PERSONALITY TRAITS, THE INTERACTION EFFECTS OF EDUCATION, AND EMPLOYEE READINESS FOR ORGANIZATIONAL CHANGE: A QUANTITATIVE STUDY

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Abstract

The combination of globalization, technological advancements, governmental regulations, changing customer tastes and trends combined with a host of other influences constantly force organizations to change, or respond to changes in the business environment. Businesses need their employees to be flexible and ready for change; however, the literature is rife with the assertion that more than 70% of organizational change initiatives fail. These failures cost organizations billions of dollars each year and have been blamed in part on employees' unreadiness for change, and their subsequent resistance to it. Businesses have a continued interest in understanding how to achieve higher rates of success with change initiatives; therefore, this research examined whether or not employees' personality traits predicted their readiness for organizational change. It also examined whether or not employees' level of education interacted with their personality traits to moderate the effects of personality traits on variances in readiness for change. Results indicated that personality traits predicted employees' readiness for change; however, increasing education did not interact with personality traits to modify the effects of personality on employee readiness for change.

Dedication

With great thanks to God through Christ my Lord, I dedicate this effort to the memory of my late father the Rt. Rev. Evangelist, Dr. B.A. Rogers, and to my family: my husband, Steve; my two awesome sons, Cpt. Sheldon P. Tappin, NHARNG, and SFC Jesse S. Tappin, US Army; my daughter-in-law, Dr. Dyanne Tappin, and to my grandchildren Natalie, Maddie, and Matthew.

Steve, you have always been the wind beneath my wings, encouraging me to soar like an eagle – thank you! Sheldon, you amaze me! You have unflaggingly believed in me, supported me, sacrificed of yourself, and inspired me throughout this incredible journey – thank you, son! Jess, I thank you for your encouragement, support, and your just-in-time interventions that helped me to maintain momentum. I love you all more than you can ever know. I hope that I will continue to make you proud of me.

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CHAPTER 1. INTRODUCTION

Introduction to the Problem

Due to upheavals caused by globalization, technological advancements, legal, political, social, and cultural shifts, flux and change are characteristics of modern organizations (Axley & McMahon, 2006; Becker, Lazaric, Nelson, & Winter, 2005; M. Choi & Ruona, 2011; Vakola & Nikolaou, 2005). The extant literatures assert that as many as 70% of organizational change initiatives fail, costing organizations billions of dollars annually; they ascribe this loss to employees' unreadiness for change, and their subsequent resistance to it (Burke, 2013; Higgs & Rowland, 2005; Kotter, 1996; Miller, 2002; Pellettiere, 2006; Bateh, Casteneda, & Farah, 2013; Strebel, 2009; Warrick, 2009). According to Szabla (2007), after a review of the literature Burnes (2004) came to the conclusion that the change failure rate is higher than 70%. In a recent review of the change failure literature, Decker et al. (2012) confirmed this statistic and further asserted that the failure rate may be as high as 93%. One reason that has been attributed to this high failure rate is employees' negative responses to change. The literature shows that employees' readiness for organizational change informs their responses to the change. It also shows that their readiness for change has been predictive of behaviors such as ambivalence toward change, support of change initiatives, or outright resistance to change (Armenakis, Harris, & Mossholder, 1993; Lamm & Gordon, 2010; Oreg & Sverdlik, 2011; Van Egeren, 2009). Resistance to change, an indication of lack of

readiness for change, is a persistent organizational problem (Oreg, Vakola, & Armenakis, 2011).

Due to the high cost of the failure of change initiatives, business leaders continue to be interested in understanding change management and why change initiatives fail, phenomena that have traditionally been investigated from a management perspective (Backer, 1997; Bommer, Rich, & Rubin, 2005; Bouckenooghe, Devos, & Broeck, 2009; Miller, 2002; Nohe, Michaelis, Menges, Zhang, & Sonntag, 2013; Rafferty, Jimmieson, & Armenakis, 2013; Vakola & Nikolaou, 2005). Increasingly, management researchers have been examining employees' role in the change process, how their readiness for change affects their responses to change initiatives (Kotter & Cohen, 2002; Van Knippenberg, Martin, & Tyler, 2006; Whelan-Berry, Gordon, & Hinings, 2003 as cited in Shin et al., 2012). Additionally, the possible role that personality traits might play in employees' responses to change have been studied (Omazic, Vlahov, & Basic, 2011; Saksvik & Hetland, 2009). In this chapter, the background and purpose of the study are presented, as well as the management-related research questions and the hypotheses. A definition of frequently used terms and an explanation of acronyms that are used in this study is provided, and assumptions and limitations of the study are discussed.

Background of the Study

A major reason for failed organizational change initiatives has been attributed to employees' resistance to change, which has been linked to employee unreadiness for change (Armenakis et al.,1993; Lamm & Gordon, 2010; Oreg & Sverdlik, 2011);

therefore, researchers have recently begun to study individual readiness for organizational change (M. Choi, 2011; Omazic et al., 2011; Saksvik & Hetland, 2009). Traditionally, organizational change has been studied from a management or change agent perspective, and failures of change efforts have been attributed to leaders' or change agents' management of change initiatives (Backer, 1997; Bommer, Rich, & Rubin, 2005; D. Miller, 2002; Nohe et al., 2013; M. Smith, 2002). In recent years, new areas of inquiry have been examining the role that employees' personality traits might play in employees' readiness for organizational change initiatives.

The literature has shown that personality traits transcend culture and are universal across nationalities (Cattell, 1943; Goldberg, 1993; McCrae & Terracciano, 2005; Rammstedt, Goldberg, & Borg, 2009). Five broad dimensions of personality, or personality traits, have been universally identified across cultures; these are referred in the literature as the Five Factor Model (FFM) of personality traits, or "Big Five" factors of personality (Goldberg, 1990; McCrae & Costa, 1997). These five broad dimensions of personality are hierarchical in order, as shown: *Extraversion* (factor 1); *Agreeableness* (factor II); *Conscientiousness* (factor III); *Emotional Stability* (vs. Neuroticism) (factor IV), and *Intellect* or *Openness to experience* (factor V). According to Goldberg (1993), these five factors of personality help to provide a scientific framework for organizing the multitude of differences that are characteristic of human beings everywhere. Over the past half century these five dimensions of personality have dominated studies on individual differences (Saksvik & Hetland, 2009), and have been shown to inform

behavior (Armenakis et al., 1993; Chung, Su,& Su, 2012; Kornør, & Nordvik, 2004; Shahrazad, Lukman, Murni, et al., 2011; Van Egeren, 2009).

