

**Examining the Relationships between Front Line Supervisors and Employees' Emotional Intelligence, Engagement, and Job Satisfaction within the Manufacturing Industry**

by

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## Abstract

The concept of emotional intelligence and the potential impact on an organization has sparked a concerted effort amongst researchers to examine and more clearly define the role of emotional intelligence in the workplace (Bar-On, 2006; Goleman, 1995; Mayer & Salovey, 1997). Goleman, Boyatzis, and McKee (2002) advised that emotional intelligence was a key element regarding leadership effectiveness, especially in a team environment. Emotional intelligence (EI) and leadership serve a dual purpose which is to encourage teamwork to reach an end goal and to motivate individual members (Prati, Douglas, Ferris, Ammeter & Buckley, 2003). Emotional intelligence, job satisfaction and employee engagement are well researched as individualized topical areas of interest; however, the relationship between supervisor emotional intelligence and manufacturing employee's job satisfaction and engagement has not been widely researched.

The purpose of this quantitative study was to examine relationships between supervisor and employee emotional intelligence, engagement, and job satisfaction within manufacturing industries industry in Southeast Alabama. The research questions aimed to address the gaps in empirical research surrounding the key variables: emotional intelligence, job satisfaction and engagement. The Schutte Emotion Intelligence Scale (SSEIT) (Schutte, Malouff, & Bhullar, 2009), also referred to as the Assessing Emotions Scale, the Minnesota Satisfaction Questionnaire (MSQ) (Weiss, 1977) and The Utrecht Work Engagement Scale (UWES-9) (Schaufeli & Bakker, 2003), also referred to as the Work & Well-being Survey, were used in this

study to address the five research questions. The sample population were employees and supervisors currently working in manufacturing industries in Alabama manufacturing industries ( $N=189$ ,  $M$  age = 38.40 years). Analyses of the data were conducted using standard multiple linear regression and an independent t-test. Results found that gender and age did not predict emotional intelligence among any level of employee and there was no mean difference in EI among supervisors and employees. Multiple linear regression models were used to examine the relationship between the criterion variables (i.e., emotional intelligence, job satisfaction, and engagement) and results indicated a significant linear relationship in predicting the dependent variables for the fitted model. Specifically, EI was significant in predicating supervisor job satisfaction an overall employee engagement. Future research in this area should seek to improve data collection methods (e.g., multiple reporters) and to better develop measures which account for the unique working environmental conditions of manufacturing industries.

Finally, the findings in this study seem to indicate a more nuanced approach may be necessary to examine the role of the front line supervisor in manufacturing industry settings. In conclusion, future research examining the relationship between frontline supervisors and employees and the role of emotional intelligence in the prediction of job satisfaction and engagement warrant improved methods in data collection and better scale development more applicable to the manufacturing industry working environment.

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## CHAPTER 1. INTRODUCTION

### **Background**

One of the most significant challenges facing manufacturing industries is ensuring effective continued workforce development for the current and future labor pool. Manufacturing organizations consistently encounter a variety of internal and external stressors, which can affect the overall culture of an organization (Altındağ & Köseadağı, 2015). While manufacturing industries are often aware of routine and continuous changes due to technological advances and the essentiality of being innovative and cutting-edge regarding competitors for business, they are often struggling with retaining the skilled workers who comprise the labor pool, especially in more rural settings. Therefore, industries continuously struggle to provide a balanced environment with the best benefit packages and pay to increase employee engagement and raise morale, thus retaining highly skilled workers (Vance, 2006).

A plethora of research has focused specifically on the internal stressors within an organization that may attribute to low employee morale, disengagement, and turnover, with findings suggesting two key areas of focus: ineffective leadership practices of supervisors and lack of acknowledgement of the needs of individuals within the organization (Holtom, Mitchell, Lee, & Eberly, 2008; Hom, Mitchell, Lee, & Griffeth, 2012; Park & Shaw, 2013; Vance, 2006). Thus, researchers interested in workforce development, employee engagement and job satisfaction have been exploring possible factors and practices, which may contribute, to fostering a more productive environment (Alfes, Shantz, Truss, & Soane, 2013; Chalofsky &

Krishna, 2009; Olafsen, Halvari, Forest, & Deci, 2015; Rich, Lepine, & Crawford, 2010). The literature indicates that leadership practices affect organizational climate, thus solidifying that the influence of a supervisor plays a critical role in an employee's level of motivation and engagement (Chughtai & Buckley, 2011; Doh & Quigley, 2014; Lin et al., 2016; Martin & Siehl, 1983; Schein, 2010). While numerous studies found the most impactful and effective leaders had several distinctive qualities in common, which differentiated them from the average supervisor, one key trait identified was emotional intelligence, which received a tremendous amount of focus within the literature (Barling, Slater, & Kelloway, 2000; Brown, 2014; Callahan, 2016; Dabke, 2016; Li, Duan, & Zheng, 2010; Northouse, 2015; Sun, Chen, & Zhang, 2017).

Emotional intelligence (EI) has been defined as the ability for an individual to identify and manage their own emotions as well as others and understand how emotions can influence behavior (Salovey & Mayer, 1997). The concept of emotional intelligence and the potential impact on an organization has sparked a concerted effort amongst researchers to examine and more clearly define the role of emotional intelligence in the workplace (Goleman, 1995; Mayer & Salovey, 1997; Bar-On, 2006).

Therefore, over the last two decades, the study of emotional intelligence among leaders and its relationship with employee engagement has become an area of interest within many industry and professional organizations as well as the academe (Scott-Halsell, Shumate, & Blum, 2007; Slaski & Cartwright, 2002); however, very few studies have focused on the manufacturing industry. While the manufacturing industry has expressed a shortage in labor and an increasing need for the retention of skilled workers in their organizations, only a few studies address possibilities for increasing retention through employee engagement and performance strategies

within the manufacturing industry with focused training on emotional intelligence (Council, 2004). Research relating to areas such as job satisfaction, employee engagement and retention has acknowledged one strategy by which organizations can better retain and recruit employees and that is through effective leadership. A study conducted by Palmer, Walls, Burgess, and Stough (2001) showed a significant relationship between effective leader's emotional intelligence and their ability to affect how employees feel on the job.

Other studies have addressed effective leadership and retention; however, a gap in the literature identified an unexplored area regarding the connection between both emotional intelligence and employee engagement. No preceding studies were found which analyzed supervisor emotional intelligence, employee engagement, and job satisfaction in the manufacturing industry. Thus, this study has examined the possible role through which emotional intelligence may facilitate employee engagement thus increasing job satisfaction and retention of skilled workers in the manufacturing industry.

### **Statement of the Problem**

While there is evidence of a relationship between emotional intelligence and human services, retail, healthcare, hospitality and private sector organizations (Coetzee & Schreuder, 2011; Higgs, 2001; Scott-Halsell, Shumate & Blum, 2007; Slaski & Cartwright, 2002; Washington, 2017), no studies were found that have investigated emotional intelligence and the manufacturing industry. Emotional intelligence, job satisfaction and employee engagement are well researched as individualized topical areas of interest; however, the relationship between supervisor emotional intelligence and manufacturing employee's job satisfaction and engagement has not been widely researched. Researchers suggest that the possession of emotional intelligence skills by leaders has been found to be more influential than any other

individual's impact within an organization (Dulewicz & Higgs, 2000; Goleman, 1998; Higgs, 2001). As the workforce shortage increases and manufacturing industries continue to struggle to retain critical employees (Wang, Tao, Bowers, Brown, & Zhang, 2018), the examination of emotional intelligence among leaders and the correlation it may have with employee job satisfaction gains importance in a variety of fields and professions. Therefore, measurable outcomes must be created as they can support organizational human resource decisions and diminish the inordinate rate of turnover currently being experienced by this industry.

In addition to the required mastery of highly specialized technical skills, manufacturing leaders must understand how to best motivate their employees. The ability to use emotional intelligence empowers leaders with the ability to better recognize, comprehend, and contextualize the actions of others and themselves in a highly regulated environment. Critical emotional skills that leaders must be proficient in demonstrating are motivation, empathy, flexibility, and optimism (Bar-On, 1997; Petrides & Furnham, 2003). Leaders in any industry can assist individuals by having them understand their own emotions and the impact of their actions. Supervisors who effectively demonstrate these key skills among their employees create environments which are much more positive and productive, essentially creating a more successful industry (Momeni, 2009). Zhou and George (2003) found a positive benefit to supervisor development and practice regarding their personal emotional intelligence, which was higher creativity in five domains: area of need identified, research process, idea generation, evaluation of design, and implementation. Nikolaou and Tsaousis (2002) found lower levels of stress and higher commitment to the organization. Most important to note is that emotional intelligence has been shown to be a highly developable skill (Dulewicz & Higgs, 1999; Goleman, 1996, 1998). Therefore, as supervisors increase their own mastery of emotional

intelligence and demonstrate their skills, they are also modeling emotional intelligence through their interactions with employees. Modeling has then provided indirect training of emotional intelligence to employees in conjunction with formal training and cognitive awareness of key skills. While this is not an exhaustive list, there are key emotional traits supervisors can exhibit such as assertiveness; happiness; optimism; stress tolerance/management; consistency; self-management; ability to listen; leading by example; self-esteem; empathy; and acknowledging the needs of individuals (Bar-On, 1997; Goleman, 1995; Mayer, Salovey, & Caruso, 2008; Mayer, Salovey, Caruso & Cherkasskiy, 2011; Petrides & Furnham, 2003).

The acknowledgment of the role and importance of emotions can be vital to the success of an organization as emotional intelligence assists individuals to identify their own behavior as well as make choices that can positively impact others in the working environment. An antiquated but traditional perspective of career success has often been attributable to intelligence and IQ, yet some have successfully documented the important role that emotional intelligence may serve in that success (Amdurer, Boyatzis, Saatcioglu, Smith & Taylor, 2014; Lam & Kirby, 2002; Stein & Book, 2011). Previous studies have linked high emotional intelligence with employee relatability, which serves as an important role in building the foundation of a strong workforce (Carmeli & Josman, 2006; Collins, 2013; Sy, Tram, & O'Hara, 2006; Wong & Kenneth, 2002). Thus, employees who have an emotional connection may become more productive in their job and may see their purpose in the task more clearly and the more productive employees are the more successful the organization (Collins, 2013).

### **Purpose of the Study**

The purpose of this study was to examine relationships between supervisor and employee emotional intelligence, engagement, and job satisfaction within manufacturing

industries in Southeast Alabama. Goleman, Boyatzis, and McKee (2002) advised that emotional intelligence was a key element regarding leadership effectiveness, especially in a team environment. Both emotional intelligence and leadership serve a dual purpose which is to encourage teamwork to reach an end goal and to motivate individual members (Prati, Douglas, Ferris, Ammeter & Buckley, 2003). Thus, developing the emotional intelligence of supervisors and employees may increase productivity and enhance the culture of an organization because employees may have higher job satisfaction and levels of engagement while at work.

Emotional intelligence is defined as the skill to identify and understand the emotions of oneself and others and use the acquired knowledge to inform decisions and guide behavior (Mayer & Salovey, 1993). Emotional Intelligence tests are used to evaluate an individual's ability to gauge emotion in two domains: the self and others. According to Mayer and Salovey (1997), whose work is claimed to be the origination of emotional intelligence as a concept there are four facets of emotional intelligence comprised in the model and they are: 1) perception; 2) understanding; 3) facilitation; and 4) management (Mayer & Salovey, 1997). Enhancing a supervisor's professional development skills through emotional intelligence training can improve collegiality, enhance co-worker collaboration, subsequently fostering psychological safety therefore impacting increases in external factors, which may affect employee job satisfaction, engagement and overall commitment to the organization (Abugre, 2017). Finally, by developing an individual's emotional intelligence, positive benefits may be transmitted in the form of a more productive workforce and less stressed supervisors and employees, thus creating a more positive environment in the workplace attributable to the knowledge and education supervisors and employees have of the

increasingly important role emotions have on job satisfaction and engagement (Cherniss, 2001).

A clear relationship has not been found between the supervisor and employee emotional intelligence and the impact it may have on job satisfaction, engagement and commitment. While some research has well documented the impact of external stressors such as working environment, job conditions, and transportation, there is still a deficiency regarding our understanding of the influence of internal stressors such as a leader's emotional intelligence and employee job satisfaction and engagement. By promoting the development of emotional intelligence through training and practice, leaders are provided an advantage in areas such as problem-solving and disciplinary actions as emotional intelligence teaches individuals how to communicate with their workforce, especially after an emotionally charged interaction between employees. Data collected for this study will assist in the fulfillment of organizational missions which often focus on ideals such as leadership/coaching, internal drive, teamwork and communication, which are all interconnected with the concept of emotional intelligence (Biol, Atamturk, Silman, & Sensoy, 2009).

### **Research Questions**

The following research questions were used in this study:

1. What is the level of emotional intelligence in relation to gender and age of front line supervisors and employees' in manufacturing industries in Alabama?
2. What is the relationship between supervisors and employees' emotional intelligence in Alabama manufacturing industries?
3. What is the relationship between supervisors and employees' emotional intelligence and job satisfaction in Alabama manufacturing industries?

4. What is the relationship between supervisors and employees' emotional intelligence, job satisfaction and engagement in Alabama manufacturing industries?
5. How do supervisors and employees' emotional intelligence and engagement interact to predict job satisfaction in Alabama manufacturing industries?

### **Significance of the Study**

This study addresses the limited amount of scholarship relating to the emotional intelligence levels of supervisors and employees' in the manufacturing industry. This study contributes to a current body of literature addressing the relationship between supervisors and employees' emotional intelligence, level of engagement, and job satisfaction in manufacturing industries. A desired outcome of this study was to determine the level of emotional intelligence of supervisors and employees' in manufacturing industries and provide strategies and practical training courses to improve job satisfaction and engagement overall for employees. This study provides a framework by which other scholars may cultivate further research regarding the role of emotion intelligence and workforce development. Additionally, human resource and senior-level managers could make more informed organizational decisions regarding supervisor training with a focused attention on soft skills training in industries such as manufacturing, which are often focused on the technical aspect of development (Brunetto, Shacklock, Teo & Farr-Wharton, 2014; Clarke, 2010; Dulewicz & Higgs, 2003; Hayes, Rose-Quirie, & Allinson, 2000). Finally, with little empirical research to support its importance, findings from this study could further shape the ideas and theories, which support implementing programs and initiatives focused on developing more positive citizenship behavior among supervisors and employees and thus improving production and creating a more successful organizational culture within

industries (Kim & Yu, 2004; McDermott & Stock, 1999; Nahm, Vonderembse & Koufteros, 2004). According to Goleman (2003), those involved in organizational decisions should consider the role of supervisors and provide emotional intelligence training and skill development that will promote a positive organizational climate and preserve job satisfaction and retention because emotional intelligence is an essential component of leadership.

### **Limitations of the Study**

The current study has several limitations. The first limitation was the use of self-report methods in this study. Research conducted in business settings using self-report measures to assess personal attitudes or perceptions towards one's job may influence employees to give a socially desirable response according to the organizational behavior literature (Donaldson & Grant-Vallone, 2002). In general, participants want to provide answers that portray a positive image and there is an exhaustive area of literature examining social desirability bias and job satisfaction ratings of which continues to confirm decades of previous research (Moorman & Podsakoff, 1992; Podsakoff & Organ, 1986; Uziel, 2010; Valentine, Godkin, Fleischman, & Kidwell, 2011).

Second, manufacturing industries operate between two and four working shifts, rotating schedules and long work hours which have individually and collectively been linked to poorer health outcomes (Harrington, 2001). Drake, Roehrs, Richardson, Walsh and Roth (2004) indicated there was sufficient evidence linking shift work disorders with other negative comorbidities such as mental and physical health disparities and higher rates of absenteeism among shift workers compared to their non-shift working counterparts.

Finally, due to the nature and scope of this study using information collected from participants employed by southeastern manufacturing industries, this sample may not represent

all manufacturing supervisors and employees' in the United States. Therefore, further research is needed to obtain a representative sample of ethnically-diverse supervisors and employees to examine if the findings generalize to other samples and populations within manufacturing industries.

### **Definition of Terms**

*Adult Education.* Any educational activity whose aim and design is specifically for adults.

Adult education can occur in various settings: formal, non-formal and informal. A formal setting would be a college or university graduate course with an outlined structure. A non-formal setting would be formal educational material in a non-traditional setting such as an educational workshop. Finally, an informal setting is where we learn through experiences in the process of our daily lives and encounters. Adult education is a life-long process that happens in many forms but can continue throughout the lifespan.

