involved a sample of 23 women and their perception of their own career success ranged from neutral to high. Therefore, the sample was small and rather homogeneous. As a result, the study findings likely do not represent the diverse population of women in engineering and technology. In future studies, it would be important to draw a stratified random sample that better represents the larger population.

Second, engineers tend to pride themselves on being logical and analytical (Wentling & Thomas, 2009); consequently, they place less value on soft skills such as EI. A participant in this study shared,

> I don't know. I have such an engineering mind that I find it hard to [think of an example where I used EI to be successful]. Even if EI makes me successful in a certain situation, I like to think of myself as rational and logical.

This response suggests that at least this participant (if not more) might downplay the importance of EI in their careers and the study findings might be understated, out of the women's concern about not appearing logical and analytical. To avoid this limitation in future, research participants could be asked about their assumptions about EI and its importance in relation to other skills.

Third, hypothesis guessing, where participants consciously or subconsciously "help" the researcher by telling her what they think she wants to hear, may have influenced the results. The study title and communications with participants clearly stated that this research was examining the role of EI in

women's success. This might have motivated participants to emphasize that EI was, in fact, important. To the extent that this happened, the results would be inflated. In future research, if the goal is to understand the importance of EI in comparison with other competencies, care should be taken in framing and introducing the research so that participants are not aware that learning about EI is a central goal of the researcher. In addition, the research could spend equal time on all areas of interest.

Fourth, self-report bias is of concern. Given that the research was based on the women's self-report and personal perception of their success, the answers are subject to personal bias. To the extent that this happened, the grouping of participants could be questioned. To help limit this impact the results of the subgroups can be compared to the results of the whole group. To avoid this limitation in the future, success could be based on external sources or a more rigorous definition and verification of the definition and perception of success.

Fifth, researcher bias is of concern. Given that a significant portion of the data was qualitative in nature and was analyzed by the researcher, it is likely that the researcher's beliefs and assumptions about EI influenced how she interpreted the data. To help limit the impact, the analysis was subjected to review by a second rater. Future research could also involve member checking, where the participants confirm whether the themes reflect their opinions.

Suggestions for Further Research

Four suggestions for future research are offered to generate better understanding about the role of EI and perceptions of success among women in

technology. First, this research could be repeated with a larger sample size that is representative of the larger population of women in technology.

Second, the research methods could be refined to focus more narrowly on the topics of interest. In the present study, the researcher gathered more information than necessary, which risks participant fatigue, diluted focus, and compromised data as participants rush to get through the study.

Third, to better understand the unique nature of EI and perceptions of success among women in technology, it would be helpful to conduct a comparative study of the same topics among men in technology. The comparative data would allow for deeper insights to be drawn about women in this field.

Fourth, all the data gathered was self-reported; therefore, there was no opportunity to confirm whether participants' evaluation of their own success and their evaluation of their own EI competence were accurate. Future research could provide improved measures of these constructs by accessing performance data and 360-degree feedback to measure EI and success.

Implications for Organization Development Practitioners

The practice of organization development can assist individuals, teams, organizations, and whole systems in building capacity to achieve business objectives while restoring humanity to the workplace. Relevant to this study, organization development practitioners can help prepare women to succeed in technical fields. Support will be increasingly needed as the United States strives to be a leader in this industry and these occupations become essential to meeting market demand. Based on the research findings, OD practitioners can

help develop organizations in three ways: clarifying women technologists' internal and external factors of success, enhancing EI competencies, and ameliorating the impact of exhaustion while expanding the professional efficacy on EI.

First, OD practitioners can work with human resources and technology managers to clarify and incorporate women's success factors into their work. By helping to educate women and managers about success, both can proactively add performance and career development goals that will help a woman feel successful. In addition managers can better understand how to let woman know they are performing well and meeting their job responsibilities. The long-term benefit of this could be increasing a women's satisfaction at her job and possibly helping to retain her in the workforce.

Second, OD practitioners can enhance visibility about EI's benefits for women in technology. By raising awareness, providing education, and training, companies may help women become more equipped to be successful in their jobs and contribute to their workplaces. OD practitioners could use the PeopleIndex Assessment to gain a better understanding of an individual's EI and provide ongoing coaching. Through this assessment, women can gain awareness of their EI competencies to better understand their strengths and areas for development. Using this information to develop their performance development plan a woman can focus on key competencies that will enable her to effectively navigate the culture in technology and improve her career success.