The problem of resistance to change and its precursor, readiness for change, is also universal to organizations and crosses nationalities as studies on resistance to organizational change in countries such as Belgium, China, Croatia, Estonia, Hungary, India, Russia, and Scotland have shown (DeFruyt, McCrae, Szirmák, & Nagy, 2004; Gow, Whiteman, Pattie, & Dreary, 2005; McCarthy, Puffer, May, Ledgerwood, & Stewart, 2008; Omazic et al., 2011; Pihlak & Alas, 2012). According to Meaney and Pung (2008), a recent survey of organizations globally revealed that less than 30% of change initiatives are successful (as cited in Shin, Taylor, & Seo, 2012).

Since personality traits have been linked to behavior (Armenakis et al., 1993; Kornør, & Nordvik, 2004; Shahrazad, Lukman, Murni, et al., 2011; Su et al., 2012), and since employee behavior has been linked to the success of organizational change initiatives, interest continues to grow in organizational change management. Additionally, interest in the possible relationship between personality traits and employee behaviors such as resistance to change and its precursor, readiness for change, is also growing, even though as of 2009 the literature on personality traits and organizational change had been sparse (Saksvik & Hetland, 2009). For example, Saksvik and Hetland pointed out that as of 2009, a study by Oreg (2003) was the only one that investigated the relationship between resistance to organizational change and the Big Five factors of personality traits. The literature has shown that human personality is

composed of many parts (personality traits) that interact in coherent, though sometimes conflicting ways, to produce behavioral results (Paunonen & Ashton, 2001; Van Egeren, 2009); yet, studies on the effect of personality traits on readiness for change seem to have produced conflicting results (Kornør & Nordvik, 2004; McCrae & John, 1992; Omazic et al., 2011).

Since the 2009 Saksvik and Hetland article, Omazic et al. (2011) conducted research that explored the relationship between personality traits and readiness for change and applied bivariate and multiple regression analysis tests to (a) determine the relationship between individual personality dimensions and readiness for organizational change, and (b) to attempt to predict employees' readiness for organizational change, based on their personality traits. In both cases, no statistically significant relationship was observed, with regression results indicating that personality traits explained 1.6% (R^2 = 0.016) of readiness for organizational change variance. In the Omazic et al. sample, personality traits did not predict employee readiness for organizational change. This result seems to have contradicted the literature, which has shown that personality traits interact to produce behavioral results, and readiness for change expresses itself in behavioral outcomes that involve ambivalence, support, or resistance toward the proposed change (Armenakis et al., 1993; Van Egeren, 2009). However, Omazic et al. (2011) recommended that further studies were warranted, since the sample that was used in that study was small in size, and was composed of a homogeneous group of "highly educated postgraduate business students" (p. 159). Omazic et al. admitted to several

limitations in the study, among which was an inherent bias in the study; this could have been caused by the size and homogeneity of the sample. They concluded that the sample size used in their study also inhibited the generalizability of the results. Based on these considerations, the authors suggested that further studies using a larger and more educationally diverse sample were warranted to investigate whether or not an employee's education interacted with personality traits to affect readiness for organizational change. Specifically, Omazic et al. suggested that:

> (a) The new studies should use a larger and more educationally diverse sample of participants.
>
> (b) Differences among the groups should be compared to determine if increasing levels of education moderate the effects of personality traits among a more educationally heterogeneous sample of change recipients.
>
> (c) The results of a new study should be compared to that of their more homogeneously biased study.
>
> (d) So as to gain deeper insight into the phenomenon, qualitative or mixed methods research designs should be considered for new studies to examine in more detail the relationships among personality traits, varying levels of education, and readiness for change (p. 162).

The limitations and recommendations that were outlined in the Omazic et al. study revealed gaps in the readiness for organizational change literature. These gaps

provided an opportunity to further the research and extend the literature on personality traits and readiness for organizational change from the individual unit level by examining the phenomenon among a sample of more educationally diverse employees. What is missing in the literature, therefore, is an understanding of whether or not varying levels of education interact with the Big Five factors of personality traits to moderate the effects of personality traits on employees' readiness for change. Consequently, this present study employed a larger, more educationally diverse sample to examine the possible moderating effects that varying educational levels might exert on personality traits in relation to employee readiness for change.

Heuristics suggested by Nunnally (1977) and others recommend determining sample size based on the number of variables in the study and multiplying the number of variables by 10, 15, or 20. For this present study, sample size was determined by adopting a best practice that was recommended by Aguinis and Gottfredson (2010), and was composed of 300 participants, with equal numbers of participants in each of three educational groups. The authors based this recommendation on past studies that showed a sample of this size was needed to have the power to detect effect sizes in moderated multiple regression analyses. Furthermore, Aguinis and Pierce (2006) recommended that subgroups should be of equal numbers. For the present study, respondents were stratified by educational levels in equal groups of 100 per level (e.g., Less-than-a-Bachelor Degree, $n = 100$; Bachelor Degree, $n = 100$; Master Degree, $n = 100$).

Statement of the Research Problem

The literature has shown that employees' behavioral responses to change are expressed as ambivalence, support of, or resistance to the change. It has also shown that these responses are informed by employees' readiness for change, which is a precursor to behavioral responses to change (Armenakis et al., 1993; Lamm & Gordon, 2010; Oreg & Sverdlik, 2011;Van Egeren, 2009). For example, studies have examined links between employee readiness for change and the success of change initiatives. Evidence has indicated that when employees are ready for change, they support it (Bouckenooghe et al., 2009; Lewin, 1945; Stevens, 2013). Management initiatives in preparing employees for change have been shown to contribute to employee readiness for change (I. Smith, 2005; Weiner, 2009). Recent studies have begun to examine the role that employees' personality traits might play in their readiness for organizational change since personality traits have been linked to behavioral responses (Van Egeren, 2009). Results from a 2011 study by Omazic et al. seemed to disagree with what the literature has revealed about personality traits and behavioral responses such as those that are related to readiness for organizational change. This dissonance with the literature seems to be related to the size and composition of the sample that was used in the Omazic et al. (2011) study.