*Andragogy.* "The art and science of helping adults learn" (Knowles, 1984, p.6). Parameters of adult learning and education attribute to what it is as a scientific idea and concept. Knowles life work and research attempted at developing a theory specific to how adults learn or why they learn. The term has since been used in various capacities such as the reference to techniques and methods that instructors may use to get adults to learn (Knowles, 1980).

*Job satisfaction.* Job satisfaction is defined as the extent to which positive emotional characteristics and attitude are demonstrated regarding an individual's job and is comparable to what people value and is expected from them on the job (Oshagbemi, 1999).

*Emotional Intelligence (EI).* Emotional intelligence is defined as the ability to identify and understand emotions in self and others, manage one's own emotions, integrate and express

emotion in behavior, and make judicious decisions with emotional understanding (Mayer & Salovey, 1997).

*Employee engagement.* The degree to which employees within an organization (hourly or salaried) are emotionally connected to their workplace resulting in productivity (Macey & Schneider, 2008).

*Philosophy.* The idea of the study of philosophy resides in the foundation that it can occur within and among any subject matter. The study of adult education and the knowledge of its principle elements is what grant the highest degree in academia of Doctor of Philosophy in a specific discipline. This is due to the investigation and in-depth examination of a particular topic in one's discipline.

*Self-Directed Learning.* Conceptual development derives from the belief that adult learning happens because there is internal motivation on the part of the adult to partake in an activity. Knowles and Tough both believed that this learning could occur in any context, subject area, and at any time and place in an individual's life. Their work propelled the idea that self-directed learning could be integrated into any experience in which learning could occur; where knowledge was being transferred, self-directed learning could be applied.

*Supervisor.* Supervisor, for this study, is defined as an individual who assigns jobs to and supervises production workers (Wright, 2004).

*Workforce Development.* The idea that skills and training in the workplace should be identified and evaluated to cultivate a more diverse and thriving organization. Development could occur in various forms: workshops, training plans, skills training etc. Growth must occur in workforce development. This may be through educational methods, training, one-on-one interaction, peer evaluation, or evaluations and feedback summaries.

## **Organization of the Study**

This study was divided into five chapters. Chapter 1 introduces the study by providing the following information: general background information of the topic, statement of the problem, purpose of the study, research questions, significance of the study, limitations and definition of terms. Chapter 2 is a review of the literature related to andragogy and manufacturing industries, emotional intelligence, job satisfaction, employee engagement, and effective manufacturing environments. Chapter 3 reports the methods employed to conduct the quantitative study, including the sample, instrumentation, and data analysis plan. The results of the study are presented in Chapter 4. Chapter 5 includes a discussion of the findings reported in chapter four and the limitations of the study. Lastly, Chapter 5 concludes with a summary of the implications for practitioners and future research and recommendations for further studies.

## CHAPTER 2. LITERATURE REVIEW

### **Introduction**

Chapter 1 introduced the study by providing the general background information of the topic, statement of the problem, purpose of the study, research questions, significance of the study, limitations and definition of terms. Chapter 2 provides a review of literature organized into five major sections: andragogy and manufacturing industries, emotional intelligence (EI), employee engagement, job satisfaction, and EI's role in manufacturing workforce development and effective manufacturing environments. This chapter presents a synthesis of scholarly research consulted to build upon for the current study.

### **Purpose of the Study**

The purpose of this study was to examine relationships between supervisor and employee emotional intelligence, engagement, and job satisfaction within manufacturing industries in Southeast Alabama. Goleman, Boyatzis, and McKee (2002) advised that emotional intelligence was a key element regarding leadership effectiveness, especially in a team environment. Both emotional intelligence and leadership serve a dual purpose which is to encourage teamwork to reach an end goal and to motivate individual members (Prati, Douglas, Ferris, Ammeter & Buckley, 2003). Thus, developing the emotional intelligence of supervisors and employees may increase productivity and enhance the culture of an organization because employees may have higher job satisfaction and levels of engagement while at work.

Emotional intelligence is defined as the skill to identify and understand the emotions of

oneself and others and use the acquired knowledge to inform decisions and guide behavior (Mayer & Salovey, 1993). Emotional Intelligence tests are used to evaluate an individual's ability to gauge emotion in two domains: the self and others. According to Mayer and Salovey (1997), whose work is claimed to be the origination of emotional intelligence as a concept, there are four facets of emotional intelligence comprised in the model and they are: 1) perception; 2) understanding; 3) facilitation; and 4) management (Mayer & Salovey, 1997). Enhancing a supervisor's professional development skills through emotional intelligence training can improve collegiality, enhance co-worker collaboration, subsequently fostering psychological safety therefore impacting increases in external factors, which may affect employee job satisfaction, engagement and overall commitment to the organization (Abugre, 2017). Finally, by developing an individual's emotional intelligence, positive benefits may be transmitted in the form of a more productive workforce and less stressed supervisors and employees, thus creating a more positive environment in the workplace attributable to the knowledge and education supervisors and employees have of the increasingly important role emotions have on job satisfaction and engagement (Cherniss, 2001).

A clear relationship has not been found between the supervisor and employee emotional intelligence and the impact it may have on job satisfaction, engagement and commitment. While some research has well documented the impact of external stressors such as working environment, job conditions, and transportation, there is still a deficiency regarding our understanding of the influence of internal stressors such as a leader's emotional intelligence and employee job satisfaction and engagement. By promoting the development of emotional intelligence through training and practice, leaders are provided an advantage in areas such as problem-solving and disciplinary actions as emotional intelligence teaches

individuals how to communicate with their workforce, especially after an emotionally charged interaction between employees. Data collected for this study will assist in the fulfillment of organizational missions which often focus on ideals such as leadership/coaching, internal drive, teamwork and communication, which are all interconnected with the concept of emotional intelligence (Birol, Atamturk, Silman, & Sensoy, 2009).

### **Research Questions**

The following research questions were used in this study:

1. What is the level of emotional intelligence in relation to gender and age of front line supervisors and employees' in manufacturing industries in Alabama?
2. What is the relationship between supervisors and employees' emotional intelligence in Alabama manufacturing industries?
3. What is the relationship between supervisors and employees' emotional intelligence and job satisfaction in Alabama manufacturing industries?
4. What is the relationship between supervisors and employees' emotional intelligence, job satisfaction and engagement in Alabama manufacturing industries?
5. How do supervisors and employees' emotional intelligence and engagement interact to predict job satisfaction in Alabama manufacturing industries?

### **Andragogy and the Adult Learner**

Arguably, to understand the most important core tenet of adult education, one must begin by clearly defining what adult education is as a discipline. Various attempts have been made to clearly define adult education (Myers, Conte, & Rubenson, 2014). A cursory examination surrounding the body of adult education literature as early as the 1930's, clearly distinguishes a

working definition many scholars continue to build upon. Bryson (1936) describes adult education as “all activities with an educational purpose that are carried on by people engaged in the ordinary business of life.” Knowles (1980b) defined adult education simply as the “process of learning in adults”. It is his definition coupled with the work of Bryson and other early scholars which helped to serve as the milieu, wherein Knowles built the conceptual framework upon surrounding adult education and learning (Smith, 2002).

Knowles (1980) controversially introduced the concept of andragogy premised by the observation that adults learn differently than children. While Knowles’ work continues to be evaluated, examined and critiqued, one facet remains steadfast: the exploration of the idea that the nature of adult education and learning is vastly complex (Knowles, Holton, & Swanson, 2014). The assumptions regarding the characteristics of the adult learner has become a central focus of adult education. The fundamental task of adult education is to provide participants with the conceptual instruments for a radical and thorough critique of the material and intellectual culture (Marcuse, 1969).

### *Adult Learner Characteristics*

Most scholars and professionals in adult education value a framework focusing on the distinct differences between andragogical and pedagogical assumptions. According to Knowles (1984) the differences are found in the following areas (see Table 1):

- Development of self-concept
- Accrual of the learner’s experience and knowledge
- Readiness to learn
- Orientation to learning
- Motivation to learn

Table 1

*Knowles' 5 Assumptions of Adult Learners- Characteristics of Adult Learners (Andragogy)*

Characteristic	Assumption
Self-concept	As an individual matures in adulthood, their self-concept shifts from being a dependent personality toward a more internalized, self-directed adult
Adult learner experience	As an individual matures in adulthood, their toolkit of life experiences grows and becomes an object of reference and resource for future learning experiences
Readiness to learn	As an individual matures in adulthood, their social roles become a reference point for future readiness to learn plans, as well as best fit with current developmental tasks
Orientation to learning	As an individual matures in adulthood, their ability to absorb knowledge for future, unspecified use shifts to a perspective of immediate application as well as a shift from person-centered to problem-centered approaches to problem solving
Motivation to learn	As an individual matures in adulthood, their motivation to learn is internally driven

*Source:* Knowles, 1984.

Furthermore, consideration of motivations role in the adult learner participation is imperative to the process of adult education. Simply understanding the distinct characteristics of adult learners is insufficient and consideration must be given to how learning is approached and in what settings learning occurs. For adults, self-directed learning (SDL) occurs throughout the continued

development into older adulthood and aging. A study conducted by Sawatsky, Ratelle, Bonnes, Egginton, and Beckman (2017) to assess the role of SDL during internal medical residency provided an informative graphical representation of the process (see Figure 1).

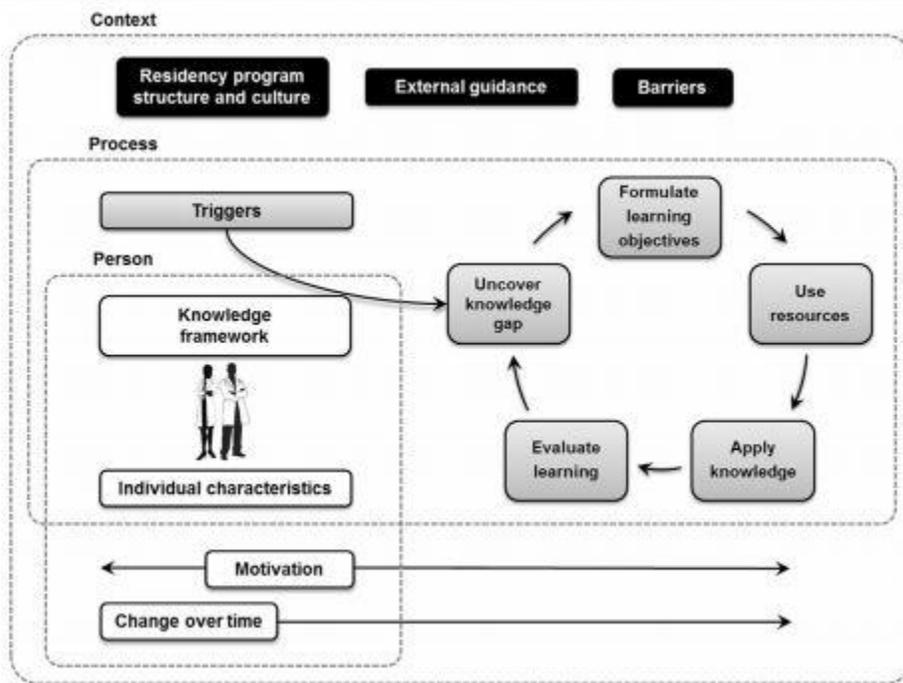


Figure 1. Theoretical Model of Self-Directed Learning during Medical Residency

To briefly address how learning is approached, some reflection must be given to the early scholarly work of Cyrus Houle. Houle (1961) suggested a substantial emphasis should be placed upon participation in adult learning. His book, *The Inquiring Mind*, posited certain external and internal factors influenced the adult learner’s approach to learning (Houle, 1961). Houle’s typology clearly defines three classifications of orientation for the adult learner: goal, activity, and learning. Houle (1961) also proposed the orientations did not work independently but could often be seen interacting in conjunction with one or both other typologies. Finally, this typology

offers the adult educator a glimpse into the elusive specificities of why adults are coming to learn. Therefore, providing educators with the necessary tools to better guide and prepare the adult learner. Table 2 identifies the typologies and supporting information to classify and distinguish between the typologies.

Table 2

*Houle's Typology of Adult Learners*

Classification	Definition
Goal-oriented	Education is a means to an identified goal/objective
Activity-oriented	Education is a means for social interaction
Learning-oriented	A representation of both the goal and activity-oriented learner with an avid desire to be engaged both educationally and socially

*Note.* Houle, 1961.

Fisher (1983) highlights that the ability to motivate as individuals age is a significant problem in adult programs. Cross (1981) added to Houle's work by identifying three types of barriers to learning: situational, institutional, and dispositional. Situational barriers are those encounters which happen at a point in time and are directly connected to an individual's environment and prohibit learning and interaction. Institutional barriers are best described as policies and procedures which can deter or hinder adults from engaging in learning. While the first two barriers were tangible and evidence based, the third barrier, dispositional, can be best described as a mental roadblock, wherein an individual based on experience, attitude or perception is unable engage in the learning process. Evidence in the literature appears to support

that the most pervasive barrier to adult learning as individual's age is the dispositional typology (Scanlan, 1986). Merriam and Caffarella (1999), suggest the lack of consensus surrounding adult motivation to participate explains some of the variation in participation rates as people age, due to the deficit of a central theoretical framework or model by which scholars can substantially predict why some adults choose to participate in lifelong learning opportunities as they age and others do not.

One model which is contributing to our deficiency in this area is the Interdisciplinary, Sequential-Specificity, Time-Allocation, Lifetime Model (ISSTAL). This model serves as a general framework by which all of the currently known contributing factors to adult motivation and participation can be examined (Smith & Theberge, 1987). Figure 2, when used in conjunction with Knowles' theoretical andragogical principles, can serve as a foundational construct for those interested in understanding adult motivation and creating participation programs.

### ISSTAL Model Applied to Adult Education Participation

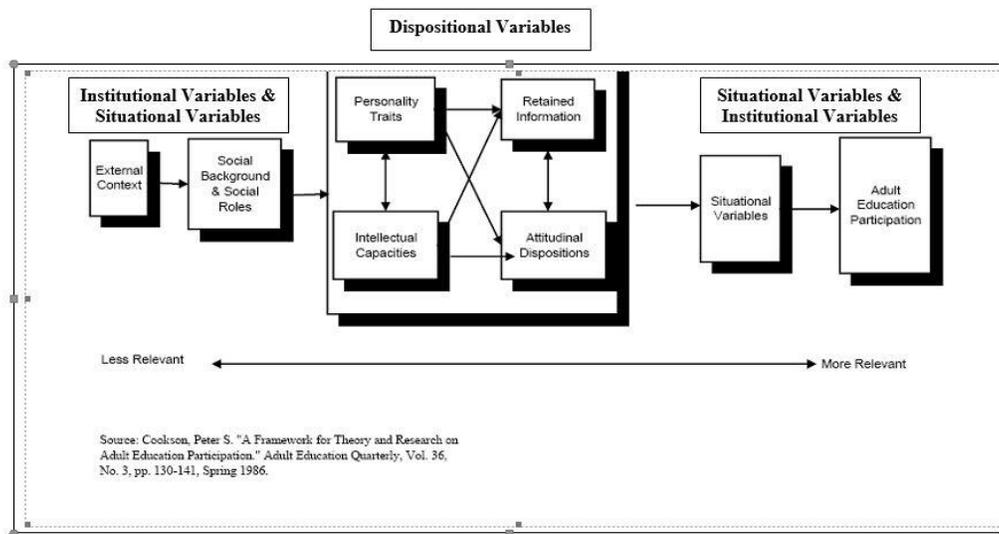


Figure 2. Cookson's Framework for Theory and Research on Adult Education Participation

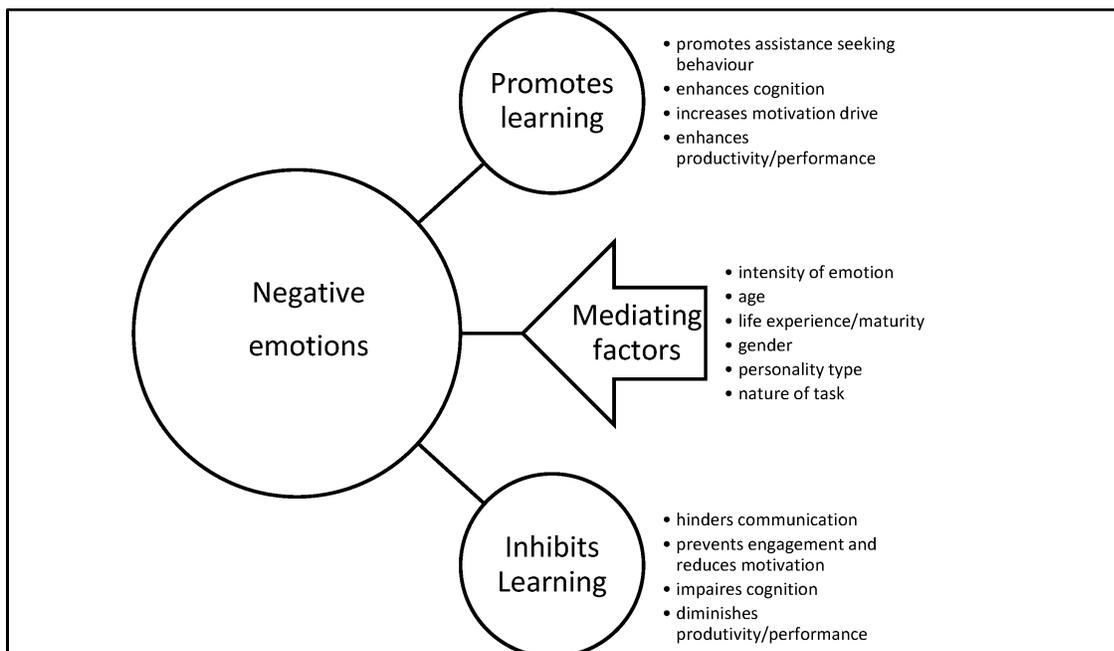
Therefore, assumptions should be made cautiously regarding adult learning theories, barriers to learning, and the emotional connection between motivation and participation.

