EXPLAINING IT PROFESSIONALS' ORGANIZATIONAL COMMITMENT BASED ON AGE, GENDER, AND PERSONALITY TRAIT FACTOR

by

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Abstract

The purpose of the present study was to test the Emotional Stability dimension of the Big Five factors of personality traits theory to predict or explain a relationship with Employee Organizational Commitment, when the relationship between Emotional Stability (ES) and Employee Organizational Commitment (EOC) was moderated by Gender and AgeGroup. Public domain secondary data from the General Social Survey were used in the study. The three age groups under investigation were Millennials, Generation X, and the Boomer generation. A hierarchical linear multiple regression model was applied to test the hypotheses. The statement of the omnibus null hypothesis (H_0) was that the Emotional Stability dimension of the Big Five factor model of personality traits theory did not have the ability to predict EOC. Main hypotheses stated that there was not a statistically significant relationship between the moderated independent variable (IV) and the dependent variable (DV). Results of the full model showed that the theory-testing null hypothesis (H_0) was not supported ($p < .05$), and the Boomer generation contributed most to the DV (Beta = -.511). Recommendations were made for future research.

Dedication

This dissertation is dedicated to my late parents, Mr. and Mrs. Haji Syed Ehsan Ali and my late brother Syed Furqan Abid Ali. It is their love, prayers, and support which instilled in me compassion, humility, confidence, and the drive to excel in education. I will always be grateful for their guidance, unconditional love, and wisdom.

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CHAPTER 1. INTRODUCTION

There is a persistent problem with staffing and retaining information technology (IT) employees (Ertürk, 2014; Gaylard, Sutherland, & Viedge, 2005; Jiang & Klein, 2002 as cited in Lounsbury, Sundstrom, Levy, & Gibson 2014; Mastracci, 2009) and, although there have been studies in which IT workers' job motivation and attitudes toward their jobs have been investigated, there has been a sparse body of literature on key attributes of IT personnel, which differs from other occupations (Lounsbury et al., 2014).

Results from the latest research indicate that IT workers' personality profiles differentiate significantly from other types of jobs by personality traits. The results of a study by Lounsbury et al. indicated that the IT workers' scored low on Emotional Stability, which is one of five broad factors of personality traits that has to do with one's ability to handle stress (Anderson, 2013). The authors concluded that, compared to other professions, personality trait differences might explain the high attrition rates among IT professionals. Lounsbury et al. recommended future studies to extend their research by investigating whether any of their findings "might be moderated as a function of age, gender, number of years of experience in the field, IT sub-specialty and so forth" (p. 44). Since one of the findings of the study was that IT workers showed low levels of Emotional Stability, following the recommendations to extend the Lounsbury et al. study, in the present study the moderating effects of age and gender on the emotional stability of IT workers to predict a relationship with employee organizational commitment was investigated. A linear multiple regression model was applied and the particular statistical analyses used for this study was hierarchical linear multiple regression (HLMR), since

what was investigated was whether statistically significant relationships existed between a set of independent variables and a continuous level dependent variable (Segrin, 2010).

Background of the Problem

At a time when data breaches are increasing, concern for data protection is also rising (Gordon, Loeb, & Zhou, 2011; Ko & Dorantes, 2006; Susanto, Almunawar, & Tuan, 2012). Organizations need information technology professionals to shape, maintain, and implement IT security measures in order to protect the organization's sensitive data (Luftman et al., 2013; Trautman & Altenbaumer, 2011; Jiang, 2014). Therefore, IT staffing and retention is an important problem that organizations want to solve (Coombs, 2009; Susanto et al., 2012); however, a review of the literature showed that IT professionals seem to have low organizational commitment as evidenced by high turnover rates (Ertürk, 2014).

According to Lounsbury et al. (2014), there is a persistent problem with staffing and retaining IT employees due to high levels of stress and exhaustion (DePasquale et al., 2015; Kim & Wright, 2007). Although IT workers' job motivation and attitudes toward their jobs have been studied, according to Lounsbury et al., (2014), there has been little literature on "key personological attributes of IT personnel which distinguish them from other occupations" (p. 38). According to the authors, this dearth of literature had been identified since 1982. Consequently, Lounsbury et al. investigated key personality traits among IT workers to understand if (or to what extent) these traits differentiated IT workers from other professions. The authors believed that, compared to other professions, personality trait differences might explain the high attrition rate among IT professionals.

The main results of the Lounsbury et al. study indicated that IT workers' personality profiles differentiated significantly from other types of jobs by personality traits. The authors thought it "alarming" (p. 44) that the IT workers scored low on Emotional Stability (ES), and recommended additional studies in this area. The present study emerged from the Lounsbury et al. recommendations on ES and, to further extend research in this area, the moderating effects of Gender and Age on IT professionals' emotional stability were examined to determine whether these variables affected the relationship between ES and employee organizational commitment.

Statement of the Problem

The ability to handle stress has been related to the emotional stability dimension of personality traits, and low levels of emotional stability have been related to the inability to handle stress (Anderson, 2013). There is a high level of stress in the information technology (IT) field and retention among information technology (IT) workers in the United States (US) has been low, and turnover rate has been high (Ertürk, 2014; Lounsbury et al., 2014). High turnover rates are indicative of low organizational commitment (Croucher, Wood, Brewster, & Brookes, 2011). The problem that supported the present study is that there is a lack of understanding concerning whether the personality trait factor, Emotional Stability, is related to employees' commitment to their organization.

High turnover rates among IT personnel can put organizations at risk of data breaches at a time when organizations depend on these types of workers to protect their intellectual assets, as well as their stakeholders' sensitive information. Therefore,

organizational leaders and researchers continue to be interested in IT personnel's organizational commitment. The results of the present study can inform a wide variety of organizational processes by providing insight and understanding into how a key personality trait (such as Emotional Stability) among IT workers influences their commitment to their organization. Some of these organizational processes are assessing IT candidates for job and organizational fit, recruitment, selection, placement, identifying training needs, career planning, counseling, and ongoing management. Additionally, it can provide insight into whether the age and gender of IT professionals interact with their personality trait to predict or explain their organizational commitment.

Purpose of the Study

The purpose of the present archival data-based research was to contribute to the body of knowledge by testing the Big Five factor model of personality traits theory that related one dimension of the Big Five factor model, *Emotional Stability* (the independent variable), to the dependent variable *Employee Organizational Commitment*, when the relationship between Emotional Stability and Employee Organizational Commitment was moderated by Gender and AGE for 279 participants in organizations within the U.S.

In the case of the present study, Emotional Stability was investigated for its ability to predict or explain IT professionals' organizational commitment. The present study was designed as a quantitative, non-experimental, correlational, cross-sectional, explanatory, archival data research. The independent variable (Emotional Stability) was defined as an individuals' ability to be relaxed, unemotional, and calm under pressure (Anderson, 2013). The dependent variable (DV), *Employee Organizational Commitment* has been

defined as “the relative strength of an individual’s identification with, and involvement in, a particular organization” (Mowday, Steers, & Porter 1979, p. 226). The moderating variable “Gender” was described as male or female, and the moderating variable “Age” was stratified into three age groups, described as: 18-35 years, 36-53 years, and 54-71 years. The age groupings were chosen based on the legal definition of an adult in the United States, which is 18 years old, and extended beyond the full retirement age of 65 (Social Security.gov, 2016) in order to accommodate even age intervals. This is justifiable because, according to the Bureau of Labor Statistics (2014), many adults are working past the retirement age of 65; therefore, applying a cutoff age of 71 was appropriate.

Significance of the Study

New insight on an existing problem was gained from the study. There are many studies covering the topics of emotional stability, how age relates to personality, and how gender influences personalities. There is a very large body of seminal and contemporary literature on job satisfaction and the variables that influence motivation in the workplace. However, there is very little literature in which the intersection of these three topic areas as they relate to IT specifically is discussed. This study has significance to organizations, the IT field in general, literature on personality traits and employee organizational commitment, academia, and to IT professionals, as well.

Organizational Significance

This study is significant to organizations because there is a high turnover rate among IT professionals (Ertürk, 2014; Lounsbury et al., 2014), and should concern

organizational leaders and researchers alike. High turnover rates concern companies since the cost of recruiting and training new hires is very high (Ertürk, 2014; Gaylard et al., 2005; Jiang & Klein, 2002 as cited in Lounsbury et al., 2014; Mastracci, 2009). What is known from the literature is that employees who are committed to the organization stay with the organization, are more productive, and support the organization in its goals, thus providing the organization a competitive edge in the marketplace (Hansen, Dunford, Boss, Boss, & Angermeier, 2011; Ghapanchi & Aurum, 2011; Wade-Benzoni, Sondak, & Galinsky, 2010). What is also known is that one personality trait, Emotional Stability, is strongly related to the ability to handle stress (Beaudry & Pinsonneault, 2010; Chand & Koul, 2012; Goldberg, 1993; Rank & Frese, 2008), and the IT profession is fraught with stress (DePasquale et al., 2015; Goldberg, 1993; Kim & Wright, 2007). Therefore, results of this study could yield significant benefits for companies by providing them insight into the persistent problem of low organizational commitment among IT professionals, as evidenced by the high turnover rate among these employees, and its relationship to Emotional Stability, age, and gender in this group of professionals.

Organizational leaders could create policies that are aimed at reducing stress in the IT work environment and create retention strategies to promote higher retention among IT employees. Stress-free workplaces have been linked to employee job satisfaction (Ghappanchi & Arum, 2011; Lumley, Coetzee, Tladinyane, & Ferreira, 2011; Tooksoon, 2011) and job satisfaction has been found to be positively related to organizational commitment (Singh et al., 2010). By understanding whether specific influencing factors, such as IT professional's age, gender, and personalities, are related to

IT professionals' commitment to their organizations, companies can begin to address this persistent problem appropriately. This could reduce stress in the IT work environment and, in turn, improve commitment levels of their employees.

Significance to Information Technology (IT) Field/Organizations

This research study is significant to researchers and scholars in the information technology field and to practitioners, such as hiring managers, because the literature has shown that organizations have problems with staffing and retaining IT professionals (Lounsbury et al., 2014). A review of the seminal and contemporary literature has shown that IT professionals have been, and continue to be, faced with very high levels of stress and exhaustion (DePasquale et al., 2015; Kim & Wright, 2007), and the ability to deal with stress has been associated with the personality trait factor, Emotional Stability. For example, the opposite of Emotional Stability (ES) is Neuroticism (Goldberg, 1993), which has been a predictor of risk for stress and high levels of ES, and is associated with the ability to deal with stress (Mangold, Veraza, Kinkler, & Kinney, 2007; Moeller, Robinson, & Bresin, 2010). Assessing for organizational fit based on evidence of ES could have implications for IT workers' job satisfaction, retention, absenteeism, and success in their jobs. Just as with the claims made by Lounsbury et al. (2014), the results of this study could provide information that could inform a wide variety of organizational processes such as assessing IT candidates for job and organizational fit, recruitment, selection, placement, identifying training needs, career planning, counseling, and ongoing management.

Contributions to the Literature

The study contributes to the sparse body of literature on the key personological attributes of information technology (IT) professionals' personality traits. According to Lounsbury et al. (2014), calls for these types of studies have been made since the 1980s, having largely gone unanswered. The study also contributes to academia at large, since new insights could inform the design and content of IT courses. In this case, IT students and scholar practitioners in IT hiring management could be exposed to new revelations that could inform their approach to the IT field in practice. For example, IT students might be able to assess their suitability to the IT career field based on evidence of their Emotional Stability trait. Results of the study could help to provide insights into the staffing and retention problem of IT professionals, which could help organizational leaders and hiring managers formulate strategies to improve retention among IT professionals.

Research Questions

In this research, the ability of the Big Five Factor Model of Personality Traits theory to predict employee organizational commitment among IT professionals in the United States (U.S.) was tested. The tested theory was reflected in the omnibus research question (RQ0). Specifically, on a granular level, the Emotional Stability dimension of the Big Five Model of Personality Traits theory (Goldberg, 1993) was examined for a relationship with Employee Organizational Commitment, when moderated by age group (AGE) and gender (GEND). The omnibus and main research question (RQ_0, RQ_1) as well as the corresponding hypotheses are stated as follows:

Research Questions

RQ_0: When moderated by Gender and AGE (MV), to what extent does the Big Five factors of personality traits theory explain a relationship between the dependent variable (DV) Employee Organizational Commitment and the independent variable Emotional Stability, among IT professionals in U.S. organizations?

RQ_1: To what extent is Emotional Stability related to Employee Organizational Commitment among IT professionals in the U.S.?

RQ_2: When moderated by Gender, to what extent is Emotional Stability related to Employee Organizational Commitment among IT professionals in the U.S.?

RQ_3: When moderated by AGE, to what extent is Emotional Stability related to Employee Organizational Commitment among IT professionals in the U.S.?

Hypotheses

H_0: When moderated by Gender and AGE, the Big Five factors of personality traits theory does not explain a statistically significant relationship between Employee Organizational Commitment and the independent variable Emotional Stability among IT professionals in U.S. organizations.

H_A: When moderated by Gender and AGE, the Big Five Factors of Personality Traits theory will explain a statistically significant relationship between Employee Organizational Commitment, and the independent variable Emotional Stability, among IT professionals in U.S. organizations.

H_{01}: Emotional Stability is not related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S.

H_{A1}: Emotional Stability is related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S.

H_{02}: When moderated by Gender, Emotional Stability is not related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S.

H_{A2}: When moderated by Gender, Emotional Stability is related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S.

H_{03}: When moderated by Age group, Emotional Stability is not related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S.

H_{A3}: When moderated by Age group, Emotional Stability is related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S.

A regression model that applied hierarchical linear multiple regression analysis was used to test the hypotheses and answer the research questions. Two models were produced when the hierarchical analysis procedure was run: Model 1 and Model 2. Model 1 showed the results of a standard linear multiple regression analysis, which is produced in the first step of the analysis, when the independent variable (IV) is regressed against the dependent variable (DV) without the moderator variables in the regression equation. Model 2 is produced when the moderator variables (MV) are entered into the regression equation in a separate step. This model shows the results of the interactive effects of the moderated IVs on the DV (Segrin, 2010). The relationships among the variables are shown in Figure 1, which also is a conception of the hierarchical multiple regression model that was used to answer the research questions.

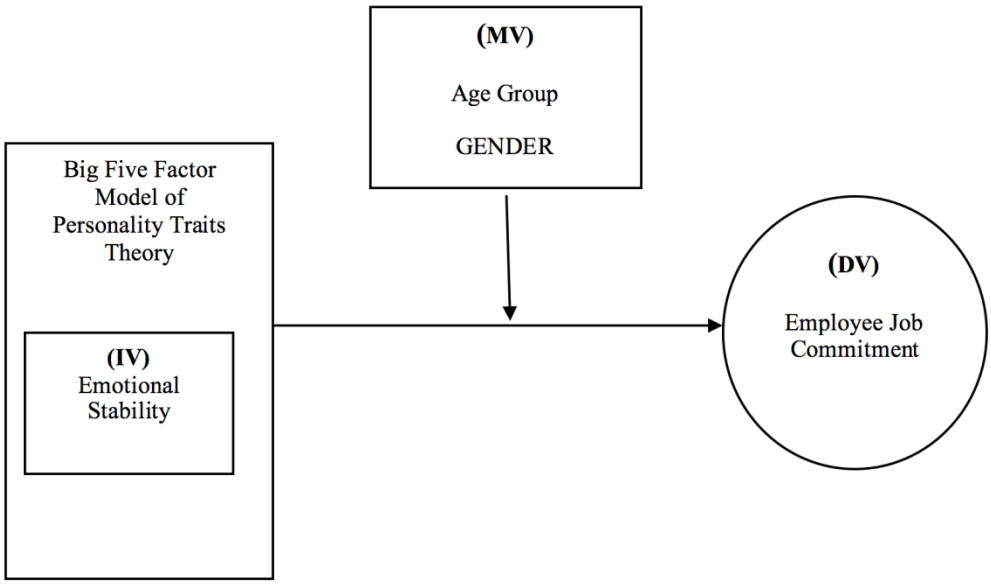

Figure 1. Relationships among the Variables

Definition of Terms

Big Five factor model of personality traits: Theories and models developed over the course of the last few years have been used to gain a better understanding of human personalities. Many of these developed trait theories contribute to the concept of the "Big Five" traits, a term used to describe five of the broadest traits found in human personality (Bakker et al., 2012, p. 555; Costa & McCrae, 2013, p. 17; Turiano et al., 2013, p. 83). Each is independent of one another and each account for an infinite number of unique facets which further complicate human personality. The "Big Five" are Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect.

Data breach: A data breach is a cyber-security incident in which confidential, protected, or sensitive data is viewed, transmitted, or stolen by unauthorized individuals. (Fabbri, LeFevre & Zhu, 2010)

Emotional stability: Emotional stability is another facet of personality traits that, when improved, can improve not just emotional functioning, but encourage long term personality changes and bring about important positive results socially, physically, psychologically, and in terms of work adjustment (Inceoglu & Warr, 2015; Nelis et al., 2011, p. 354; Porath et al., 2012, p. 250).

Employee organizational commitment: The construct is the relative strength of an individual's identification with, and involvement in, a particular organization (Mowday et al., 2013)

Malicious attack: A wide spread attack via the Internet; it is designed to effect, curtail, or totally suspend the operations of computers connected via the Internet. (Zeng & Liu, 2010)

Malware: A type of software which encompasses Trojans, viruses, or worms. It is a program that is designed to damage, hijack, or compromise computers. The name is short for malicious software. (Perdisci, Lee, & Feamster, 2010)

Research Design

A post-positivist philosophy that embraced many of the tenets of positivism guided this cross-sectional, non-experimental, quantitative study. For example, the ontological, epistemological, axiological, and methodological paradigms that underlie the positivist worldview is that there is one objective, values free, reality separate from

individual perceptions, which can be objectively known, measured, and understood (Kuhn, 1996; Sharma, 2010). In this worldview, quantitative methods, such as statistical analyses, are used to test hypotheses, which were formed to answer the research questions.

Statistical Model

In this study, the linear multiple regression model was used to test the hypotheses. According to Segrin (2010), multiple regressions are commonly used to explain or predict the value of a dependent variable, given a set of independent variables. The specific regression model that was used was hierarchical (multilevel modeling) linear multiple regression. According to Cramer and Howitt (2004), hierarchical linear multiple regressions are used to "determine whether the relationship between a predictor and a criterion is moderated by another predictor called a moderator or moderating variable" (p. 107). The hierarchical linear multiple regression (HLMR) analysis produces two models Model 1 and Model 2. This is explained in more detail in Chapter 3.

Design Rationale

The research question determines the design of a research study (Vogt, 2007). The rationale for selecting the research design is grounded in the research question, which asked whether a relationship existed between a DV and a set of IVs, when the IVs were moderated by two other variables (moderator variables). For this reason, a linear multiple regression model was chosen, as this model is applied when relationships among variables are investigated (Segrin, 2010). Additionally, the moderating effect of two variables (AGE, GEND) on the IV (Emotional Stability) to predict the DV (Employee

Organizational Commitment) fit the criteria for a hierarchical multiple regression. The criteria for this particular model requires that the variable measurements be as follows; the DV must be continuous, and the IVs and moderator variables can either be categorical, continuous, or a combination of both. In the present study, the DV and the IV are continuous variables, the moderating variable AGE is continuous, and GEND (gender) is a categorical variable that is measured at the nominal level.