As previously mentioned, the sample in the Omazic et al. study was composed of a small sample size of highly educated postgraduate business students who were professionals in their fields. Omazic et al. (2011) recommended a new study that included a larger sample size and a more educationally diverse mix of participants. This present

research answers the call for such a study. To this end, a quantitative research design that investigated a larger, more educationally diverse sample was employed to examine possible effects of education on personality traits relative to employee readiness for organizational change. The problem that supported this study was the lack of understanding of whether or not varying educational levels moderate the effects of personality traits on readiness for change.

Purpose of the Research

The literature shows that employee response to change continues to be a phenomenon that organizations still seek to understand and manage (Bouckenooghe et al., 2009). The recent study by Omazic et al. (2011) that analyzed the effect of personality traits on organizational readiness for change seems to have produced results that conflict with other evidence in the literature on personality traits and behavioral responses to change; therefore, the purpose of this quantitative exploratory study was:

(a) to extend the literature on employee readiness for change;

(b) to seek clarification of any influence that personality traits might have on change-recipient employees' response to organizational change;

(c) to examine whether or not increasing educational levels interact with the Big Five factors of personality traits to moderate the effects of personality traits on readiness for change among actively employed adults (≥18 years old) in organizations in the USA;

(d) to compare the results of this study with that of the Omazic et al. study, which seemed to contradict extant findings on personality traits and behavioral responses to change.

The present study rests on the FFM or the Big Five factors model of personality and the employee readiness for change model. The Big Five factors of personality are Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect/Openness (EACESI). The employee readiness for change model consists of three dimensions: *Cognition, Affect* (emotion)*,* and *Intention* (Armenakis et al.,1993; Bouckenooghe et al., 2009). The Big Five factors of personality have been shown in the literature to predict work attitude and behavior (Witt, Burke, Barrick, & Mount, 2002), while cognition, affect (emotion), and intention have been shown to inform employees' behavior in regard to readiness for change (Bouckenooghe et al., 2009).

Rationale and Justification for the Study

March and Simon (1958) pointed out that people make up organizations, and people make organizations function (as cited in Kitchen & Daly, 2002). Backer (1997) later pointed out that for organizations to change, people must change; consequently, organizations need members who are flexible and who *can* change (Oreg et al., 2003). Historically, individuals have sought out learning and knowledge in order to change and expand their understanding of the world, their environments, and their interactions with each other, often for the purpose of improving their life outcomes and it is an accepted

truth that education causes change in one way or another (Ebert, Burford, & Brian, 2003; Freire, 1970). What is also known is that personality traits inform behaviors; however, in an organizational context, what is not clear is whether or not education can interact with employees' personality traits in such a way that it prepare employees for change or change employees' behaviors so that they will be readier for organizational change. Therefore, the rationale that justifies this study is based on the following:

(a) the persistently high failure rates of organizational change initiatives and the high costs associated with this rate;

(b) the continued interests that organizations have in understanding organizational change phenomenon;

(c) the paucity of literature on personality traits and employee readiness for change, and

(d) the need to understand if varying educational levels exert a modifying effect on personality traits so that personality traits do not inform employees' readiness for change.

According to Omazic et al. (2011) this type of study would expand our understanding of the interactive effects of education, personality traits, and employee readiness for change. It would also clarify whether or not education moderates the effects of personality traits on employee readiness for organizational change.

Vogt (2009), and Rammstedt et al. (2009), postulated that most organizational and psychological studies use student samples; however, Rammstedt et al. pointed out that the narrowness of this population (i.e., students) limits the generalizability of these research efforts. Additionally, in a study that investigated correlations between personality traits and educational levels among a large non-student sample (n = 5,904) that was stratified by educational level, using a very abbreviated FFM 10-item scale (the BFI-10), Rammstedt et al. determined that, indeed, there was a correlation between personality traits and educational level such that personality factors were sensitive to higher educational levels. While at first glance the Omazic et al. (2011) study seems to agree with this result, Rammstedt et al. also admitted that the brevity of the 10-item scale presented a limitation to the generalizability of the study and recommended further studies based on more detailed scales. Consequently, both the Omazic et al. study from which this dissertation research emerged, and the Rammstedt et al. study demand further investigation. Since the Omazic et al. study used a student sample, and since the results of their study seemed to contradict what is known about personality traits and behavioral responses, the present study that included a more educationally diverse sample than the Omazic et al. study was justified as (a) the finding of the Omazic et al. study could not be generalized, and (b) the size and composition of the sample in that study could have biased the results, thus showing no associations between personality traits and readiness for change, when one might have actually existed. In the same way, the brevity of the instrument that was used in the Rammstedt et al. study could also have biased results,

indicating a Big Five sensitivity to higher education where none might exist. This study addressed the limitations presented by both the Omazic et al. (2011) and the Rammstedt et al. (2009) studies, and responded to their call for further studies with a larger, more educationally diverse sample, and a more detailed FFM scale instrument to collect data.

Significance of the Study

In this globalized economy organizations are faced with continual flux and change and they need employees to be adaptive and receptive to change initiatives (Aram & Noble, 1999; Axley & McMahon, 2006; Decker et al., 2012). However, business leaders feel that management schools have not prepared students to be ready or able to deal with the ambiguity or complexity that organizations face and, therefore, employees are generally not able to deal with change, and so they resist it – even when it is necessary, or when it is in their own best interest (Axley & McMahon, 2006; Bolt, 2007; Chae, Wyatt, Moritiz, & Browning-Samoni, 2012). The seminal and contemporary literatures have asserted that if people are unprepared for it they will resist change (Lewin, 1945; Prochaska, Redding, & Evers, 1997); however, readiness for change has been shown to reduce resistance to change, and increase the success of organizational change initiatives (Bouckenooghe et al., 2009; Mueller, Jenny, & Bauer, 2012; Stevens, 2013).