Third, OD practitioners can help educate management and employees on the impact of burnout, by helping to weigh the cost of business decisions against the costs to employee health and success. By providing education on the signs

and impact of burnout, companies could reduce turnover and increase employee engagement. OD practitioners could use the Maslach Burnout inventory as a tool to measure burnout and help women gain awareness of their burnout before it becomes an irreversible problem. This would give both companies and staff a chance to take corrective action to reduce burnout and its debilitating consequences.

Summation

This research demonstrated the complexity of factors that can influence women technologists' success in the workplace. Understanding culture, perceptions of success and burnout, and perceived EI provides a starting context to better understand the confluence of factors that influence the ability of engineering and technology organizations to have successful employees who can meet business goals. This understanding would supplement the current suggestions on interesting girls in math and science and how to retain women once they are in these careers.

Given the highly demanding work and the male-dominated culture characteristic of engineering and technology careers, women entering these professions face great stress. For women to thrive in engineering and technology, they need to be provided with as much information and training as possible to enable them to better understand and cope in their careers. This study concluded that EI is a factor for success for women in engineering and technology. Therefore, it would be useful to better prepare women in this area to demonstrate EI competencies.

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Appendix A

Initial Study Invitation

Overall, women in the United States have made great strides in gaining equality and equity in the workplace. However, according to the 2007 U.S. Labor Statistics, women in historically male dominated fields, such as computers and math, only make up 25.6% of the employee population. With the continuing demand for talent in these areas, researchers have been working to understand how to attract and retain more women. In order for women to avoid burnout in these fields and be successful, it is essential that they have the emotional intelligence and skills needed to navigate the unique culture present in these environments.

My name is Kim-Elisha Proctor, and I am a student pursuing my Master of Science in Organization Development at Pepperdine University, Graziadio School of Business and Management. I am currently in the process of recruiting individuals for my study entitled, *Women in Engineering and Technology, the Role of Emotional Intelligence in Achieving Success and Preventing Burnout.* Over the coming months, I will interview women who meet the following qualifications:

1. Graduated from college with a technical degree (School of Engineering, School of Computer Science, or a similar school) OR,
2. Works or worked in a technical position (engineer, technology, information technology or a similar organization) for 5 years or more

I am contacting you to request your participation in my research project. If you are interested in participating in this study please fill out my survey at: [web address]

I greatly appreciate your time and interest.
Sincerely,

Kim-Elisha Proctor
Candidate, Master of Science in Organization Development
[contact information]

Appendix B

Invitation to Continue the Study

[Date]

Dear Ms. _____;

Thank you for filling out the questionnaire for the study on uncovering the emotional intelligence skills needed by women in technology to succeed in their careers and prevent burnout. I am contacting you to request your participation in my research project. Your participation includes:

- The Maslach Burnout Inventory, which will take 10 minutes online at [URL]
- The PeopleIndex Emotional intelligence Assessment is designed to measure 17 emotional intelligence competencies, which will take 15 minutes online at [URL]
- Personal interview, which will take 60 minutes

Before we meet for our interview please take time to complete the Maslach Burnout Inventory and the PeopleIndex Emotional Intelligence Assessment.

Understanding that work schedules are restrictive, I will make myself available at a schedule most convenient to you. If convenient, we can meet in person or on the phone. To assist scheduling, please email me at [contact information] with possible interview times and dates in the next two weeks or call me at [contact information]. Thank you so much for your help.

Respectfully,

Kim-Elisha Proctor
Candidate, Master of Science in Organization Development
[contact information omitted]

Appendix C

Women in Technology Survey

Dear Technologist:

Women in the United States have made great strides in gaining equality and equity in the workplace. However, according to the 2007 US Labor Statistics, women in historically male dominated fields, such as computers and math, only make up 25.6% of the population. With the continuing demand for talent in these areas, researchers have been working to understand how to attract and retain more women. For women to avoid burnout in these fields and be successful, it is essential that they have the intrapersonal and interpersonal skills needed to navigate the unique culture present in these environments.