### *Adult Learning and Emotion*

Early modern philosophers, such as Aristotle and Plato structured their philosophical debates surrounding metaphysics, politics and medicine around theoretical assumptions regarding emotions, reasoning and cognition (Solomon, 2008). What follows is simply a cursory overview of the connection between emotion and adult learning and the transition from theories of emotions to constructs of emotion and emotional intelligence. Heron (1992) explained emotion as the vehicle by which we are able to understand and process information. Even Plato described emotion as an overwhelming lack of control of one's reasoning and judgement (Jaggar, 1989). These same connections with emotion, learning and reasoning date back centuries, yet adults continue to grapple with the balance between emotionality and reasonableness (Dirx, 2001).

Recently, one study conducted by Rowe and Fitness (2018) provided support for these decades-old philosophical and theoretical assumptions that emotion and reason work interactively to support academic and social achievement. Much of the scholarly work surrounding adult learning and emotion has focused on participant test anxiety, however, this study sought to expand negative emotions to address more than just anxiety, but rather to include a wide variety of negative discrete emotions (sadness, anger, fear, and boredom). Thirty-six university staff members, (students = 21, faculty = 15) in Australia from various disciplines across the campus comprised of 22 females and 14 males were asked a series of questions linking negative emotion with the learning experience. Faculty more often described the discrete negative emotions, those most closely tied to anxiety and educational contexts, versus

students more internal perceptions of negativity which reflected on their personal choices or decisions (guilt, embarrassment, shame). The findings for the qualitative study suggested that an individual's role in the educational system may frequently impact their view of learning and motivation in the classroom. Feedback from participants supports the old philosophical roots of emotion as a vehicle through learning (see Figure 3).



*Figure 3.* Perceived Impact of Negative Emotions on Learning (Rowe & Fitness, 2018).

Moser and Moser (1998) added to the literature regarding the continuum of learning and emotion by studying animals and finding unique differences within the brain that differentiated between when learning was occurring versus an emotional experience. The study with rats described the hippocampus of the brain as one unit with multiple functional parts. These parts were the discriminatory factors which distinguished between memory learning tasks and an emotional experience (Moser & Moser, 1998). For centuries we have studied the relationship

and interactions between emotion and reason. However, psychologists in the 1980's aimed at dissecting the normative patterns connecting cognition and emotion growing into a prominent area of psychological research (Mayer, Salovey, & Caruso, 2004).

For instance, in one seminal study during this era, Forgas and Bower (1987) tested how mood effects how we remember others. Mood was impacted by feedback given to participants from a false test, either constructive or critical (i.e. good, bad). Following the feedback, 52 undergraduate males and females were read descriptive scenarios about people, with both positive and negative characteristics equal. Five dependent variables were examined: selective attention, impression formation, judgmental latencies, cognition memory, and recognition memory. A multiple regression revealed significant findings between the constructive and critical feedback groups on positive and negative memory recall. Mood effects predicted memory recall with more constructive feedback participants remembering more positive traits ( $F(1, 50) = 4.33, p < .05$ ) and negative mood more critical traits ( $n, F(1, 50) = 22.18, p < .01$ ).

These and similar studies emphasize the distinct roles of emotion in the relationship between reasoning and learning. As can be seen studies like these are what laid the foundation for the theories of emotion and the birth of the concept emotional intelligence.

## **Emotional Intelligence**

### *Historical Overview of Emotional Intelligence*

Emotion, as it is, for decades has shaped and informed some of the greatest philosophical issues, as well as areas of interest such as interpersonal and familial relations, science, medicine and the arts (Deigh, 2010). While decades of research in the 20th century concluded that the single and best predictor of success in the workplace was attributed to an individual's intelligence, Hunter and Hunter (1984) argued that highest IQ accounted for 25 percent of the

variation. Sternberg (1996) suggested it may be more accurately accounting for only 10 percent of the variance (This variable of intelligence was often measured from a singular context of intellect (IQ)). However, over the last three decades researchers have proposed an increase in theoretical models suggesting multiple indicators of intelligence, to include emotional and spiritual indicators, possibly as more reliable measurements of workplace success (Chin, Anantharaman, & Tong, 2011; Sternberg, 1999; Tischler, Biberman, & McKeage, 2002). First, the research relating to the historical perspectives and development of the construct of emotional intelligence will be reviewed. Secondly, the research regarding the use of the SSEIT and why it was chosen for the current study will be expanded.

One pivotal study by Gardner (1983) propelled to the forefront the idea of the existence of multiple intelligences, with the study examining one type of intelligence described as personal. His theory proposes that individuals do not possess all the intellectual capacities one will need in a lifetime, but over time can develop intellect in approximately eight different domains. Most areas of learning can be developed to competency through development over the lifespan (Ackerman, 1996). These areas are: linguistic, logical, interpersonal, visual/spatial, intrapersonal, naturalistic, kinesthetic, and musical. He defines intelligence as the ability to problem-solve based on various composition of setting and cultural perspective (Gardner, 1983).

The current study focuses on a set of interpersonal and intrapersonal skills known as emotional intelligence (EI) which was first constructed in an article by Peter Salovey and John D. Mayer in 1990. While Salovey and Mayer (1990) were the first to coin the term emotional intelligence in response to Gardner's article on multiple intelligences, it was the piqued interest of The New York Times scientific writer Daniel Goleman which can be attributed to the

concepts widely accepted role in the workplace with his best-selling mainstream publishing selling millions on the topic of emotional intelligence.

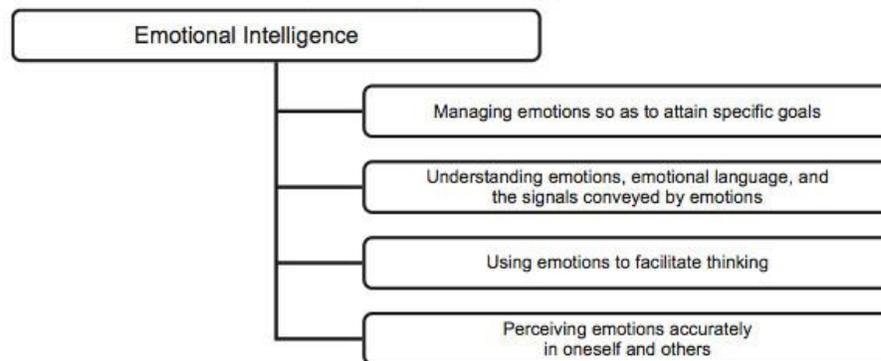
Historically, there have been three main approaches used in EI research, each with a unique and varied perspective, and upon which many other models have based their framework. Development of EI began with the formative papers of Salovey and Mayer in 1990. Their articles were primarily centered on a theoretical discussion grounded in human emotions and intelligence which hypothesized that the skills employed by individuals to understand and regulate their own as well as other's emotions addressed the core tenets of the concept (Salovey & Mayer, 1990). Thus, the first model by Salovey and Mayer centered on successful personal and professional abilities and was shaped by decades of IQ research (Salovey & Mayer, 1990). This ability model defined emotional intelligence as a "subset of social intelligence that involves the ability to monitor one's own and other's feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (Salovey & Mayer, 1990, p.189). The next model is from the work of Bar-On (1997) whose conceptualization focused on differentiating emotional intelligence characteristics from personality characteristics. The EQ-I, a mixed model, often referenced as a blend of emotional and social traits has been well cited throughout the literature "and is the only one for which empirical findings have been reported" (Bar-On, Brown, Kirkcaldy & Thome, 2000; Dawda & Hart, 2000; Neubauer & Freudenthaler, 2005, p.40). The constructs and conceptualization were of central focus in Bar-On's scholarly work as he described his model as a "cross-section of interrelated emotional and social competencies, skills and facilitators that determine how effectively we understand and express ourselves, understand others and relate to them, and cope with daily demands" (Bar-On, 2006, p.3). The third, and last key model, Goleman's Emotional and Social Competence Inventory was developed to integrate

both EI behaviors and competencies of those who were successful professionals (Goleman, 1995). Goleman's definition of EI as a model is both theoretical and melded with organizational leadership literature which solidified why the term EI became so commonplace in workplace settings (Goleman, 1998). Still, it is the first two models which have produced the most commentary in the scientific literature (Neubauer & Freudenthaler, 2005). Most EI models are developed from one of two approaches, either the ability model (e.g. MSCEIT) or the mixed model (e.g. EQ-I). However, scholars have argued that mixed models are often not representative of the emotional intelligence domain and cross over into constructs measuring personality traits (Ashkanasy & Daus, 2005). Thus, the ability model, based on Salovey & Mayer's (1997) four-branch ability model has become the more widely accepted model within organizational units. Therefore, the ability model approach and its impact in the organizational context must be described in further detail to further explore the examination of the underpinnings of EI's conceptual framework.

#### *Mayer-Salovey*

In the early 1990's, two psychology professors John Mayer at University of New Hampshire and Yale's Peter Salovey formulated a developmental model that identified four branches of cognitive and information processing abilities activated when emotional interactions occurred between two people (Salovey & Mayer, 1990). The model, called Emotional Intelligence, acknowledged three areas impacted by emotional intelligence: perception of emotion in self and others, understanding of emotion, management of emotion in self and others. Individuals exhibited behavioral ability beginning with perceived and identified emotion in self and others. Next, individuals understood and applied emotional knowledge to the situation. Finally, emotion was managed in the situation to reach a goal, thus promoting emotional growth

(Salovey & Mayer, 1990). In their follow-up article, Salovey and Mayer's (1997) identified four subgroups from the original three branches, thus amending their original model, with the addition of an individual's ability to prioritize their cognitive processing to focus on important details within the situation (see Figure 4).



*Figure 4.* The Four-Branch Model of Emotional Intelligence (Mayer & Salovey, 1997)

Perception of emotion was classified when individuals brought awareness, assessment and expression of emotion to a situation. Skills have been characterized in this subgroup as the ability to:

- Identify emotion in the physical, mental and psychological states of self
- Identify emotion in other people, places or things
- Acknowledge what the varied emotional states and interactions are and begin the cognitive process of behavior selection
- Identify goals and implement planned actions and behaviors in order to meet identified goals

Individuals' appraisal to use their work suggested this model could extend from adolescence through adulthood during the cognitive processing of emotions between individuals and other people (Salovey & Mayer, 1997). The developmental model focused on the ability to manage

emotions within individuals within the emotional intelligence model their first formulation of the concept of emotional intelligence.

### *MSCEIT*

The original but adapted version of Salovey and Mayer's (1997) model has the highest level empirical research to date supporting its ability-based model (MacCann, Matthews, Zeidner, & Roberts, 2004). The MSCEIT instrument contains 141 items structured to measure perceived performance regarding emotional problem-solving tasks. Total emotional intelligence scores can be summed, as well as four sub-scale categories from each of the four branches depicted in Figure 4. This measures consistent and extensive use in scholarly literature has yielded both a high reliability and validity (Mayer, Salovey, & Caruso, 2012; Roberts, Schulz, O'Brien, MacCann, Reid & Maul, 2006; Rode, Mooney, Arthaud-Day, Near, Rubin, Baldwin, & Bommer, 2008). Participants can receive a total of 15 different scores from within the 141-item survey.

Given the nature of the study and the sample population environment the number of items within the measurement had to be considered. Due to the production process, lean manufacturing, shift scheduling and other fiscal and management concerns an alternative EI measure was pursued. The SSEIT was chosen as a follow-on measure of EI with the model being developed from the Salovey and Mayer (1990) MSCEIT.

### *Measurement of Emotional Intelligence with the SSEIT*

The SSEIT should be used as a tool to work with existing employees and not as a screening tool, as it was designed for self-reflection regarding emotional interactions with others (Schutte, Malouff, & Bhullar, 2009). The scale has been used with a diverse group of participants, ranging from youth to older adults, with the majority of scale use being among adult

participants. Schutte et al. (1998) established the reading level of the measure through the use of a readability test and it was found to be among the fifth-grade average reading level. This criterion was the second reason, following abbreviated length of survey, for selection based on the sample population of the current study, as there was reason to believe a large percent of manufacturing workers would have a high school diploma.

#### *Adapted EI Model for Study*

In 2004, Mayer, Salovey and Caruso's model and theoretical framework was developed from the previous articles in 1990 (Mayer, DiPaolo, & Salovey, 1990; Salovey & Mayer, 1990). The working model described an individual's aptitude of emotions and defined the quotient by which to measure emotional aptitude, later termed emotional intelligence (EI). Their model highlighted four distinctive areas: understanding, managing, perceiving and using emotions (Mayer & Salovey, 1997; Mayer, Salovey, & Caruso, 2004). Thus, emotional intelligence carried with it a working definition to describe an individual's ability to understand and know their own emotions as well as the emotions of others and to make decisions guided by this knowledge and understanding (Shooshtarian, Ameli, & Aminilari, 2013).

Industry leaders, organizational scientists and scholars have maintained a diligent awareness regarding topics such as leadership and management practices along with their impact on employees. However, the rapid evolution occurring in workforce developments to a more globalized economy ushered a more critical examination of industry leaders and their impact on company performance (Finklestein and Hambrich, 1996). Carmeli (2003) demonstrated that public sector senior managers with high emotional intelligence increased personal constructive and altruistic attitudes and behaviors. These findings served to reinforce the theory of emotional intelligence as an integral component of an individual's success and the positive impact effective

leaders make on organizations.

Since its beginning, emotional intelligence has garnered the attention of business and industry leaders, with a generous number of studies focusing on emotional intelligence and its role in emotionally laborious professions such as law enforcement, nursing, and military (Brunetto, Teo, Shacklock, & Farr-Wharton, 2012; Latour & Hosmer, 2002; Mhalkar, George, & Nayak, 2014). Prior research has investigated components of emotional intelligence and manufacturing in an international setting, however, few scholars have examined the role of emotional intelligence in manufacturing industries in the United States (Altındağ, Kõsedađi, 2015; Chin, Anantharaman & Tong, 2011; Pesuric & Byham, 1996).

More recent evidence has suggested the important role of emotional intelligence in manufacturing industries, not only among upper-echelon management but also middle management. Chin, Anantharaman and Tong (2011) surveyed Malaysian middle-managers among ten sectors of manufacturing with the purpose of exploring their level of emotional intelligence and its association with organizational citizenship behavior. Their approach in comparing sectors within manufacturing settings was not well suited for examining emotional intelligence and other measures of job performance. As noted by Chin, Anantharaman and Tong (2011) due to the unique characteristics among the various resource and non-resource-based industries, comparisons should be reserved for similar sub-sectors in spite of their classification within the same overarching field of manufacturing.

Most directly related was a study conducted by Pradham, Jena and Singh (2016) examining organizational learning and performance across manufacturing settings in India and the moderating role of emotional intelligence. Not surprisingly, they discovered a robust correlation between organizational learning and performance from executives who demonstrated

higher levels of emotional intelligence and a weaker association for those with lower levels of emotional intelligence. The findings from this study confirmed support for the role of emotional intelligence in manufacturing organizations, specifically among supervisors.