Kitchen and Daly (2002) postulated that the study of change in organizations is central to management and to behavior in organizations; therefore, this study has significance to: (a) the field of studies on organizational change, (b) organizations'

change management strategies, (c) management education, and (d) change recipient employees. First, this study will extend the literature on organizational change and shed light on the roles that personality traits, when moderated by education, might play in employee readiness for change. Even as interest in this area of research increases, since research on personality traits and readiness for change has produced contradicting results (Kornør & Nordvik, 2004; McCrae & John, 1992; Omazic et al., 2011), this study will add to the corpus of knowledge on the relationship between personality traits and employee readiness for change, when personality traits are moderated by education. As previously mentioned college students are very frequently used in research (Rammstedt et al., 2009; Vogt, 2007); however, as Rammstedt et al. pointed out, the generalizability of study findings that are based on this narrow population is questionable. Since the present study is based on a non-student population of adult employees of diverse educational backgrounds from across the United States of America (USA), it is more representative of the broader population of working change-recipient employees, and therefore more generalizable than the student-based sample of the Omazic et al. study. It will bring clarification and sharper focus on the influence, if any, that different levels of education might have on personality traits relative to readiness for change.

Secondly, this study also has significance to organizations because the insight gained from this research will assist decision makers in making better organizational decisions by helping to broaden their understanding of the dynamics that underlie employees' responses to change initiatives. Traditionally, readiness for change in

organizations had been studied from a management perspective (Backer, 1997; Bommer et al., 2005; Bouckenooghe et al., 2009; D. Miller, 2002; Nohe et al., 2013; Rafferty et al., 2013); however, extant literature has shown that there are two types of readiness that are related to organizational change: One is at the organizational level, the other is at the individual level (Mueller et al., 2012). This research focuses on the individual unit level of organizational change and examines whether or not employees' educational level affects personality traits such that their responses to organizational change might be affected in some way. This granular level of understanding about the interaction between employees' level of education and their personality traits and whether or not this will predispose employees to be ready for organizational change initiatives will allow organizations to craft unique strategies for managing and enhancing readiness for change efforts in order to reduce resistance to change by identifying at what educational level employees become readier for change.

Third, this study will also help institutions of learning to better assess the design and delivery of their management education curricula so that they would align more appropriately with industry needs and expectations. The literature has shown that often management education is not aligned with industry needs (Astleitner, 2002; Axley & McMahon, 2006; Azevedo et al., 2012) and there has long been concern that schools have not been preparing managers to deal with the ever-changing and increasingly complex business environment (Aram & Noble, 1999). This study will, therefore, help educators understand whether or not personality traits might inform students' readiness

for change, and whether or not (or how) this information can be used to prepare students to better cope with the chaos and complexity that more often than not are associated with organizational change initiatives. If this information is used to inform management education through syllabus and course design, students will be better prepared to enter into the workforce or bring to their organizations current change readiness knowledge that can have an immediate and beneficial cost-reducing effect on organizational change initiatives.

Finally, this study has implications for individuals who can gain insight into how their personality traits might influence their individual readiness for change. This insight can be especially impactful when management educators are able to show students how the relationship between an employee's willingness and readiness to support organizational change and outcomes can affect or benefit the employees personally. While organizations initiate many small changes frequently, companies make moderate to large-scale changes every four to five years or so, and some of these changes can involve mergers, acquisitions, downsizing, and mass layoffs. For example, in March of 2013, the last year for which these types of statistics were collected, the Bureau of Labor Statistics (2013) reported that organizations implemented 1,301 mass layoff actions that resulted in over 127,000 layoffs.

The literature has shown that organizational change initiatives demand changes that impose breaks in employees' routines, and that employees often resist change (Axley & McMahon, 2006; Becker et al., 2005; M. Choi & Ruona, 2011; Vakola & Nikolaou,

2005). When employees resist change, the cost is very high not only for organizations, but also for change-resistant individuals, since the literature has established a link between personality traits and economic outcomes such as lower wages, layoffs, unemployment, and successful or unsuccessful job searches (Nyhus & Pons, 2005; Uysal & Pohlmeier, 2012; Viinikainen & Kokko, 2012). Therefore, in times of flux, change resistant employees may find themselves in a more vulnerable position for layoffs than their more flexible and change supportive counterparts. Finally, there is compelling evidence in the literature that higher education increased employees' change readiness (Michael, Davidson, & de Marco, 1999). Individuals can use this information to make informed decisions about their need for additional education and take responsibility for managing their own change responses.

In sum, this study seeks to clarify whether or not personality traits have a bearing on employee readiness for change, and whether or not an employee's educational level moderates the effect of personality traits on readiness for change. It will extend the body of knowledge on employee readiness for organizational change by revealing whether or not there is an optimal training or educational level that contributes to an employee's readiness for change. It also has implications for the alignment of industry needs and management education, and has implications for individuals and industry. By understanding the combined influence that personality traits and education exert on readiness response to change among employees, organizations will be better able to identify the educational requirements that they would need their employees to possess,

based on the company's degree and frequency of change initiatives. They will be able to strategically customize hiring, training, re-training, and operational procedures as this knowledge will help to clarify the impact that personality traits and educational levels exert on employees' readiness for change. Five dimensions of personality traits will be examined (extraversion, agreeableness, conscientiousness, emotional stability, and intellect - EACESI) in conjunction with each of the following educational levels: Less-than-a-Bachelor degree (LTBD); Bachelor Degree (BD), and Master Degree (MD).

Research Design

The goal of this study was to use objective means such as statistical analysis to investigate relationships among variables and make inferences about the population from which the sample was drawn; therefore, this study was influenced by a positivist/post-positivist philosophical orientation (Creswell, 2009; Trochim, 2006; Vogt, 2009). True to the ontological philosophy associated with the positivist worldview, the study design is a quantitative, cross-sectional (non-experimental) exploratory research using standard and moderated (hierarchical) multiple regression analysis to investigate any statistically significant relationships between several independent variables (IVs) and a dependent variable (DV) (Field, 2009), and between several IVs and a DV when the IVs are affected by a moderating variable (MV) (Aguinis & Pierce, 2006; Field, 2009). In this case, any statistically significant relationship among the dimensions of personality traits (IV) relative to readiness for change (DV) among educationally diverse employees (MV) is what is being investigated. A relationship is deemed to be linear if the correlation

coefficient between an independent variable and the dependent variable is statistically significant at the $p < .05$ level.