My name is Kim-Elisha Proctor, and I am a student pursuing my Master of Science in Organization Development at Pepperdine University, Graziadio School of Business and Management. I am currently in the process of recruiting individuals for my study entitled, "Women in engineering and technology, the role of emotional intelligence in achieving success and preventing burnout." The professor supervising my work is Dr. Miriam Lacey. The study consists of two phases and is designed to investigate the skills needed by women to succeed in technical careers so I am inviting women in technical fields to participate in the study. Women who can participate in the study must meet the following qualifications:

1. Graduated from college with a technical degree (School of Engineering, School of Computer Science, or a similar school) OR,
2. Works or worked in a technical position (engineer, technology, information technology or a similar organization) for 5 years or more

Please understand that your participation in my study is strictly voluntary. The following is a description of what your study participation entails, the terms for participating in the study, and a discussion of your rights as a study participant. Please read this information carefully before deciding whether or not you wish to participate.

Phase 1: consists of this survey, which should take approximately 15 minutes to complete.

Phase 2: If you are selected to be part of Phase 2, you will be contacted within the next 6 weeks with an invitation to participate in Phase 2. If you should decide to continue your participation in the study, you will be asked to complete the PeopleIndex, an online emotional intelligence assessment, that should take approximately 15 minutes; the Maslach Burnout Inventory, which should take 10 minutes; and a 60-minute interview, which will be conducted in person or on the phone based on your availability and proximity of distance to the researcher.

Although minimal, there are potential risks that you should consider before deciding to participate in this study. These risks include increased awareness about your success and happiness levels at work, your level of emotional intelligence, and your level of burnout.

The potential benefits to you for participating in the study are learning more about the dynamics of your emotional intelligence and skills needed to be successful as a woman in technology.

If you should decide to participate and find you are not interested in completing the survey in its entirety, you have the right to discontinue at any point without being questioned about your decision. You also do not have to answer any of the questions on the survey that you prefer not to answer--just leave such items blank. You may also withdraw from the study at any time without penalty.

If the findings of the study are presented to professional audiences or published, no information that identifies you personally will be released. The data will be kept in a secure manner for at least 3 years, at which time the data will be destroyed.

If you have any questions regarding the information that I have provided above, please do not hesitate to contact me at the address and phone number provided below. If you have further questions or do not feel I have adequately addressed your concerns, please contact Dr. Miriam Lacey at [contact information]. If you have questions about your rights as a research participant, contact Dr. Doug Leigh, Chairperson of the GPS IRB, Pepperdine University at [contact information].

By completing this survey, you are acknowledging that you have read and understand what your study participation entails and are consenting to participate in the study.

Thank you for taking the time to read this information, and I hope you decide to complete the survey. You are welcome to a brief summary of the study findings in about 1 year. If you decide you are interested in receiving the summary, please send me an email at [contact information].

Sincerely,

Kim-Elisha Proctor
Candidate, Master of Science in Organization Development

Pepperdine University
Graziadio School of Business and Management
6100 Center Drive, 4th Floor Los Angeles, CA 90045

Do you wish to participate in this study?

- Yes, I want to participate in this study
- No, I do not want to participate in this study

[if yes is selected, participant advances to the next question. If no is selected, the survey ends]

What is your first name?

What is your last name?

If you are selected for an interview, please select the best way to be contacted
- Email
- Phone
- Email or Phone

What is your email address?

What is your telephone number?

What time zone are you located in?

What are the best days and times to call you?

Personal Data

What is your age?

- 20-25
- 26-30
- 31-35
- 36-40
- 41-45
- 46-50
- 51-55
- 56-60
- 60+

What is your marital status?

- Married
- Significant other
- Single
- Divorced
- Widowed
- No

Do you have children?

- Yes
- No

What best describes your race or ethnicities?

- Asian
- Black /African Descent
- East Indian
- Latino /Hispanic
- Middle Eastern
- Native American
- Pacific Islander
- White /Caucasian
- Other

Education

What is your highest level of education?

- High School diploma
- AA
- Bachelors
- Masters
- Ph.D.
- Other

If you earned a Bachelor's degree please enter your degree information.

- Bachelor of Arts
- Bachelor Business Administration
- Bachelor of Science

- Other

If you received your Master's degree please enter your major.

- Master of Business Administration
- Master of Computer Science
- Master of Engineering
- Master of Science
- Other

Career Aspirations and General Information

Which "track" are you on for career development?

- Technical
- Managerial
- Other

Overall, how would you rate your career success and satisfaction?

I am satisfied with my overall career in a technical field.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

I have had a successful career in a technical field.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

How likely are you to leave the technical field in the next 0-2 years?