Assumptions and Limitations

This quantitative, non-experimental, correlational, cross-sectional, explanatory, archival data research was focused on investigating the Big Five factor model of personality traits theory that relates one dimension of the Big Five factor model, *Emotional Stability* (ES - the independent variable), to the dependent variable, *Employee Organizational Commitment* (EOC), when the relationship between ES and EOC was moderated by Gender and AGE.

Assumptions

This study was rooted in assumptions that concerned the relevance of the topic to organizational leaders, researchers, scholar-practitioners, academia, and IT professionals. Assumptions were made about the appropriateness of the approach (post-positivist) to the design of the study, the appropriateness of the theories to underpin the study, as well as about the appropriateness of the methods used in the study. General assumptions and limitations that were related to the study were as follows:

Topical Relevance Assumption

The assumption of topical relevance was based on the fact that, in a review of the literature, it was found that organizations are faced with the persistent problem of low organizational commitment among their IT professionals (Beaudry & Pinsonneault, 2010; Chand & Koul, 2012; Mowday et al., 2013; Rank & Frese, 2008). Organizational leaders continue to be interested in solving this problem, as there is a high attrition rate among IT professionals, and leaders are interested in understanding what contributes to this non-continuance rate (Ghappanchi & Arum, 2011; Kim, 2012; Lumley et al., 2011). Since the IT work environment has been characterized by high levels of stress (Erturk, 2014; Lounbury et al., 2014), and since the Emotional Stability dimension of the Big Five factors of personality traits has been associated with the ability to deal with stress, there is an interest in understanding whether Emotional Stability contributes to high attrition rates among IT professionals in organizations within the U.S. (DePasquale et al., 2015; Kim & Wright, 2007; Lounsbury et al., 2014).

Approach & Design Assumption

A post-positivist philosophy that embraces many of the tenets of positivism guided this cross-sectional, non-experimental, quantitative study. For example, the ontological, epistemological, axiological, and methodological paradigms that underlie the positivist worldview is that there is one objective, values free, reality separate from individual perceptions, which can be objectively known, measured, and understood (Kuhn, 1996; Sharma, 2010). In this worldview, quantitative methods are used to test hypotheses that were formed to answer the research questions. It was assumed that the

objective statistical methods that were applied to study the phenomenon were aligned with the philosophical stance of this research study.

Theoretical Assumption

This research study was based on the theoretical assumptions of personality trait theory and, in particular, The Big Five factor model (BFFM) and employee organization commitment theory. It was assumed that the Emotional Stability personality trait was appropriate for investigating the research question since a review of the literature has shown that IT professionals are faced with very high levels of stress and exhaustion (Kim & Wright, 2007), and the ability to deal with stress has been associated with the personality trait factor *Emotional Stability*. For example, low or no emotional stability has been correlated with low or no ability to deal with stress (Beaudry & Pinsonneault, 2010; Chand & Koul, 2012; Mangold et al., 2007; Moeller et al., 2010; Rank & Frese, 2008).

Methodological Assumptions

It was assumed that the type of data that were used in the study, the data collection methods, and the statistical analyses were aligned with the purpose of the study. Secondary/archival data that was collected at one point in time were used in the present study; therefore, the researcher did not interact with the sample. This type of data had been collected by the General Social Survey through random probability sampling techniques. The purpose of the study was to investigate linear relationships between a set of independent variables (IV) and a dependent variable (DV), and to generalize results of the study to the larger population of information technology employees that were

represented in the sample. A linear regression model that applied hierarchical linear multiple regression analysis was used to test the hypotheses and answer the research questions. This model is appropriate for testing for a linear relationship between an IV and a DV, when the IV is moderated by a third set of independent variables. Additionally, since the criteria for conducting the hierarchical multiple regression linear analyses were met, it was assumed that the statistical methodology that was chosen to test the research questions was appropriate to study the problem.

Limitations

A primary limitation of using archival data is its inability to establish if the survey questions were answered honestly by the participants. Since the present study used archival data there was no way to determine whether respondents were truthful in their responses or not. Nonetheless, this limitation does not impede the ability to accurately test the given hypotheses and further significance and correlational tests were performed to establish consistent statistical values. A cross-sectional design was used in the study, and this type of design is limited in terms of providing casual or explanatory conclusions; however, inferences about the population can be made from the sample, based on the results of the study. Lastly, the archival data that were used in the present study did not represent the most current information on information technology workers' and organizational commitment. In combination with the limitation that is associated with survey data, the results may not be generalized to all information technology workers in all U.S. organizations.

Organization of the Remainder of the Study

In Chapter 1, the introduction to the topic was provided, as well as the background that inspired this research study, and details that guided this study from inception to completion. This research study is comprised of five chapters. In the second chapter, a review of existing literature and relevant work related to this study is presented. The methodological details are provided in Chapter 3; these details include information on the research design, the population sample, instruments, and measures that were used in the study, data analysis, data validity and data reliability, and ethical considerations. A report of the analysis and interpretation of findings is provided in Chapter 4. In Chapter 5, the study closes with discussions of conclusions that were drawn from the results; limitations that were revealed in the study are noted, summary of results are provided, and recommendations for future studies are offered.

CHAPTER 2. LITERATURE REVIEW

Methods of Searching

To conduct the review of the literature for the present study, several databases were accessed; these databases included those made available through the Capella University library and include *ABI/INFORM Collection* (*formerly ABI/INFORM Global*), *Business Source Complete, Dissertations @ Capella, Google Scholar, PsycArticles, Sage Journals Online, Sage Research Knowledge,* and *Summons*. Additionally, Internet searches were conducted and only peer-reviewed articles were selected for consideration. Search words included (but were not limited to) terms such as *Big Five factor model, data breaches, emotional stability, hacking, Information Technology, personality traits, stress.*

Theoretical Orientation for the Study

Two theories underpinned this study: (a) personality traits theory, specifically the Emotional Stability dimension of the Big Five factor model of personality traits theory and (b) employee organizational commitment theory.

Personality Traits Theory

Human personality has been described as relatively stable patterns of behavior, thoughts, and emotions (American Psychological Association, 2014; Yang et al., 2013) and is universal among human beings (McCrae & Costa, 1997). It is posited in the seminal and contemporary literatures on theories of personality that personality traits can explain differences in human behavior (Allport, 1927; Uher, 2013). Seminal and contemporary literatures have recommended personological studies in the IT field

(Ghapanchi & Aurum, 2011; Lounsbury et al., 2014). Since there have been very limited responses to this recommendation, a gap existed in the literature on whether and how personological traits informed IT professionals' organizational commitment. Various researchers have arranged personality traits in hierarchical levels; however, worldwide, the most researched taxonomy of traits has been the Big Five Factor Model of personality traits theory (Allik, 2005; Goldberg, 1993; McCrae & Costa, 1997).

The Big Five Factor Model (BFFM)

The main tenet of the Big Five factor model (BFFM) of personality traits theory is that the vast numbers of personality traits can be clustered under five broad domains of personality, which are Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect (Goldberg, 1993). According to Parks-Leduc, Feldman, and Bardi (2014), these broad dimensions of personality traits are "important psychological characteristics" (p. 3) that predict various types of outcomes. The research question for the present study was viewed through the lens of one dimension of the BFFM, which was Emotional Stability, since this approach was recommended by Lounsbury et al. (2014). The Emotional Stability dimension of the BFFM was measured by two questions from the GSS7212_R4 secondary dataset's bundle of Big Five questions on personality traits.

Employee Organizational Commitment

Employee Organizational Commitment has been defined as the "the relative strength of an individual's identification with, and involvement in, a particular organization" (Mowday, Steers, & Porter 1979, p. 226). Employee Organizational Commitment is a construct that is made up of three dimensions: *affective* (emotional)

commitment, normative commitment, and *continuance commitment* (Porter et al., 1974). Affective commitment has to do with the emotional bond and kinship that the employee feels toward the organization. For example, an employee who is affectively or emotionally committed to her organization feels that she and the organization share the same values; consequently, the employee has pride in the organization and is willing to work harder for the organization than is normally required (Law & Guo, 2015; Meyer & Allen, 1991). Normative commitment has to do with employees' feelings of obligation to stay with the company and *continuance* commitment has to do with a strong intent to keep on working with the organization, based on calculations of the cost to benefit of leaving the company (Wade-Benzoni, Sondak, & Galinsky, 2010; Hansen et al., 2011; Ghapanchi & Aurum, 2011). The present study focuses on overall employee organizational commitment.

This study is based on the recommendation of Lounsbury et al. (2014) to explore the relationship between a personality traits variable (in this case, Emotional Stability) and Employee Organizational Commitment among IT professionals. For this reason, personality traits theory, and in particular, the Big Five factors model of personality traits, and employee organizational commitment theory were deemed to be appropriate theories with which to underpin the present study.

Review of the Literature

Globally, the ubiquitous uses of the Internet and continuous technological changes have presented organizations with unique challenges. For example, companies are now continually at risk for data breaches (Gordon et al., 2011; Ko & Dorantes, 2006;

Susanto, Almunawar, & Tuan, 2012); consequently, to address the challenge of protecting their proprietary and sensitive data from breaches, organizations need to attract and retain qualified information technology (IT) professionals to protect their data (Luftman et al., 2013; Trautman & Altenbaumer, 2011; Jiang, 2014). In the scholarly literature, reports of research results have indicated that IT workers are now more important than ever for businesses and it is no longer practical for these professionals to be hired on a part time basis, or to work from remote locations (i.e., in a virtual capacity); instead it has been suggested that they should be working in-house, with comprehensive access to all data-related management within companies (Gonzalez, Gasco, & Liopis, 2010; Laihonen, Jaaskelainen, Lonnqvist, & Ruostela, 2012). However, while IT workers are now more sought after than ever, organizations are plagued by the inability to retain these employees as the attrition rate is high among IT professionals (Coombs, 2009; Susanto et al., 2012). This literature review presents findings that substantiate how personality traits have been related to employee retention in any industry (Ertürk, 2014; Lounsbury et al., 2014), and how employee retention (i.e., an employee's decision to continue employment with the organization) has been related to employee organizational commitment. In the information technology (IT) industry, stress has been identified as a major contributor to employee job dissatisfaction that has contributed to attrition among IT professionals (DePasquale et al., 2015; Kim & Wright, 2007). One particular personality trait, *Emotional Stability* (Goldberg, 1993), is the polar opposite of Neuroticism (Costa, 1991) and has been associated with an individual's ability or inability to handle stress (Costa, 1991; Costa & McCrae, 1992; Goldberg, 1993). In this

literature review, findings substantiate the idea that, in addition to Emotional Stability, Age and Gender are other contributing factors to employee organizational commitment. For example, research shows that emotional stability is related to the ability to handle stress, while lack of emotional stability (i.e., neuroticism) is associated with the inability to handle stress, and the IT environment is fraught with stress (Lounsbury et al., 2014). Variables such as Gender and Age play an influential role in job satisfaction, which is a predictor of employee commitment with organizations (Bellou, 2010; De Bolle et al., 2015; Ghazzawi, 2010). These variables are discussed in the following sections.

Organizational Challenges and IT in a Global Environment

Twenty-first century businesses operate in a global environment and organizations depend on the Internet to conduct many business activities. Beyond the IT field, all companies must handle continuous change in order to gain or retain a competitive edge in the business arena (Atkinson, 2010; Steiber & Alange, 2013). In a global business environment, coping with incremental changes is no longer a management option. Today, companies must handle accelerating, often overlapping, and large-scale transitions in all areas of the organization. (Bandyopadhyay & Sen, 2011; Cowan, 2010). No longer are changes singular events, out of the ordinary for companies. Today, change is constant and by its very nature, omnipresent (Aarseth, Rolstadas, & Anderson, 2013; Atkinson, 2010; Cowan, 2010). The life cycle of customers, clients, corporations, and all aspects of the workplace are now subject to change (Aarseth et al., 2013). Additionally, changes in technology have facilitated the ubiquitous use of the

Internet to conduct business, while online transactions by customers are increasing (Gordon et al., 2011; Ko & Dorantes, 2006; Susanto et al., 2012).

The technological changes that facilitate online communications and business activities have introduced new threats that businesses face on a daily basis. These threats have to do with relentless efforts by cyber-criminals against organizations and their customers whose intent is to steal sensitive data from organizations. As a result of relentless data breaches, organizations are relying on information technology professionals to protect their information security (IS) systems against cyber-attacks and data breaches (Luftman et al., 2013; Trautman & Altenbaumer, 2011). Modern businesses collect vast amounts of sensitive data from the public and they need the expertise of full time information technology (IT) workers as a mitigating force against cyber-attacks, as well as protection against internal and external security violations, that put the organizations' sensitive data at risk of being breached (Gordon et al., 2011; Ko & Dorantes, 2006; Susanto et al., 2012).

Change, Data Analytics, and Challenges in Information Technology

Today, the modern customer is changing not only how to look for products and services, but how they use them, forcing a transformation in production logistics. This transformation has necessitated information and management techniques that could adapt to fast changing needs of the customers (Altinok, 2016; Asgari & Omrani, 2016; Mcfarlane, 2013). Transformation over the last few years alone has resulted in an increase of customers focusing on geographically based searches for those companies nearest their location by way of geographical tags on their smartphones and wireless

connections. Customers are turning to tablets and smartphones when shopping in lieu of physical spaces, and are demanding faster responses to inquiries and Internet based options (Altinok, 2016; Gattorna, 2016; Mcfarlane, 2013). Long gone are the days where companies could survive without a website; now, the continually changing customer has continually changing needs requiring all businesses to focus more on Internet-based services. Products today are continually being improved so that they can be offered online. Customers are demanding the flexibility of mobile-friendly sites in tandem with regular websites.

Beyond just the customer, companies are turning with higher frequency to digital methods of marketing, advertising, and data mining to meet the changing needs of the customer and withstand information technology based customer transformation (Altinok, 2016; Asqari & Omrani, 2016; Mcfarlane, 2013). Data mining is used to collect customer information. Multiple companies utilize the collection of customer data to make predictions based on whether the customer is worth maintaining for the long term and how much money the customer will bring to the company on a regular basis. This type of data mining also stretches to include predictive measurements for behavior, especially with the focus on the target company and the prediction analysis of their customer future purchasing trends (Berry & Linoff, 1991; Han, Kamber, & Pei, 2011; Laudon & Lauden, 2010). In tandem with data mining is the field of behavioral science, something which is used to determine the success rates of the various data mining related strategies. For example, behavioral studies determined that Target customers did not appreciate the predictive pregnancy analyses and did not want the pregnancy or baby related coupons

that were sent to them. However, when they assumed this action was random and that their personal information had not been spied on, they were much more willing to accept the coupons for their use (Han et al., 2011).

If companies had not kept a customer database of such information they would not be able to properly market their product information transformation (Altinok, 2016; Asqari & Omrani, 2016; Mcfarlane, 2013). For example, a diaper related company is able to use their information to determine the profitability of a potential customer. This type of determination is based upon the collection of a database of personal client information that allows decision makers to assess whether they should continue their marketing efforts directed at individual customers, based upon whether that customer is a repeat or not. This information is applied directly in tandem with the cost of maintaining a customer and remains a marketing potential. The company is able to determine that while a $40 investment in a first time customer might appear substantial, the result is that company could enjoy a $70 per year profit from the lifetime customer (Berry & Linoff, 1991; Han et al., 2011; Laudon & Lauden, 2010).

It is by way of statistical modeling software (SAS) that companies are gathering customer information, especially information related to local trends, geographic location, habitual purchases, and personal details, such as the number of children, marital status, and more. Understanding habitual purchases by customers is also beneficial for marketing purposes. The customer database, with use of SAS, helps organizations direct their marketing efforts and sales promotions to address habitual customer purchases. That being said, the software can provide information specific to gift purchases or other

impulse related purchases so that marketing efforts can be better coordinated and targeted to individual customers. This software also provides information as to which customers may require additional benefits, such as bonus gifts from the company in order to sustain that clientele. Data mining and data analysis techniques utilizing family details are all efforts made by companies to enhance their traditional marketing efforts in an effort to stay ahead of their competitors (Berry & Linoff, 1991; Han et al., 2011; Laudon & Lauden, 2010).

When companies utilize data analytics they are able to coordinate their marketing efforts with new customers' changing needs (Altinok, 2016; Asgari & Omrani, 2016; Mcfarlane, 2013). For many companies investing in such software, predictive analysis teams are created in order to predict the behavior and purchases of their customers. The reason for this is to better understand what regular purchases or habitual purchases are made by customers so their sales and marketing efforts can be regulated to generate higher sales resulting in higher profits. Data analysis garnered from customer databases helps in understanding customer purchasing patterns, as purchases can eventually result in lifestyle changes. These predictive analysis teams are created to review all of the information that was captured through data mining projects and the customer information databases. By reviewing this information, predictive analyses teams are able to see where individual customers were making changes in their habitual purchases and what items were being added to those purchases. In keeping track of regular customer purchase history, the predictive analyses team was able to determine when certain purchase behaviors changed that resulted in lifestyle change. Getting married or having children

are two of the key items which could be tracked using this information. The methods of predictive analysis, in this sense, show that companies can meet the demands of customers before the customers even know that they have a need that needs to be fulfilled (Laudon & Lauden, 2010). Accessibility to - as well as maintenance and protection of - this information is a serious concern for all companies.

Information maintained by companies, such as patient or customer data, are typically maintained on cloud networks, so as to provide access to all necessary employees or customers/patients no matter where they are located (Berry & Linoff, 1991; Han et al., 2011; Laudon & Lauden, 2010). With so many companies turning to cloud computing and maintaining long term data, cyber security remains a serious concern, particularly as it relates to things such as data breaches. Use of information technology, data mining, and cloud computing has opened gates to cyber-attacks, as well as to internal and external data breaches, resulting in losses of millions of dollars to product makers, suppliers, marketers, consumers, and businesses alike (Amigorena, 2014; Srinvasan, Sarukesi, Rodrigues, Manoj, & Revathy, 2012; Walters, 2014; Waller & Fawcett, 2013). The lack of implementation of security policies regarding data protection resulted in compromising financial and personal consumer data to unauthorized parties affecting companies such as TJX and Target (Moncada, 2014). These data breach incidents continue to put information technology workers in the lime light, placing them under undue stress, which further highlights the need to create policies that are aimed at reducing stress in the IT work environment, and also the need to create retention strategies in order to promote higher retention among these employees. Stress-free

workplaces have been linked to employee job satisfaction (Ghappanchi & Arum, 2011; Lumley et al., 2011; Tooksoon, 2011). Job satisfaction has been found to be positively related to organizational commitment (Singh et al., 2010).

Security Concerns and Data Breaches

When technologically astute individuals seek to penetrate another computer network, they can be a great advantage. The Internet was originally designed to share information and not to prevent the flow of information (Citroen, 2011; Gligor & Wing, 2011; Jones, 2010); therefore, an imbalance such as this increases the ability to spread malicious attacks. In addition, compared to the fast pace of technical innovations, organizational information policy often moves at a pace that is significantly slower compared to technical innovations, which means that organizations run the regular risk of being out of synch in handling exponential rates of change within the cyber sphere and with related technologies (Acemoglu, Aghion, Bursztyn, & Hemous, 2010; Bresnahan, 2010; Veugelers, Bury, & Viaene, 2010). As a result of the inability for organizations to keep pace with technology, cyber criminals such as hackers proliferate.