Research Questions and Hypotheses

The overarching purpose of the proposed study sought to discern whether or not education interacted with the Big Five factors of personality traits to moderate the effects of personality traits on employees' readiness for organizational change. The omnibus research question was: How does the Five Factor Model (FFM) of Personality Traits theory, alternately referred to in the literature as the Big Five factors of personality traits, explain the relationship between the independent variable Personality Traits and the dependent variable Employee Readiness for Organizational Change (EROC), controlling for the moderating effects of Education (EDUC)?

The research question was rooted in personality traits theory (Cattel, 1943; Goldberg, 1990, 1992, 1993; McCrae & John, 1992) and change readiness theory (Armenakis et al., 1993; Bouckenooghe et al., 2009). Personality traits theory posits that, universally, human beings have personality and personality is made up of many traits. Specifically, the Big Five personality traits (Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect- EACESI) have been empirically validated across cultures and nationalities (DeFruyt et al., 2004; Goldberg, 1990; Hofstede & McCrae, 2004; McCrae & Costa, 1997). Furthermore, the literature has shown that these traits inform behavioral responses to change (Paunonen & Ashton, 2001; Van Egeren, 2009). Change readiness theory posits that people will resist change if

they are not ready for it (Armenakis et al., 1993; Bouckenooghe et al., 2009; Lewin, 1945; Stevens 2013). The research questions (RQs) were informed by the recommendations stated in the Omazic et al. (2011) study, and null (H_0) and alternate (H_a) hypotheses were generated based on the following question:

Restatement of the Omnibus Research Question

> RQ0: How does the Five Factor Model (FFM) of Personality Traits theory, alternately referred to in the literature as the Big Five factors of personality traits, explain the relationship between the dependent variable, Employee Readiness for Organizational Change (EROC) and the independent variables (the Big Five Factors of Personality Traits), controlling for the moderating effects of Educational Level (EDUC)?

Two questions are implied in the omnibus research question and these involve the use of two statistical tests. The first test, a standard multiple regression, assessed the linear relationships among the five personality traits and employee readiness for organizational change, while the second test, a moderated multiple regression, assessed variances in the dependent variables that might be attributed to the interaction effect of education and personality traits on employee readiness for organizational change. The two questions that emerged from the omnibus RQ0 are expressed as:

- RQ1: To what extent do the Big Five factors of personality traits predict a statistically significant effect on employee readiness for organizational change?

- RQ2: To what extent do the interactions of EDUC and the Big Five factors of personality traits predict a statistically significant moderating effect on Employee Readiness for Organizational Change?

The Statistical Tests

RQ1 sought to investigate a linear relationship between personality traits and employee readiness for organizational change; therefore, a standard multiple regression (SMR) test was appropriate to investigate this problem. SMR examines the relationship between independent and dependent variables (Field, 2009; Laerd, 2013). A moderated multiple regression procedure that created interaction terms between personality traits and education was used in a hierarchical analysis procedure to investigate RQ2. This type of analysis was appropriate since what was being investigated was the interaction effect of the employee's education with personality traits on EROC (Aguinis & Gottfredson, 2010; Laerd, 2014; Shieh, 2009). Since there are five factors of personality traits (EACESI), using a standard multiple regression test, employee readiness for organizational change was first regressed against each of the five dimensions of personality (RQ1), after which the MMR was performed; therefore, the Subquestions that were generated by RQ1 were:

Subquestions for Research Question 1

$RQ1_a$: Does Extraversion predict a statistically significant effect on employee readiness for organizational change?

$RQ1_b$: Does Agreeableness predict a statistically significant effect on employee readiness for organizational change?

$RQ1_c$: Does Consciousness predict a statistically significant effect on employee readiness for organizational change?

$RQ1_d$: Does Emotional Stability predict a statistically significant effect on employee readiness for organizational change?

$RQ1_e$: Does Intellect predict a statistically significant effect on employee readiness for organizational change?

To answer the second research question, using a moderated multiple regression test, interaction terms were created by multiplying each personality trait with the educational level of the respondents and a hierarchical multiple regression test was applied to respond to RQ2; this procedure addressed the following questions:

Subquestions for Research Question 2

> **$RQ2_a$:** Does the interaction of education at the less than Bachelor Degree level and the Big Five factors of personality predict a statistically significant moderating effect on employee readiness for organizational change?
>
> **$RQ2_b$:** Does the interaction of education at the Bachelor Degree level and the Big Five factors of personality predict a statistically significant moderating effect on employee readiness for organizational change?
>
> **$RQ2_c$:** Does the interaction of education at the Master Degree level and the Big Five factors of personality predict a statistically significant moderating effect on employee readiness for organizational change?

Omnibus hypotheses (H0, HA), null and alternate hypotheses (H01, H02), and several subhypotheses ($H01_{a\text{-}e}$ and $H02_{a\text{-}e}$) were generated by RQ0, as follow:

The Hypotheses

The null and alternative omnibus hypotheses generated by RQ0 and the subquestions are:

> H0: The Five Factor Model of Personality Traits (FFM) theory does not explain the relationship between the dependent variable *Employee Readiness for Change* and the five independent variables EACESI (which *are the Big Five Factors of Personality Traits)*, controlling for the moderating effects of *Education.*
>
> HA: The Five Factor Model of Personality Traits (FFM) theory will explain the relationship between the dependent variable *Employee Readiness for Change* and

the five independent variables EACESI (*Personality Traits)*, controlling for the moderating effects of *Education.*

Two null and alternative hypotheses (H01 and H02), as well as several subhypotheses were implied in the H0, and related to the Research Questions #1 (RQ1) and #2 (RQ2).

The hypotheses that investigated RQ1 were:

H01: The Big Five factors of personality traits will not have a statistically significant effect on employee readiness for organizational change.

HA1: The Big Five factors of personality traits will have a statistically significant effect on employee readiness for organizational change.

The hypotheses that were used to investigate Research Question 2 (RQ2) are:

H02: The interaction of education and the Big Five factors of personality traits do not predict a statistically significant moderating effect on employee readiness for organizational change.

HA2: The interaction of education and the Big Five factors of personality traits will predict a statistically significant moderating effect on employee readiness for organizational change.

Subhypotheses Based on Subquestion1 ($RQ1_a$ –$RQ1_e$).