- Very Unlikely
- Unlikely
- Somewhat Unlikely
- Undecided
- Somewhat Likely
- Likely
- Very Likely

How likely are you to leave the technical field in the next 3-5 years?

- Very Unlikely
- Unlikely
- Somewhat Unlikely
- Undecided
- Somewhat Likely
- Likely
- Very Likely

How likely are you to leave the technical field in the next 5-10 years?

- Very Unlikely
- Unlikely
- Somewhat Unlikely
- Undecided
- Somewhat Likely
- Likely
- Very Likely

Please rate the importance of these self-management competencies to a woman's success in a technical field, with one being the most important:

- **Self-Development**
  Manages one's own time, energy, and abilities for continuous personal growth and maximum performance.
- **Adaptability/Stress Tolerance**
  Maintains balance and performance under pressure and stress. Copes with ambiguity and change in a constructive manner.
- **Self-Control**
  Manages and controls emotions and behavior in the face of interpersonal conflict. Demonstrates patience. Rarely overreacts or loses control.
- **Engenders Trust**
  Demonstrates and practices high standards of personal and professional integrity. Displays honesty and candor. Creates trusting relationships with others.
- **Strategic Problem Solving**
  Analyzes a situation, identifies alternative solutions, and develops specific actions. Gathers and utilizes available information in order to understand and solve organizational issues and problems.
- **Achievement Orientation**
  Accomplishes tasks, projects, and assignments on time and with quality.

As a woman progresses in her career, which three of these self-management competencies are the most important for a woman to develop to be successful?

- **Self-Development**
  Manages one's own time, energy, and abilities for continuous personal growth and maximum performance.
- **Adaptability/Stress Tolerance**
  Maintains balance and performance under pressure and stress. Copes with ambiguity and change in a constructive manner.
- **Self-Control**
  Manages and controls emotions and behavior in the face of interpersonal conflict. Demonstrates patience. Rarely overreacts or loses control.
- **Engenders Trust**
  Demonstrates and practices high standards of personal and professional integrity. Displays honesty and candor. Creates trusting relationships with others.
- **Strategic Problem Solving**
  Analyzes a situation, identifies alternative solutions, and develops specific actions; Gathers and utilizes available information in order to understand and solve organizational issues and problems.
- **Achievement Orientation**
  Accomplishes tasks, projects, and assignments on time and with quality.

Please rate the importance of these relationship management competencies to a woman's success in a technical field, with one being the most important.

- **Building Strategic Relationships**
  Initiates and cultivates strategic internal and external networking relationships that foster both individual and organizational goals. Builds and maintains effective and collaborative relationships with diverse internal and external stakeholders.
- **Conflict Management**
  Negotiates and effectively resolves interpersonal differences with others.
- **Leadership/Influence**
  Utilizes appropriate interpersonal styles and approaches in facilitating a group towards task achievement.
- **Interpersonal Sensitivity/Empathy**
  Takes actions that demonstrate consideration for the feelings and needs of others.
- **Team/Interpersonal Support**
  Assists, motivates, encourages and supports others who depend on each other to accomplish tasks, projects and assignments.
- **Collaboration**
  Establishes and develops cooperative, supportive and collaborative working relationships with others.

As a woman progresses in her career, which three of these relationship management competencies are the most important for a woman to develop to be successful?

- **Building Strategic Relationships**
  Initiates and cultivates strategic internal and external networking relationships that foster both individual and organizational goals. Builds and maintains effective and collaborative relationships with diverse internal and external stakeholders.
- **Conflict Management**
  Negotiates and effectively resolves interpersonal differences with others.
- **Leadership/Influence**
  Utilizes appropriate interpersonal styles and approaches in facilitating a group towards task achievement.
- **Interpersonal Sensitivity/Empathy**
  Takes actions that demonstrate consideration for the feelings and needs of others.
- **Team/Interpersonal Support**
  Assists, motivates, encourages and supports others who depend on each other to accomplish tasks, projects and assignments.
- **Collaboration**
  Establishes and develops cooperative, supportive and collaborative working relationships with others.

Please rate the importance of these communication competencies to a woman's success in a technical field, with one being the most important.

- **Written Communication**
  Expresses written thoughts and ideas in a clear and concise manner.
- **Two-Way Feedback**
  Keeps others informed in a timely manner.
- **Oral Communication**
  Conveys oral thoughts and ideas in a clear and concise manner.