### **Employee Engagement**

As manufacturing industries survive the demands of competition on a global scale, workplace trends have continued to demand organizations use a variety of strategies to maintain a skilled, prepared and talented workforce. Thus, in order for industries to maintain highly qualified workers, employers must recognize the importance of their biggest asset, the employee (Sarkar, 2011). The second section of this response seeks to examine one strategy employed by manufacturing industries to preserve their viable advantage over the competition. Their relentless effort to focus on employee retention has been a well-documented strategy in a variety of professional sectors such as business, banking, insurance, law enforcement, nursing and hospitality (Arnold, Fang & Palmatier, 2011; Brunetto, Shacklock, Teo, & Farr-Wharton, 2014; Ganapathy & Ashokkumar, 2017; Ponting, Ponting, & Spilde, 2016). Engagement has been widely investigated and is considered one of the most influential factors in an organizations ability to achieve its mission, meets its goals and ultimately succeed in a global market (Attridge, 2009; Fleming, 2009).

Sarkar (2011) found evidence to support implemented engagement practices in manufacturing industries which would likely benefit employees and the organization overall. The results from the survey found 89% of human resource managers implemented engagement strategies in their manufacturing plant. Given the comparatively high level of practices being implemented in manufacturing, but still high rates of turnover, Sarkar (2011) suggested improvements could be made in the following areas to increase retention efforts:

- well-crafted professional development and training programs
- scheduled meetings to solicit employee ideas
- regular updates on company goals and expectations
- ample opportunities for growth within the organization
- efforts by the industry to show they care about their employees

Understanding the relationship between employee engagement and strategies to improve engagement could benefit organizations for future implementation of retention programs.

Colbert (2012) provided further evidence for the important role of engagement practices in manufacturing environments. To determine if there were benefits to engagement, Colbert (2012) examined the impact of leadership on employee engagement in a U.S. chemical manufacturer. The first set of analyses investigated leadership styles and behaviors as antecedents of engagement. His findings directly related to the suggested improvements recommended by Sarkar (2011) to increase retention efforts in manufacturing environments vis-à-vis engagement practices. Colbert's (2012) study found increased employee engagement when practices toward improved targeted behavior were integrated, such as: transparency, facilitating opportunities for growth (i.e. enrollment in professional development training), inclusion of employees in company process discussions, and exhibiting genuine concern for employee well-being. Therefore, the most striking results which emerged from the two studies was support for ideas suggesting increased engagement could be attributed to targeted changes of behavior in leaders. As a result, the targeted behavior changes worked in conjunction with the appointed changes in engagement practices by human resource managers or organizations.

A challenging area in the field of employee engagement was a universally agreed upon definition according to Shuck and Wollard (2010). Their study concentrated on proposing a

working definition based on theoretical models, scholarly review and industry use of the term. Hence, previous work has been limited to addressing the major issues of employee engagement and emotional intelligence as distinct topics among top leaders and middle-managers. Therefore, employee engagement and emotional intelligence continue to be poorly understood among immediate supervisors. However, prior studies have failed to evaluate whether emotional intelligence of frontline supervisors impacts overall employee engagement.

### **Emotional Intelligence and Employee Engagement**

Akhtar, Boustani, Tsivrikos, and Chamorro-Premuzic (2015) found evidence in their study suggesting a higher level of trait emotional intelligence would likely benefit employers as well as employees. They conducted an online survey among 1,050 working individuals in the educational profession and found employees higher in emotional intelligence were more likely to report stronger engagement at work. Based on their findings, Akhtar et al. (2015) suggested consideration of future areas of research to expand the scope, examine emotional intelligence and engagement of the immediate supervisors, and observe if there are effects on employees' engagement. Their recommendations corresponded with the focus of this study and bridge nicely the limited research available in this area.

Recent studies have promoted that individuals with higher emotional intelligence are often reporting higher levels of engagement in their workplace. For example, Brunetto et al. (2012) conducted a study examining the emotional intelligence of police officers, job satisfaction and well-being. A sample of 193 police officers, working as state officers, who attended training in one area of Australia, participated in the study. The construct of emotional intelligence was measured using the 16-item Wong and Laws emotional intelligence scale (WLEIS) developed by Wong and Law (Wong & Law, 2002). The Utrecht Work Engagement Scale (UWES), shortened

version, consisted of 9-items measuring engagement (Schaefeli et al., 2003). The results confirmed emotional intelligence was predictive of perceptions of job satisfaction and well-being and influenced employee engagement. These findings found positive pathways from emotional intelligence to well-being and from well-being to employee engagement, suggesting a negative relationship with intent to leave. Finally, as police officers reported perceptions of well-being increased a significant increase in job satisfaction, engagement and commitment to the department was observed.

A study conducted by Boyatzis, Rochford, and Cavanagh (2017) challenges many of the previous studies mentioned. Their study explored the role of emotional intelligence on an engineer's effectiveness and engagement in the workplace. However, they found no significant relationship between emotional intelligence and engagement but did find a significant relationship between emotional intelligence and effectiveness. This finding suggested an engineer's emotional intelligence predicated positive perception of job performance by colleagues.

While some scholars have addressed the question of emotional intelligence and its impact on employee engagement from a variety of perspectives, a disadvantage of these studies is the missing element considering frontline managers role. The literature has continued to fall short in identifying emotional intelligence and engagement in manufacturing settings. This gap in the literature along with the failure to discuss the role of immediate supervisor remains unclear. However, the limited research in this area has yet to provide substantial evidence to support if an innovative solution in emotional intelligence training could be developed to improve employee engagement and retention. This literature review is the first step towards enhancing our understanding of internal stressors such as emotional intelligence and engagement.

These observations have several implications for promoting the development of emotional intelligence through training and practice. Leaders can be provided an advantage by learning emotional intelligence skills which teach individuals how to communicate with their workforce, especially after an emotionally charged interaction between employees. These skills would be applicable in areas such as problem-solving and disciplinary action. Organizational missions often focus on interconnected ideals such as leadership/coaching, internal drive, teamwork and communication, all important concepts surrounding emotional intelligence (Birol, Atamturk, Silman, & Sensoy, 2009). In turn, research has shown leaders who have higher levels of emotional intelligence often supervise employees who share their same goals for the organization, thus increasing the employee's engagement while in the workplace (De Clercq, Bouckenoghe, Raja, & Matsyborska, 2014).

### **Job Satisfaction**

Koys (2001) conducted a study to assess if employee attitudes and behavior impacted business incomes or if the linear relationship of business outcomes impacted employee attitudes and behavior. Employees of a chain restaurant were surveyed at Time 1 (n=1774; employee) (n=64; supervisor) and one year later at Time 2 (n=2693,79) on measures of employee satisfaction and organizational citizenship behavior. Human resources provided employee turnover rates via a 12-month rolling average, rather than in terms of voluntary turnover, which was assessed at Time 2. Their regression models revealed that employee outcomes influence the organization and employee satisfaction influenced customer satisfaction. These findings suggest the importance of assessing employee job satisfaction as it has a direct effect on cost and ROI.

Witt and Wilson (1991) examined n=102 school teachers and their relationship between job satisfaction and extra-role behaviors. Findings from their study suggested that perceived

equity perceptions was a predictor of extra-role behavior among higher satisfied teachers. Thus, generalization to managers can be made to encourage extra-role behaviors among employees while being aware of equitable treatment, but that extra-role behaviors may only be assumed by teachers with higher job satisfaction.

In Hytti, Kautonen, and Akola's (2013) work, the authors examined (n= 2327) working Finnish professionals to predict factors related to job satisfaction. SEM results found that job creation should take into account autonomy, variety and meaningful assignments in order to increase job satisfaction among salaried and self-employed workers. Implications from this study suggest that organizations should take into account the entrepreneurial spirit and organize jobs with those characteristics in mind.

### **Emotional Intelligence and Job Satisfaction**

Granger (2015) examined the relationship between emotional intelligence and job satisfaction among elementary teachers in Alabama using the SASS job satisfaction survey and the MSCEIT (n=185). Results indicated no significant relationship between job satisfaction and gender, but did find higher levels of emotional intelligence among female teachers. Other findings regarding the sample indicated higher job satisfaction among younger and more educated teachers, with the exception of those with fewer than five years or greater than 25 years of service having higher job satisfaction scores. Contrary to previous research the male sample had higher emotional intelligence scores and those with less experience indicated higher levels of emotional intelligence. The finding related to emotional intelligence and gender should be interpreted with caution as only five males were included in the sample.

## **Emotional Intelligence, Engagement and Job Satisfaction**

An extensive search of the literature gleaned a limited purview of studies which included all of the variables of interest. One study, wherein Brunetto, Teo, Shacklock and Farr-Wharton (2012) sought to examine the effect of emotional intelligence on police officers organizational commitment and intent to stay with the following variables: job satisfaction, well-being and engagement. With 14 hypotheses tested, there were several significant findings related to emotional intelligence. The findings reported are only those with a direct relationship to the current study and suggest the following:

1. Female police officers reported higher EI scores
2. Emotional intelligence predicted overall perception of well-being and satisfaction, which influenced engagement and organizational commitment and negatively impacted intent to leave
3. As officers EI increased job satisfaction also increased
4. Age and gender were not significant predictors of EI

The author suggests using EI criterion in hiring and developing of police, while also encouraging administrators to consider further investigation into job satisfaction and engagement.

## **Workplace Culture in the Manufacturing Industry**

### *Emotional Intelligence and Industry*

Over the last several decades, the nature of workforce development in the United States has grown increasingly complex (Kompier, 2006). Organizations operate in a variety of different contexts to build and retain their workforce spanning five generations (Kowske, Rasch, & Wiley, 2010). This is especially true for manufacturing industries, and their continuing dependence on skilled and certified workers to operate, build and produce manufactured goods and products.

Based on Soltesz, Rutkofsky, Kerr and Annunziata (2016), seventy percent of manufacturing executives reported talent shortages in advanced manufacturing areas such as computer automation, technology training (i.e. 3D printing), and technical skill training (robotic programming, maintenance/repair). During the late 1990's the United States experienced a rise in global competition and as a result, industrial manufacturing jobs began to diminish and were replaced by more service-oriented organizations. The Clinton administration delivered signed legislation, the Workforce Investment Act (WIA), in August 1998 aimed at addressing the concerns of employers by restructuring publicly available jobs and training services to the nation's citizens (Ellis, 2001). A decade later, the WIA provided limited evidentiary support in meeting the purpose and objectives set forth in the original rollout, thus prompting legislators to pass the Workforce Innovation and Opportunity Act (WIOA) to replace the WIA (Spaulding, 2015).

Foundational tenets of the WIOA established amendments to help address deficiencies of the WIA regarding educational certification and development, external funding and instructional design and implementation (Bird, Foster, & Ganzglass, 2014). Lawmakers in Alabama and throughout the country relied on this law to help realign the current workforce system with industry trends to inform educational institutions and grow pipelines focused on development and retention of the workforce (Eyster, 2015). Alabama manufacturing industries experienced increasing turnover rates from 5.4% in 2011 to 5.9% in 2015 (U.S. Census Bureau, 2017). Similar numerical trends were also consistent in other regions of the United States as well. Even with the growth of new hires, a consistent employment gap for skilled manufacturing workers has persistently plagued industries across the country. Consequently, manufacturing industries have continued to struggle with the ability to maintain production largely due to issues

surrounding industrial ecology and circular economy, such as sustainability, eco-industrial park initiatives, inventory and quality control issues, industrial process waste, and workplace accidents (Ghisellini, Cialani, & Ulgiati, 2016; Gibbs & Deutz, 2007; Leigh, 2011). However, one of the most impactful and widely discussed issues addressed in the literature targets human capital, which has been identified as preventable only when appropriate training and professional development programs and services are implemented allowing supervisors and employees the tools to operate at a higher level of performance (Becker, 1962; Leiponen, 2005; Riley, Michael & Mahoney, 2017; Saridakis, Mole & Storey, 2008; Snell & Dean, 1992). Maximizing the potential of employees allows for more satisfied and engaged workers within the organization ergo improving return on investment (ROI) and bottom line (Phillips, Phillips, & Ray, 2012). O'Boyle and colleagues (2011), in their meta-analysis, noted considerable interest given to the role of emotional intelligence and job performance in the literature for organizational behavior, human resources and management (OBHRM). Numerous studies from across disciplines found correlations between emotional intelligence and job satisfaction, engagement, performance or turnover (Druskat, Mount, & Sala, 2013; Ealias & George, 2012; O'Boyle, Humphrey, Pollack, Hawver, & Story, 2011; Ravichandran, Arasu, & Kumar, 2011).

#### *Turnover Rates in Manufacturing Industries*

The literature acknowledges decades of research which support the substantial negative impact of high employee turnover rates (e.g. total separations) on positive developmental growth of manufacturing plants (Koys, 2001; Ton & Huckman, 2008; Ulrich, Halbrook, Meder, Stuchlik, & Thorpe, 1991). Minimal turnover saves the company hiring and training costs and has a direct influence on organizational effectiveness (Selden & Sowa, 2015). Specifically, studies in a variety of fields, but especially organizational and industrial psychology and business

management, examined worker decision-making and characteristics of total separation (Allen, Shore & Griffeth, 2003; Dess & Shaw, 2001; Ferguson, Carlson, Boswell, Whitten, Butts & Kacmar, 2016; Jackson, 1983). Cotton and Tuttle (1986) completed a groundbreaking meta-analysis of employee turnover which suggested the need for more thorough investigations of employee turnover and specifically identified variables which should be addressed in all turnover research such as employee population characteristics (e.g. gender, job type.), type of industry, and nationality as all were statistically significant in the impact on employee turnover.

Cotton and Tuttle's (1986) study prompted an interest in the worker-employer match, however, scholars still did not fully understand the importance of its role in the employee turnover process (Clark & Summers, 1979; Hall, 1972; Kilingsworth & Heckman; Pencavel, 1986).

Noticing the rise of research in labor turnover, Dunne, Roberts and Samuelson (1989) examined the relationship between thriving and failing manufacturing industries in the United States. Included in the study were 219,754 manufacturing plants, across all sectors, in the United States between 1967-1977. Postentry employment was assessed at five time points through longitudinal census data collected to examine plant startup, growth and closure. Growth and failure of plants was matched with census data from 1963, 1967, 1972, 1977 and 1982. Several findings from their study had implications for addressing turnover rates in manufacturing industries. First, they found strong evidence to suggest industries with more stability were often larger firms and had overall smaller rates of turnover. Secondly, the same industries were also paying higher wages, thus creating a positive correlation between plant size and wages. These results suggested lower wages and higher turnover were more likely to occur in smaller plants and plants with a smaller national/international footprint.

*Goals of the Current Study to Address Gaps in the Literature*

Although there are many studies examining emotional intelligence, the research in manufacturing remains limited. Moreover, there are key questions and concepts that are still not discussed in the emotional intelligence and manufacturing workforce literature. Therefore, based on the findings from this literature review, the current study sought to examine the relationship between supervisor and employee levels of emotional intelligence and if EI predicted employee engagement and job satisfaction. The moderating role of EI and job satisfaction in the relationship between EI and employee engagement was also examined (Figure 5).



*Figure 5.* A model of predictor and criterion of independent variables

## CHAPTER 3. METHODS

Chapter 1 introduced the study by providing the general background information of the topic, statement of the problem, purpose of the study, research questions, and significance of the study, limitations and definition of terms. Chapter 2 provided a review of literature organized into five major sections: andragogy and manufacturing industries, emotional intelligence (EI), employee engagement, job satisfaction, and EI's role in manufacturing workforce development and effective manufacturing environments. Chapter 3 presents a detailed description of the research methods used in this study and will be outlined in the five following sections: research design, population and sample selection, instrumentation, method of data collection and the plan of analysis for the study.

### **Purpose of the Study**

The purpose of this study was to examine relationships between supervisor and employee emotional intelligence, engagement, and job satisfaction within manufacturing industries industry in Southeast Alabama. Goleman, Boyatzis, and McKee (2002) advised that emotional intelligence was a key element regarding leadership effectiveness, especially in a team environment. Both emotional intelligence and leadership serve a dual purpose which is to encourage teamwork to reach an end goal and to motivate individual members (Prati, Douglas, Ferris, Ammeter & Buckley, 2003). Thus, developing the emotional intelligence of supervisors and employees may increase productivity and enhance the culture of an organization because employees may have higher job satisfaction and levels of engagement while at work.