Hackers

It is important to note that many hackers on the Internet do not necessarily have a significant affiliation with states, regardless of what their citizenship might be (Dutton & Blank, 2014; Holt, Strumsky, Smirnova, & Kilger, 2012; Knake, 2010). Skilled warriors within cyber-space can be anonymous and individualistic, but there are broad classifications of hackers that provide better definitions to the actors contained within cyberspace. It is imperative to identify and understand all of the actors who populate

cyberspace and how they can manipulate the environment (*Cyber Warfare,* 2011; Taylor, Fritsch, & Liederbach, 2014). The Internet is a unique environment which is actually defined by its users. Cyber warfare has to do with conducting havoc upon institutions or governments (Ophardt, 2010; Goel, 2011; Nguyen, 2013). There are certain individuals within cyberspace who are able to wield a considerable amount of power. The average user can contribute unwittingly to this power by becoming a conduit for viruses or worms that can hijack servers and computers (*Cyber Warfare,* 2011; Hald & Pedersen, 2012; Taylor et al., 2014).

The most powerful hacker, acting alone, may not be affiliated with a national government. For this purpose, a hacker is someone with sufficient understanding, expertise, and skill pertaining to the nuances and inner workings of a computer system and network such that they are able to wield meaningful power and influence the events that take place within cyberspace, even if this power is only to connect with other people (Dutton & Blank, 2014; Lee & Lee, 2015; Xu, Hu, & Zhang, 2013). This person must then actively choose to use their skills and act upon them with illegal intent. A hacker's ideology may be flexible, but it also is strongly individualistic (*Cyber Warfare,* 2011; Dutton & Blank, 2014; Nguygen, 2013).

Black hats: These types of hackers are also referred to as "Dark side hackers" These are hackers whose primary activities are purposively criminal and malicious. Black hats will attempt to identify and exploit flaws or security gaps within a computer, network, or system in order to gain control of the network, steal data, destroy data, or orchestrate illicit activities. After the system has been hijacked, a black hat is able to take

measures to establish long-term covert access to that system; however, there are other types of "hats."

White hats: White hats are the antithesis of black hats, and are generally referred to as ethical hackers. The job of the white hats is to search for flaws that exist within a network or computer system, and direct their efforts to fixing discovered vulnerabilities they or others identified or to alerting the administrator of the software or system to repair the vulnerabilities. The job of the white hat, in essence, is to maintain security within the connected systems.

Grey hats, blue hats, and other types of threats: Another type of hat is the Gray hat. These types of hats are considered a blend of white hats and black hats. Those who work as information security professionals are typically referred to as gray hats. There are many shades and nuances to be found within the community of hackers. In addition to these hats, businesses have to be concerned about cyber mercenaries and other types of cyber threats.

Cyber mercenaries are expert hackers who can be hired for the right price (Dunn, 2013; Lemieux, 2015; Xu et al, 2013). They are often contracted to conduct malicious or offensive acts, such as disabling websites, electronic espionage, altering websites, data theft, network warfare, or wholesale cyber warfare (*Cyber Warfare,* 2011; Lemieux, 2015; Nguyen, 2013). Coders are those who write viruses, Trojans, or worms (Dutton & Blank, 2014; Vaniea & Rashidi, 2016; Wright & Mueller, 2014). These are considered destructive tools that hackers can use to gain access and infiltrate different systems. Crackers are those who circumvent copyright protection on digital media and software

(Chaboud, 2014; Frabetti, 2014). Script kiddies represent potential threats as those using such tools have knowledge about computers and the Internet but do not necessarily have the experience or the skills to become an effective actor in the world of cyber warfare. Nonetheless, they can have an impact on the greater online community by accessing prewritten programs (Chaboud, 2014; *Cyber Warfare,* 2011; Frabetti, 2014).

Bots and zombies are parasitic programs which hijack a computer network and are used to carry out automated tasks on behalf of the individual hacker. An individual bot can be used to build a powerful conglomeration of bots. This is something accomplished by a program known as a bot herder that replicates itself and creates additional bots so as to infiltrate massive networks (Prasad, Reddy, & Rao, 2013; Roshna & Ewards, 2013). After bots have been amassed into a larger collective force, they are referred to as a bot net or bot army. And individual hacker can harness a significant amount of computing power by utilizing a bot army to infiltrate multiple computers at the same time.

Malware is a type of software that encompasses Trojans, viruses, or worms. It is a program that is designed to damage, hijack, or compromise computers (*Cyber Warfare,* 2011; Taylor, Fritsch, & Liederbach, 2014). The name is short for malicious software. A network is a collection of computers, servers, and terminals that are interconnected so as to allow data to flow between them. An operating system is a type of software that oversees a single computer system, performing general functions on behalf of user applications. The operating system is responsible for managing files, controlling input and output devices, managing system requests, allocating memory, and acting as an

interface through which an application or user can control the various systems and functions (*Cyber Warfare,* 2011, Galvin, Gagne, & Silberschatz, 2013).

A virus is a type of malware which attaches itself to other software and is propagated from computer to computer (*Cyber Warfare,* 2011; Taylor et al., 2014). Viruses are generally triggered inadvertently by individual users when infected email attachments are opened or when the user has downloaded infected files (*Cyber Warfare,* 2011; Dutton & Blank, 2014; Xu et al., 2013). A worm is another form of malware which propagates inside of a network and attaches itself to other programs. Worms are generally considered more harmful compared to viruses because they are able to spread on their own. They may not damage their targets but can make it complicated for the network or Internet connections to function because they consume processing power (*Cyber Warfare,* 2011; Galvin et al., 2013).

The active threats against governments and organizations highlight the need for information technology professionals who would be committed to the goals of the organization in preventing these sophisticated attacks against them. However, despite the concerted cyber-attack efforts by forces external to organizations, most security breaches have been ascribed to employees (Amigorena, 2014; Srinivasan et al., 2012; Walters, 2014).

Employees and Security Breaches

The general public's fears regarding data breaches and security compromises are grounded on the assumption that multitudes of foreign-based hackers and criminals break into computers via Internet access, mobile devices, and cloud computing, stealing

personal and financial information; in reality the truth is somewhat different. Recent studies have found that the greatest threat is from the trusted insiders working within the organizations (Edwards, Hofmeyer, & Forrest, 2015; Huth, Chadwick, Claycomb, & You, 2013; Wall, 2013). Billions of dollars can be spent on incorporating information security systems; however, just one weak link can compromise the entire security network. Insider data breaches occur when trusted custodians of data use their power to violate existing rules and security policies of the organization. Hong et al. (2010) reported that 90% of cyber-attacks originated from insiders within organizations. The challenges of preventing, detecting, and responding to data and security breaches from insiders are hardest to identify and rectify, placing an enormous burden and stress on information technology personnel (D'Arcy & Greene, 2014; Donald, Oli, & Arockiam, 2013; Guo, 2013; Siponen, Mahmood, & Pahinla, 2014). A Ponemon (2010) annual study on the cost of data breaches reported that average organizational loss incurred by insiders in United States "rose from $6.65 million in 2008 to $6.75 million in 2009 and $7.2 million in 2010" (p.3). As the literature has shown, organizations are faced with internal and external threats; therefore, the need for competent, dedicated, and committed information technology professionals only keeps growing.

Importance of IT Workers

Regardless of where attacks originate, contemporary news reports, as well as a review of the literature, has revealed that Internet users are at risk of victimization by professional hackers no matter where they live. Data breaches often result in a significant loss of an organization's valuable proprietary assets and also put the sensitive information

of the organization's customers at risk. Articulating and implementing information security measures that promote safe computing and Internet use behaviors is one way that organizations can attempt to reduce internal employee-generated causes of data breaches (Amigorena, 2014; Walters, 2014; Srinivasan et al., 2012). Raising public awareness concerning desirable information security behavior online is one way that organizations can help to educate and protect their customers and their data while using the Internet. In this way, organizations can proactively respond to threats of data breaches (Amigorena, 2014; Srinivasan et al., 2012; Walters, 2014). However, increasing investment in IT professionals on staff can also help to offset the impact that hacking activities are having on organizations (Luftman et al., 2013). The importance of IT workers cannot be overlooked, as they are the major asset through which internal and external cyber-attacks can be mitigated, resulting in providing a safe haven for business to operate within (D'Arcy & Greene, 2014; Donald, Oli, & Arockiam, 2013; Guo, 2013; Siponen, Mahmood, & Pahinla, 2014).

Functions of IT Professionals

In order to mitigate the risk of the serious cyber security concerns listed in the previous section, companies must retain full time information technology workers (Luftman et al. 2013; Trautman & Altenbaumer, 2011). The skills and expertise of such highly technical staff can enhance the specific security measures each company needs. IT professionals can set up infrastructure and virtual networks that best meet the individual needs of the company for whom they work, while simultaneously providing regular

maintenance (Chakravarty, Grewal, & Sambamurthy, 2013; Dube, 2014). Of course, IT professionals serve more roles than cyber security mitigation.

Today, information technology is a vital component to every business plan, regardless of whether the company has one computer or a multinational mainframe system. Computer technology is omnipresent within businesses and employees play a vital role (Chakravarty et al., 2013; Dube, 2014). Email remains the primary means of communication among customers, employees, and suppliers. Email offers a simple yet inexpensive way to communicate. Many companies use communication tools that expound upon the idea that staff can communicate through online meetings, video conferencing, or via live chat system tools (Elmorshidy, 2013; Robinson, Muller, Noke, Lim, Glausi, Fullerton, & Hamar, 2014). However, all of these components have to remain functional and operational at all times, something that can only be done with the help of full time IT staff. For example, some companies utilize inventory management systems, tracking the quantity of every item in stock. These systems trigger orders for out of stock items when the inventory drops below a predetermined amount. The systems are often connected to point of sale systems that ensure that every time an item is sold one is removed from the total inventory count. This provides a closed information loop from every department in the retail chain. However, in order for these systems to communicate with one another, IT professionals must be on staff to maintain the system.

Managing information systems must be done for data management (Miller & Mork, 2013; Waller & Fawcett, 2013). Companies continue to maintain digital versions of all documents on a storage device or service (Beer & Burrows, 2013; George, Haas, &

Pentland, 2014). Once these documents are digitized, they are instantly available to anyone in the company no matter where they are located. This means that companies can store and maintain significant amounts of historical data that are available to all employees. However, in order for this information to stay operational so that the employees can access the data from any location and so the data is protected from security threats, IT staff must be on hand to immediately rectify any problems that might arise, while maintaining optimal functionality.

Many progressive companies use a management information system to track all of their sales data, productivity levels, and all pricing (Miller & Mork, 2013; Waller & Fawcett, 2013). This information can be used to track profitability over time, to maximize return on investment, and identify areas which need improvement. Through such software applications, managers analyze sales on a regular basis that allows them to react immediately to lower than expected sales numbers by increasing productivity among employees or decreasing the cost of individual products. These management information systems have to be overseen by professional IT employees. Companies that use customer relationship management systems to capture customer data must also rely upon continually functioning interactions between customers, administration, and each of the technological systems (Khodakarami & Chan, 2014; Nguyen & Mutum, 2012; Trainor, Andzulis, Rapp, & Agnihotri, 2014). This is best done with the assistance of professional IT employees.

Retention Problems

Despite the need for and dependence on information technology (IT) professionals, the IT industry is facing significant problems with retention of their workers (Ertürk, 2014; Gaylard et al., 2005; Jiang & Klein, 2002 as cited in Lounsbury et al., 2014; Mastracci, 2009). According to Lounsbury et al. (2014), today's persistent problem with the staffing and retention of IT based staff is a direct result of little research being completed about what attitudes exist toward jobs and what functions as job motivation are found among IT workers. The result is that there has been little literature on "key personological attributes of IT personnel which distinguish them from other occupations" (p. 38). Further research indicates that IT workers' personality profiles have differentiated significantly from other types of jobs by personality traits. The results of the study by Lounsbury et al. indicated that IT workers' scored low on Emotional Stability, which is one of five broad factors of personality traits that has to do with one's ability to handle stress (Anderson, 2013). The authors concluded that, compared to other professions, personality trait differences might explain the high attrition rates among IT professionals. Lounsbury et al. recommended future studies to extend their research by investigating whether any of their findings "might be moderated as a function of age, gender, number of years of experience in the field, IT sub-specialty and so forth" (p. 44).

Many companies measure some percentage of employee turnovers. In certain industries, turnover rates between 30% and 40% are considered common and acceptable (Cosar, Guner, & Tybout, 2016; Park & Shaw, 2013). However, long-term employees, such as those with 10-years of continual employment with an organization, provide far

greater value for companies compared to those who are cyclical. For example, the cost of replacing a department employee amounts to approximately a year and a half's salary of the departing employee (Hancock, Allen, Bosco, McDaniel & Pierce, 2013; Krol, Brouwer, & Rutten, 2013; James & Mathew, 2012; Ruyle, 2012). Some of the hiring costs that are associated with replacing a departing employee involve pre-hire costs, such as advertisements, interviews, screening, and testing.

Post hire costs involve a period of non-productivity while the new hire is trained and oriented into the new job. There is a loss of productivity associated with high rates of turnover due to the time factor involved in the new employee establishing similar production rates as the departed employee. Additionally, when there is high turnover, morale among remaining employee could be affected and there could be a level of lost engagement as other employees who see high rates of turnover lose productivity and become disengaged in their jobs as well. This can result in deterioration in customer service or errors that could be attributed to the lack of the ability of new hires to solve the same problems as previous employees and taking much longer to provide customer resolutions.

In certain industries, high rates of error can be quite costly for the company (Borgohain, 2010; Lewis & Sequeira, 2012; Lumley et al., 2011; Singh et al., 2010). The training cost is particularly burdensome, costing 10% to 20% of an employee's salary annually (Hancock et al., 2013; Krol et al., 2013; James & Mathew, 2012; Ruyle, 2012). There is also a cultural impact that faces the company when high rates of employee turnover take place such that all existing employees question why people are continuing

to leave. People are considered an appreciating asset within any company which means that the longer individuals remain within the same organization the more productive they become (Borgohain, 2010; Lewis & Sequeira, 2012; Lumley et al., 2011; Singh et al., 2010).

Retention is imperative to the long term success for companies. High-performing companies are those with loyal employees. It is thought that making employees happy can lead to customer satisfaction. Retention problems within the information technology sector creates serious challenges for all types of organizations, high employee turnover in the information technology sector has led to a higher demand for IT personnel, who are now considered pivotal to the success of businesses (Alcaraz & Zeadally, 2013; Vaidya, Makrakis, & Mouftah, 2013). Compensation plays some role in retaining IT professionals, but not as significant as one might think (Borgohain, 2010; Lewis & Sequeira, 2012; Lumley et al., 2011; Singh et al., 2010). Career opportunities remain one of the more important mitigating factors to high employee turnover rates. In recent years, managing employee retention has become a critically important topic that commands the attention of top executives and has become a part of corporate strategy in many organizations (Hancock et al., 2013; Krol et al., 2013; James & Mathew, 2012; Ruyle, 2012). Additionally, the work environment also matters, as does age, emotional stability, and gender. These factors are reviewed in the following sections.

Age

IT professionals debated the cause of retention problems in one recent case (Borgohain, 2010). While age is one of the considerations pertaining to emotional

stability and to job satisfaction, Borgohain's research suggested that while many people believe that Millennials between the age of 18 and 31 have unrealistic expectations about the IT workplace, the reality is that companies are not offering compensation on par with new IT skills (James & Mathew, 2012; Krol et al., 2013). Today, companies routinely pay IT professionals poorly, undermining the need and importance of these workers to the organization. This devaluation of the importance of IT employees' causes job dissatisfaction and high turnover rates (James & Mathew, 2012; Krol et al., 2013).

Companies are not loyal to their IT employees and those decision makers without IT backgrounds are unable to truly understand the role played by those employees and thus are unable to appreciate their contributions to the organization (James & Mathew, 2012; Krol et al., 2013). For example, a manager may not have a thorough finance background, but has some idea of what responsibilities fall to the financial department and can appreciate the serious nature of the work and challenges, what skills are required, and why the employees are valuable. This type of understanding has not been evident in the IT world. Even in companies where all other employees are considered valuable, the skills brought to the company table by the IT individual often go unappreciated at best because the vast majority of the work is ensuring nothing breaks, and when it does, fixing it immediately (James & Mathew, 2012; Krol et al., 2013; Park & Shaw, 2013). The regular behind-the-scenes maintenance done to ensure nothing breaks is often unseen or unappreciated. This results in highly unappreciated individuals who are then significantly more likely to leave their company or to feel overall dissatisfaction within the company (Hancock et al., 2013; James & Mathew, 2012; Krol et al., 2013; Ruyle, 2012).

The retention of IT workers is especially critical to the success of any business organization, especially where the company has many people and departments interfacing with each other (Hancock et al., 2013; James & Mathew, 2012; Krol et al., 2013; Ruyle, 2012). Appropriate HR strategies can contribute to a company's ability to retain its IT staff (Singh et al., 2010). The study by Singh et al., focused on IT sectors where HR departments put into place new practices conducive to higher job satisfaction among IT individuals and, as a result, achieved higher retention among employees. The findings of that study indicated that higher job satisfaction among IT staff directly influenced higher retention rates. However, understanding what influences better policies and higher job satisfaction is imperative to creating and implementing effective company policies that would contribute to greater job satisfaction and higher job retention among IT professionals.

Fostering employee satisfaction and organizational commitment are important goals for any business. In order to better understand employee retention, the job satisfaction survey can be used, as well as the organizational commitment scale. One study by Lumley et al. (2011) utilized a cross-sectional survey conducted on a group of 86 employees across four different information technology companies. The regression analysis revealed that there were statistically significant relationships between employee's job satisfaction and their organizational commitment. The research indicated that employees within the IT industry who are significantly more satisfied with their jobs will commit to the organization at higher rates. Those who are dissatisfied with their jobs have a higher propensity for leaving the organization after a short period of time, thus

contributing significantly to employee turnover problems. This remains one of the few pieces of research that has been conducted on job retention in the IT field.

The importance of implementing better employee retention policies cannot be overstated. The absence of such policies provide opportunities to competitors to seek out disgruntled IT professionals who are paramount to the safe and successful practice of a business, resulting in a major setback for the organization that loses the employee. Very aggressive competitors sometimes feed off the success of others. As an example, employees are recruited within an industry because of the quality, skills, and expertise of the employee in another organization; essentially, competitors are looking outward for capable employees rather than investing in resources that are aimed at developing employees internally (James & Mathew, 2012; Singh et al., 2010). Therefore, careful employee retention strategies should be put into place as a top priority among management. Work by Lewis and Sequeira (2012) found that appropriate retention strategies must be worked out based on age and level within the company in order to mitigate the risk of turnover outside of otherwise acceptable rates in the IT field. Of course, potentially influencing the effectiveness of retention policies are the factors reviewed in this study that include age, gender, and personality. Without understanding which factors relate directly to the IT field, one would be unable to implement the most successful retention strategies.

Personality Traits

The field of personality psychology has matured. Theories and models developed over the course of the years have been used to gain a better understanding of human

personalities. Many of these developed trait theories contribute to the concept of the "Big Five" personality trait models, a term used to describe five of the broadest traits found in human personality (Bakker et al., 2012; Costa & McCrae, 2013; Turiano et al., 2013). Each is independent of one another and each trait factor accounts for an infinite number of unique facets that further comprise human personality. The "Big Five" factors of personality traits are openness, conscientiousness, extraversion, agreeableness, and neuroticism.

Extraversion

Extraversion refers primarily to the social and outgoing personality characteristic. Neuroticism is a characteristic which describes how anxious an individual is, as well as what level of self-contentment or self-confidence they have. The individuals who score high on this level will typically by consumed by those questions of "what if?" and they are often someone preoccupied with items beyond their control (Costa & McCrae, 2013, Neal et al., 2012).