A subhypothesis addressed each research subquestion. The subhypotheses that addressed Subquestion1 using a standard multiple regression test were:

Sub-$H0_{1a}$: Extraversion does not predict a statistically significant effect on employee readiness for organizational change.

Sub-HA_{1a}: Extraversion will predict a statistically significant effect on employee readiness for organizational change.

Sub-$H0_{1b}$: Agreeableness does not predict a statistically significant effect on employee readiness for organizational change.

Sub-HA_{1b}: Agreeableness Conscientiousness will predict a statistically significant effect on employee readiness for organizational change.

Sub-$H0_{1c}$: Conscientiousness does not predict a statistically significant effect on employee readiness for organizational change.

Sub-HA_{1c}: Conscientiousness will predict a statistically significant effect on employee readiness for organizational change.

Sub-$H0_{1d}$: Emotional Stability does not predict a statistically significant effect on employee readiness for organizational change.

Sub-HA_{1d}: Emotional Stability will predict a statistically significant effect on employee readiness for organizational change.

$H0_{1e}$: Intellect does not predict a statistically significant effect on employee readiness for organizational change.

HA_{1e}: Intellect will predict a statistically significant effect on employee readiness for organizational change.

Subhypotheses Based on Subquestion2 ($RQ2_a$-RQ_c).

Since the interactive effect of three levels of education on the five personality traits were being assessed in relation to employee readiness for organizational change, three subhypotheses $H02_a$ –$H02_c$) addressed Subquestion2 using a moderated multiple regression test:

$H0_{2a}$: The interaction of education at the less-than-Bachelor Degree level and the Big Five factors of personality traits will not predict a statistically significant moderating interaction effect on employee readiness for organizational change.

HA_{2a}: The interaction of education at the less-than-Bachelor Degree level and the Big Five factors of personality traits will predict a statistically significant moderating interaction effect on employee readiness for organizational change.

$H0_{2b}$: The interaction of education at the Bachelor Degree level and the Big Five factors of personality traits will not predict a statistically significant moderating interaction effect on employee readiness for organizational change.

HA_{2b}: The interaction of education at the Bachelor Degree level and the Big Five factors of personality traits will predict a statistically significant moderating interaction effect on employee readiness for organizational change.

$H0_{2c}$: The interaction of education at the Master Degree level and the Big Five factors of personality traits will not predict a statistically significant moderating interaction effect on employee readiness for organizational change.

HA_{2c}: The interaction of education at the Master Degree level and the Big Five factors of personality traits will predict a statistically significant moderating interaction effect on employee readiness for organizational change.

Assumptions, Limitations, and Strengths

It was hypothesized that education at varying levels, interacting with personality traits, exert a statistically significant moderating effect on employees' readiness for organizational change. This study rested upon assumptions that were theoretical, topical, and methodical in nature:

Conceptual / theoretical framework. According to personality trait theory, traits are basic elements of personality, and they are universal among humans across cultures. Five dimensions of personality have been universally identified, and are referred to in the literature as the *Five Factor Model* (FFM) of personality or the "Big Five" (Goldberg, 1990; McCrae & Costa, 1997). These are *Extraversion, Agreeableness, Conscientiousness, Emotional Stability,* and *Intellect.* These personality traits have been

shown to inform behavior (Armenakis et al., 1993; Kornør & Nordvik, 2004; Shahrazad, Lukman, Murni, et al., 2011; Su et al., 2012). Additionally, readiness for change theory claims that if employees are not ready for change, they will resist it; since this study examines relationships between personality traits and employee readiness for organizational change, it was assumed that the theories that guided this research were appropriate for the study.

Topical assumption. The readiness for change literature holds that for change efforts to be successful employees must be ready for the change and that unreadiness can be manifested in behaviors such as ambivalence, cynicism, or resistance (Armenakis et al., 1993). Given the cost associated with employees' behavior toward change and the continued interests that organizations have in understanding the dynamics of organizational change (Bouckenooghe et al., 2009), it is assumed that organizations would want to know whether or not personality traits inform employees' behaviors toward change initiatives, and whether or not increasing levels of education improve employee readiness for organizational change. In light of this, it is assumed that (a) this study will be valuable to organizations as it will expand their understanding of whether or not the effects of personality traits on employees' readiness for change is moderated by higher levels of education, (b) management education will benefit from this study as it will be able to align the new knowledge that is produced by this study with curriculum design, and (c) individuals would be able to use this study as a reason to assess their own readiness for change and possible need for additional educational or training in order to

be more valued and change receptive members of their organizations, and (d) the predictive relationship between personality traits and employee readiness for change will be clarified since results of the Omazic et al. (2011) study seem to contradict extant literature.

Methodological assumptions. Since this study will be investigating linear relationships between personality traits, and the interaction effect of education on personality traits relative to employee readiness for organizational change, as previously mentioned, two quantitative methods will be applied to the study: A standard multiple regression (SMR), and a moderated multiple regression (MMR). Multiple regression tests examine the relationship between independent and dependent variables (Field, 2009; Laerd, 2014; Overton, 2001; Shieh, 2009) and are used to (a) predict new values for the DV, given the IVs and (b) to determine how much of the variation in the DV is explained by the IVs**.** Since what is being investigated is the effect of the IV upon the DV, and the interaction effect of a moderating variable upon an IV in relation to a DV, a standard multiple regression (SMR) will be run to examine the effects of the IV (personality traits) on the DV (employee readiness for organizational change). A moderated multiple regression (MMR) will be applied next to examine the moderating/interaction effects of the varying educational levels (Less-than-a-Bachelor Degree, Bachelor Degree, and Master Degree) on personality traits (IV) in relation to readiness for change (DV).

According to Aguinis, Beaty, Boik, and Pierce (2005), multiple regression has been used in organizational research and moderated multiple regression (MMR), in

particular, is the method of choice for testing hypotheses about the moderating effects of categorical variables in a variety of organizational research domains; additionally, it has remained the most popular means of analyzing interaction effects since its first use in 1977 (Aguinis & Gottfredson, 2010). It is assumed that the multiple regression procedures that will be used in this study are appropriate for this study since one of the assumptions of multiple regression is that there is a linear relationship between the predictor variables and the dependent variable (Field, 2009; Laerd, 2013) and extant literature has shown that there is a linear relationship between personality traits and behavior (Paunonen & Ashton, 2001; Su et al., 2012). Additionally, it is assumed that:

- The samples were representative of the population of educationally diverse change recipients;
- The measuring instruments were appropriate for capturing the pertinent information;
- All respondents fully comprehended the questions that were posed in the questionnaires;
- All respondents were honest in their responses in the surveys;
- The data, codebooks, and reports were accurately prepared without errors;
- The dependent variables (DV) and independent variables (IV) were linearly correlated;
- Findings related to the impact of educational levels on personality traits can be used to make inferences about employee readiness for organizational change;

- Results of the study will be useful to management education, and to individuals.