Emotional intelligence is defined as the skill to identify and understand the emotions of oneself and others and use the acquired knowledge to inform decisions and guide behavior (Mayer & Salovey, 1993). Emotional Intelligence tests are used to evaluate an individual's ability to gauge emotion in two domains: the self and others. According to Mayer and Salovey (1997), whose work is claimed to be the origination of emotional intelligence as a concept there are four facets of emotional intelligence comprised in the model and they are: 1) perception; 2) understanding; 3) facilitation; and 4) management (Mayer & Salovey, 1997). Enhancing a supervisor's professional development skills through emotional intelligence training can improve collegiality, enhance co-worker collaboration, subsequently fostering psychological safety therefore impacting increases in external factors, which may affect employee job satisfaction, engagement and overall commitment to the organization (Abugre, 2017). Finally, by developing an individual's emotional intelligence, positive benefits may be transmitted in the form of a more productive workforce and less stressed supervisors and employees, thus creating a more positive environment in the workplace attributable to the knowledge and education supervisors and employees have of the increasingly important role emotions have on job satisfaction and engagement (Cherniss, 2001).

A clear relationship has not been found between the supervisor and employee emotional intelligence and the impact it may have on job satisfaction, engagement and commitment. While some research has well documented the impact of external stressors such as working environment, job conditions, and transportation, there is still a deficiency regarding our understanding of the influence of internal stressors such as a leader's emotional intelligence and employee job satisfaction and engagement. By promoting the development of emotional intelligence through training and practice, leaders are provided an advantage in

areas such as problem-solving and disciplinary actions as emotional intelligence teaches individuals how to communicate with their workforce, especially after an emotionally charged interaction between employees. Data collected for this study will assist in the fulfillment of organizational missions which often focus on ideals such as leadership/coaching, internal drive, teamwork and communication, which are all interconnected with the concept of emotional intelligence (Birol, Atamturk, Silman, & Sensoy, 2009).

### **Research Questions**

The following research questions were used in this study:

1. What is the level of emotional intelligence in relation to gender and age of front line supervisors and employees' in manufacturing industries in Alabama?
2. What is the relationship between supervisors and employees' emotional intelligence in Alabama manufacturing industries?
3. What is the relationship between supervisors and employees' emotional intelligence and job satisfaction in Alabama manufacturing industries?
4. What is the relationship between supervisors and employees' emotional intelligence, job satisfaction and engagement in Alabama manufacturing industries?
5. How do supervisors and employees' emotional intelligence and engagement interact to predict job satisfaction in Alabama manufacturing industries?

### **Sample**

To best generalize to the overall population, the sample was randomly selected from 22 manufacturing industries, which consisted of approximately 5000 manufacturing employees. Out of the 22 industries, 11 of the industries were selected to participate. Three of the 11

industries CEO's or plant managers gave consent for their employees to participate in the study. Employees from each of the three industries were asked to participate in the study, therefore, those who chose to participate and available on the day of data collection, would be categorized as a convenience sample (Creswell, 2008). Data collection for this study was conducted in early 2018 after approval from the Institutional Review Board was received (Appendix A).

To build participant rapport and increase response rates, the researcher emphasized the confidentiality of data and anonymity of responses for those participating in the study in order to bolster response rates. Finally, participants were also assured that individual results would not be shared with anyone from the organization and the findings published from this study would only include aggregate data from all respondents. This study did not offer an incentive for participation.

The analytic sample was selected from manufacturing employees in southeast Alabama. The inclusion criteria for the study were: participants must be age 19 years of age or older and currently employed by an Alabama manufacturing industry as a regular production employee or an immediate supervisor of regular production employees. The sample was comprised of supervisors and regular employees, to include male and female employees, 19 years of age and older. Supervisors and employees from three manufacturing industries were invited to participate in the study. The final sample consisted of 189 individuals employed by three manufacturing industries in southeast Alabama.

#### *Sample Demographic Characteristics*

The resulting analytic sample included 189 participants. A demographic questionnaire informed by previous studies and designed by the researcher was used to obtain participant demographic information to include: gender, age, tenure, race/ethnicity and education served as

the fundamental variables regarding the focus of this study, however additional categories were included to capture other work history of manufacturing employee's credentials (see Appendix B). Two groups were anticipated: a supervisory group and an employee group, however, the overall group composition is important and, therefore, will be reported first for this study, followed by the two subgroups.

*The Full Sample* consisted of 60% female ( $n = 104$ ) and 40% male ( $n = 69$ ). Sixty-two percent of the participants identified as African-American/Black ( $n = 113$ ), 32% Caucasian/White ( $n = 59$ ), 2% as Biracial/Multiracial ( $n = 4$ ), 2% Asian ( $n = 3$ ), 1% Hispanic ( $n = 2$ ), 0.5% Native American/Alaskan Native ( $n = 1$ ) and 0.5% Hawaiian Native /Other Pacific Islander ( $n = 1$ ). Participant ages ranged from 20-61 ( $M = 38.39$ ,  $SD = 11.86$ ). Of the 189 participants, 35% of participants were 25-34 years old, making them the majority of the sample. The other age categories represented were: 10% age 20-24, 20% age 35-44, 23% age 45-54 and 12% age 55-64. Manufacturing employees who had been with the same organization for approximately 1-5 years dominated the study at 88%. Approximately, 11% had been with the current organization for 6-10 years, and 0.5% for more than 10 years. Considering the range of skills and experience necessary in a manufacturing environment, approximately 5% reported less than a high school diploma or the equivalent, 42% obtained a high school diploma or GED, 9% obtained associate degrees, 2% obtained a vocational degree, 27% reported some college, 10% obtained bachelor's degrees, and 4% obtained a post-graduate degree.

*The Supervisor group* consisted of 68% male ( $n = 21$ ) and 32% female ( $n = 10$ ). Seventy-four percent of the participants identified as Caucasian/White ( $n = 23$ ), 16% African-American/Black ( $n = 5$ ), 3% Asian ( $n = 1$ ), 3% Native American/Alaskan Native ( $n = 1$ ) and 3% Hawaiian Native /Other Pacific Islander ( $n = 1$ ). Participant ages ranged from 27-61 ( $M = 47.00$ ,

$SD = 11.34$ ). Of the 31 supervisory participants, 33% of participants were 45-54 years old, making them the majority of the sample. The other age categories represented were: 27% age 25-34, 17% age 35-44 and 23% age 55-64. Manufacturing employees who had been with the same organization for approximately 2-5 years dominated the study at 58%. Approximately, 26% had been with the current organization for 6-10 years, and 3% for more than 10 years. Considering the accomplishments and skills necessary to fulfill a supervisory role in a manufacturing environment, approximately 3% reported less than a high school diploma or the equivalent, 16% obtained a high school diploma or GED, 19% obtained associate degrees, 10% reported some college, 32% obtained bachelor's degrees, and 19% obtained a post-graduate degree.

*The Employee (non-supervisor) group* consisted of a sample  $n=154$ , 33% male ( $n = 46$ ) and 67% female ( $n = 10$ ). Twenty-four percent of the participants identified as Caucasian/White ( $n = 35$ ), 71% African-American/Black ( $n = 105$ ), 1% Hispanic ( $n=1$ ), 1% Asian ( $n = 2$ ), 1% Native American/Alaskan Native ( $n = 1$ ) and 3% Biracial/Multiracial ( $n = 4$ ). Participant ages ranged from 20-61 ( $M = 37.04$ ,  $SD = 11.71$ ). Of the 154 employee participants, 37% of participants were 25-34 years old, making them the majority of the sample. The other age categories represented were: 13% age 19-25, 20% age 35-44, 21% age 45-54, and 9% age 55-64. Manufacturing employees who had been with the same organization for approximately 1 year or less, dominated the study at 52%. Approximately, 40% had been with the current company between 2-5 years, and 9% had been with the current organization for 6-10 years, with no employees at the company longer than 10 years. Considering the skills necessary to fulfill many of the technical roles in a manufacturing environment, approximately 47% obtained a high school diploma or GED and served as the majority of this sample. The other educational

categories represented were 5% reporting less than a high school diploma or the equivalent, 9% obtained associate degrees, 31% reported some college, 6% obtained bachelor's degrees, and only 1% obtained a post-graduate degree.

### *Instrumentation*

*Demographic information* was obtained using a demographic questionnaire comprised of questions such as gender, age, racial/ethnic origins, and education. Participants were also asked to report in the questionnaire employment information in the questionnaire. These questions addressed information regarding participant's tenure at the company, length of working experience in manufacturing settings industry, employment status and their supervisory experience.

*Emotional intelligence* was assessed using the SSEIT, also referred to as the Assessing Emotions Scale (Schutte et al., 1998). The Assessing Emotions Scale focused on measuring typical emotional intelligence, also known as trait or characteristic emotional intelligence. The inventory consists of 33 self-report items rated on a 5-point Likert scale: 1 = Strongly Disagree; 2 = Somewhat disagree; 3 = Neither agree nor disagree; 4 = Somewhat agree; 5 = Strongly agree. Higher scores indicated more characteristic emotional intelligence in dealing with emotions or reactions associated with emotions. There are four subscales: Perception of Emotion (e.g., "I find it hard to understand the non-verbal messages of other people"), Managing Own Emotions (e.g., "When I am faced with obstacles, I remember times I faced similar obstacles and overcame them"), Managing Others' Emotions (e.g., "I help other people feel better when they are down"), and Utilization of Emotion (e.g., "Some of the major events of my life have led me to re-evaluate what is important and not important"). The four-subscale grouping was the most commonly identified and validated in the literature (Ciarrochi et al., 2001; Petrides & Furnham, 2000;

Saklofske et al., 2003). Subscale composition is as follows: Perception of Emotion (items 5, 9, 15, 18, 19, 22, 25, 29, 32, 33), Managing Own Emotions (2, 3, 10, 12, 14, 21, 23, 28, 31), Managing Others' Emotions (1, 4, 11, 13, 16, 24, 26, 30) and Utilization of Emotion (6, 7, 8, 17, 20, 27). Internal consistency across 46 diverse samples with emotional intelligence ( $\alpha = .87$ ) have been good (Schutte, Malouff, & Bhullar, 2009). For the full sample in the current study, the mean score was 132.63, ( $SD = 13.91$ ),  $\alpha = .86$ . Cronbach's alphas for the four-subcales were  $\alpha = .64$  perception of emotion,  $.66$  managing own emotions,  $.69$  managing others' emotions, and  $.69$  utilization of emotion.

*Job satisfaction* was assessed using the Minnesota Satisfaction Questionnaire-Short Form (MSQ-SF; Schutte et al., 1998). The MSQ-SF is an adapted version focused on measuring general satisfaction of employees with their present job. Job satisfaction is referred to as the extent to which positive emotional characteristics and attitude are demonstrated regarding an individual's job and is comparable to what people value and is expected from them on the job (Oshagbemi, 1999). According to Spector (1997) it is simply the measurement of how much an individual enjoys their job. The inventory consists of 20 self-report items rated on a 5-point Likert-type scale: 1 = Very Dissatisfied; 2 = Dissatisfied; 3 = Neutral; 4 = Satisfied; 5 = Very Satisfied. Higher scores indicated more feelings of job satisfaction on the participant's present job. There are two subscales: Intrinsic job satisfaction which examined areas within the nature of the job (e.g., "Being able to keep busy all the time"), and extrinsic job satisfaction which examined situational factors external to the job itself (e.g., "The way my boss handles his/her workers"). Subscale composition is as follows: Intrinsic (items 1–4, 7–11, 15–16, 20), and Extrinsic (5–6, 12–14, 19). Internal consistency across 1,460 participants with job satisfaction ( $\alpha = .90$ ) have been excellent (Weiss, 1977). For the full sample in the current study, the mean

score was 98.63, (SD = 14.04),  $\alpha = .92$ . Cronbach's alphas were .87 for intrinsic satisfaction and .86 for extrinsic satisfaction.

*Engagement* was assessed using an adapted version of the Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2003). This instrument was developed to measure employee work engagement. Work engagement is referred to as the degree to which employees within an organization (hourly or salaried) are emotionally connected to their workplace resulting in productivity (Macey & Schneider, 2008). During the original development of the instrument, researchers were concerned with participant bias regarding associations related to the word 'engagement'. To address concerns of answering bias, the measure was given a neutral title of the 'Work & Well-being Survey'. The use of the UWES-9, a shortened version of the original 17-item instrument, has demonstrated validity and reliability as an acceptable psychometric measure (Schaufeli, Bakker, & Salanova, 2006). The inventory consists of 9 self-report items rated on a 7-point Likert-type scale: 0 = Never; 1 = Almost Never (A few times a year or less); 2 = Rarely (Once a month or less); 3 = Sometimes (A few times a month); 4 = Often (Once a week); 5 = Very Often (A few times a week); 6 = Always (Every day). Higher scores indicated greater feelings of engagement in their current job. There are three dimensions identified within the engagement measure, the three subscales are: vigor (e.g., "At work, I arrive full of energy"), dedication (e.g., "I am enthusiastic about my job"), and absorption (e.g., "I am mentally focused on my work"). Subscale composition is as follows: Vigor (items 1, 2, 5), Dedication (3, 4, 7), and Absorption (6, 8, 9). Internal consistency across 14,521 participants with employee engagement ( $\alpha = .92$ ) have been excellent (Schaufeli, Bakker & Salanova, 2006). For the full sample in the current study, the mean score was 42.23, (SD = 11.14),  $\alpha = .92$ . Cronbach's alphas were .80 for vigor, .84 for dedication, and .75 for absorption.

### *Data Collection Procedures*

Recruitment of participants occurred at each of the manufacturing plant sites in southeast Alabama. Participants were provided with an Information Letter outlining the purpose of the study, benefits of participation and any foreseeable risks from participation. The letter also provided participants with the researcher's information as well as information for the Institutional Review Board at Auburn University (see Appendix A). All data were obtained through self-report questionnaires administered by the researcher. Careful consideration were given to the order of the measures within the survey packet (see Appendix X for the full survey packet). Job satisfaction was the first domain assessed. The next assessment was the engagement questionnaire immediately followed by the demographic questionnaire. While there is not unequivocal consensus concerning the placement of demographic questions, the researcher found judicial evidence to support placement of the demographic questions at the front of the survey packet. Evidentiary support from the literature further provides that when an individual is unable to build rapport, placement of the demographic portion of the survey in the middle can be the least deleterious (Teclaw, Price, & Osatuke, 2012). The final measure participants were assessed on was emotional intelligence. The order of measures was intended to minimize social desirability and self-evaluation bias issues (Lavrakas, 2008) of which are challenges often prevalent in self-report measure designs.

### *Plan of Analysis*

Descriptive statistics and correlations were computed using the statistical software program SPSS version 23.0. To examine RQ1, (i.e. level of EI in relation to gender and age of frontline supervisors and employees'), an independent sample *t*-test was conducted using data collected from participant surveys. To examine RQ2 (i.e. relationship between frontline

supervisors and employees' EI). RQ3 (i.e. relationship between frontline supervisors and employees' EI and job satisfaction). RQ4 (i.e. relationship between frontline supervisors and employees' EI, job satisfaction, and engagement). RQ5 (i.e. frontline supervisors and employees' EI and job satisfaction interact to predict engagement).

## CHAPTER 4. RESULTS

Chapter 1 introduced the study by providing the general background information of the topic, statement of the problem, purpose of the study, research questions, and significance of the study, limitations and definition of terms. Chapter 2 provided a review of literature organized into five major sections: andragogy and manufacturing industries, emotional intelligence (EI), employee engagement, job satisfaction, and EI's role in manufacturing workforce development and effective manufacturing environments. Chapter 3 presented a detailed description of the research methods used in this study and outlined five sections: research design, population and sample selection, instrumentation, method of data collection and the plan of analysis for the study. Chapter 4 details the results of the study. This chapter presents the findings of this non-experimental quantitative study based on instruments used to survey the sample population. A systematic and detailed explanation of the statistical analyses between independent and dependent variables in the study is provided. The analyses presented in this chapter are used to directly respond to each of the five research questions based on participant self-report.

### **Purpose of the Study**

The purpose of this study was to examine relationships between supervisor and employee emotional intelligence, engagement, and job satisfaction within manufacturing industries industry in Southeast Alabama. Goleman, Boyatzis, and McKee (2002) advised that emotional intelligence was a key element regarding leadership effectiveness, especially in a team environment. Both emotional intelligence and leadership serve a dual purpose which is to

encourage teamwork to reach an end goal and to motivate individual members (Prati, Douglas, Ferris, Ammeter & Buckley, 2003). Thus, developing the emotional intelligence of supervisors and employees may increase productivity and enhance the culture of an organization because employees may have higher job satisfaction and levels of engagement while at work.

Emotional intelligence is defined as the skill to identify and understand the emotions of oneself and others and use the acquired knowledge to inform decisions and guide behavior (Mayer & Salovey, 1993). Emotional Intelligence tests are used to evaluate an individual's ability to gauge emotion in two domains: the self and others.