Agreeableness

Agreeableness is a trait that takes into consideration how kind, cooperative, and dependable an individual is (Costa & McCrae, 2013, Neal et al., 2012). People who possess this trait are generally easy to get along with, are tolerant and good-natured, forgiving, and flexible. These individuals are motivated to help others, follow rules, and strive for solidarity within their work environment. Understanding employee personality traits help management to better comprehend what drives the employee towards higher

job performance (Cobb-Clark & Shurer, 2012; Matzler, Renzel, Mooradian, Krog, & Mueller, 2011).

Conscientiousness

Conscientiousness refers to the amount of discipline an organization and individual possess, as well as how prone that person is to risk taking. Those employees who are never absent from work and always outperform their colleagues would score high in terms of the degree of their conscientiousness (Costa & McCrae, 2013). Conscientiousness has been shown to relate strongly to work engagement. Today, a link exists between work engagement and job performance. Work engagement is positively related to higher outcomes in individuals who are highly conscientious. Research by Bakker et al., (2012) tested a sample of 144 employees and found a statistically significant relationship that indicated work engagement related positively to active learning, contextual performance, and task performance, especially for those employees who were conscientious about work engagement.

Emotional Stability/Neuroticism

Emotional stability is another facet of personality traits that, when enhanced, can improve not just emotional functioning, but encourage long term personality changes and bring about important positive results socially, physically, psychologically, and in terms of work adjustment (Inceoglu & Warr, 2015; Nelis et al., 2011, Porath et al., 2012). Engagement is predicted to be a primary function within personality factors and motivational elements, specifically that of emotional stability and energized forms of conscientiousness. These predictions were confirmed by research conducted by Inceoglu

and Warr (2015) that utilized regression analysis and correlation analysis across three different studies. The results of these studies determined that personal characteristics, namely emotional stability, brought about practical benefits to engagement within jobs.

Work by Nelis et al. (2011) revealed that emotional stability and understanding brings positive changes in employability, subjective health, psychological well-being, and the quality of social relationships. This state of emotional stability is defined as "thriving". Thriving is a psychological state wherein individuals are experiencing learning and vitality simultaneously. People develop and are validated by whether they are thriving at work (Porath et al., 2012; Nelis et al., 2011). When people thrive at work, they have better job performance and enjoy better health (Porath et al., 2012). They are also more committed to the organization.

Perceived Stress, Job Satisfaction, Organizational Commitment

Emotional Stability has been associated with stress (Lounsbury et al., 2014; Mangold et al., 2007; Moeller et al., 2010). The ability or inability to handle stress has been a predictor of job satisfaction, which has been a predictor of employee organizational commitment. The effects of workplace stress on employees' job satisfaction have been studied in the seminal and contemporary literature across industries, across disciplines, and across nationalities. Since employee job satisfaction has long been associated with employees' commitment to their organization, the dynamics between stress, job satisfaction, and employee commitment continue to be of interest to organizations and researchers alike. In a recent study on the mediating effect of perceived social support between perceived stress and job satisfaction among 280

employees from various organizations in Pakistan, Sultan and Rashid (2015) found that job satisfaction was predicted by perceived social support and perceived stress.

In a study that was based on a sample of teachers in Canada and Klassen (2010) pointed to extant literature that showed stress among teachers predicted job satisfaction and turnover; turnover has been associated with low organizational commitment in the literature. Yeh (2015) researched the relationship between job demands and job satisfaction among samples that were drawn from Japan, Taiwan, and Korea and cited extant literature that linked job stress, job satisfaction, and turnover among employees. Results of a Turkish study by Sunal, Sunal, and Yasin (2010) confirmed that job stress was a significant predictor of job satisfaction. The relationship between job satisfaction and employee organizational commitment was not the focus of the present study; however, the cited studies provided valuable insight in understanding that stress affects organizational commitment through employee job satisfaction. These studies helped to shed light on how the ability to handle stress, as evidenced by how stress affected employee job satisfaction (EJS), informed employee organizational commitment, as evidenced by employee turnover.

Intellect/Openness

Intellect or Openness is a trait that refers to how inclined a person is to conform to cultural or social norms, how they think about things either concretely or abstractly, and how open they are to changes (Bakker et al., 2012; Costa & McCrae, 2013; Goldberg, 1993; Turiano et al., 2013). An individual who is continually looking for ways to improve tasks, or who is creative in their thinking will score high on this measure. As a

result, individuals who are open to the continuous changing landscape of business operations and who seek out ways to improve existing facets of the workplace through improved policies, products, or processes, would be highly open and valuable to a company (Turiano et al., 2013).

Personality Traits among IT Workers

There exist key personality traits among IT workers that have helped to inform organizational fit, selection, placement, counseling, and management for workers. What researchers Lounsbury et al., (2014), discovered was that the personality profiles of IT workers are strikingly different compared to other jobs. The authors stated it "alarming" (p. 44) that the IT workers scored low on Emotional Stability. Other research reviewed presented evidence that Emotional Stability among other professions is composed under pressure, is flexible, and is directly and highly related to job satisfaction.

Personalities and Stability

Newer research demonstrates that the Big Five factors of personality traits (i.e., extraversion, agreeableness, conscientiousness, emotional stability/neuroticism, intellect/openness) remain stable for working-age adults for a period of four years and that mean population changes remain constant across the age groups (Cobb-Clark & Shurer, 2012). Personality traits have been shown to be good predictors of workplace performance, attitude, and behavior (Cobb-Clark & Shurer, 2012; Matzler et al., 2011). Personality traits contribute to the effectiveness of workers as individuals, teams, and as an organization. Hence, employee behavior has emerged as an important factor in the information dependent modern work place (Cobb-Clark & Shurer, 2012; Matzler et al.,

2011; Neal et al. 2012). Personality traits play a critical role in academic and job performance. Further studies on personality traits show personality continuity from childhood to adulthood, while personality and stability experiences increase consistency with age.

Emotional Stability is one of the factors of personality traits that has to do with the frequency and ease with which an individual is affected by stress and anger, resulting in hostility, vulnerability, anxiety, and negative feelings (Carver & Conner-Smith, 2010). When workers are left to deal with stressful challenges or deal with situations that exceed their ability, this may result in employee retention issues or low performing employees.

Similarly personality traits have been shown to correlate directly to academic performance such that personality traits are a better indicator of later academic achievement for students (Cobb-Clark & Shurer, 2012; Csikszentmihalyi & Wong, 2014). One study examined the effects that personality traits had on experience, achievement, and motivation. Csikszentmihalyi and Wong (2014) examined 170 high school students, 102 of which were female and 68 male, all of whom were considered talented students. The study had each student complete the Personality Research Form and then record their experiences using the *Experience Sampling Method*. The results from this research showed that work orientation, ability, and stability were three factors that functioned as a better predictor of achievement as compared to experience. The experiential variable in this study was intrinsic motivation for students who were studying, which was related to difficulty of the courses they were taking. These results supported that there are two forms of motivation related to achievement. The first is

motivation for reaching long term goals and the second is motivation for ongoing experience. These results may very well translate into the professional world and the IT field in particular through additional research (Cobb-Clark & Shurer, 2012; Nelis et al., 2011).

Information Technology & Age

Within the field of information technology (IT), due to the prominence of technology in the work place and the age-diverse workplace, some review must be made of research relating to age (e.g., generational differences) and attitude toward technology (Carstensen et al., 2000; Elias, Smith, & Barney, 2012; Soto, John, Gosling, & Potter, 2011). There is a high prevalence of technology in the workplace and, as a result, understanding the attitude of employees toward technology remains essential to the success of any business (Chakravarty, Grewal, & Sambamurthy, 2013; Dube, 2014; James & Mathew, 2012). The attitude that employees have toward technology are linked to important issues including successfully implementing technologies within the office, the employee's intention to use such technology, and the actual usage of the technology by employees. As a result of aging workforces and due to the fact that age has been linked to rates of computer usage and computer comfort, it is imperative to examine what literature exists pertaining to the relationship between age and attitude toward technology in the context of IT professionals' organizational commitment. If one is to consider the variable of age as it relates to employees within the information technology sector, one must consider the attitude that such individuals would have based on their age toward the use of technology (Elias et al., 2012).

Overall job satisfaction has been linked to employee organizational commitment (Ghapanchi & Aurum, 2011; Hansen et al., 2011; Wade-Benzoni, Sondak, & Galinsky, 2010). One study by Elias, Smith, and Barney (2012) examined the relationship between age and attitude towards technology. In this study 612 employees were examined, using Age as the moderator variable, when reviewing employees' attitude toward technology in relation to intrinsic and extrinsic work motivation, as well as overall satisfaction with their job. Additionally, given the technological socialization of different generations, the sample was comprised of two demographics, Generation X and Baby Boomers. A hierarchical multiple regression model was used, similar to that which was used in the present research. The results of that study indicated that, in every instance, the older employees exhibited the strongest relationships toward motivation and job satisfaction when they had a positive attitude about technology (Elias, Smith, & Barney, 2012). Older employees showed weaker relationships with technology if they had a low attitude towards use of technology; hence, age plays a role depending on an individual's attitude. Age and attitude about technology directly corresponds to job satisfaction and job motivation.

Age and Personality

Age difference in personalities is another area of research where advances have been made, significant to this study. Research has been focused on the impact that age differences have on personality traits, particularly the Big Five traits. In their research Soto et al. (2011) proposed hypotheses pertaining to the mean-level age differences among the Big Five personality traits. Ten specific facet traits inherent to these big five

personalities were tested by way of a cross-sectional sample of children, adolescents, and adults (N = 1,267,218). The ages tested ranged from 10 to 65.

The results of the research supported that there were two key periods for personality traits to develop. These periods were in late childhood and adolescence. It was found that during these two key time periods, personality traits were particularly pronounced and the personalities were directionally different compared to the corresponding trends in adults. It was also determined that the first key period indicated a significant presence of gender differences. In addition to these findings, the research revealed that there are negative trends in the psychosocial maturity that takes place from the late childhood period into the adolescence period, whereas the adult trends were significantly in the direction of greater, more positive adjustment and maturity. The third key finding from this research indicates that there are distinct age trends among the Big Five personalities such that life span age differences among personality exist.

Age differences related to emotional stability over the course of the adult life span has been explored in current literature, with a focus on the intensity, consistency, complexity, and frequency of emotional experiences that one would face in everyday life (Carstensen et al., 2000; Elias, Smith, & Barney, 2012). The study by Carstensen et al. (2000) focused on 180 people who participated in an experience sampling procedure. The participants ranged in age between 18 and 94 years of age. For the sampling procedure the study recorded emotions felt across a one week time period. Age remained unrelated to the frequency of positive emotional experiences. Negative emotion declined in

frequency until age 60, at which point the decline ceased. Some individuals' factor analyses revealed that age was associated with differentiated emotional experiences.

In addition to this finding, periods of highly positive emotional experiences are more likely to remain among older individuals and periods of highly negative emotional experiences remained less stable. These findings indicate, much the same as later sampling-based emotional research completed by Carstensen et al. (2011) suggesting that emotional experiences do not necessarily fluctuate with age but that complicated emotions are more likely to be experienced with older age, such that individuals have both negative and positive emotional experiences in their daily life rather than just one or the other. Emotional Stability can be affected due to social demands, life events, and work experiences. Age is likely to influence the changes in personality based on these events (Carstensen et al., 2000; Elias et al., 2012).

Building on previous research, a newer study by Carstensen et al. (2011) suggested that emotional well-being statistically improves from the period of early adulthood to that of old age. The study focused on experience-sampling in order to research the development course that emotional experience provided in the representative sample of adults whose ages spanned from early adulthood to very late adulthood. The participants in this research (n = 184, Wave 1; n = 191, Wave 2; n = 178, Wave 3) were asked to state their current emotional state at five randomly selected times, every day, and for one full week.

The burst design was used to review the one week sample, a sample which was repeated with the same sample population five years later and then again at 10 years. The

cross-sectional analysis and the growth curve analysis indicated that aging is directly associated with more positive emotional well-being overall, as well as greater emotional stability and more complexity in terms of emotions (something whereby participants would note the presence of both positive and negative emotions in the same time period). The findings were robust once variables related to the emotional experience were taken into account, the variables in this case being demographics, personality, verbal fluency, and physical health. The research results showed that emotional experience predicted mortality. It was also found that, when controlled for sex, age, and ethnicity, people with more positive emotions in their everyday lives compared to negative emotions were more likely to survive for 13 years longer (Carstensen et al., 2000; Carstensen et al., 2011). Emotional experiences, positive or negative, affect the emotional stability of an individual (Carstensen et al., 2011).

In one study, under investigation was how age influenced relationships at work with colleagues and employers, as well as how age influences workers' motivation on the job and their satisfaction with their jobs (Boumans, de Jong, & Janssen, 2011). The researchers reviewed 1,036 workers from a multinational organization, collecting information by way of a digital questionnaire. Using regression, the first interaction found showed that there was a positive correlation between Motivation and Motivating Potential Score at a higher significance among adults compared to younger employees. Older employees required more intrinsic challenges in their jobs and looked for something more fulfilling in order to remain motivated. Additionally, this research found that there was a positive association between Motivation and Career Opportunities at a

statistically higher rate for younger workers who were given more opportunities within their career compared to older employees. From this, one can glean that careful career mentorship integrated into aging policies would contribute to the maintenance of workers regardless of age.

Generational Differences

One key component to consider with regard to age is whether generational differences might play an influential role in the job retention and organizational commitment among employees, specifically IT employees who deal with a faster rate of new technologies replacing old technologies. Literature that focuses on differences in gender as it relates to work attitude and job satisfaction is somewhat more limited compared to literature on the other variables (Costanza et al., 2012). Differences among diverse generations have become increasingly interesting to practitioners, researchers, and organizations alike.

One study quantitatively assessed data on generational differences related to work attitude and offered some guidance on future practice. This study was comprised of a meta-analysis of generational differences for three different work-related criteria. The first criterion was job satisfaction, the second was organizational commitment, and the third was intent to turnover. The review of published and unpublished research determined that 20 different studies allowed for 18 generational comparisons across four different generations. Generations in question included the traditional, Baby Boomers, Generation X, and Millennial groups. In total, there were 19,961 subjects. The findings of this particular research indicated that meaningful differences among generations do not

exist. Targeted organizational interventions that address generational differences may therefore be ineffective in the workplace and might not be a suitable way to combat problems with turnover or job dissatisfaction (Costanza et al., 2012). At the time this study was published it was the first known quantitative review for generational differences. The findings suggest more research could come out of this foundational research. However, at present there appears to be a stronger need for research on IT professionals' organizational commitment and retention.

Gender

The previous research on personalities and Emotional Stability extend to the area of gender-based research, as well (De Bolle et al., 2015). Research has been done to cover the emergence of personality trait differences between different genders, something that can be noted as young as adolescence. There have often been international studies focused on the consistent patterns of different personality traits among the sexes such that women often score higher on many facets. However, not as much is known about the differences in cross-cultural sexes at the age of adolescence.

De Bolle et al. (2015) examined the NEO Personality Inventory-3 ratings for a total of 4,850 adolescents from 23 different cultures and investigated age as well as culture as the variability source for different adolescents' personality among the sexes. The researchers found that the effect for neuroticism (which is the polar opposite of emotional stability) had higher rates among females compared to males and that this trait began to take hold between the years of 12 and 17. Even more complex patterns began to emerge around Agreeableness and Extraversion, but by the age of 17 the differences

among these traits among the two sexes were similar to the same trait differences observed in adulthood. The cross-sectional data from this research suggests that sex differences in personalities found in adolescents converge toward the adult patterns as the individuals advance in age. Girls will display their personality traits at an earlier age than boys, and the emergence of the differences remains similar in all 23 cultures studied in the research. The key is in understanding generational differences in dealing with personality trait factors that are a persistent problem with staffing and retaining IT professionals.

Secondary/Archival Data

Secondary data was utilized in the present study to investigate the problem. Secondary data consists of information that has already been collected for another purpose but which is made available for others to use. The use of secondary data offers many advantages. Unlike case studies or surveys, that collect data based on research objectives, secondary data exists prior to formulation of research objectives (Bryde, Broquetas, & Volm, 2013; Rabinovich & Cheon, 2011). This independence in data collection frees secondary data from bias and ambiguity. Other potential advantages of using secondary data are:

- Data is publically available
- Data is available for diverse use in research and analysis
- Data is available for diverse research methodologies
- Data is available in larger volume for carrying out higher statistical power analyses
- Validation of findings can be done via replication of research studies
- Cost and time savings in conducting research studies

In this study archival/secondary data were used that was collected by the National Data Program for the Social Sciences of the National Opinion Research Center (NORC) at the University of Chicago.

The NORC

According to Smith (2008), the NORC was founded in 1941, and since 1972 has been focused on collecting data on social issues and trends in America. The NORC funded the collection of the General Social Survey (GSS) data on the Big Five factors of personality traits and Employee Organizational Commitment, as well as the other variables of interest. These data are located in the GSS7212_R4 dataset. The GSS uses random sampling techniques to collect data and these data are put in the public domain for use by students and social scientists (GSS, 2015; Smith, 2008), and no permission was needed to download or use the data. The company operates its own Institutional Review Board (IRB) and adheres to the Belmont Report principles and international ethical standards for research dealing with human beings (NORC, 2015). There are 5,548 variables in the study, with a sample size of over 57,000 respondents. This dataset was reduced to the variables of interest and to a sample size of 279 respondents who fit the category of information technology workers. Since this is cross-sectional archival data, sampling was conducted only once (Salkind, 2010) by GSS. Demographic data for the GSS, as well as data on the trait facet Emotional Stability and data on the two dimensions of Employee Organizational Commitment, were collected by the NORC.

The Statistical Model Literature

For this research, a hierarchical linear multiple regression model was applied to test the hypotheses and answer the research questions. Regression functions as a broad class of statistical models form the foundation for data analysis within the social sciences. The hierarchical linear multiple regression model is used for many contemporary methods. Regression refers to the systematic relationship that exists between one or more different variables that, together, results in a single outcome in most cases (Gelman et al., 2016; Kleinbaum et al., 2013; Montgomery et al., 2012). The hierarchical linear multiple is used for many contemporary studies. The flexibility of this regression model, as well as its multiple extensions, is what makes this the primary statistical tool used by social scientists when attempting to substantiate a hypothesis with empirical data (Kleinbaum et al., 2013; Montgomery et al., 2012).

The application of the regression model was first done at the end of the 1800's by Sir Francis Galton and his study on height for parents and children. It was in this study that the researcher noted that parents who were tall tended to have shorter children and vice versa. The regression line was used to describe the relationship between height for parents and children. The term "regression" then came to describe the specific finding of that case, but has since become associated with the statistical method (Kleinbaum et al., 2013; Montgomery et al., 2012).

Today, regression serves as a fundamental tool for social scientific research. Theory-driven questions help to dictate the design of the study; however, the design dictates the statistical methods that are used. Statistical methods are used to map out the

research questions to empirical data and all statistical results help to yield answers to the questions within the study. Within the context of all social inquiries, regression functions is the primary tool for the testing of empirical data (Kleinbaum et al., 2013; López et al., 2014; Montgomery et al., 2012). Although regression can be applied to experimental data or observation data, it continues to play a very important role in the world of observation among social science. In observational data there's no intervention or randomization; however, there are a variety of potential explanations and causes for all phenomenon under investigation.

Regression methods offer researchers the ability to statistically control the variables that could influence the outcome of the research (Kleinbaum et al., 2013; López et al., 2014; Montgomery et al., 2012). This is particularly important in observational studies that focus on predictors such as age or gender as they relate to a factor such as marriage rate or job turnover. Regression also plays a very practical role in terms of conveying the results of research (Kleinbaum et al., 2013; López et al., 2014; Montgomery et al., 2012).