Limitations

Since one of the purposes of the study was to examine the results of the study in relation to the Omazic et al. (2011) study, the sample characteristic (employed adult degree holders) of the Omazic et al. study was retained. However, although the sample is purposive and criterion based, and even though it included employees who are educated up to, but less than, a Bachelor Degree level (e.g., holders of high school diplomas, Certificates, and Associate Degrees), and also included holders of Bachelor and Master Degrees, this study still excludes a segment of the population, such as adult Americans who are employed but who do not hold high school diplomas, certificates, or college or university degrees. There are many organizations that experience the need for change whose employees do not need to have high school diplomas or college degrees. Since a segment of the adult working population was excluded from the study, this potentially limits the generalizability of the study by excluding many organizations and individuals from the benefits of this study. Other potential limitations are related to the sample and the setting and are as follow:

1. Participants in the study were self-reporting and relied on their memory to explicate their responses to change; memory can be faulty, or respondents may not be honest. Additionally, questions may have also not been carefully considered, and responses may have been carelessly provided; this could have the

detrimental effect of skewing the data and biasing the distribution of scores, which could compromise the generalizability of the study. Furthermore, since the surveys were self-report procedures that depended on the memory and honesty of the participants, causation could not be implied and only associations or relationships could be inferred. Future extended studies that are performed in an organizational setting in which employees are observed during change initiatives are recommended; additionally, a qualitative or mixed method approach to investigating the phenomenon might provide a deeper understanding of the role that personality traits play in readiness for change among educationally diverse employees.

2. A paid sample collection service company (SurveyMonkey.com) collected the samples and therefore the veracity of the sample cannot be unequivocally vouched for. This limitation could be eliminated if a qualitative approach to studying the phenomenon were to be applied to a future study, and if the study were to be conducted onsite, in an organizational setting.
3. The sample under study was derived from a population of working adults from organizations across the United States; therefore, the study was not in an organizational setting that could be directly evaluated for degree or level of change initiatives that might have been in progress. The application of the preceding two recommendations would remove this limitation.

All limitations present threats to the validity of a study (Swanson & Holton, 2005). Pointing out these limitations and recommending future studies that include the excluded populations and employing different research designs are some ways of dealing with these limitations as they could also provide future researchers opportunities to expand on this study. Despite the limitations, there are significant strengths to the study that should be noted.

Strengths

The noteworthy strengths of this study are related to (a) the relevance, timeliness, and value of this type of study to organizations, management education, and individuals; to (b) the appropriateness of the theoretical bases upon which the study rests, and the appropriateness of the research design, its alignment with the research questions and hypotheses, and to (c) the educational and geographic diversity, and size of the sample, which lends to the generalizability of the findings.

a) **Relevance to the field.** One of the strengths of the study was that it addressed a relevant area of concern and the persistent interest that organizations have in understanding the dynamics of organizational change and what contributes to the high cost of change failures (Burke, 2010; Higgs & Rowland, 2005; Kotter, 1996; D. Miller, 2002; Pellettiere, 2006; Bateh, Casteneda, & Farah, 2013). Additionally, this study extends the literature on personality traits and organizational change by revealing whether or not education moderates personality traits' effects on readiness for change.

b) **The research design and approach.** First, this study used an objective, quantitative design to examine a relevant organizational dilemma. Second, using a reputable survey and data collection agency such as SurveyMonkey.com ensured trustworthy responses in a speedy and cost efficient manner. Third, using a recognized and accepted software program such as the IBM Statistical Package for the Social Sciences (SPSS) program for data analysis lends to the strength of the study. Fourth, applying regression analytical models that have been recognized as being appropriate for organizational studies since 1977 (Aguinis & Gottfredson, 2010) added to the strength of the study. Fifth, the survey instruments have been in use for many years and their validity and reliability coefficients have been established in the literature; confidence in these survey instruments based on their reliability and validity adds strength to the study. Sixth, the comprehensiveness of the measuring instrument added to the strength of the study by reducing bias, which can be introduced when much abbreviated measuring instruments are used to gather data, as was suggested in the Rammstedt et al. (2009) study.

c) **The sample.** Finally, the sample in this study was more representative of the population of working adults than the sample used in the Omazic et al. (2011) study, since participants were not students; instead, participants were applying in the workplace the educational level that they had already attained. Additionally, participants worked for a wide variety of organizations across the USA. This sample composition was more representative of employees in organizations with varying levels of education than the Omazic et al. sample; therefore, the use of the larger, more heterogeneous sample of

educationally diverse employees that was applied to this study could bring clarity to the findings in the Omazic et al. study. Since that study used a small, homogeneous sample, sample selection may have biased the results. Finally, the sample size was appropriate to the research design as it had the power to be able to detect effect sizes (Aguinis et al., 2005). In sum, these noteworthy considerations lent to the strength of the study and the potential generalizability of the results.

Definition of Terms

Cattell (1943) pointed out that the soundness of personality research depended on the soundness and accuracy of descriptions; this is applicable to all research because it is important that the major terms and concepts that are used in research carry the same or similar meaning across similar studies, as this lends to the reliability of the study. Throughout this study, certain major terms reoccur and certain acronyms are used; the following definitions of terms and explanations of acronyms that are used in this study follow.

Affective response toward change: Instinctive feeling or emotional response to something (e.g., change) (McDougal, 1908).

Ambivalence: An attitude comprising both negative and positive reactions to something (Oreg & Sverdlik, 2011; Piderit, 2000).

Attitude: A tripartite concept that encompasses three dimensions: cognitive, emotional, and intentional responses (Piderit, 2000).