According to Mayer and Salovey (1997), whose work is claimed to be the origination of emotional intelligence as a concept there are four facets of emotional intelligence comprised in the model and they are: 1) perception; 2) understanding; 3) facilitation; and 4) management (Mayer & Salovey, 1997). Enhancing a supervisor's professional development skills through emotional intelligence training can improve collegiality, enhance co-worker collaboration, subsequently fostering psychological safety therefore impacting increases in external factors, which may affect employee job satisfaction, engagement and overall commitment to the organization (Abugre, 2017). Finally, by developing an individual's emotional intelligence, positive benefits may be transmitted in the form of a more productive workforce and less stressed supervisors and employees, thus creating a more positive environment in the workplace attributable to the knowledge and education supervisors and employees have of the increasingly important role emotions have on job satisfaction and engagement (Cherniss, 2001).

A clear relationship has not been found between the supervisor and employee emotional intelligence and the impact it may have on job satisfaction, engagement and commitment. While some research has well documented the impact of external stressors such as working

environment, job conditions, and transportation, there is still a deficiency regarding our understanding of the influence of internal stressors such as a leader's emotional intelligence and employee job satisfaction and engagement. By promoting the development of emotional intelligence through training and practice, leaders are provided an advantage in areas such as problem-solving and disciplinary actions as emotional intelligence teaches individuals how to communicate with their workforce, especially after an emotionally charged interaction between employees. Data collected for this study will assist in the fulfillment of organizational missions which often focus on ideals such as leadership/coaching, internal drive, teamwork and communication, which are all interconnected with the concept of emotional intelligence (Birol, Atamturk, Silman, & Sensoy, 2009).

### **Research Questions**

The following research questions were used in this study:

1. What is the level of emotional intelligence in relation to gender and age of front line supervisors and employees' in manufacturing industries in Alabama?
2. What is the relationship between supervisors and employees' emotional intelligence in Alabama manufacturing industries?
3. What is the relationship between supervisors and employees' emotional intelligence and job satisfaction in Alabama manufacturing industries?
4. What is the relationship between supervisors and employees' emotional intelligence, job satisfaction and engagement in Alabama manufacturing industries?
5. How do supervisors and employees' emotional intelligence and engagement

interact to predict job satisfaction in Alabama manufacturing industries?

This study is organized around specific research questions addressing a broad research problem. All five research questions address the role of frontline supervisors and employees' interpersonal skills and their impact on job satisfaction and engagement in the workplace. The sample of collected data were comprised of employees and front line supervisors in the manufacturing industry. The sample included participants from three unrelated manufacturing industries in Alabama. Informal invitations to participate in the study were extended to all participants during a networking event in southeast Alabama. The sample in this study does distinguish a hierarchy of the role of the worker in their current organization (i.e. front line supervisor, employee).

Organizations interested in participating in the study contacted the researcher directly to schedule a meeting to discuss arrangements for meeting with employees and front line supervisors during a break period. All employees were given an information letter outlining the research study purpose and areas of interest, along with information regarding risk and/or benefit of participation and the contact information for the research and the Institutional Review Board. Interested employees were given a packet of information with the three instruments and a demographic questionnaire (SSEIT, UWES-9, MSQ and demographic survey) to fill out at that time and return directly to the researcher. Participants were briefed on information regarding their anonymity, their right to answer or skip any question, and participation in the study would not impact their relationship with the current employer.

## Data Analysis

Demographic information was obtained to align with the research questions of this study. The purpose of this study was to examine the relationship between emotional intelligence, job satisfaction, and engagement with respect to employee status in the company, gender and age. As discussed in Chapter 2, other demographic factors were considered such as length of time with the company, education, and race due to their significant relationship in previous studies with the various dependent variables. Detailed information for the three instruments used to assess emotional intelligence, job satisfaction and engagement can be found in Chapter 3.

Multiple regression was used to examine the relationships between two or more independent variables to predict a value of the dependent variable. This was the appropriate test for Research Questions 1, 3, 4 & 5 because there were categorical and continuous independent variables and only one dependent variable which was continuous. Since this study was exploratory in nature, a multiple regression was conducted for four of the research questions (Aron & Aron, 1999), however Research Question 5 does include an interaction term. Stepwise multiple regression analyses with backward selection could have been conducted to determine which specific IV's were significant contributors to the overall prediction model, however, the control models were supported in the literature and therefore include in a standard regression model (Stevens, 1992).

An independent t-test was conducted for Research Question 2 to determine differences in sample means between supervisor and employee emotional intelligence. This was an appropriate test due to the two groups in this design being unrelated (Leech, Barrett, & Morgan, 2005).

Demographic information of participants is described in Table 3 through Table 7. While not all descriptive variables reported were used as independent variables to predict regression models,

future research in this area may benefit from detailed analysis of the sample. The descriptive statistics tables provide a more critical view of the sample population and may support research in other industries examining the relationship between supervisor and employees and their impact on job satisfaction and engagement.

A sample profile of the demographic data was created using descriptive statistics, as well as providing information for independent and dependent variables. Demographic results of the current study were considerably different than the 2017 Bureau of Labor and Statistics national report for durable goods manufacturing employees as women (29.5%), between the ages 45-54 (24.6%), Caucasian (79.9%), and high school educated (46.8%), (Bureau of Labor Statistics, 2017), see Table 3. Means and standard deviations were computed for the entire sample (see Table 4), each employee level group (see Table 5), each gender (Table 6), and each age group (see Table 7), in relation to independent and dependent variables in the study.

Table 3

*Demographic of Sample by Employment Level Status (N = 189)*

	Supervisor (n = 30)	Employee (n = 150)
<b>Gender</b>		
Female	20 (66.7%)	91 (66.4%)
Male	10 (33.3%)	46 (33.6%)
<b>Age</b>		
19-24		17 (13.1%)
25-34	8 (27.6%)	49 (37.7%)
35-44	4 (13.8%)	26 (20.0%)
45-54	10 (34.5%)	27 (20.8%)
55-64	7 (24.1%)	11 (8.5%)
<b>Ethnicity</b>		
Caucasian/White	22 (73.3%)	35 (23.8%)
African-American/Black	5 (16.7%)	104 (70.7%)
Other	3 (9.9%)	8 (15.4%)
<b>Education</b>		
< HS	1 (3.3%)	8(5.4%)
HS/GED	5 (16.7%)	70 (47.3%)
Some College	3 (10.0%)	46 (31.1%)
Associate's	5 (16.7%)	14 (9.5%)
Bachelor's	10 (33.3%)	8 (5.3%)
Postgraduate	6 (20.0%)	2 (1.3%)

Table 4

*Means and Standard Deviation for the Full Sample on Emotional Intelligence, Job Satisfaction and Engagement Scores*

Variable	Mean (SD)
Emotional Intelligence	132.03 (14.39)
Job Satisfaction	71.53 (14.86)
Engagement	41.89 (11.05)

Table 5

*Means and Standard Deviations for Supervisor and Employee Groups for Emotional Intelligence, Job Satisfaction and Engagement Scores*

	Supervisor	Employee
Variable	Mean (SD)	Mean (SD)
Emotional Intelligence	133.13 (10.81)	131.81 (15.03)
Job Satisfaction	84.47 (9.02) <sup>a</sup>	69.01 (14.48)
Engagement	46.40 (4.81) <sup>b</sup>	41.00 (11.70)

Note: All differences are statistically significant at  $p < .05$ .

<sup>a</sup> different from employee group

<sup>b</sup> different from employee group

Table 6

*Means and Standard Deviations for Females and Males on Emotional Intelligence, Job Satisfaction, and Engagement*

	Females	Males
Variable	Mean (SD)	Mean (SD)
Emotional Intelligence	132.85 (14.60)	130.53 (13.89)
Job Satisfaction	68.94 (14.75)	77.50 (12.66) <sup>a</sup>
Engagement	40.87 (11.56)	44.55 (8.49) <sup>b</sup>

Note: All differences are statistically significant at  $p < .05$ .

<sup>a</sup> different from female group

<sup>b</sup> different from female group

Table 7

*Means and Standard Deviations for Age Groups on Emotional Intelligence, Job Satisfaction, and Engagement*

	19-24	25-34	35-44	45-54	55+
Variable	Mean (SD)				
Emotional Intelligence	130.53 (17.04)	133.28 (13.42)	127.23 (15.06)	134.03 (13.45)	133.89 (15.32)
Job Satisfaction	69.29 (15.62)	70.81 (15.98)	74.73 (12.92)	74.27 (13.58)	75.89 (14.45)
Engagement	37.29 (14.03)	41.79 (9.67)	43.33 (8.18)	43.84 (11.78)	46.67 (9.19)

## Data Analysis Results

### **Research Question 1: What is the level of emotional intelligence in relation to gender and age of front line supervisors and employees' in a manufacturing industry in Southeast Alabama?**

A multiple linear regression analysis of gender, age, and employment level status (i.e. supervisor, employee) was conducted to assess whether the independent variables significantly predicted emotional intelligence. The regression analyses included all variables related to the research question. Gender represented in the sample population was female (1), male (0). Employment level status represented in the same population was supervisor (1), employee (0). Age was a continuous variable. Tests for normality and homoscedasticity occurred prior to conducting the linear regression. The multiple regression equation for predicting emotional intelligence scores can be expressed as follows:

$$\text{Emotional intelligence} = \beta_0 + b_1X_{\text{Gender}} + b_2X_{\text{Age}} + b_3X_{\text{EmpLvl}}$$

#### Normality

Evaluation of normality was assessed with a Q-Q scatterplot (Loy, Follett, & Hoffman, 2016). Graphical representation of data serves as a central process to the use of parametric models (Wilk & Gnanadeskikan, 1968). This is just one of several tests (i.e. Wilks-Shapiro, Kolmogorow-Smirnov), which can be conducted to test whether the sample is part of normal distribution, however this is a visual inspection and is supported by whether the data points appear close to the theoretical best fit line (Loy, Follett, & Hoffman, 2016). Figure 6 represents the Q-Q scatterplot for normality.

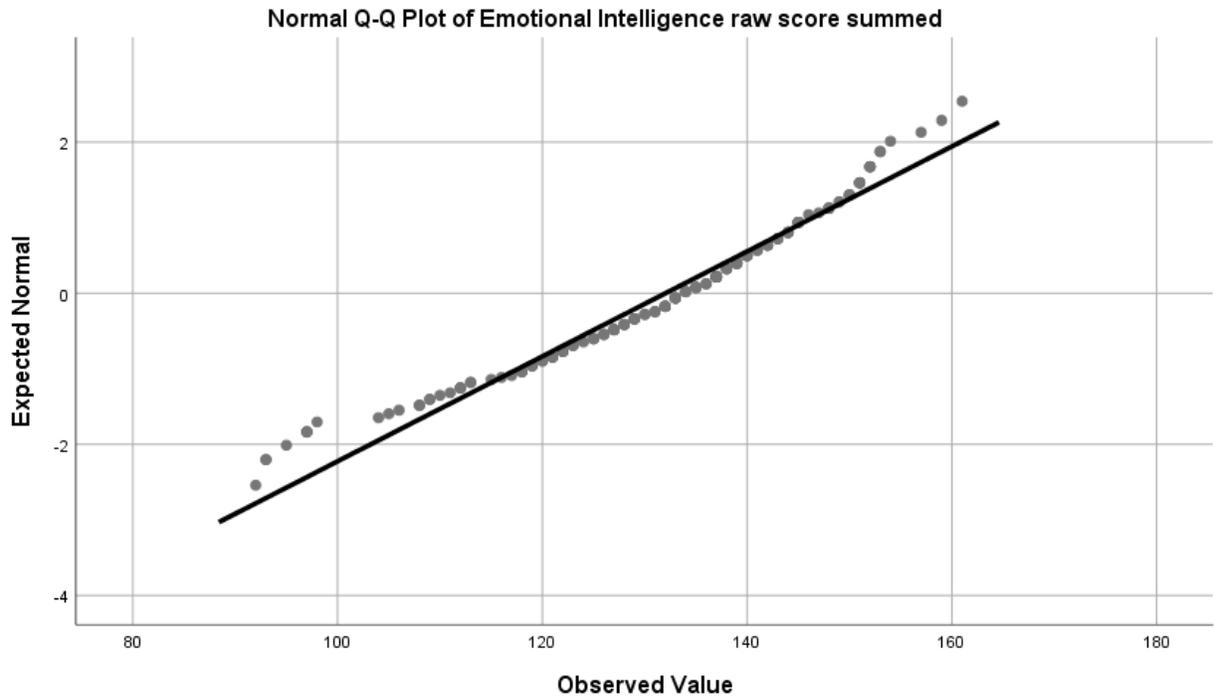


Figure 6. Q-Q scatterplot testing normality of emotional intelligence.

### Homoscedasticity

An assumption of regression analysis is there must be consistent variation in error terms, known as homoscedasticity. This assumption suggests the variability of scores for an individual continuous variable should be consistent at all of the same values of another continuous variable (Mertler & Vannatta, 2001). To test for homoscedasticity, residuals were plotted and visual inspection confirmed there was no violation of the assumption. Figure 7 represents the residual scatterplot for homoscedasticity.

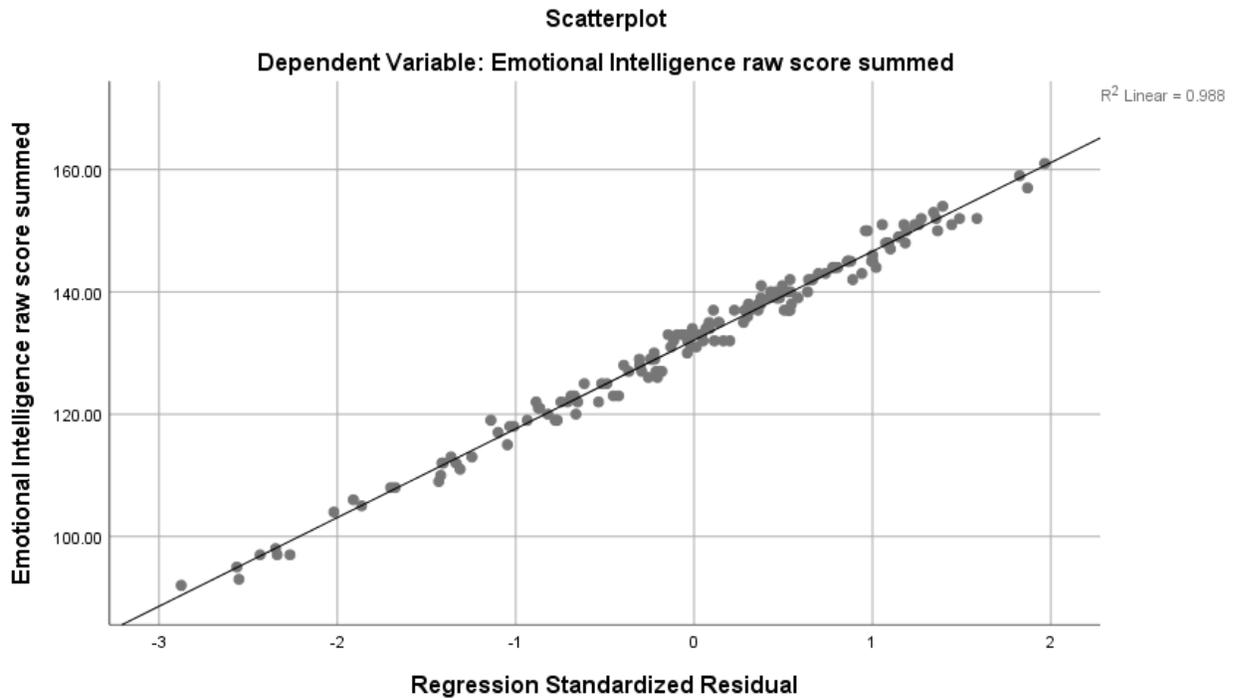


Figure 7. Residual scatterplot testing homoscedasticity of emotional intelligence.

## Results

A standard multiple linear regression was conducted to determine the best linear combination of gender, employment level in the company, and age for predicting emotional intelligence scores. Data screening with preliminary regression to calculate Mahalanobis' Distance led to the deletion of five cases, where the participants  $\chi^2$  exceeded the critical value of 13.816 at  $p < .001$ . The means, standard deviations, and intercorrelations can be found in Table 6. This combination of variables did not significantly predict emotional intelligence,  $F(3,154) = .632$ ,  $p = .595$ , with all three variables not significantly contributing to the prediction. Regression results indicate that the overall model did not significantly predict emotional intelligence,  $R^2 = .002$ ,  $R^2_{adj} = -.011$ . A summary of regression coefficients is presented in Table 8.