A hierarchical linear multiple regression analysis was used in this research study to test the hypotheses and answer the research questions. Two models are produced when a hierarchical analysis procedure is run: Model 1, and Model 2. In this study, Model 1 showed the results of a standard linear multiple regression analysis produced in the first step of the analysis when the independent variable (IV) Emotional Stability was regressed against the dependent variable (DV) Employee job Commitment, without the moderator variables in the regression equation. Model 2 is produced when the moderator variables

(MV) age group and gender were entered into the regression equation, in a separate step; this model shows the results of the interactive effects of the moderated IVs on the DV (Field, 2009; Segrin, 2010).

Findings

The review of the literature confirmed that the increasing rate of cybercrimes and the persistent threats of data breaches continually put organizations' sensitive data at risk. This risk can be mitigated by retaining qualified and talented information technology practitioners (Liao 2015). Evidence in the literature confirmed that IT has become integral to the survival and growth of organizations. There is evidence that the role of IT practitioners in organizations goes beyond the roles of enhancing Internet based communication, but includes maintaining and operating technology systems. In the contemporary world, IT employees provide organizations with considerable competitive advantages (Atkinson, 2010; Steiber & Alange, 2013). These employees have become a major source of innovation for organizations; consequently, motivating and retaining IT professionals has become an issue of considerable concern in the modern business environment (Arora & Rangnekar, 2016).

The business environment is becoming more competitive and technological developments are advancing at rapid rates, further increasing the relevance of IT professionals in organizations (Bocij & Hickie, 2008). Failure to motivate and retain IT talent can have negative outcomes on organizations, such as employees who are not committed to their organizations. The literature review on employees' organizational commitment has shown that there are various antecedents to employees' organizational

commitment (EOC). Some of these antecedents to EOC are variables that relate to employee job satisfaction. For example, stressful work environments diminish employee job satisfaction and low job satisfaction predicts low organizational commitment (Sultan & Rashid, 2015). It has been established that when employees are satisfied at work, they are more committed to their organization and stay longer with the organization.

Cosar et al. (2016), and Park and Shaw (2013) postulated that IT professionals who are able to accrue over 10 years of continual employment within a single organization are able to provide the organization with greater value than IT employees who only work for short periods of time (Choi, Oh, & Colbert 2015). Many theorists have asserted that high organizational commitment, as evidenced by longer continual employment, imbues employees with significant levels of creativity and innovativeness (Eckhardt, Laumer, Maier, & Weitzel, 2016). This evidence from the literature can be interpreted to mean that older IT workers might be more committed to their organization than newer, younger IT workers.

Summary

In summation, the literature reviewed in this chapter pertained to the organizational challenges facing the global business environment, particularly challenges related to continuous change, a process that has led to companies utilizing virtual software and data mining techniques. The review of the literature confirmed that organizations are faced with continual change and, with changes, companies are now continually at risk from data breaches; this challenge can only be addressed with trained information technology employees.

Results of the research presented in this chapter indicated that, for most 21St Century businesses, IT workers are now more important than ever. It is no longer sufficient for IT professionals to be part time or virtual employees; instead, they should be working in-house, with comprehensive access to all data-related management within companies. Yet, while IT personnel are now more important than ever, there remain serious retention problems and multiple factors that contribute to a lack of organizational commitment among IT professionals. This lack of IT professionals' organizational commitment is evidenced by the high attrition rates among IT personnel. This literature review presented findings that substantiated how personality traits are factors that influence job satisfaction and how job satisfaction contributes to organizational commitment, which informs whether the employees will continue employment with the organization.

The review of the literature revealed that information technology personnel experience extremely high levels of stress. Stress has been related to work environments and the level of employee commitment. This ability to handle stress has been linked to the Emotional Stability personality trait. Research presented in this chapter substantiated that age and gender are other contributing factors to job commitment.

The methodological details are provided in Chapter 3. These details include information on research design, the population, and sample, instruments and measures that were used in the study, data analysis, data validity and reliability, and ethical considerations. In Chapter 4, a report of the analysis is provided. Interpretations of the

results are presented in Chapter 5. Conclusions are drawn from the interpretations and limitations are noted. Finally, recommendations for future research are offered.

CHAPTER 3. METHODOLOGY

The present quantitative study was based on a non-experimental, correlational, cross-sectional, explanatory, design; archival data were used in the research. The purpose of the study was to contribute to the body of knowledge in the area of information technology attrition and to extend this literature by testing one dimension of the Big Five factor model of personality traits theory, *Emotional Stability* (the independent variable – IV), for its ability to predict *Employee Organizational Commitment* (the dependent variable – DV), when the IV was moderated by gender and age for 279 participants in organizations within the United States.

The IV, Emotional Stability, was defined as an individuals' ability to be relaxed, unemotional, and calm under pressure (Anderson, 2013). The DV, Employee Organizational Commitment, has been defined as "the relative strength of an individual's identification with, and involvement in, a particular organization" (Mowday et al., 1979, p. 226). The moderating variable "gender" was described as male or female, and the moderating variable "age" was stratified in three age groups, described as 18-35 years, 36-53 years, and 54-71 years. The age groupings were chosen based on the legal definition of an adult in the United States, which is 18 years of age, and extended beyond the full retirement age of 65 (Social Security.gov, 2016) in order to accommodate even age intervals. This was justifiable because, according to the Bureau of Labor Statistics

(2014), many adults are working past the retirement age of 65; therefore, applying a cutoff age of 71 was appropriate.

Purpose of the Study

The purpose of the present research was to contribute to the body of knowledge by testing the Big Five factor model of personality traits theory that related one dimension of the Big Five factor model, *Emotional Stability* (the independent variable), to the dependent variable *Employee Organizational Commitment*, when the relationship between Emotional Stability and Employee Organizational Commitment was moderated by Gender and AGE for 279 participants in organizations within the U.S.

Research Questions and Hypotheses

The omnibus and main research questions and hypotheses are restated as follows:

RQ_0: When moderated by Gender and AGE (MV), to what extent does the Big Five factor model of personality traits theory explain a relationship between the dependent variable (DV) Employee Organizational Commitment and the independent variable Emotional Stability, among IT professionals in U.S. organizations?

RQ_1: To what extent is Emotional Stability related to Employee Organizational Commitment among IT professionals in the U.S.?

RQ_2: When moderated by Gender, to what extent is Emotional Stability related to Employee Organizational Commitment among IT professionals in the U.S.?

RQ_3: When moderated by AGE, to what extent is Emotional Stability related to Employee Organizational Commitment among IT professionals in the U.S.?

Hypotheses

H_0: When moderated by Gender and AGE, the Big Five factor model of personality traits theory does not explain a statistically significant relationship between Employee Organizational Commitment and the independent variable Emotional Stability among IT professionals in U.S. organizations.

H_A: When moderated by Gender and AGE, the Big Five factor model of personality traits theory will explain a statistically significant relationship between Employee Organizational Commitment, and the independent variable Emotional Stability, among IT professionals in U.S. organizations.

H_{01}: Emotional Stability is not related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S.

H_{A1}: Emotional Stability is related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S.

H_{02}: When moderated by Gender, Emotional Stability is not related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S.

H_{A2}: When moderated by Gender, Emotional Stability is related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S.

H_{03}: When moderated by Age group, Emotional Stability is not related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S.

H_{A3}: When moderated by Age group, Emotional Stability is related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S.

Research Design

A post-positivist philosophy that embraced many of the tenets of positivism guided this cross-sectional, non-experimental, quantitative study. For example, the ontological, epistemological, axiological, and methodological paradigms that underlie the positivist worldview is that there is one objective, values free, reality separate from individual perceptions, which can be objectively known, measured, and understood (Kuhn, 1996; Sharma, 2010). In this worldview, quantitative methods, such as statistical analyses, are used to test hypotheses, which were formed to answer the research questions.

Statistical Model

In this study, the linear multiple regression model was used to test the hypotheses. According to Segrin (2010), multiple regressions are commonly used to explain or predict the value of a dependent variable, given a set of independent variables. The specific regression model that was used was hierarchical (multilevel modeling) linear multiple regression. According to Cramer and Duncan (2004), hierarchical linear multiple regressions are used to "determine whether the relationship between a predictor and a criterion is moderated by another predictor called a moderator or moderating variable" (p. 107). The hierarchical linear multiple regression (HLMR) analysis produced three models (Model 1, Model 2, Model 3). Model 1 contained the Emotional Stability variable alone. Model 2 contained the gender variable, and Model 3 represented the full model, which contained all of the IVs. Results of the models were compared to determine whether statistically significant variances in the DV resulted from the addition of Gender and Age in the regression model. A statistically significant effect was deemed to be present at the $p < .05$ level of statistical significance; in this case, the null hypotheses of statistically significant relationships between the variables would have been rejected.

Design Rationale

The research question determines the design of a research study (Vogt, 2007). The rationale for selecting the research design was grounded in the research question, which asked whether a relationship existed between a DV and a set of IVs, when the relationship between the set of IVs and the DV was moderated by two other variables (moderating variables). For this reason, a linear multiple regression model was chosen, as

this model is applied when relationships are investigated (Segrin, 2010). Additionally, the moderating effect of two variables (AGE, GEND) on the IV (Emotional Stability) to predict the DV (Employee Organizational Commitment) fit the criteria for a hierarchical multiple regression. The criteria for this particular model requires that the variable measurements be as follows; the DV must be continuous, and the IVs and moderator variables can either be categorical, continuous, or a combination of both. In the present study, the DV and the IV were continuous variables, the moderating variable AGE was continuous, and GEND (gender) was a categorical variable that was measured at the nominal level.

Target Population and Sample

Since secondary data were used in the study, the population consisted of the respondents that made up the (GSS 1972-2014 Cross-Sectional Cumulative Data (Release 5, March 24, 2016) database.

Sample

The sample consisted of the data that maked up the responses in the GSS 1972-2014 Cross-Sectional Cumulative Data (Release 5, March 24, 2016) dataset. From the population of respondents in the database, IT professionals who were employed at the time the sample was drawn, and whose occupations were described in the database as "Computer Systems Analysts" and "Scientists and Operations Systems and Research Analysts", were selected. From this sample frame, the database was reduced to a sample of male and female IT professionals who fell within age groups that were between 18-71 years. This age range was transformed within SPSS and stratified according to the age

groups. Since archival data were used in the present study, no ethical concerns regarding research with human beings arose.

Power Analysis

Archival or secondary sample databases are quite large (Andersen, Prause, & Silver, 2011); therefore, after selecting out other occupations from the dataset, the sample size of respondents within Computer Systems Analysts and Scientists and Operations Systems and Research Analysts was 279. A G*Power 3.1.9.2 sample calculation (Faul, Erdfelder, Land & Buchner, 2012) indicated that the minimum sample size that would be required to detect an effect in the population would 119; however, since the sample size was larger than 119, a *post hoc* (Appendix C) calculation revealed that the power of the present sample size of 279 to detect a statistically significant effect in the sample was 0.9999 (Appendix C). The calculation of an adequate sample is important because too large or too small sample sizes can cause certain types of errors that could lead the researcher to incorrect conclusions. An appropriate sample size helps in making reliable inferences about the population (Kadam & Bhalerao, 2010).

Procedures

The procedures that were applied in the present study were related to the how the methods that were used in the study were implemented; therefore, the procedures were related to selection of participants, how they were protected, data collection, and data analysis. These procedures are addressed as follows:

Participant Selection

Responses in the GSS7212_R4 dataset comprised the population from which the sample was drawn. The dataset was examined to identify respondents from the Information Technology (IT) field, and all other responses were eliminated by reducing the dataset only to the participant responses from IT professionals. In the GSS dataset, the IT professionals were identified as Computer Systems Analysts and Scientists, and Operations Systems Researchers and Analysts.

Protection of Participants

Since secondary data were used in this study, there was no interaction between the researcher and participants; therefore, it was not necessary to take steps to protect participants.

Data Collection

Public domain archival data were used in this research study and data collection consisted of downloading the data from the GSS website. Since public domain archival data were used in this research study, data collection procedures necessarily consisted of steps that had to be performed before the pre-data collection call could be completed. These steps were necessary to examine the archival data for its suitability for use in the study. Therefore, the following initial steps were performed:

- After formulating the research question, GSS datasets were downloaded from the GSS website for examination;
- Guided by the design of the study, each GSS dataset was examined for proxy variables of interest, which corresponded with variables in published studies;
- After verifying that one of the datasets contained the variables of interest, the dataset was saved on this researcher's computer. Since the data exists in the

public domain, it was not necessary to follow protective procedures to guard the data

Data Analysis

Data analysis began with the aforementioned steps of downloading the data and reducing the dataset to the variables of interest. Code Book reports were obtained to gather descriptive statistics on the variables of interest, as represented in the sample and the data were examined for missing cases. The results of these descriptive statistics are reported in Chapter 4. The research question that was posed was whether a relationship existed between a DV and a set of IVs, when the IVs were moderated by two other variables (moderator variables). In the present study, the moderating effect of AGE and GEND on the IV (Emotional Stability) to predict the DV (Organizational Commitment), which was composed of the sum of Affective Commitment and Continuance Commitment, fit the criteria for a hierarchical multiple regression.

The criteria for this particular model required that the variable measurements be as follows; the DV must be continuous, and the IVs and moderator variables can either be categorical, continuous, or a combination of both. In the present study, the DV and the IV are continuous variables, the moderating variable AGE is continuous, and GEND (gender) is categorical. For these reasons, a linear multiple regression model was chosen as this model is applied when relationships are investigated (Segrin, 2010).

Statistical model. In the present study, a linear multiple regression model was used to test the hypotheses. According to Segrin (2010), multiple regressions are commonly used to explain or predict the value of a dependent variable, given a set of

independent variables. The specific regression model that was used was hierarchical linear multiple regression.

According to Cramer and Duncan (2004), hierarchical linear multiple regressions are used to "determine whether the relationship between a predictor and a criterion is moderated by another predictor called a moderator or moderating variable" (p. 107). The hierarchical linear multiple regression (HLMR) analysis produces three models: Model 1, Model 2, and Model 3. SPSS version 23 was used for all analyses. The data were tested for the assumptions that were related to the regression model. The assumptions and related data tests verified the accuracy of predictions and the relationship and variance between the dependent and independent variables. It is important to understand that validity of statistical tests rely on several assumptions.

The model assumptions. The assumptions for linear multiple regression (Harrell, 2015; Kadam & Bhalerao, 2010) are as follows:

- *Linearity*: Existence of a linear relationship between the independent variables and dependent variables
- *Homoscedasticity*: The variation in residuals predicated values is constant, regardless if the predicted values are small or large
- *Normality of Distribution*: The residuals follow the normal probability distribution
- *No multicollinearity*: The independent variables should not be correlated
- *Independence of error terms*: The residuals are independent
- *No outliers*: An observation that lies out of the normal observation

These assumptions were checked via the use of scatter diagrams, histograms, and residual plots to ascertain a clear and accurate picture of relationships among the

variables, and distributions of characteristics in the sample. The residual plots helped in evaluating the linearity of the residuals in the multiple regression analysis.

Examination of the Regression Model

In general, a selected model fits the data well if observed and predicted values differences are narrow or small (Cooper & Schindler, 2011; Faul, Erdfelder, Lang, & Buchner, 2012; Gelman, Su, Yajima, Hill, Pittau, Kreman, & Zheng, 2016). The Model Summary output was examined for model fit and to determine whether there was a statistically significant relationship between the variables. The Correlation Coefficient *R* was examined for strength and direction of the relationship ranging between *minus* 1 (-1) and *plus* 1 (+1).

A value of *R* that is greater than 0.8 is indicative of a strong correlation while an *R* value less than 0.5 points to a weak correlation. In the present study, an output of the regression analysis was the *R*-squared value, which showed what percentage of the independent variables explained variances in the dependent variable. According to Pahnila et al. (2007), the R^2 statistics represent the ability of the IVs to predict the DV. This statistic ranges from 0 to 1. An R^2 value that is closer to 1 indicates that the IVs can predict or explain the DV (Tabachnick & Fidell, 2013). In this study, the R^2 statistic showed the coefficient of determination and represented the proportion of variance or change in the dependent variable that were explained by the independent variables.

The Adjusted R Squared (*adj.* R^2) provided an estimate of the magnitude of the effect; additionally, the adjusted *R*-squared statistic was analyzed for the degree of freedom (Tabachnick & Fidell, 2013). The *F* ratio was assessed to show the goodness of

the fit for the model with independent variables, in relation to the residuals and regression analysis using the correlation *R* and *R*-squared values. A confidence level of significance ($p < .05$, 0.95) was used to accept or reject each of the hypotheses. Descriptive statistics such as *means, standard deviations, range scores, histogram,* and *frequency distributions* were used to summarize the data.

In the present study, the hierarchical linear multiple regression model was used because the variables met the criteria for this type of parametric test. If the assumptions that related to the standard and hierarchical multiple regression tests were to be violated, as an alternative model, a non-parametric model such as a Chi-square test of independence or Spearman's correlation coefficient could be used instead of the hierarchical linear multiple regression.

Instruments

Two items (questions) in the GSS 1972-2014 Cross-Sectional Cumulative Data (Release 5, March 24, 2016) dataset (Appendix A) measured the Emotional Stability dimension of the Big Five Factors of personality traits as described on the IPIP-50-item Personality Traits instrument (Goldberg, 1993), and in the BFI-10 (Rammstedt & John, 1992), which is a 10-item abbreviated version of the NEO-PI-R (Costa & McCrae, 1992). The BFI-10 has been put in the public domain through the GSS 1972-2014 Cross-Sectional Cumulative Data (Release 5, March 24, 2016) dataset.

Six items in the GSS dataset measure Employee Organizational Commitment; namely: *HelpOrg, NotLoyal (reverse coded), StayOrg1, SameVals, ProudOrg,* and *StayOrg2.* GSS continually gathers data on certain core variables such as Personality

Traits and Employee Organizational Commitment among many others that pertain to organizational contexts. Marsden et al. (1993) measured overall Organizational Commitment (Appendix A) using the same variables. Other demographic items in the same dataset collected data on AGE and gender (GEND), used in the present study as moderating variables. Other variables in the dataset, such as geographic region, education, race, and income level, were identified for use in the study, but these variables were not a part of the actual data analysis. Instead, these data were used to paint a picture of the population from which the data were collected.

The Abbreviated GSS Personality Traits Variables

Two items (questions) in the GSS7212_R4 dataset measured the *Emotional Stability* dimension of the Big Five Factors of personality traits as described on the IPIP-50-item Personality Traits instrument (Goldberg, 1993), which is also in the public domain. This trait factor is labeled "Neuroticism" in the NEO-PI-R Big Five personality traits scale (Costa & McCrae, 2013). The NEO-PI-R Big Five personality traits scale measures the same five constructs as the 50-item IPIP scale (Goldberg, 1992) and uses the same wordings to do so; however, some factors are labeled differently, as with the Emotional Stability trait (Goldberg, 1992), which is called "Neuroticism" in the NEO-PI-R (Costa & McCrae, 1992).

The items that measured Emotional Stability in the GSS dataset are the same items that are in the Rammstedt and John (2007) short 10-item measure of the Big Five factors of personality traits instrument. Responses for the Emotional Stability and Employee Organizational Commitment scales (Appendix A, Appendix B) were averaged

to the interval level in order to obtain one composite score (Aguinis, 2004; Cooper & Schindler, 2011; Rowe, 2006). The data collection instrument for the Big Five Factors of Personality Traits construct was a 5-point Likert type scale. Responses were collected by the items listed in the GSS dataset as:

- Big5d1: R[espondent] sees oneself as being relaxed (reverse coded)
- Big5d2: R[esponent] sees oneself as someone who gets nervous easily (Anderson, 2013; Goldberg, 1990, 1992, 1993; Costa & McCrae, 1992)

Response values ranged from 1= *strongly agree*, 2 = *agree*, 3 = *neither agree nor disagree*, 4 = *disagree*, 5 = *strongly disagree.* The Big5d1 was reverse-coded, based on Rammstedt and John (2007).