- **Oral Presentation**
  Presents individual and organizational viewpoints to groups in a clear and persuasive manner.
- **Listening**
  Listens attentively and seeks to understand the verbal communications of others.

As a woman progresses in her career, which three of these communication competencies are the most important for a woman to develop to be successful?

- **Written Communication**
  Expresses written thoughts and ideas in a clear and concise manner.
- **Two-Way Feedback**
  Keeps others informed in a timely manner.
- **Oral Communication**
  Conveys oral thoughts and ideas in a clear and concise manner.
- **Oral Presentation**
  Presents individual and organizational viewpoints to groups in a clear and persuasive manner.
- **Listening**
  Listens attentively and seeks to understand the verbal communications of others.

Work Experience
Who is your current employer?

What is the principal industry of your company?

- Academic
- Communication, Utilities
- Computer Hardware or Software
- Consulting
- Finance, Insurance, Real Estate
- Government
- Health Care
- Internet
- Nonprofit
- Retail
- Services
- Other

What organization do you currently report to?

- Engineering
- Information Technology
- Operations
- Technology
- Quality Assurance
- Other

What is your title?

How many years have you been in your current position? Please use a whole number.

How many years have you worked for this company? Please use a whole number.

What stage of your career are you in?

- Stage 1: Works under the close supervision of another Majority of time is directed by a supervisor and is spent on detailed tasks that are part of a large project.
- Stage 2: Technically competent, produces significant results and has responsibility over one area. May specialize in one area of interest. Has a measure of independence and doesn't rely on a manager for direction.
- Stage 3: Increased daily responsibility for influencing, guiding, directing and developing other people who are usually in Stage 1 or 2. May focus on broader organizational and business goals.
- Stage 4: Has power and influence over questions that define the direction of the organization. Majority of time is spent on managing, being an internal entrepreneur, and innovation. May or may not be managing people.

How many years have you worked in a technical field such as engineering, information technology, technology, operations, or a similar field?

- 0-5
- 6-10
- 11-15
- 16-20
- 21-25
- 26-30
- 30+ Other

Are you currently a manager?

- Yes
- No

How many years have you worked as a manager in a technical field?

- 0-5
- 6-10
- 11-15
- 16-20
- 21-25
- 26-30
- 30+ Other

Appendix D

EI Competencies

PeopleIndex Emotional Intelligence Competencies Defined

SELF MANAGEMENT

Self-Development
Manages one's own time, energy, and abilities for continuous personal growth and maximum performance.

Adaptability/Stress Tolerance
Maintains balance and performance under pressure and stress. Copes with ambiguity and change in a constructive manner.

Self-Control
Manages and controls emotions and behavior in the face of interpersonal conflict. Demonstrates patience. Rarely overreacts or loses control.

Engenders Trust
Demonstrates and practices high standards of personal and professional integrity. Displays honesty and candor. Creates trusting relationships with others.

Strategic Problem Solving
Analyzes a situation, identifies alternative solutions, and develops specific actions. Gathers and utilizes available information in order to understand and solve organizational issues and problems.

Achievement Orientation
Accomplishes tasks, projects and assignments on time and with quality.

RELATIONSHIP MANAGEMENT

Building Strategic Relationships
Initiates and cultivates strategic internal and external networking relationships that foster both individual and organizational goals. Builds and maintains effective and collaborative relationships with diverse internal and external stakeholders.

Conflict Management
Negotiates and effectively resolves interpersonal differences with others.

Leadership/Influence
Utilizes appropriate interpersonal styles and approaches in facilitating a group toward task achievement.

Interpersonal Sensitivity/Empathy
Takes actions that demonstrate consideration for the feelings and needs of others.

Team/Interpersonal Support
Assists, motivates, encourages, and supports others who depend on each other to accomplish tasks, projects and assignments.

Collaboration
Establishes and develops cooperative, supportive and collaborative working relationships with others.

COMMUNICATION

Written Communication
Expresses written thoughts and ideas in a clear and concise manner.

Two-Way Feedback
Keeps others informed in a timely manner.

Oral Communication
Conveys oral thoughts and ideas in a clear and concise manner.

Oral Presentation
Presents individual and organizational viewpoints to groups in a clear and persuasive manner.