Table 8

*Means, Standard Deviations, and Intercorrelations for Emotional Intelligence and Predictor Variables (N=158)*

Variable	M	SD	1	2	3
Emotional Intelligence	132.11	14.46	.83	.03	.04
Predictor Variable					
Gender	.59	.49	-	-.28	-.15
Employment level	.18	.39		-	.25
Age	38.23	11.94			-

Table 9

*Coefficients for Model Variables of Emotional intelligence, gender, age and level*

	<b>B</b>	$\beta$	<i>t</i>	<i>p</i>	Bivariate r	Partial r
Age	.052	.043	.521	.603	.040	.042
Gender	3.061	.104	1.246	.215	.083	.100
Level	1.916	.051	.603	.548	.034	.048

**Research Question 2: What is the relationship between supervisors and employees' emotional intelligence in Southeast Alabama manufacturing industries manufacturing industry?**

An independent samples t-test was conducted to compare emotional intelligence scores in supervisors and employees'. There was not a significant difference in the scores for supervisors (M=133.13, SD=10.81) and employees (M=131.81, SD=15.03);  $t(178) = .460$ ,  $p = .646$ . A box plot was created to graphically represent the distribution of scores on a variable, in this case employment level in company (Figure 8). The middle score for each group is denoted by the dark line in the middle of the box, with the box serving as a representation of the middle 50% of individual cases and the top and bottom lines "whiskers" serving as the estimated top and bottom 25% of the cases. No outliers or extreme scores were indicated, as outliers are designated with Os and extreme scores by asterisk (\*). Plots were inspected by their shape and size and minimal length difference between the two boxes supports the non-significant findings of the independent samples t-test.

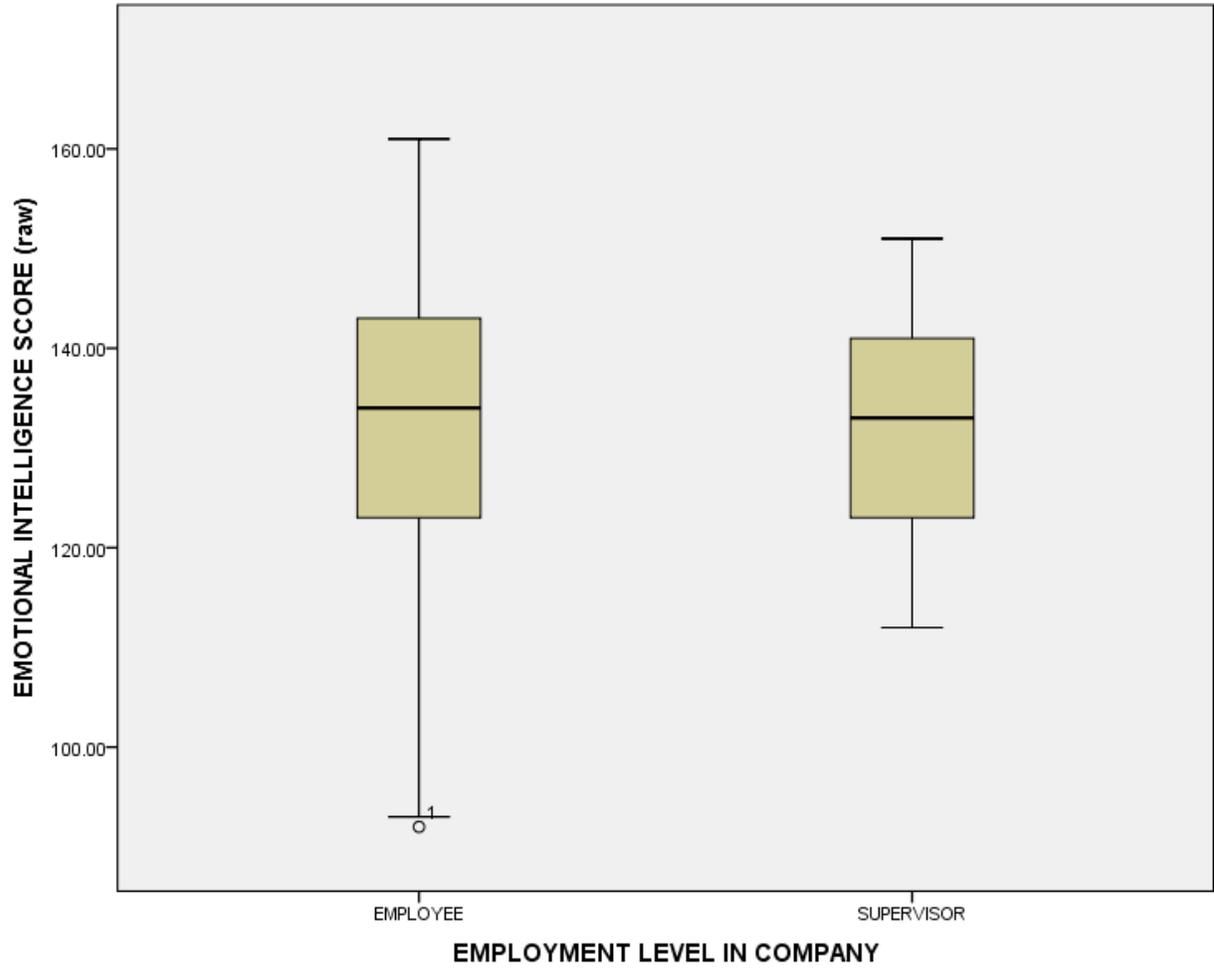


Figure 8. Error bars for the emotional intelligence score

**Research Question 3: What is the relationship between supervisors and employees' emotional intelligence and job satisfaction in Southeast Alabama manufacturing industries manufacturing industry?**

A multiple linear regression analysis of gender, age, emotional intelligence, and employment level status (i.e. supervisor, employee) was conducted to assess whether the independent and control variables significantly predicted job satisfaction. The regression analysis included all variables related to the research question and included the control variables gender and age. Gender represented in the sample population was female (1), male (0). Employment level status represented in the same population was supervisor (1), employee (0). Age and emotional intelligence raw scores were both continuous variables. Tests for normality occurred prior to conducting the linear regression. The multiple regression equation for predicting emotional intelligence scores can be expressed as follows:

$$Job\ satisfaction = \beta_0 + b_1X_{EI} + b_2X_{Age} + b_3X_{Gender} + b_4X_{EmpLvl}$$

## Test for Normality

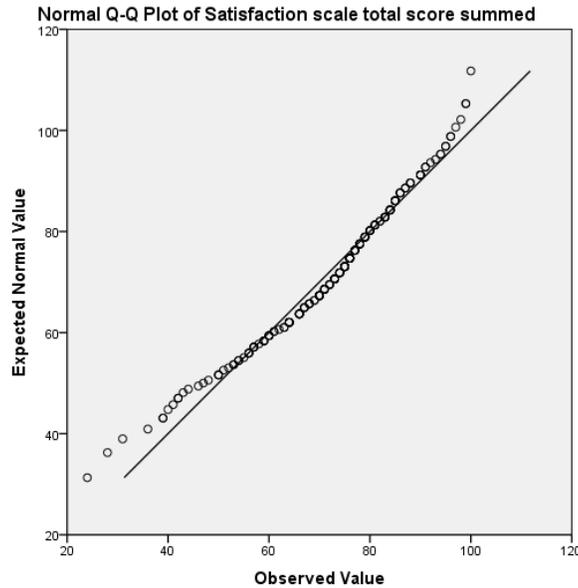


Figure 9. Q-Q scatterplot testing normality of job satisfaction.

## Results

A multiple regression analysis was conducted to evaluate how well the independent and control variables predicted job satisfaction. The predictors were emotional intelligence scores, employment level in the company, gender, and age, while the criterion variable was the total summed job satisfaction score. The linear combination of the independent and control variables was significantly related to job satisfaction scores. Regression results indicate that the overall model significantly predicts job satisfaction,  $R^2=.258$ ,  $R^2_{adj}= .238$ ,  $F(4,153,)=13.27$ ,  $p<.001$ . This model accounts for 25.8% of variance in job satisfaction. A summary of regression coefficients is presented in Table 10 and indicates three (emotional intelligence, gender, and employment level in the company) of the four variables significantly contributed to the model.

Table 10

*Coefficients for Model Variables of Job Satisfaction*

	<b>B</b>	$\beta$	<i>t</i>	<i>p</i>	Bivariate r	Partial r
Emotional Intelligence	.244	.246	3.505	.001	.243	.273
Gender	-5.687	-.195	-2.665	.009	-.274	-.211
Age	.055	.046	.637	.525	.170	.051
Level	12.402	.335	4.506	<.001	.408	.342

**Research question 4: What is the relationship between supervisors and employees' emotional intelligence, job satisfaction and engagement in Southeast Alabama manufacturing industries manufacturing industry?**

A multiple linear regression analysis of gender, age, emotional intelligence, and employment level status (i.e. supervisor, employee) was conducted to assess whether the independent and control variables significantly predicted engagement. The regression analysis included all variables related to the research question and included the control variables gender and age. Gender represented in the sample population was female (1), male (0). Employment level status represented in the same population was supervisor (1), employee (0). Emotional intelligence and job satisfaction raw scores along with age were all continuous variables. Tests for normality occurred prior to conducting the linear regression. The multiple regression equation for predicting emotional intelligence scores can be expressed as follows:

$$Engagement = \beta_0 + b_1X_{EI} + b_2X_{JobSat} + b_3X_{EmpLvl} + b_4X_{Gender} + b_5X_{Age}$$

## Test for Normality

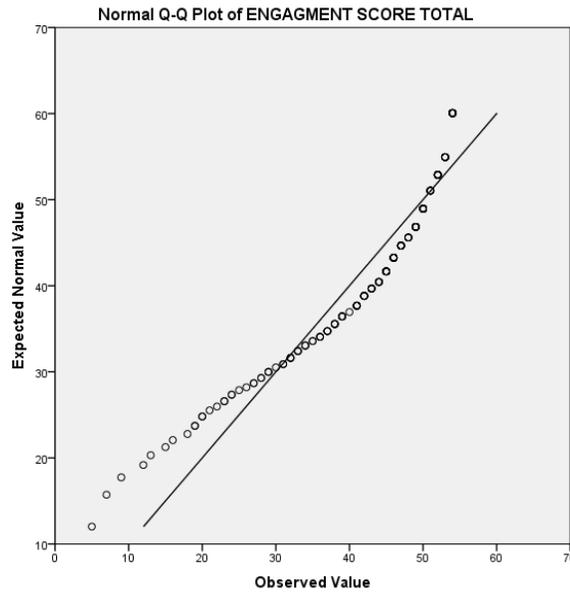


Figure 10. Q-Q scatterplot testing normality of engagement.

## Results

A multiple regression analysis was conducted to evaluate how well the independent and control variables predicted engagement. The predictors were emotional intelligence and job satisfaction scores, employment level in the company, gender, and age, while the criterion variable was the total summed engagement score. The linear combination of the independent and control variables was significantly related to engagement scores. Regression results indicate that the overall model significantly predicts engagement,  $R^2=.377$ ,  $R^2_{adj}= .357$ ,  $F(5,152,)=18.40$ ,  $p<.001$ . This model accounts for 37.7% of variance in engagement. A summary of regression coefficients is presented in Table 11 and indicates three (emotional intelligence, job satisfaction, and age) of the five variables significantly contributed to the model.

Table 11

*Coefficients for Model Variables of Engagement*

	<b>B</b>	$\beta$	<i>t</i>	<i>p</i>	Bivariate r	Partial r
Emotional Intelligence	.119	.163	2.434	.016	.290	.194
Gender	-1.230	-.057	-.831	.407	-.184	-.067
Age	.118	.133	1.994	.048	.215	.160
Level	-2.588	-.095	-1.303	.194	.179	-.105
Job Satisfaction	.395	.535	7.206	<.001	.574	.505

**Research question 5: How do supervisors and employees' emotional intelligence and job satisfaction interact to predict engagement in Southeast Alabama manufacturing industries manufacturing industry?**

A moderated multiple linear regression analysis of gender, age, emotional intelligence, and employment level status (i.e. supervisor, employee) was conducted to assess whether the moderating interaction between emotional intelligence and job satisfaction and the independent and control variables significantly predicted engagement. The regression analysis included all variables related to the research question and included the control variables gender and age along with the created interaction variable (EI\*JobSat). Gender represented in the sample population was female (1), male (0). Employment level status represented in the same population was supervisor (1), employee (0). Emotional intelligence and job satisfaction raw scores along with age were all continuous variables. Research question 4 tested for normality of the criterion variable engagement and was not repeated prior to conducting the moderated linear regression. The moderated multiple regression equation for predicting emotional intelligence scores can be expressed as follows:

$$Engagement = \beta_0 + b_1X_{EI} + b_2X_{JobSat} + b_3X_{EmpLvl} + b_4X_{Gender} + b_5X_{Age} + b_6X_{EI}X_{JobSat}$$

**Results**

A moderated multiple regression analysis was conducted to evaluate how well the independent, control variables and the interaction term predicted engagement. The predictors were emotional intelligence and job satisfaction scores, employment level in the company, gender, and age, and an interaction term of emotional intelligence and job satisfaction, while the criterion variable remained as the total summed engagement score. By adding the interaction term (EI\*JobSat) to the linear combination of the independent and control variables significantly

increased the relationship to engagement scores. Regression results indicate that the overall model significantly adds to the prediction of engagement,  $R^2=.378$ ,  $R^2_{adj}= .354$ ,  $F(6,151)=15.31$ ,  $p<.001$ . This model with the interaction accounts for 37.8% of variance in engagement. A summary of regression coefficients is presented in Table 12 and indicates only one (age) of the six variables significantly contributed to the model.

Table 12

*Coefficients for Model Variables of Engagement with Interaction*

	<b>B</b>	$\beta$	<i>t</i>	<i>p</i>	Bivariate r	Partial r
Emotional Intelligence	-.007	-.009	-.028	.977	.290	-.002
Gender	-1.285	-.060	-.864	.389	-.184	-.070
Age	.115	.130	1.934	.055	.215	.155
Level	-2.547	-.093	-1.279	.203	.179	-.104
Job Satisfaction	.156	.212	.351	.726	.574	.029
EI*JobSat	.002	.403	.538	.591	.588	.044



## CHAPTER 5. DISCUSSION

Chapter 1 introduced the study by providing the general background information of the topic, statement of the problem, purpose of the study, research questions, and significance of the study, limitations and definition of terms. Chapter 2 provided a review of literature organized into five major sections: andragogy and manufacturing industries, emotional intelligence (EI), employee engagement, job satisfaction, and EI's role in manufacturing workforce development and effective manufacturing environments. Chapter 3 presented a detailed description of the research methods used in this study and outlined five sections: research design, population and sample selection, instrumentation, method of data collection and the plan of analysis for the study. Chapter 4 presented the findings of the study. Chapter 5 will provide an overview of the findings from the study. This chapter will serve as a conclusive event to bridge the results of the study to manufacturing industries and their culture and environment. As part of the application of the findings, an explanation of how this study's findings can be implemented will be discussed. Finally, the limitations of the study and future recommendations will conclude this chapter.

### **Purpose of the Study**

The purpose of this study was to examine relationships between supervisor and employee emotional intelligence, engagement, and job satisfaction within manufacturing industries industry in Southeast Alabama. Goleman, Boyatzis, and McKee (2002) advised that emotional intelligence as a key element regarding leadership effectiveness, especially in a team

environment. Both emotional intelligence and leadership serve a dual purpose which is to encourage teamwork to reach an end goal and to motivate individual members (Prati, Douglas, Ferris, Ammeter & Buckley, 2003). Thus, developing the emotional intelligence of supervisors and employees may increase productivity and enhance the culture of an organization because employees may have higher job satisfaction and levels of engagement while at work.

Emotional intelligence is defined as the ability to identify and understand emotions in self and others, manage one's own emotions, integrate and express emotion in behavior, and make judicious decisions with emotional understanding (Mayer & Salovey, 1997). Emotional Intelligence tests are used to evaluate an individual's ability to gauge emotion in two domains: the self and others. According to Mayer and Salovey (1997), whose work is claimed to be the origination of emotional intelligence as a concept there are four facets of emotional intelligence comprised in the model and they are: 1) perception; 2) understanding; 3) facilitation; and 4) management (Mayer & Salovey, 1997). Enhancing a supervisor's professional development skills through emotional intelligence training can improve collegiality, enhance co-worker collaboration, subsequently fostering psychological safety therefore impacting increases in external factors, which may affect employee job satisfaction, engagement and overall commitment to the organization (Abugre, 2017). Finally, by developing an individual's emotional intelligence, positive benefits may be transmitted in the form of a more productive workforce and less stressed supervisors and employees, thus creating a more positive environment in the workplace attributable to the knowledge and education supervisors and employees have of the increasingly important role emotions have on job satisfaction and engagement (Cherniss, 2001).