Justification for the Use of the GSS Big5d1 and Big5d2 Items

The research questions for the present study were viewed through the lens of one dimension of the Big Five factor model of personality traits theory, which was the *Emotional Stability* factor, since a study that was focused on the emotional stability of IT professionals was recommended by Lounsbury et al. (2014). The Big Five factor model (BFFM) of personality traits theory posits that the vast numbers of personality traits can be clustered under five broad domains of personality, which are Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect (Goldberg, 1993). According to Parks-Leduc et al. (2014), these broad dimensions of personality traits are "important psychological characteristics" (p. 3), which predict various types of outcomes. The Emotional Stability dimension of the BFFM was measured by two questions from

the GSS 1972-2014 Cross-Sectional Cumulative Data (Release 5, March 24, 2016) secondary dataset's bundle of Big Five questions on personality traits.

The full spectra of two-item variables that measure the Big Five Factors of Personality Traits constructs in the GSS dataset are:

- Big5a1, Big52a: Extraversion (*sociable* vs. *introverted*)
- Big5b1, Big5b2: Agreeableness (*affable vs. reserved*)
- Big5c1, Big5c2: Conscientiousness (*well-organized* vs. *wasteful)*
- Big5d1, Big5d1: Emotional Stability/Neuroticism (*self-assured* vs. *insecure*)
- Big5e1, Big5e2: Intellect (*creative/resourceful* vs. *wary/guarded*). (Goldberg, 1993)

Based on recommendations from Lounsbury, Sundstrom, Levy, and Gibson (2014), only the *Emotional Stability* dimension of the Big Five Factors of personality traits was applied to the present study. Another rationale for justifying the use of only two items from the original 10 items that measured the Emotional Stability construct was based on Rammstedt and John (2007).

Rammstedt and John reduced the NEO-PI-R (Costa & McCrae, 1992) Five Factor model of personality traits scale from 60 items to 10 and thus developed the BFI-10, which is an abbreviated version of the NEO-PI-R. In the BFI-10 scale, the five personality factors are measured by two items from each of the original five factors of personality traits sub-scales. This reduced 10-item scale has been put in the public domain through the General Social Survey (GSS). Using public domain data from reputable organizations can help researchers and students to save time and money, while developing students' research and data analytic skills (Shultz, Hoffman, & Reiter-

Palmon, 2005). Rammstedt and John (2007) demonstrated that the abbreviated two-item Big Five Factor scale exhibited strong psychometric properties, based on "retest reliability, structural validity, convergent validity with the NEO-PI-R and its facets, and external validity using peer ratings" (p. 203).

Justification for use of the GSS Organizational Commitment Items

The employee commitment items are part of the core modules that the General Social Survey (GSS) gathers information on every two years. These are the same variables used by Marsden et al. (1993) in a study on employee organizational commitment. According to Marsden et al. (1993), the wording of these variables correspond to the variables used in the Indianapolis/Tokyo Work Commitment study by Lincoln and Kalleberg (1990, p. 75), and Besser, Cole, Kalleberg, and Lincoln (1993, p. 874) study entitled *The Commitment of Japanese Workers and U.S. Workers: A reassessment of literature*. The present-day variables, as well as the variables in the aforementioned studies, are shown in Appendix A. In the GSS7124_R4 dataset, the six Employee Organizational Commitment variables are represented by *HelpOrg, NotLoyal* (reverse coded), *StayOrg1, SameVals, ProudOrg,* and *StayOrg2,* as follows:

- *HelpOrg:* I am willing to work harder for my organization
- *NotLoyal:* I feel very little loyalty toward this organization (reverse coded)
- *StayOrg1:* I would take any job to keep working for this organization
- *SameVals:* My values and the organization's values are very similar
- *ProudOrg:* Proud to be working for this organization
- *StayOrg2:* I would turn down another job to say with this organization

All responses were anchored on a scale of 1= *strongly agree*, 2 = *agree*, 3 = *neutral* (don't know), 4 = *disagree*, 5 = *strongly disagree*, and responses were averaged into one composite score for analysis (Aguinis, 2004). Demographic information, which painted a picture of the characteristics of the population from which the sample was taken included *Geographic region, race, income,* and *highest degree obtained.* Since the scales that were used in the study are made up of proxy variables and are short-item scales, no reliability estimates are available, as is the case for single and very short item scales (Wanous & Reichers, 1996).

Validity and Reliability

The data collected by General Social Survey (GSS) project is considered to be reliable and valid due to data being collected randomly, by phone, and that the responses were collected on scale questionnaires. GSS surveys were conducted in all census regions of the United States. The data collected on aspects of American life is placed in the public domain and made available to researchers and students. Instrument reliability is critical in all studies as it contributes to the instrument validity.

Reliability and validity: the International Personality Item Pool (IPIP)

Since its inception, the International Personality Item Pool (IPIP) questionnaire scales have been used by a number of studies to measure constructs in existing personality inventories (Cooper, Smillie, & Corr, 2010; Goldberg, Johnson, Eber, Hogan, Ashton, Cloninger, & Gough, 2006; Milfont & Sibley, 2012; Zacher, 2014). Results of these studies, and many others, have shown the IPIP scales to be reliable and the 50-Item IPIP personality scale has been validated in many national and international studies

(Cooper et al., 2010; Goldberg et al., 2006; Milfont & Sibley, 2012; Zacher, 2014). The reliability coefficients of the entire original scale are listed in Table1.

Table 1. *Original Study 50-item IPIP Instrument Reliability*

Description	Original Cronbach's alpha (α)
Extraversion	α = 0.87
Agreeableness	α = 0.82
Conscientiousness	α = .79
Emotional Stability	α = .86
Intellect	α = 0.84
Over all Scale Reliability	α =.84

Note: Goldberg (1999).

Reliability and Validity of the EOC (GSS) Scale

Based on Marsden, Kallegerg, and Cook (1993), six items in the GSS dataset (*HelpOrg, NotLoyal, StayOrg1, StayOrg2, Same Evals,* and *ProudOrg*) measured the construct Employee Organizational Commitment. Marsden et al. (1993) measured overall Employee Organizational Commitment (Appendix A) by applying the same six items from the GSS dataset to a study on gender and employee organizational commitment, so the use of these variables was established in the literature. The reliability of the EOC instrument in the GSS dataset was established by Marsden et al. (α = 76), which lent to its validity. Reliability statistics for the EOC in the present study are reported in Chapter 4.

Ethical Considerations

According to its website, the National Opinion Research Center (NORC) at the University of Chicago is an independent research center that has been in existence since 1941. The NORC funds the General Social Survey (GSS) project and makes the data that they collect freely available to students and social scientist researchers. Since existing archival data from the GSS was used in the study, this researcher did not interact with respondents; therefore, no ethical violations occurred and no human participant was at risk. Nevertheless, the GSS has provided information on their ethical practices on its website at: http://www.norc.org/Research/Capabilities/Pages/institutional-review-board.aspx.

According to information on its website, the GSS operates its own IRB and follows formal processes for research that involves human beings so that research participants are protected according to the ethical guidelines outlined in the Belmont Principles for research with human beings, ensuring participants' privacy and well-being during their survey administrations. According to its website, the NORC's IRB is registered with the Federal Office for Human Research Protections and has obtained a Federal Wide Assurance (FWA).

Summary

The methodological details were provided in this chapter. These details included information on the research design, the population sample, instruments, and measures that were used in the study, data analysis, data validity and reliability, and ethical considerations. In Chapter 4 a report of the analysis was provided. The study closes with

Chapter 5 in which interpretations of the findings that were reported in Chapter 4 are presented. The implications of these findings are discussed and limitations of the study are noted. In closing Chapter 5, recommendations for future studies are offered.

CHAPTER 4. RESULTS

Background

In Chapter 4, the results of the survey and data analyses that were applied to the present study were reported. The present study emerged from a study by Lounsbury, Sundstrom, Levy, and Gibson (2014). Lounsbury et al. posited that there is a persistent problem with staffing and retaining information technology (IT) employees and investigated key personological attributes of IT workers in order to understand how certain attributes might explain IT workers organizational commitment. Lounsbury et al. investigated key personality traits among IT workers to understand if (or to what extent) these traits differentiated IT workers from other professions.

Lounsbury et al. (2014) believed that, compared to other professions, personality trait differences might explain the high attrition rate among IT professionals. The main results of the Lounsbury et al. study indicated that IT workers' personality profiles differentiated significantly from other types of jobs by personality traits. The authors thought it "alarming" (p. 44) that the IT workers scored low on Emotional Stability (ES). Consequently, the authors recommended further studies to investigate the relationship between the emotional stability dimension of personality traits and IT employees' organizational commitment. The present study followed the recommendations of Lounsbury et al. and extended the study by measuring the impact that IT workers' gender and age exerted on their organizational commitment. In the present study, Emotional Stability is the independent variable (IV), Age and Gender are moderating variables

(MV), and Employee Organizational Commitment is the dependent variable (DV). The research questions that guided this study and the hypotheses formed to answer the research questions are restated as follows:

> RQ0: When moderated by Gender and AGE (MV), to what extent does the Big Five factors of personality traits theory explain a relationship between the dependent variable (DV) Employee Organizational Commitment and the independent variable Emotional Stability among IT professionals in US organizations?
>
> H_0: When moderated by Gender and AGE, the Big Five factors of personality traits theory does not explain a statistically significant relationship between Employee Organizational Commitment and the independent variable *Emotional Stability* among IT professionals in US organizations.
>
> H_A: When moderated by Gender and AGE, the Big Five factors of personality traits theory will explain a statistically significant relationship between Employee Organizational Commitment and the independent variable *Emotional Stability* among IT professionals in US organizations.
>
> RQ_1: To what extent is Emotional Stability related to Employee Organizational Commitment among IT professionals in the U.S.?
>
> H_{01}: Emotional Stability is not related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S. [Model 1: Standard multiple linear regression analysis]
>
> H_{A1}: Emotional Stability is related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S.
>
> RQ_2: When moderated by Gender, to what extent is Emotional Stability related to Employee Organizational Commitment among IT professionals in the U.S?
>
> H_{02}: When moderated by Gender, Emotional Stability is not related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S.
>
> H_{A2}: When moderated by Gender, Emotional Stability is related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S. [Model 2: Hierarchical multiple linear regression analysis]

H_{03}: When moderated by Age group, Emotional Stability will not be related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S. [Model 2: Hierarchical multiple linear regression analysis]

H_{A3}: When moderated by Age group, Emotional Stability will be related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S.

In the present study, a linear multiple regression model was used to test the hypotheses. Multiple regressions are commonly used to explain or predict the value of a dependent variable, given a set of independent variables (Segrin, 2010). The specific regression model that was used was hierarchical (multilevel modeling) linear multiple regression. Hierarchical linear multiple regressions are used to "determine whether the relationship between a predictor and a criterion is moderated by another predictor called a moderator or moderating variable" (Cramer & Duncan 2004, p. 107). The hierarchical linear multiple regression (HLMR) analysis produced two models: Model 1 and Model 2. SPSS version 23 was used for all analyses. The data were tested for the assumptions that were related to the regression model. The assumptions and related data tests verified the accuracy of predictions and the relationship and variance between the dependent and independent variables.

Description of the Sample

Secondary data were used in the study. The population consisted of the respondents that made up the GSS 1972-2014 Cross-Sectional Cumulative Data (Release 5, March 24, 2016) database.

Sample. The sample consisted of the data that made up the responses in the GSS 1972-2014 Cross-Sectional Cumulative Data (Release 5, March 24, 2016) dataset. From the population of respondents in the database, IT professionals who were employed at the time the sample was drawn and whose occupations were described in the database as "Computer Systems Analysts" and "Scientists and Operations Systems and Research Analysts" were selected. From this sample frame, the database was reduced to a sample of male and female IT professionals who fell within age groups of 18-71 years. This age range was transformed within SPSS and stratified into three age groups. Since archival data were used in the present study, no ethical concerns regarding research with human beings arose.

Results of the Descriptive Statistics

Results of Codebook analyses provided information on the demographic, educational, and regional makeup of the respondents in the dataset (Table 2; Table 3, Table 4). The dataset was reduced to 279 IT professionals (100%). Of the three generational age groups (Gen Y, GenX, and Boomers), the Boomer generation comprised the smallest group of respondents (n = 32). Females comprised 50.5% of the sample (n = 141); 87.5% of the respondents were White (n = 239), and 50.2% had high school degrees (n = 140), additionally, 31.2% (n = 87) of respondents in the dataset were from the mid-Atlantic region of the United States.

Table 2. *Demographic Characteristics of the Respondents in the Dataset*

	Count	Percent
Generational Group		
Gen Y	126	45.2%
Gen X	121	143.3%
Boomer	32	11.5%
Gender		
Male	138	49.5%
Female	141	50.5%
Race		
White	239	85.7%
Black	28	10%
Other	12	4.3%

Note: n = 279

Table 3. *Educational Characteristics of the Respondents in the Dataset*

Degree	Count	Percent
Less than high school	25	9.0%
High school	140	50.2%
Junior college	14	5.0%
Bachelor	70	25.1%
Graduate	30	10.8%

Note: n = 279

Table 4. *Regional Distribution of the Sample*

Region of Participant	Count	Percent
New England	36	12.9%
Middle Atlantic	87	31.2%
East North Central	44	15.8%
West North Central	17	6.1%
South Atlantic	26	9.3%
East South Central	0	0.0%
West South Central	22	7.9%
Mountain	0	0.0%
Pacific	47	16.8%

Note: n = 279

The distribution of the Emotional Stability responses and the Employee Organizational Commitment score results are shown in Table 5 and Table 6. Additionally, the means and standard deviations of the continuous variables are reported in Table 7 as follows:

Table 5. *Distribution of Emotional Stability Scores*

	Value	Count	Percent
1.00	Strongly agree	0	0.0%
2.00	Agree	30	10.8%
3.00	Neither agree nor disagree	119	42.7%
4.00	Disagree	26	9.3%
5.00	Strongly disagree	0	0.0%

Note: $n = 279$

Table 6. *Distribution of Employee Organizational Commitment Scores*

Value		Count	Percent
1.00	strongly agree	2	0.7%
2.00	agree	22	7.9%
3.00	don't know	0	0.0%
4.00	disagree	15	5.4%
5.00	strongly disagree	0	0.0%

Note: $n = 279$

Table 7. *Continuous Variables: Means and Standard Deviations*

Variable	*M*	*STD*
(DV) Employee Organizational Commitment	2.376	.46
(IV) Emotional Stability	2.967	.622

Note: $n = 279$

Instrument Reliability and Validity

Sample size affects the reliability of an instrument. In the Marsden et al. (1993) study in which the same bundle of six items that made up the GSS Employee Organizational Commitment scale that measured employee organizational commitment was used, the sample included 912 respondents. The Cronbach alpha measurement for reliability (α) was $\alpha = 0.79$. The sample size for the present study was $n = 279$, with the Cronbach alpha reported as $\alpha = 0.82$ (Table 8).

Table 8. *Reliability Statistics*

	Cronbach's Alpha	*N* of Items
Present Study (before recoding)	.820	6
Present study (after recoding)	.796	6
Marsden et al. (1993) study	.740	6

Note: Source for Employee Organizational Commitment questionnaire was the GSS7212_R4 dataset

Data Management

In preparation for data analysis, the data management procedures that were conducted included (a) data reduction (b) reverse-coding, (c) averaging of scores, and (d) recoding into different variables functions.

Data Reduction

As explained earlier, secondary datasets tend to be very large. The GSS7212_R4 dataset contained over 50,000 items that measured many variables. For the present study, only the variables that pertained to information technology (IT) professionals were of interest in this study; therefore, the dataset was reduced to the respondents in the dataset who worked in the IT field. After data reduction, the sample size was $n = 279$.

Dummy Variables

Since the Age Group and Gender variable were categorical variables, they were transformed into dummy variables (Yip & Tsang, 2007) before analysis. In this manner, the AgeGroup variable was stratified into AgeGroup 1 (GenY), AgeGroup2 (GenX), and AgeGroup3 (Boomer). In each category, a value of 1 signified the presence of the age group, and a value of 0 signified the absence of that group. Likewise, when Gender was dummified, 1 = male, and 0 = female (all others in SPSS).

Reverse Coding: The EOC Scale

The *NotLoyal* item in the GSS bundle of items that measured Employee Organizational Commitment was reverse-coded. Reverse-coding reverses the values of an item so that a value of 1 = totally *agree* is changed to, for example, 5 = *totally disagree*. This action was based on the Marsden et al. (1993) study, in which the *NotLoyal* item was reverse-coded. A new name and label was created for the reverse-coded item, which was *Rev_notloyal.* After reverse-coding, the values that measured the responses in the scale were added to the new item; SPSS interprets the values of the reversed coded item based on the reversed values.

Score Averaging

The scores from the six-item bundle of items that comprised the Employee Commitment scale were averaged into one composite score for analysis (Aguinis, 2004); these items included the reversed coded item, *Rev_notloyal*. A new variable was produced by this action.

The composite employee commitment scale. The six GSS items that made up the EOC scale were averaged into one composite score by applying the "Transform Compute Variable" function in SPSS. This action produced a new variable which was named "EmpOrgCmt" and labeled "EOC_avg". The values of the EOC items in the GSS dataset ranged from 1 = *strongly agree* to 4 = *strongly disagree*, and included a fifth value, 8 = *don't know*. It was necessary to re-code these values to reflect a range of 1 to 5, rather than a range of 1 to 4, and 8 as the fifth value.

Re-coding of the EmpOrgCmt Variable into a Different Variable

The EmpOrgCmt (EOC_Avg) Variable number 8 = *don't know* value was re-coded into a middle range value so that the 8 = *don't know* value was changed from 8 to 3 = *neutral (don't know).* The values of 3 and 4 were re-coded into 4 and 5 (Table 9). Re-coding produced a new variable that was renamed *EOC_avg,* and the variable was relabeled *EOC Averaged.* The score distributions were retained in the re-coding process and accurately reflected the original distribution of scores (Table 10).

Table 9. *Recoded EmpOrgCmt Variable into EOC_avg Variable*

Original Values	Recoded into New Variable	New Variable Values
1= *strongly agree*,	1 → 1	1= *strongly agree*
2 = *agree*,	2 → 2	2 = *agree*
3 = *disagree*,	8 → 3	3 = *neutral (don't know*)
4 = *strongly disagree*	3 → 4	4 = *disagree*
8 = *don't know*	5 → 5	5 = *strongly disagree*

Table 10. *Distribution of EOC Averaged Scores Before and After Re-coding*

Value (before recoding)		*Count*	*Percent*
1.00	Strongly agree	2	0.7%
2.00	Agree	22	7.9%
3.00	Disagree	15	5.4%
4.00	Strongly disagree	0	0.0%
8.00	Don't know	0	0.0%
Values (after recoding)		***Count***	***Percent***
1.00	Strongly agree	2	0.7%
2.00	Agree	22	7.9%
3.00	Don't know	0	5.4%
4.00	Disagree	15	0.0%
5.00	Strongly disagree	0	0.0%

Reverse Coding: the Emotional Stability Scale

As previously mentioned, the GSS Big Five factors of personality traits scale was made up of the same items in the validated Rammstedt and John (2007) BFI-10 scale. Each of the five dimensions of personality was measured by two items from the established and validated NEO-PI-R scale (Costa & McCrae, 1992). Item *big5d1* was reverse coded so that a value of 1 = *strongly agree* was changed to 5 = *strongly disagree*. After reverse coding, the two items were averaged into a composite score, which produced a new variable, named *EMS_avg,* and labeled *Emotional Stability Averaged.* Once the data management procedures were completed, assumptions about the data were checked.