Listening
Listens attentively and seeks to understand the verbal communications of others

Appendix E

Interview Consent Form

INFORMED CONSENT FOR PARTICIPATION IN RESEARCH ACTIVITIES

Participant: _____
Principal Investigator: Kim-Elisha Proctor, MSOD Candidate, Pepperdine University _____

Title of Project: Women in engineering and technology, the role of emotional intelligence in achieving success and preventing burnout. _____

I _____, agree to participate in the research study being conducted by Kim-Elisha Proctor under the direction of Dr. Miriam Lacey.

You are being asked to participate in a research study about the success of women in engineering and technology, the role of emotional intelligence. Please read this form and ask any questions that you may have before agreeing to participate in the research.

Background Information
The intent of this study is to determine what emotional intelligence skills women need in engineering and technology need to be successful in their careers. The overall purpose of this research is to develop a better understanding of the skills women need to be successful once in these technical fields so they can progress in their careers and prevent burnout.

Procedures
If you agree to be a participant in this research, it should take approximately 90 minutes: 60 minutes for the interview, 15 minutes to complete the Maslach Burnout Inventory and 15 minutes to complete the PeopleIndex Emotional Intelligence Assessment. This interview will be conducted at a time and location mutually agreeable to you and the researcher. The researcher asks that you agree to be audio taped for ease of obtaining information and for accuracy in reflecting your comments. In the event that you chose not to have interview digitally recorded, handwritten notes of your responses will be used.

Compensation
There is no compensation for participation.

Benefits
I understand that the possible benefits to myself or society from this research are better understanding of the emotional intelligence skills needed by women in technical fields to be successful in their careers. This research will also add to the body of knowledge regarding suggestions for training and further research.

Risks
I understand that there are certain risks and discomforts that might be associated with this research. These risks include increased awareness about your success and happiness levels at work, your level of emotional intelligence, and your level of burnout; which could lead to levels of increased stress and apprehension about work.

Confidentiality

The record of this research will kept private. In any report published, no information will be presented that will make it possible to identify a participant. Following the interview, the recorded information will be transferred to a password protected computer and the interview will be erased from the recorder immediately. Any printed information will be kept in a secured filing cabinet for three years and than destroyed. Further, no identifying information will be included in the research findings.

I understand that the investigator is willing to answer any inquiries I may have and that I may also contact Dr. Miriam Lacey at 310.568.5598 or mlacey@Pepperdine.edu if I have other questions or concerns about this research. If I have questions about my rights as a research participant, I understand that I can contact Doug Leigh, Chairperson of the GPS IRB, Pepperdine University, phone: 310.568.2389 and email: dleigh@Pepperdine.edu

I understand that my participation is voluntary and that I may refuse to participate and/or withdraw my consent and discontinue participation in the project or activity at any time without penalty. I understand that I may choose not to participate in this research.

I have read and received a copy of this INFORMED CONSENT FOR PARTICIPATION IN RESEARCH ACTIVITIES and understand it to my satisfaction. I hereby consent to participate in the research described.

Audiotape Consent (please check)

☐ Yes, I consent to be audio taped during this interview. I understand that during the course of this interview, I can and may change my mind and ask that the recorder be turned off at any time.

☐ No, I do not wish to have this interview audio taped.

Participant Signature: _____ Date: _____

Print Name: _____

Appendix F

Interview Guide and Questions

Opening comments:

Welcome and statements regarding the purpose of the study and anonymity. Mention that notes will be taken and the interview will be recorded. Make sure the consent form signed. Give them list of Emotional Intelligence Competencies as defined by PeopleIndex.

Success:

1. How would you define success?

Potential clarification and transition questions: (In other words, what is your vision of professional success? How can you tell if you are successful? How important are promotion rewards to reflect your success?)

2. What has influenced your definition of success?

Potential clarification question: (How might your peers, male or female, have defined success?)

3. What have been some of the key components that have contributed to your professional success?

4. Have you encountered any barriers (difficulties or obstacles) to your attainment of success as you have defined it? If so, what are they? If not, have you heard of other women encountering barriers?

EI Questions:

5. Share a story of a time that your emotional intelligence skills allowed you to succeed at work?

6. What emotional intelligence skills do you think are the most important to being successful as a woman in a technical field?

7. What emotional intelligence skills do you think women lack that then hinder their ability to be successful?

Burnout:

8. Taking everything into consideration, how likely is it that you will make a genuine effort to find a new job (with another employer or in another employment situation) within the next two years?