A clear relationship has not been found between the supervisor and employee emotional intelligence and the impact it may have on job satisfaction, engagement and commitment. While some research has well documented the impact of external stressors such as working environment, job conditions, and transportation, there is still a deficiency regarding our understanding of the influence of internal stressors such as a leader's emotional intelligence and employee job satisfaction and engagement. By promoting the development of emotional intelligence through training and practice, leaders are provided an advantage in areas such as problem-solving and disciplinary actions as emotional intelligence teaches individuals how to communicate with their workforce, especially after an emotionally charged interaction between employees. Data collected for this study will assist in the fulfillment of organizational missions which often focus on ideals such as leadership/coaching, internal drive, teamwork and communication, which are all interconnected with the concept of emotional intelligence (Birol, Atamturk, Silman, & Sensoy, 2009).

### **Research Questions**

The following research questions were used in this study:

1. What is the level of emotional intelligence in relation to gender and age of front line supervisors and employees' in manufacturing industries in Alabama?
2. What is the relationship between supervisors and employees' emotional intelligence and job satisfaction in Alabama manufacturing industries?
3. What is the relationship between supervisors and employees' emotional intelligence, job satisfaction and engagement in Alabama manufacturing industries?
4. How do supervisors and employees' emotional intelligence and engagement interact to predict job satisfaction in Alabama manufacturing industries?

5. How do supervisors and employees' emotional intelligence and engagement interact to predict job satisfaction in Alabama manufacturing industries?

### **Summary**

Examination of the relationships between front line supervisors and employees' emotional intelligence, job satisfaction, and engagement was the primary goal of this study. For this study, a sample population of 189 individuals employed in the manufacturing industry completed self-report questionnaires. Each participant completed a survey packet containing three instruments and a demographic survey. The first instrument, the Minnesota Satisfaction Questionnaire (MSQ), assessed the level of job satisfaction employees had while working their current job. The second instrument, the Assessing Emotions Scale (SSEIT), measured the level of emotional intelligence skills an individual possesses. The third instrument, the Work and Well-Being Survey (UWES-9), calculated the overall engagement to the job the employee reported feeling while working their current job. The final instrument was a demographic questionnaire, created to capture variables such as age, gender, length of employment at current company, manufacturing experience, race and education.

### **Implications**

The purpose of this study was to examine the relationship between emotional intelligence, job satisfaction, and engagement among front line supervisors and employees'. Research in professions such as education and public safety, and industries such as healthcare and sales/customer service have taken notice of the positive correlation between supervisors with emotional intelligence and positive work outcomes (Granger, 2015; Nelson, 2016; Smith, 2017; Washington, 2017). With respect to previous studies connecting EI with positive work and relational outcomes, it is inconsistent that this sample did not have the power of employment

level, gender and age to predict EI. The non-significant finding for research question 1 suggests, EI may have other contributing factors not identified in our model regarding supervisors and employees in manufacturing work environments. However, with this finding contrary to findings from previous studies connecting EI with positive work behaviors it does suggest a more laser focus necessary in determining the importance of EI and its role among manufacturing employees. One area of debate in the EI literature, of which the author addresses specifically with this measure is the possibility of social desirability to influence participant responses (Schutte et al., 1998).

The current findings did not support a statistical difference in mean scores between employment groups or gender, however, supervisors ( $M=133.13$ ) had a slightly higher emotional intelligence score compared to employees ( $M=127.17$ ). Also, supervisor female employees' ( $M=136.90$ ) had a slightly higher emotional intelligence score compare to their male ( $M=128.05$ ) counterparts, of which both employment hierarchy and gender EI differences has found empirical support for in the literature. While neither group showed statistical difference, their total raw scores were quite high at the time of survey. More attention may be rendered to analyze the high EI scores among manufacturing workers in addressing their aptitude in understanding and managing emotion in self and others. More effort can be made in helping to support and continue to enhance these interpersonal skills.

The findings from the fitted regression models conducted for research questions 3 and 4 have implications for the role of EI within the organizational culture of the manufacturing industry. Female supervisors who demonstrate higher emotional intelligence skills when interacting with employees are more likely to report higher job satisfaction. Similarly, as supervisors age their job satisfaction and overall employee engagement increases. This finding

implies that while EI may have a linear relationship with job satisfaction and engagement, it is not a direct path. The current study supports the possibility that EI, while having a direct impact on job satisfaction, exploration of job satisfaction as a moderator may be important to understanding how supervisor EI impacts overall employee engagement in the manufacturing industry. The ability for supervisors to both identify and manage their own emotions as well as others suggests that their interactions may set the tone for the shift as well as interactions between coworkers. Organizations can benefit from this finding in helping supervisors understand the influence and impact they have on the employees they work with. Supervisors may also benefit in acknowledging how critical their interactions may be with employees and shape their perception about job satisfaction and engagement.

### **Limitations**

The present study clearly offers an enhanced understanding of the relationship between supervisors and employees' EI, job satisfaction and engagement in manufacturing. The study, however, was a convenience sample and findings but be taken with extreme care when generalizing to the population of all manufacturing employees (Huck, 2008). In line with this, addressing the geographical location of participants were all in Alabama created a homogenous participant base. While the sample was not representative of the national demographics, it was similar in terms of demographics related to this specific industry as reported by the National Labor Bureau statistics (2017).

Another limitation of the study, frequently found in the literature concerns the use of self-report measures. Strong empirical evidence has found a relationship between adult social desirability and response bias (Van de Mortel, 2008). This may be due in part due to the

proximity of organizational leadership and the nature of the questions related to their job and the need to be seen with a positive perspective regarding the company.

### **Recommendations for Future Study**

In a decent sample population of manufacturing employees we find that consideration of emotional intelligence, job satisfaction and engagement may be necessary in the attitude and retention of employees; however, this does warrant further examination. We found that employees and males may enter manufacturing positions with lower emotional intelligence skills, and in particular may need more soft skill and interpersonal training, particularly if they are promoted to a supervisory position where they will impact overall employee engagement. The lack of statistical difference in EI means is important to notate as supervisors and employees can relate to one another with interacting socially. Also important to highlight is the need for extra consideration in regard to the linear relationship between EI and engagement and the possible moderating or mediating variables not captured in this study which may account for even more of the variance in overall engagement.

As manufacturing industries continue to struggle to retain good employees, this study is an incremental step in the right direction to making progress in understanding one key area: the relationship between supervisor and employee, by considering level of interpersonal and relational skills. Continued exploration of various other characteristics and interactions should be considered in future studies, such as length of time at the present company, general and specific industry work experience to assess differences among manufacturing employees. A majority of EI research in the workplace centers around either a hierarchical, but individualized position within an organization, or does not implement more advanced and multivariate statistical methods such as path analysis. Manufacturing employees disconnected relationship

with organizational commitment spurs the continued exploration of this understudied group in both qualitative and more quantitative studies. A more nuanced lens with a perspective intent on focusing on the complex relationship both within an organization and among manufacturing industries would serve to inform both action researchers as well as organizational leadership in the future.

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## APPENDICES

## Appendix A

### AUBURN UNIVERSITY INSTITUTIONAL REVIEW BOARD for RESEARCH INVOLVING HUM AN SUBJECTS REQUEST FOR EXEMPT CATEGORY RESEARCH

For information or help completing this form, contact: THE OFFICE OF RESEARCH COMPLIANCE, 115 Ramsay Hall  
Phone: 334-844-5968 e-mail: IRBAdmin@auburn.edu Web Address: <http://www.auburn.edu/research/vpr/ohs/index.htm>

**Revised 2/1/2014** Submit completed form to [IRBsubmit@auburn.edu](mailto:IRBsubmit@auburn.edu) or 115 Ramsay Hall, Auburn University 36849.

Form must be populated using Adobe Acrobat / Pro 9 or greater standalone program (do not fill out in browser). Hand written forms will not be accepted.

**Project activities may not begin until you have received approval from the Auburn University IRB.**

#### 1. PROJECT PERSONNEL & TRAINING

##### PRINCIPAL INVESTIGATOR (PI):

Name Sheena Copus Stewart Title \_\_\_\_\_ GTA \_\_\_\_\_ Dept./School \_\_\_\_\_ Adult Education \_\_\_\_\_

Address 4036 Haley Center, Auburn University AU Email scy0001@tigermail.auburn.edu

Phone 334-750-5483 Dept. Head Sherida Downer

##### FACULTY ADVISOR (if applicable):

Name Dr. Maria M. Witte Title \_\_\_\_\_ Professor \_\_\_\_\_ Dept./School \_\_\_\_\_ Adult Education \_\_\_\_\_

Address 3068 Haley Center, Auburn University, Auburn, AL. 36849

Phone 334-844-3078 AU Email witemm@auburn.edu

**KEY PERSONNEL:** List Key Personnel (other than PI and FA). Additional personnel may be listed in an attachment.

Name	Title	Institution	Responsibilities
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

**KEY PERSONNEL TRAINING:** Have all Key Personnel completed CITI Human Research Training (including elective modules related to this research) within the last 3 years?  YES  NO

**TRAINING CERTIFICATES:** Please attach CITI completion certificates for all Key Personnel.

#### 2. PROJECT INFORMATION

Title: Examining the relationship between frontline supervisors and employees' emotional intelligence, job satisfaction and engagement within the manufacturing industry

Source of Funding:  Investigator  Internal  External

List External Agency & Grant Number: \_\_\_\_\_

List any contractors, sub-contractors, or other entities associate with this project.

List any other IRBs associated with this project (including those involved with reviewing, deferring, or determinations).

FOR ORC OFFICE USE ONLY	
DATE RECEIVED IN ORC: _____ by _____ APPROVAL # _____	The Auburn University Institutional Review Board has approved this Document for use from <u>02/25/2018</u> to <u>---</u> Protocol # <u>17-510 EX 1802</u>
COMMENTS:	

## Appendix B

### Workforce Development Questionnaire

#### ADULT PARTICIPANT: FRONT LINE SUPERVISOR/EMPLOYEE

*On your own, please answer the following questions about yourself as honestly as possible. All responses will remain confidential and will not be seen by anyone in your organization. Please read each question carefully and mark only ONE answer per question. The survey will take approximately 10-15 minutes to complete.*

Today's Date: \_\_\_/\_\_\_/\_\_\_

Your Gender:  Female  Male

Your Age: \_\_\_\_\_

1. Length of **Employment** (current company) \_\_\_ years **OR**  less than 1 year

2. Length of **Experience** in Manufacturing: \_\_\_ years **OR**  less than 1 year

General Workforce Experience: \_\_\_ years **OR**  less than 1 year

3. Length of **Supervisory Experience** \_\_\_ years **OR**  less than 1 year

4. Employment Status:

Full-time  Part-time  Temporary

5. What is your racial/ethnic origin?

Caucasian/White

Native Hawaiian/Other Pacific Islander

African-American/Black

Asian-American

Hispanic/Latino

Biracial/Multiracial Which races? \_\_\_\_\_

Native-American/Alaskan Native

6. If the opportunity presented itself, would you take a job somewhere else?

Yes  No

7. What is your highest level of education?

Less than high school

Completed high school/GED

Associate's Degree

Technical/Vocational school degree

Some College

Graduated with 4-year college degree (e.g. BA, BS)

Postgraduate degree (e.g. Master's, MBA, J.D., Ph.D.)

## Appendix C

### Satisfaction Questionnaire (MSQ)

*On your own, please answer the following questions about yourself as honestly as possible. All responses will remain confidential and will not be seen by anyone in your organization. Please read each question carefully and mark only **ONE** answer per question.*

On my present job, this is how I feel about ...

	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
1. Being able to keep busy all the time	<input type="checkbox"/>				
2. The chance to work alone on the job	<input type="checkbox"/>				
3. The chance to do different things from time to time	<input type="checkbox"/>				
4. The chance to be "somebody" in the community	<input type="checkbox"/>				
5. The way my boss handles his/her workers	<input type="checkbox"/>				
6. The competence of my supervisor in making decision	<input type="checkbox"/>				
7. Being able to do things that don't go against my conscience	<input type="checkbox"/>				
8. The way my job provides for steady employment	<input type="checkbox"/>				
9. The chance to do things for other people	<input type="checkbox"/>				
10. The chance to tell people what to do	<input type="checkbox"/>				
11. The chance to do something that makes use of my abilities	<input type="checkbox"/>				
12. The way company policies are put into practice	<input type="checkbox"/>				
13. My pay and the amount of work I do	<input type="checkbox"/>				
14. The chances for advancement on this job	<input type="checkbox"/>				
15. The freedom to use my own judgment	<input type="checkbox"/>				
16. The chance to try my own methods of doing the job	<input type="checkbox"/>				
17. The working conditions	<input type="checkbox"/>				
18. The way my co-workers get along with each other	<input type="checkbox"/>				
19. The praise I get for doing a good job	<input type="checkbox"/>				
20. The feeling of accomplishment I get from the job	<input type="checkbox"/>				

Adapted from "Minnesota Satisfaction Questionnaire-short form" (Weiss, 1977)

## Appendix D

### Work & Well-being Survey (UWES-9)\*

*The following 9 statements are about how you feel at work. Please read each statement carefully and decide if you ever feel this way about your job. If you have never had this feeling, mark '0' after the statement. If you have had this feeling, indicate how often you feel it by marking the number (from 1 to 6) that best describes how frequently you feel that way.*

		Almost Never	Rarely	Sometimes	Often	Very often	Always
	0	1	2	3	4	5	6
	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
1. At my work, I arrive full of energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. At my job, I feel strong and active	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I am enthusiastic about my job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. My job inspires me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. When I get up in the morning, I feel like going to work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I feel happy when I am focused on my work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I am proud of the work that I do	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I am mentally focused in my work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I get involved in distractions, such as daydreaming, when I am working	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

\*Shortened version

Adapted from "The Utrecht Work Engagement Scale" (Schaufeli & Bakker, 2003)

## Appendix E

### The Assessing Emotions Scale

*Each of the following statements asks you about your emotions or reactions associated with emotions. After deciding whether a statement is generally true for you, use the 5-point scale to respond to the statement. Please check "1" if you strongly disagree that this is like you, the "2" if you somewhat disagree that this is like you, "3" if you neither agree nor disagree that this is like you, the "4" if you somewhat agree that this is like you, and the "5" if you strongly agree that this is like you. There are no right or wrong answers. Please give the response that best describes you.*

	Strongly Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Strongly Agree
	1	2	3	4	5
1. I know when to speak about my personal problems to others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. When I am faced with obstacles, I remember times I faced similar obstacles and overcame them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I expect that I will do well on most things I try.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Other people find it easy to confide in me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I find it hard to understand the non-verbal messages of other people.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Some of the major events of my life have led me to re-evaluate what is important and not important.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. When my good mood changes, I see new possibilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Emotions are one of the things that make my life worth living.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I am aware of my emotions as I experience them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I expect good things to happen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. I like to share my emotions with others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. When I experience a positive emotion, I know how to make it last.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I arrange events others enjoy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I seek out activities that make me happy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. I am aware of the non-verbal messages I send to others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. I present myself in a way that makes a good impression on others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Strongly Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Strongly Agree
	1	2	3	4	5
17. When I am in a positive mood, solving problems is easy for me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. By looking at their facial expressions, I recognize the emotions people are experiencing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. I know why my emotions change.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. When I am in a positive mood, I am able to come up with new ideas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. I have control over my emotions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. I easily recognize my emotions as I experience them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. I motivate myself by imagining a good outcome to tasks I take on.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. I compliment others when they have done something well.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. I am aware of the non-verbal messages other people send.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. When another person tells me about an important event in his or her life, I almost feel as though I experienced this event myself.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. When I feel a change in emotions, I tend to come up with new ideas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. When I am faced with a challenge, I give up because I believe I will fail.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. I know what other people are feeling just by looking at them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. I help other people feel better when they are down.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. I use good moods to help myself keep trying in the face of obstacles.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. I can tell how people are feeling by listening to the tone of their voice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. It is difficult for me to understand why people feel the way they do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Adapted from "The Assessing Emotions Scale (SSEIT)" (Schutte, Malouff, & Bhullar, 2009)