Check of Assumptions

The assumptions about the data that must be checked in order to perform multiple regression analyses are related to *linearity, homoscedasticity, and normality of distribution, multicollinearity, independence of error terms*, and the presence of *outliers*. Results of the check of assumptions are as follows:

Linearity

Perfectly linear relationships do not occur in social science data (Meuleman et al., 2014). The assumption of linearity is upheld if the residuals are randomly scattered around zero. A scatterplot (Figure 2) of Emotional Stability_Averaged plotted against Overall EOC showed the residuals were scattered randomly and evenly around the regression line.

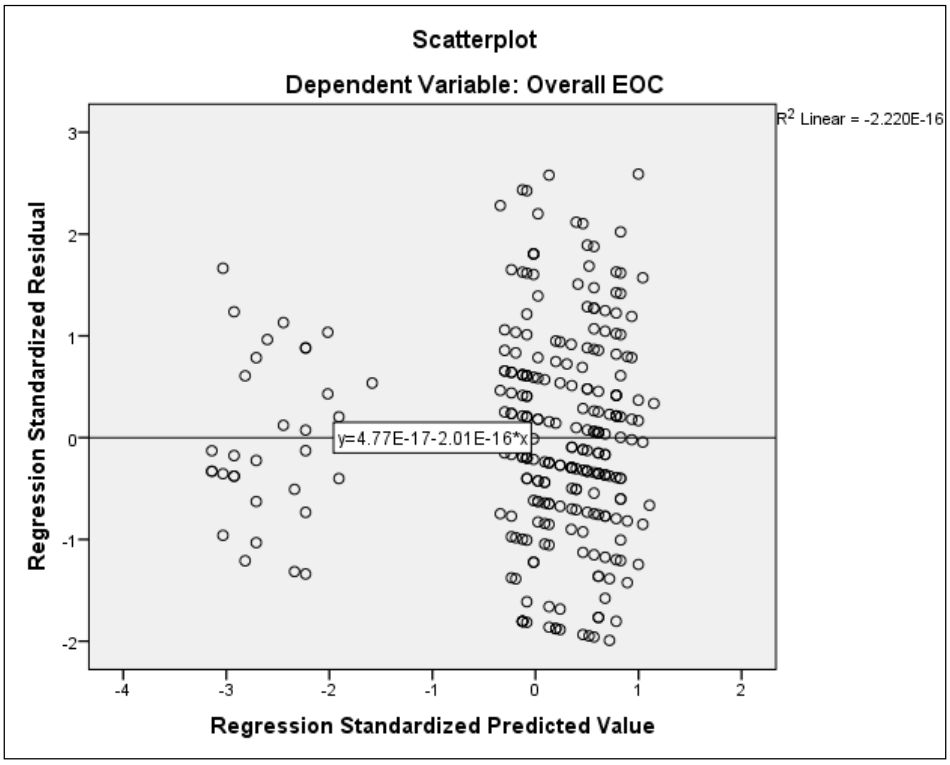

Figure 2. Check for Linearity and Homoscedasticity (ZRESID by ZPRED)

Homoscedasticity

The assumption of homoscedasticity of variance was assessed by visually inspecting results of the same scatter plot that was assessed for linearity (Figure 2).

Normality of Distribution

The assumption of normality of distribution is robust to violations or deviations from normality so that even if this assumption is violated, regression analyses can still be conducted (Mason & Perreault, 1991; Waters & Osborne, 2002). The Kolmogorov-Smirnov statistic (Table 11), the normal P-P Plot (Figure 3), and the histogram (Figure 4), were inspected to determine normality of distribution of residuals. The Kolmogorov-Smirnov (K-S) statistic tests the null hypothesis of a normal population distribution in

small samples (Field, 2007). When $p < 0.05$, non-normality is indicated; in the present study, the K-S statistic was $p < 0.05$. When the residuals approximately follow the regression line and line up along the points of the line, normality is indicated. The residuals approximately followed the regression line, and were aligned with the points of the regression line. When the bars of the histogram cluster to the left (positive skewness) or to the right (negative skewness), evidence of skewness exists. The histogram (Figure 4) was very slightly skewed to the right. These results are interpreted in Chapter 5.

Table 11. *Check for Normality of Distribution*

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Overall EOC	.073	279	.001	.980	279	.001
Emotional Stability Averaged	.181	279	.000	.943	279	.000

a. Lilliefors Significance Correction

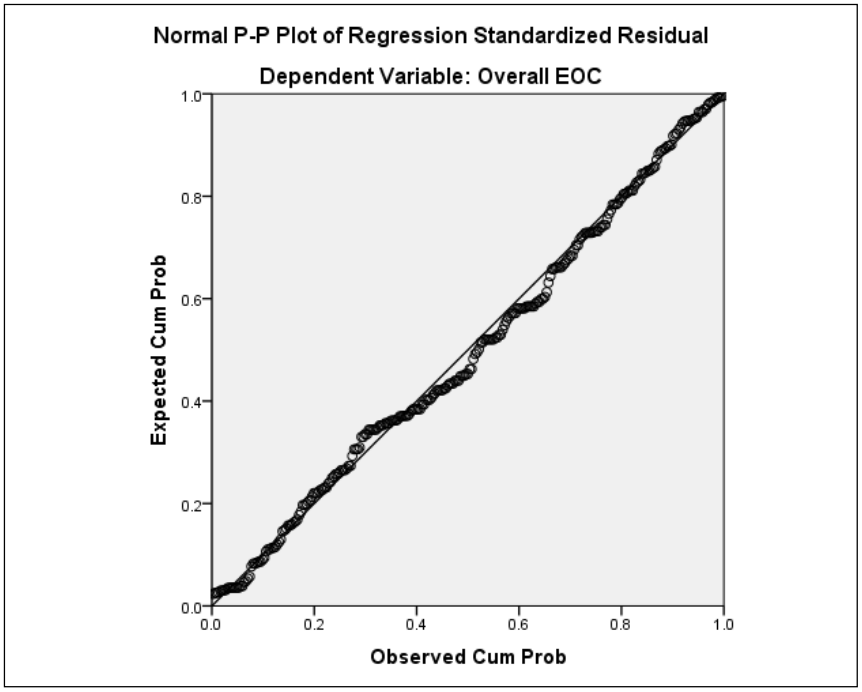

Figure 3. P-P Plot Check for Normality of Distribution

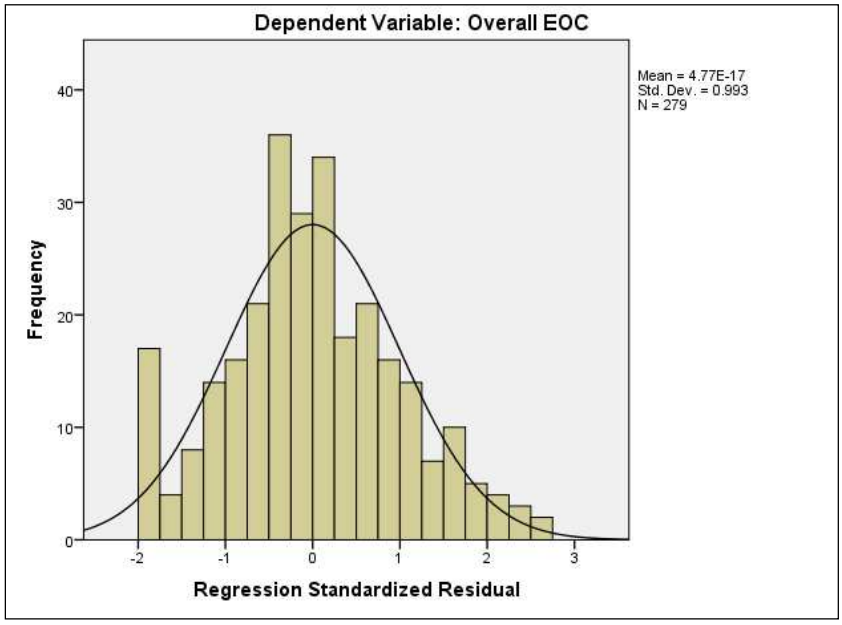

Figure 4. Histogram Check for Normality of Distribution

Multicollinearity

The Tolerance or Variance Inflation Factor (VIF) values (Table 12) was examined to determine the absence or presence of multicollinearity. A collinearity problem might exist if the Tolerance value is less than 0.2 or if the VIF value is greater than 10 (Menard, 1995; Myers, 1990). The VIF statistics were less than 10 and the Tolerance values were greater than 0.2.

Table 12. *Check for Multicollinearity*

		Tolerance	VIF
1	(Constant)		
	Emotional Stability	1.000	1.000
2	(Constant)		
	Emotional Stability	1.000	1.000
	Female	1.000	1.000
3	(Constant)		
	Emotional Stability	.996	1.004
	Female	.995	1.005
	GenY	.889	1.124
	Boomers	.888	1.126

Note: Dependent Variable Overall EOC

Independence of Errors/Residuals

The Durbin–Watson (D-W) test was assessed for independence of errors. Independence of residuals or errors is indicated by a value that is 2 or close to 2. Results showed that the D-W statistic was close to 2.00 (D-W = 1.901).

Significant Outliers/Influential Points

When outliers exist, a Casewise Diagnostics table is produced in SPSS; when there are no outliers, this report is not produced. In the present study, a Casewise Diagnostics table was not produced.

Section Summary

In the preceding sections of the present chapter, the population of interest and sample that was drawn from the population was discussed. The results of Codebook and exploratory data analyses were reported and the characteristics of the sample were described. Data management procedures were performed to prepare the data for analyses. For example, a reverse-scoring action was performed on one item from the bundle of items that measured Employee Organizational Commitment, the response scores for the

two scales were averaged to obtain one composite score for analysis, and dummy variables were created for the age and gender variables. Finally, the assumptions that are related to the hierarchical multiple regression model were checked and reported. The results of the checks of assumptions and results of the hierarchical multiple regression analyses will be interpreted and reported in Chapter 5.

Hypothesis Testing

It was hypothesized that (a) the Emotional Stability dimension of the Big Five factor model of personality traits theory would not predict or explain IT employees' employees' organizational commitment (EOC) and that (b) when Emotional Stability was moderated by Age and Gender, Emotional Stability would not predict or explain EOC.

Hierarchical multiple regression analyses were applied to test the hypotheses and answer the research questions. The relationship between the dependent variable (DV) Employee Organizational Commitment, and the independent variable (IV) Emotional Stability, when the IV was moderated by Age Group and Gender, was examined. The analysis produced three models. Results of Model 1 indicated that the correlation between the IV and the DV was extremely low ($R = 0.051$). Furthermore, the Emotional Stability level of statistical significance indicated that $p > 0.05$. When Gender was entered into the regression equation (Model 2), the level of statistical significance between the DV and the IV was $p > 0.05$. When AgeGroup was entered into the regression equation, results were ($R = .218$; $p < 0.05$). These results are elaborated on in the next sections.

An examination of the of the HLMR model summary (Table13) and the ANOVA table (Table 14) shows the various sums of squares and the degrees of freedom associated with the three models; these tables were examined for statistical significance and are reported as follows:

Table 13. *Model Summary*

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.051[a]	.003	-.001	.84011	.003	.717	1	277	.398	
2	.095[b]	.009	.002	.83887	.007	1.815	1	276	.179	
3	.218[c]	.047	.033	.82553	.038	5.498	2	274	.005	1.901

a. Predictors: (Constant), Emotional Stability
b. Predictors: (Constant), Emotional Stability, Female
c. Predictors: (Constant), Emotional Stability, Female, GenY, Boomers
d. Dependent Variable: Overall EOC

Table 14. *ANOVA*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.506	1	.506	.717	.398[b]
	Residual	195.501	277	.706		
	Total	196.007	278			
2	Regression	1.784	2	.892	1.267	.283[c]
	Residual	194.224	276	.704		
	Total	196.007	278			
3	Regression	9.278	4	2.319	3.404	.010[d]
	Residual	186.729	274	.681		
	Total	196.007	278			

a. Dependent Variable: Overall EOC
b. Predictors: (Constant), Emotional Stability
c. Predictors: (Constant), Emotional Stability, Female
d. Predictors: (Constant), Emotional Stability, Female, GenY, Boomers

Tests of Null Hypothesis H_0, H_{01}, H_{02}

Results indicated that for Model 1, $F(1,278) = .717$, $p = .398$, $p > .05$; $R = .051$, $R^2 = .003$, $R^2adj. = -.001$. When the Age Group was entered into the regression equation (Model 2), results were $F(2,276) = 1.815$, $p = .1.79$, $p > .05$; $R = .095$, $R^2 = .009$, $R^2adj. =$

.002. However, when Gender was entered into the equation (Model 3), results were: $F(2,274) = 5.498$, $p = .005$, $p < 0.05$; $R = .218$; $R^2 = .047$, $R^2adj. = .033$. The Coefficients table was examined to assess the unique contribution that each of the IVs made to predicting or explaining a relationship with the DV. Results of the Coefficients table are summarized in Table 15 and interpreted in Chapter 5.

Table 15. *Coefficients Table* (Unique Contributions of the IVs to the DV)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.690	.215		12.537	.000
	Emotional Stability	-.049	.057	-.051	-.847	.398
2	(Constant)	2.627	.219		11.985	.000
	Emotional Stability	-.050	.057	-.052	-.876	.382
	Female	.135	.100	.081	1.347	.179
3	(Constant)	2.647	.223		11.885	.000
	Emotional Stability	-.039	.056	-.041	-.697	.486
	Female	.127	.099	.076	1.279	.202
	GenY	.008	.105	.005	.074	.941
	Boomers	-.511	.165	-.194	-3.107	.002

Results indicated that in the AgeGroup variable, the Boomer generation made a unique contribution to the prediction or explanation of a statistically significant relationship between the IV (Emotional Stability) and the DV (Employee Organizational Commitment) (*Beta* = -.194, $p = .002$, $p < 0.05$). The summary results of the hypotheses tests of H0, H01, H02, and H03 are presented in Table 16.

Table 16. *Summary Results of Tests of the Null Hypotheses* (H0, H01, H02, and H03)

Description	Results
H0[a]	$F(2,274) = 5.498$, $p = .005$, $p < 0.05$; $R = .218$; $R^2 = 0.047$, $R^2adj. = .033$
H01	$F(1,278) = 0.717$, $p = .398$, $p > 0.05$; $R = .051$, $R^2 = .003$, $R^2adj. = -.001$
H02	$F(2,276) = 1.815$, $p = .1.79$, $p > 0.05$; $R = .095$, $R^2 = .009$, $R^2adj. = .002$
H03	$F(2,274) = 5.498$, $p = .005$, $p < 0.05$; $R = .218$; $R^2 = .047$, $R^2adj. = .033$

a. Test of theory with full model

Chapter Summary

Chapter 4 presented the results of the analyses that tested the hypotheses that were formed to answer the research question. The research question prompted an investigation of whether there was a statistically significant relationship between Emotional Stability and Employee Organizational Commitment, when Emotional Stability was moderated by Age Group and Gender. Results were summarized and are interpreted in Chapter 5.

CHAPTER 5. DISCUSSION, IMPLICATIONS, RECOMMENDATIONS

Introduction

The present study emerged from a study by Lounsbury et al. (2014) that investigated how the Big Five factors of personality traits were expressed in information technology (IT) professionals when compared to employees in other professions. The results of the Lounsbury et al. study showed that IT professionals had significantly lower levels of Emotional Stability compared to other professions. Emotional stability has been associated with the ability to handle stress and lower levels of emotional stability are indicative of higher levels of neuroticism, which is related to an inability to manage stress (Carver & Conner-Smith, 2010; Goldberg, 1993). The IT field is characterized by stress (Kim & Wright, 2007; DePasquale et al., 2015); therefore, Lounsbury et al. (2014) recommended further studies to investigate this trait factor in IT professionals. The focus of Chapter 5 is on interpreting the results of the analyses, which were reported in Chapter 4. In this chapter, the problem is re-introduced and the research questions and hypotheses are restated. Limitations of the study, as well as implications for practice, are discussed. Recommendations for future research are suggested, followed by concluding remarks.

Restatement of the Purpose Statement

As previously mentioned, the ability to handle stress has been related to the emotional stability dimension of personality traits. Low levels of emotional stability have been related to the inability to handle stress. There is a high level of stress in the

information technology (IT) field and retention among information technology workers in the United States (US) has been low, while turnover rate has been high (Ertürk, 2014; Lounsbury et al., 2014). High turnover rates are indicative of low organizational commitment (Croucher et al., 2011); however, there has been a gap in the IT literature, which has indicated that what has not been known was whether the combination of IT professionals' age, gender, and emotional stability predicted or explained their organizational commitment (Lounsbury et al., 2014).

The purpose of the present study, therefore, was to test the ability of one dimension of the Big Five factor model of personality traits theory, *Emotional Stability* (the independent variable), to predict or explain a statistically significant relationship with the dependent variable, *Employee Organizational Commitment* (EOC), when Emotional Stability was moderated by Gender and Age for 279 respondents in the dataset. The respondents in the dataset were employed in organizations within the United States at the time the survey was administered by the National Opinion Research Center (NORC), through the General Social Survey (GSS). The approach to the present study was post-positivist; therefore, it was designed as a quantitative, non-experimental, correlational, cross-sectional, explanatory, research study in which archival data were used.

Restatement of the Research Problem

The problem that supported the present study was that there has been a lack of understanding concerning whether the personality trait factor, emotional stability (ES), was related to information technology professionals' commitment to their organization

and whether IT professionals' age and gender exerted a moderating effect on ES to predict their organizational commitment.

Significance of the Study

This study has significance to organizations, the IT field in general, to the literature on personality traits and employee organizational commitment, to academia, and to IT professionals, as well. This study provided new insight on an existing problem and contributed to the sparse body of literature on employee organizational commitment in the IT field. Results of the study has expanded the field's understanding of the moderating role that Gender and Age play in interacting with the Emotional Stability dimension of the Big Five factor model of personality traits theory to explain Employee's Organizational Commitment. By examining these variables in an organizational context, the new insights provided by the study could expand scholar-practitioners' understanding of the scope of the retention problems in the IT field and how these variables interact to affect an important organizational outcome such as Employee Organizational Commitment. Furthermore, the review of the literature provided a basis for supplemental information that could inform course design in the IT specialization.

Restatement of the Research Questions

> RQ_0: When moderated by Gender and AGE (MV), to what extent does the Big Five factors of personality traits theory explain a relationship between the dependent variable (DV) Employee Organizational Commitment and the independent variable *Emotional Stability*, among IT professionals in U.S. organizations?
>
> RQ_1: To what extent is Emotional Stability related to *Employee Organizational Commitment* among IT professionals in the U.S.?

RQ_2: When moderated by Gender, to what extent is Emotional Stability related to *Employee Organizational Commitment* among IT professionals in the U.S.?

RQ_3: When moderated by AGE, to what extent is Emotional Stability related to *Employee Organizational Commitment* among IT professionals in the U.S.?

The following hypotheses were used in this study:

H_0: When moderated by Gender and AGE, the Big Five factors of personality traits theory does not explain a statistically significant relationship between Employee Organizational Commitment, and the independent variable *Emotional Stability*, among IT professionals in U.S. organizations.