9. Will that new job be technical in nature?

10. Are there other women in technology in your network that you think I should interview for my research?

Appendix G

Sample Quotes for Interview Themes

Participants' Definitions of Success

Definition	Sample Data	All *N* (%)
Others' perceptions	"Feedback from a boss or those I'm completing a project for." "Good reviews, good feedback from other people. "more recognition from my peers for a contribution I have made." "For me professional success is based on feedback and praise from others." "People coming to you for advice." "Being competent and seen as competent- known as solving problems and what I'm talking about."	16 (70%)
Feelings of happiness and excitement about work	"If I am successful I am waking up energized and enthusiastic for the challenges ahead." "Being in a role I can be happy. "Go to work and be happy about it, be excited about the work I do."	12 (52%)
Making a difference	"Is this a job where I feel like I'm making a difference and there is a ripple to other people." "For me professional success is something that is really mentally stimulating and I'm making a difference." "I don't want to do something just for me. I want to do something for the greater good of the whole."	9 (39%)
Internal satisfaction	"A job you feel good about doing for yourself." " I'm successful with my own satisfaction with my work." "Being satisfied where I am, where I can come home and be ok with where my career is."	6 (26%)
Reaching set goals	"Every quarter we write key results, they are quite aggressive and if we meet them we know we are successful." "Seeing strategic things at my company that I want happen to happen."	5 (22%)
Helping to develop others	"Seeing someone else I've helped do well." "People, and the development of people."	5 (22%)
Work life balance	"I'm most successful when people are looking to me as an expert but I have time to exercise and spend time with my husband." "Minimum benefits for work life balance. Being able to have maternity leave."	4 (17%)
Money, rewards, and promotions	"Making more money at your job means you are successful."	2 (9%)

N = 23

Factors that Promote Success

Definition	Sample Data	All *N* (%)
Emotional intelligence • Relationship management (16) • Self-management (12) • Communication (6)	”Access to resources and relationships that I’ve built, and my continual growth internally.” “My ability to build effective relationships and foster those relationships.” “Be able to keep calm in situations and be objective.” “To be well spoken and understand people. If you are a women and walk into a room full of geeks, 99% of the time someone will feel threatened. Need to understand the room an people to make it work.” “I can understand where people are coming from.” “Written and oral skills.”	19 (83%)
Support from a manager, mentor and family	“My support system- peers and mentors. Without them there is nothing.” “Individuals who were willing to take a chance on me and offered me those opportunities.” “Having a supportive family has been key.”	9 (39%)
Professional drive and ambition	“Initiative has been a big factor. They look for that.” “My innate drive to be the best.” “I have drive and passion to get the answer.”	8 (35%)
Skills, talent, and education	“Having a good education.” “Talent, but it’s a mysterious quality. You might say it’s an element.” ”My technical skill set.”	8 (35%)
Cognitive ability	“I’m smart” “I’m naturally logical.” “I’m very creative. I see everything as a puzzle.”	6 (26%)
Dedication and ability to deliver	“A lot of hard work.” ”I’m dedicated to doing the right thing.”	5 (22%)
Confidence	“Be confident enough to say I have a reason to sit at this table. I have the experiences. I have the skill. I have the understanding. I know my value.” “I can walk around and take any job I want and I would do well. I walk around with self-confidence.”	4 (17%)
Ability to negotiate	“Getting better at negotiation. You have to ask for it.”	3 (13%)

N = 23

Factors that Hinder Success

Barrier	Sample Data	All *N* (%)
Challenges due to gender • Challenges making friendships with men (3) • Personal demands of motherhood (3) • Having to prove your credibility and value because you are a woman (3) • Competition with other women (2) • Lack of female role models (1)	"Harder for a woman to develop friendships with their male co-workers." "I can talk forever about having to do work in a man's world. I was a single mother. . . . Guys ignore everything that I said. They still do. To the guys who are younger I have to prove myself all over again." "Yes. My team I'm the only women. People tend to trust men more than women, when it comes to technical." "Other women in higher positions feel a threat from me." "Lack of role models, especially for girls."	9 (39%)
Unsupportive managers	"I've had managers tell me you will not succeed. I've had individuals actively oppose my success." "Working under thoughtless management is a strong barrier to success." "Managers who are more concerned about what I can do for them."	8 (35%)
Self-imposed limitations • High expectations (3) • Taking on too much/burnout (2) • Low confidence and not taking risk (1)	"I am my own worst enemy. My own standards and drive for perfection." "You don't realize how much you are taking up, and to be successful you take on to much and it results in burnout." "Confidence. I'm a careful person."	6 (26%)
Working excessive hours	"Really long hours. With a stalemate of projects. The projects aren't exciting." "A lot of it had to do with hours. It was exhausting!"	3 (13%)
None	"No, not really."	3 (13%)
Not being appreciated	"I don't feel important. Whatever I did before was trashed."	2 (9%)