H_A: When moderated by Gender and AGE, the Big Five factors of personality traits theory will explain a statistically significant relationship between Employee Organizational Commitment, and the independent variable *Emotional Stability*, among IT professionals in U.S. organizations.

H_{01}: Emotional Stability is not related with statistical significance to *Employee Organizational Commitment* among IT professionals in the U.S.

H_{A1}: Emotional Stability is related with statistical significance to *Employee Organizational Commitment* among IT professionals in the U.S.

H_{02}: When moderated by Gender, Emotional Stability is not related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S.

H_{A2}: When moderated by Gender, Emotional Stability is related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S.

H_{03}: When moderated by Age group, Emotional Stability will not be related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S.

H_{A3}: When moderated by Age group, Emotional Stability will be related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S.

In order to answer the research questions, a hierarchical analysis was applied to test the null hypotheses of no statistically significant relationships among a set of moderating independent variables (IVs) and a dependent variable (DV).The analyses produced three models (Model 1, Model 2, Model 3). Model 1 tested H_{01}, which reported on the linear relationship between ES and EOC. This model provided the answer to RQ1.

Model 2 tested H_{02}, which reported on the gender-moderating relationship between ES and EOC and showed the effect of ES on EOC when Gender was entered into the regression equation. Results from Model 2 answered RQ2. Model 3 tested the omnibus null hypothesis (H0), as well as H_{03}, and provided the answer to RQ0 and RQ3. This model reflected the full model that contained Gender and AgeGroup in the regression equation. From the results that were reported in Chapter 4 (Table 16), the interpretations of these results are summarized in the following section.

Summary of the Results

As shown in results from the full model (Table 17, Model 3), the Emotional Stability dimension of the Big Five factors of personality traits had the ability to predict or explain Employee Organizational Commitment as the relationship between ES and EOC, when moderated by Gender and AgeGroup, and was statistically significant: $F(2,274) = 5.498$, $p = .005$, $p < .05$; $R = .218$; $R^2 = .047$, $R^2adj. = .033$.

For Model 1, which tested H_{01}, results were not statistically significant: $F(1,278) = 0.717$, $p = .398$, $p > 0.05$; $R = .51$, $R^2 = .003$, $R^2adj. = -.001$; therefore, the null hypothesis (H01) that ES did not predict or explain EOC was accepted. When Gender was entered into the equation (Model 2), which tested H_{02}, the model did not improve and

results were not statistically significant: $F(2,276) = 1.815$, $p = .1.79$, $p > .05$; $R = .095$, $R^2 = .009$, $R^2adj. = .002$; therefore, the null hypothesis that, when moderated by Gender, ES did not predict or explain EOC was accepted. However, when AgeGroup was entered into the regression equation (Model 3), which tested the full model, results were statistically significant: $F(2,274) = 5.498$, $p = .005$, $p < .05$; $R = .218$; $R^2 = .047$, $R^2adj. = .033$. When ES was moderated by Gender and AgeGroup, there was a statistically significant relationship between ES and EOC. These results, and their interpretations, are summarized in Table 17.

Table 17. *Summary Interpretation of Tests of the Hypotheses*

Description	Results	Null Supported	Alternative Supported	Sig.
[a] H0	$F(2,274) = 5.498$, $p = .005$, $p < 0.05$; $R = 0.218$; $R^2 = 0.047$, $R^2adj. = 0.033$	No	Yes	$p = .005$, $p < .05$
H01	$F(1,278) = 0.717$, $p = .398$, $p > 0.05$; $R = .051$, $R^2 = .003$, $R^2adj. = -.001$	Yes	No	$p = .398$, $p > .05$
H02	$F(2,276) = 1.815$, $p = .1.79$, $p > 0.05$; $R = 0.095$, $R^2 = 0.009$, $R^2adj. = 0.002$	Yes	No	$p = .1.79$, $p > 0.05$
H03	$F(2,274) = 5.498$, $p = .005$, $p < 0.05$; $R = 0.218$; $R^2 = 0.047$, $R^2adj. = 0.033$	No	Yes	$p = .005$, $p < 0.05$

a. Test of the theory with full model. Theory is partially supported.

These summary interpretations are expounded upon in relation to the ability of the Emotional Stability dimension of the Big Five factor factors of personality traits theory to predict the DV (Employee organizational Commitment). The variables were entered into

the hierarchical linear regression equation in three steps, which produced three models. In step 1, results of Model 1 did not include the moderating variables, Gender or AgeGroup. Model 2 reflected the addition of Gender into the regression model, and Model 3 reflected the full model, with Gender and AgeGroup in the regression equation. The findings from the model aided in testing the hypotheses and in answering the research questions.

Findings from the Model

In the model as a whole, AgeGroup explained approximately 5% ($R^2 = .047$) of the variance in EOC. When the effect of Gender was controlled for, AgeGroup contributed to approximately 4% of the variance in EOC (R^2 *Change* = .038). The statement of the null hypothesis was that Emotional Stability (ES) did not predict or explain Employee Emotional Stability when the relationship between ES and EOC was moderated by Gender and Age Group. Based on the results, this statement was not supported, since the full model showed a statistically significant relationship between the moderated IV and the DV. While ES by itself, and with Gender, did not contribute to variances in the DV (EOC), when moderated by AgeGroup, the theory did have a statistically significant ability to predict the DV ($p < .05$); therefore, H_0 was at least partially supported and the alternative H_A was partially accepted.

Interpretation of Result of Tests of $H0_1$, $H0_2$, $H0_3$

$H0_1$ stated that Emotional Stability was not related with statistical significance to *Employee Organizational Commitment* among IT professionals in the U.S. The statement was upheld; as reported in Chapter 4, the null hypothesis that Emotional Stability (ES)

did not predict or explain Employee Organizational Commitment (EOC) showed that there was not a statistically significant relationship between ES and EOC ($p = .398$, $p > .05$). H_{02} stated that, when moderated by Gender, Emotional Stability was not related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S. This statement was upheld; as reported in Chapter 4, the interaction between Gender and Emotional Stability did not produce a statistically significant relationship between the moderated IV and the DV ($p = .1.79$, $p > 0.05$). H_{03} stated that, when moderated by Age group, Emotional Stability will not be related with statistical significance to Employee Organizational Commitment among IT professionals in the U.S. This hypothesis was not accepted since the model *as a whole* (Model 3) was improved by 16.7% when AgeGroup was entered into the regression equation, even though the strength of the correlation was low between the IV and the DV ($R = .218$; $p = .005$, $p < 0.05$). A closer examination of the Coefficients table revealed that the Boomer generation made the greatest contribution to the DV (Beta = -.194, $p = .002$, $p < .05$).

Discussion of the Results

The results of the present study showed that (a) Emotional Stability (ES) was not related to Employee Organizational Commitment (EOC), (b) Gender did not moderate ES to predict or explain a statistically significant relationship with EOC, and (c) when the Boomer generation age group moderated ES, there was a statistically significant relationship with EOC. These results were surprising and seemed to contradict some evidence in the literature, which linked emotional stability to stress and stress to high

employee turnover in general, and among IT professionals in particular (Lounsbury et al., 2014).

Personality traits have been shown to be good predictors of workplace performance, attitude, and behavior (Cobb-Clark & Shurer, 2012; Matzler et al., 2011) and Emotional Stability is one of the factors of personality traits that has to do with the frequency and ease with which an individual is affected by stress and anger, which can result in hostility, vulnerability, anxiety, and negative feelings (Carver & Conner-Smith, 2010). In an organizational context, these emotions have been positively related to high employee turnover, which is indicative of low organizational commitment. The study by Lounsbury et al. (2014) indicated that IT workers' scored low on Emotional Stability (i.e., high on Neuroticism), which is one of five broad factors of personality traits that has to do with one's ability to handle stress (Anderson, 2013). The authors concluded that, compared to other professions, personality trait differences might explain the high attrition rates among IT professionals. High attrition rates have been associated in the literature with low organizational commitment.

Conclusions Based on the Results

Since the IT field is characterized by stress (S. Kim & Wright, 2007; DePasquale et al., 2015), and since low emotional stability (or high neuroticism) has been associated with the ability or inability to deal with stress (Mangold et al., 2007; Moeller et al., 2010), the result of the present study in relation to the relationship between ES and Employee Organizational Commitment has not made a meaningful contribution to the literature in this area of research; rather, it has contributed to dissonance. The

implications of this result, as well as recommendations regarding future studies on the phenomena are offered in the Recommendations section of the present study.

The result from H_{02} was also surprising, as results of the literature review indicated that, in a very recent study that sampled individuals from 23 different countries, the effect for neuroticism (which is the polar opposite of Emotional Stability) had higher rates among females compared to males, and that this trait began to take hold between the years of 12 and 17 (De Bolle et al., 2015). Results of the De Bolle et al. study suggested that there should have been a statistically significant relationship between the Emotional Stability trait and EOC in the present study. The implications of this result are discussed in subsequent sections of the present study.

The result from H_{03}, the full model, seemed to confirm findings from the literature. For example, the review of the literature revealed that Emotional Stability can be affected due to social demands, life events, and work experiences, and Age is likely to influence the changes in personality based on these events (Carstensen et al., 2000; Elias et al., 2012). Studies by Carstensen et al., 2000 and Carstensen et al., 2011 have shown that periods of highly positive emotional experiences are more likely to remain among older individuals and periods of highly negative emotional experiences remained less stable among this group. Perhaps, with increasing age and maturity, one's life experiences contribute positively to emotional stability; hence, negative experiences (such as negative workplace experiences) might exert less influence on the older IT professional's emotional well-being than it might in younger IT workers. The Carstensen

et al. studies have shown that emotional experiences do not necessarily fluctuate with age but that complicated emotions are processed differently among older age groups.

The newer study by Carstensen et al. (2011) seemed to suggest that there is a statistically significant improvement in emotional well-being from the period of early adulthood to that of older age. The results of this study seem to validate the Carstensen et al. studies, since an inspection of the Coefficient statistics revealed that, among the generational age groups, it is the Boomer (older) generational group that contributes most to the statistically significant relationship between the DV and the moderated IV ($p <$ .002). In the IT profession, the Age variable plays an integral part in determining the workplace motivation of employees. Additionally, it directly impacts on their commitment to the organization and to retention.

Many theorists have argued that age is affected by, and also affects, emotional stability and work satisfaction. Researchers such as Narasaiah (2010) have argued that the older the IT professionals are, the more emotionally stable they are. Other authors have also explained that many young IT practitioners between the ages of 18 and 31 years have unrealistically high expectations and goals about their IT roles (Eckhardt et el., 2016; Zhang, 2015). When this is viewed through the lens of their emotional stability, it becomes difficult to effectively motivate and retain these employees.

Limitations

Bias can impose limitations on the validity of survey studies. A persistent limitation with close-ended survey studies is rooted in measurement error, as respondents are not always honest in their responses. For example, researchers have long recognized

that *social desirability bias* is a persistent problem in which respondents tend to provide what they consider to be responses that the researcher wants to hear or will benefit them or society in some way (Brenner & DeLamater, 2016). Self-enhancement bias occurs when respondents answer in ways that they think will make them look better (Leising, Locke, Kurzius, & Zimmermann, 2015). Since the present study used archival survey data, there was no way to determine whether respondents were truthful in their responses or not; however, it must be noted that results of the present study did not align with evidence in the extant literature. These types of biases affect the validity of research studies and may have biased results of the present study. Additionally, the archival data that were used in the present study did not represent the most current information on IT workers' and organizational commitment. In combination with the limitation that is associated with survey data, the results could not be generalized to all IT workers in all U.S. organizations.

Implications for Practice

Retaining information technology (IT) employees is an important goal for most 21st Century organizations. The evidence in the personality traits literature has long established a link between the Emotional Stability trait factor and the ability to handle stress such that higher expressions of emotional stability has been related with enhanced abilities to handle stress. Additionally, there is ample evidence in the literature that the inability to handle stress is related to low organizational commitment. The review of the literature also revealed that the IT field is fraught with stress and that IT professionals exhibited low expressions of the Emotional Stability trait. Yet, results of the present

study did not align with current literature on the topic; instead, more questions were raised than were answered. Due to the contradictions between the results of the present study and evidence in the literature, caution is advised in the application of the results of this study to practice. No practically applicable conclusions regarding the efficacy of the results, neither to organizations, the field, nor to academia, can be drawn from the study's results.

Recommendations for Further Research

Results of the present study introduced dissonance to the IT and personality trait literature. Further studies on the relationship between emotional stability and employee organizational commitment among IT workers in the U.S are warranted. A replication study with more current data might help to clarify this relationship. To gain deeper understanding into the phenomenon, qualitative methods might be applied to future studies. Other personality traits might be examined in relation to employee organizational commitment. Since the literature review provided sound evidence that stress is related to job satisfaction, which in turn predicts employee organizational commitment, specific studies on correlates between emotional stability (ES), job stress (MV) and specific types of organizational commitment might be investigated. Other variables, such as job insecurity and tenure, might be investigated for relationships with job stress, personality traits, and organizational commitment. The literature revealed that millennials harbored unreasonable expectations about their IT jobs; further studies might be conducted to understand how expectations about the job might contribute to organizational commitment among IT professionals. Longitudinal studies may be conducted by merging

archival data with current data to understand changes or trends. Finally, other statistical methods might be used to obtain a different perspective and understanding of the phenomenon.

Conclusion

The present study was focused on the relationship between Emotional Stability and Employee Organizational Commitment among information technology (IT) professionals, when ES was moderated by Gender and AgeGroup. Limitations were stated and recommendations were offered for future directions in this area of study. Results of the study seemed to be contrary to evidence in the literature; therefore, caution was advised in applying the results of the study in an organizational context. It was decided that the results had limited implications for organizations, scholar-practitioners, and academia; however, many rich areas of research were identified. Since the archival data were approximately five years old, additional studies with more current data are recommended.

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APPENDIX A

(a) ***Employee Organizational Commitment Questionnaire*** **(from the** GSS 1972-2014 Cross-Sectional Cumulative Data (Release 5, March 24, 2016 **dataset)**

(also in Marsden, Kalleberg, & Cook, 1993).

HelpOrg

I am willing to work harder for my organization

1= *strongly agree*, 2 = *agree*, 3 = *neither agree nor disagree*, 4 = *disagree*, 5 = *strongly disagree*

NotLoyal

I feel very little loyalty toward this organization (reverse coded)

1= *strongly agree*, 2 = *agree*, 3 = *neither agree nor disagree*, 4 = *disagree*, 5 = *strongly disagree*

StayOrg1

I would take any job to keep working for this organization

1= *strongly agree*, 2 = *agree*, 3 = *neither agree nor disagree* , 4 = *disagree*, 5 = *strongly disagree*

Same Evals

My values and the organization's values are very similar

1= *strongly agree*, 2 = *agree*, 3 = *neither agree nor disagree* , 4 = *disagree*, 5 = *strongly disagree*

ProudOrg

Proud to be working for this organization

1= *strongly agree*, 2 = *agree*, 3 = *neither agree nor disagree* , 4 = *disagree*, 5 = *strongly disagree*

StayOrg2

I would turn down another job to say with this organization

1= *strongly agree*, 2 = *agree*, 3 = *neither agree nor disagree* , 4 = *disagree*, 5 = *strongly disagree*

(b) Data from Marsden, Kalleberg, and Cook (1993, p. 376)

TABLE 1: Items Included in the Organizational Commitment (OC) Scale

Please tell me how much you agree or disagree with the following statements. Would you say that you strongly agree, agree, disagree, or strongly disagree?

1. I am willing to work harder than I have to in order to help this organization succeed.
2. I feel very little loyalty to this organization. [reverse-coded]
3. I would take almost any job to keep working for this organization.
4. I find that my values and the organization's are very similar.
5. I am proud to be working for this organization.
6. I would turn down another job for more pay in order to stay with this organization.

Emotional Stability (Neuroticism) ***Questionnaire***

1= *strongly agree*, 2 = *agree*, 3 = *neither agree nor disagree*, 4 = *disagree*, 5 = *strongly disagree*

Big5d1: R[espondent] sees oneself as being relaxed

Big5d2: R[esponent] sees oneself as someone who gets nervous easily

The Emotional Stability Factor from the IPIP Big Five Factors of Personality Traits and NEO-PI-R scales (Costa and McCrae, 1992; Goldberg, 1990, 1992, 1993, 1999; Rammstedt & John, 2007, p. 210; www.ipip.org)

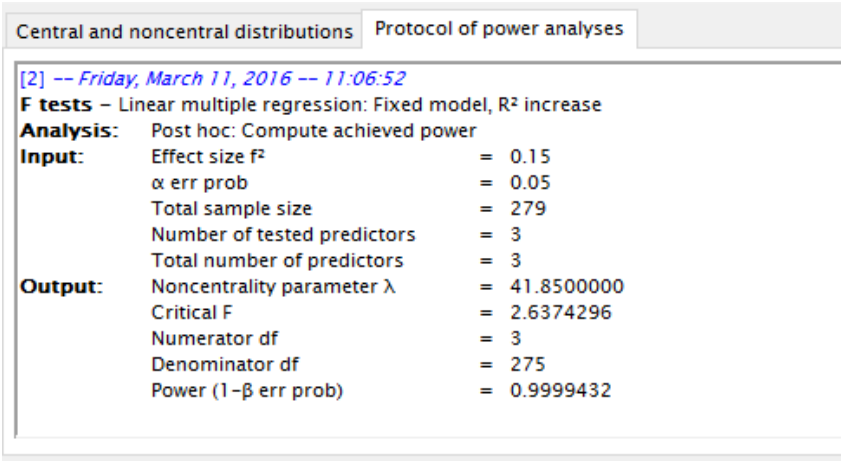
APPENDIX B

English version.
Instruction: How well do the following statements describe your personality?

I see myself as someone who …	Disagree strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly
… is reserved	(1)	(2)	(3)	(4)	(5)
… is generally trusting	(1)	(2)	(3)	(4)	(5)
… tends to be lazy	(1)	(2)	(3)	(4)	(5)
… is relaxed, handles stress well	(1)	(2)	(3)	(4)	(5)
… has few artistic interests	(1)	(2)	(3)	(4)	(5)
… is outgoing, sociable	(1)	(2)	(3)	(4)	(5)
… tends to find fault with others	(1)	(2)	(3)	(4)	(5)
… does a thorough job	(1)	(2)	(3)	(4)	(5)
… gets nervous easily	(1)	(2)	(3)	(4)	(5)
… has an active imagination	(1)	(2)	(3)	(4)	(5)

Figure 3. Big Five Inventory-10 (BFI-10)

APPENDIX C



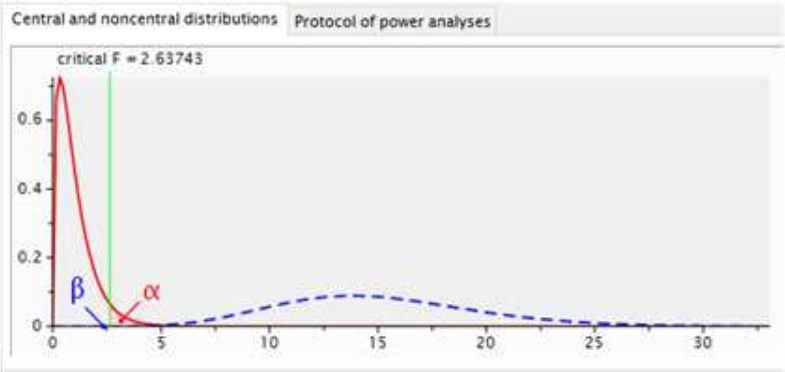


Figure 2. Post Hoc Power Computation Based on Known Sample Size