N = 23

Emotional Intelligence Competencies Women Lack or Need to Develop

Competency	Sample Data	*N* (%)
Confidence and assertiveness	"Have to be able to stick up for yourself. You're just as good as everyone in a room." "It comes out as a lack of confidence. It's an ongoing process to evaluate." "Gain your self-confidence. If you don't have the confidence, find a way to grow it."	14 (61%)
Self-control	"Sense of thick skinness. It's needed in tech and business, especially. I see women who let the situation overburden them and fail." "Taking things personally and knowing how to deal with that. What if someone says something so upsetting and you want to cry." "If you are in a heated conversation. Not getting overly emotional. Take it as a good debate. People can get defensive of their own ideas. Take it as it is—it's team dynamics."	10 (43%)
Confident communication	"Stating what they need. Women try to get by on too little." "You need to be confident when you speak." "Women need to speak up more to be heard and speak up twice as loud. Have that conviction and strength of conviction to speak up."	6 (26%)
Relationship management	"We are so focused on getting results. We don't take the time to develop the strategic relationships that could help us." "Ability to build relationships. Women need to have that ability to build and foster those relationships."	5 (22%)
Self-development	"We are so dedicated to the job we forget about taking care of ourselves and seeing boundaries that the job can not intrude on."	3 (13%)
None	"Not really. There are none woman lack."	3 (13%)

N = 23

Importance of Emotional Intelligence for Success

Importance	Sample Data	*N* (%)
Emotional intelligence is important to success	"I think we could have better results and happier people . . . if we paid more attention to the emotional intelligence aspect, especially in technology." "Helps one navigate the mind fields that are there. It's important to any role in any industry. In technology it's more discounted." "Oh yeah. You think it's those people with no social skills and they can't talk to people. You would assume they are not important…So trying to succeed in that type of environment especially as a woman, you kind of need to be able to cope and deal with all of them." "Absolutely. Your IQ will come into question and you are going to have to demonstrate your capabilities even more. If you don't have the emotional intelligence to rise above that preconceived notion, it will be difficult for you to be accepted." "Besides communication, probably not."	13 (100%)

N = 13

Components of Emotional Intelligence Used

Component	Sample Data	*N* (%)
Relationship management	"She came to me close to tears and he came over and yelled at her. . . . Did you get her emails? Yes. Do you realize she is new? Yes." Continues to tell a story about how to build the relationship between an intern and a manager. "Building a better relationship with employees was important for me." Participant tells a story about using conflict management during a phone call. "The manager of the colleague he told the guy to shut up. None of us are in a room. 5 boxes popped up (on instant messenger) and I told them to keep it calm." "You don't succeed if people don't' succeed."	19 (83%)
Communication	"It's hard to get by if you can't effectively communicate with other people." "Communication: clearly, effectively, affirmatively." "Listening. You have to be able to listen instead of hearing what they have to say and trying to respond in your head."	12 (52%)
Self-control	"Must be really professional at work and not loose your temper. You know how to handle each person and not just react to the situation." "Be able to assess a situation, and know where you are and not react. All people tend to react and if you are reacting you are not in control." "Patience is also really important."	8 (35%)

Component	Sample Data	*N* (%)
Social awareness	”Using EI to assess a situation and adapt to the situation.” “Situationally aware—be able to read that moment. Understand before being understood.” “Have to be able to read and interpret what is going on with some fair degree of accuracy.”	8 (35%)
Self-awareness	“Know yourself. The whole self-awareness piece.” “Must have the awareness of yourself.”	6 (26%)
Strategic problem solving	“Must be able to think through and logically understand a problem and solution that is scalable.” “Having the where with all to see what her behavior was doing to the organization. Fostered relationships and having the courage to leadership to confront issues.”	4 (17%)
Adaptability/stress tolerance	“Need to manage stress by insisting on work life balance. The job will take whatever you give it.” Story about adaptability. “Initially I took it very personally. At first I read a lot into it.” The participant continues to talk about how she coped with not knowing and moving to a place of knowing.	4 (17%)

N = 23