Big Five (also known as the Five Factor Model (FFM) of personality)*:* Five broad factors or dimensions of personality that seek to describe most underlying facets or traits of personality; these dimensions are arranged in a hierarchical order: Factor 1 = Extraversion; Factor 2 = Agreeableness; Factor 3 = Conscientiousness; Factor 4 = Emotional Stability, and Factor 5 = Intellect or Openness to experience (McCrae & Costa, 1997; Goldberg, 1993). The term "Big Five" will be used interchangeably with the acronym for the five factors of personality (EACESI) throughout the study.

Change: *B*roadly conceptualized as "any variation of existing conditions whether it affects one person (such as his/her work schedule or job description), a group or the organization itself" (Smollan, Sayers, & Matheny, 2010, p. 36).

Change management: The process of constantly "renewing an organization's direction, structure, and capabilities" to serve the continuously changing needs of external and internal stakeholders (Moran, Brightman, & Baird, 2001, para. 1).

Cognitive response: A process of thought in which a person first becomes aware of stimuli, appraises the significance of those stimuli, and then considers possible behavioral responses (Scherer, 1999).

Continuous change: A phrase that groups together change that is constant, gradually developing, and increasing in quantity, with no end state, and involves a continuous freezing, rebalancing, and refreezing (Szabla, 2007; Weick & Quinn, 1999).

Cynicism toward organizational change: Pessimism about the success of organizational changed initiatives based on the beliefs that change leaders and change

agents are "incompetent, lazy, or both" (Bommer, Rich, & Rubin, 2005; Reichers, Wanous & Austin, 1994, p. 48).

Dialectical change: The organizational and individual (employee level) alignment of beliefs and cognitions about the change (Van de Ven & Poole, 1995).

Emotion: A reaction to a stimulus and has a range of possible consequences, and may turn into mood, which can be long-lasting (Elfenbien, 2007; Frijda, 1988).

Emotional response: A feeling toward something or an object (in Szabla, 2007).

Episodic change: intentional changes that are infrequent, deliberate, irregular and involves Lewin's (1951) concept of unfreezing, transitioning, and refreezing (Weick & Quinn, 1999).

Employee readiness for organizational change (EROC)*:* The attitudes, beliefs, and intentions of employees, which are antecedents to behaviors such as either resistance to, or support of, a change initiative (Armenakis et al.,1993) and the extent to which individuals are "cognitively and emotionally inclined to accept, embrace, and adopt" a particular change initiative (Holt et al., 2007, p. 235).

Five Factors Model**:** The theoretical broad domain of personality traits: Extraversion, Agreeableness, Conscientiousness, Emotional Stability and Intellect/Openness for Experience (McCrae & Costa, 1997; Goldberg, 1993).

Intentional response: a component of attitude that is a behavioral response that moves one toward or away from something (Szabla, 2007).

Large-scale organizational change: Revolutionary change that is transformative (Burke, 2010).

Organizational Change (OC)***:*** An alteration in the way things are done in organizations, and can be planned or unplanned (Murthy, 2007; Van de Ven & Poole, 1995); a process of moving from one state that is no longer wanted to a desired new state (Beer, 1980; Porras & Silvers, 1991, as cited in Omazic et al., 2011).

Personality: The totality of ways that individuals can respond to occurrences or experiences that they are affected by (Robbins et al., 2010, in Omazic et al. 2011). These are described by expressed traits that are measurable (Omazic et al., 2011).

Personality Traits: "relatively enduring patterns of behavior, thought, and feeling that are relatively consistent across a wide variety of situations and contexts" (Roberts & Mroczek, 2008, p. 31).

Readiness for change: **See** ***Employee Readiness for Change:*** In addition to "Readiness for Change", the terms "Change Readiness", "Employee Readiness", "Employee Readiness for Change", and "Employee Readiness for Organizational Change" will be used interchangeably throughout this dissertation.

Teleological change: Purposeful, systematic change that is directed toward achieving specific goals (Van de Ven & Poole, 1995).

Trait: a unit of personality (Allport, 1927), which is a "dynamic trend of behavior which results from the integration of numerous specific habits of adjustment, and which

expresses a characteristic mode of the individual's reaction to his surroundings" (Allport, 1927, p. 228).

Acronyms:

EDUC – Educational level

EROC – Employee readiness for organizational change

EACESI – Extraversion, Agreeableness, Conscientiousness, Emotional Stability, Intellect

FFM – Five Factors Model (of personality)

IPIP – International Personality Inventory Pool

MMR – Moderated multiple regression

PT – Personality trait

RTC – Resistance to change

SMR – Standard multiple regression

Operational Definitions

The operational definitions of the International Personality Item Pool (IPIP) Goldberg Big-Five Factor markers scale, also known as the Five Factor Model (FFM) are illustrative and are not all inclusive; they are listed in their hierarchical order, as follow:

a) (E) *Extraversion*/*Surgency* (Factor 1): underlying traits are talkativeness and assertiveness; polar opposite activity level underlying traits are silence, passivity and reserve;

b) (A) *Agreeableness* (Factor II): kindness, trust, and warmth; opposite traits are hostility, selfishness, and distrust;

c) (C) *Conscientiousness* (Factor III): organization, thoroughness, and reliability are contrasted with trait facets such as carelessness, negligence, and unreliability;

d) (ES) *Emotional Stability* (Factor IV– also represented in the literature by its polar opposite "Neuroticism"): calm and even-temperedness, contrasted with nervousness, moodiness, and temperamentality;

e) (I) *Intellect* also known as *Openness to new experiences* (Factor V): imagination, curiosity, and creativity; opposite descriptive trait facets are shallowness and imperceptiveness (Goldberg, 1993).

The operational definitions of the Employee Readiness for Change variables are:

- *Intentional readiness for change:* the extent to which employees are prepared to put their energy into the change process;
- *Cognitive readiness for change:* encompasses the beliefs and thoughts people hold about the change;
- *Emotional readiness for change:* captures the feelings toward change. (Armenakis et al., 1993; Bouckenooghe et al., 2009, p. 577; Holt et al., 2007).

Nature of the Study (Theoretical and Conceptual Framework)

The two theory bases that will guide and focus this study are personality traits theory (Goldberg, 1990, 1992, 1993; McCrae & John, 1992) and change readiness theory (Armenakis et al., 1993; Bouckenooghe et al., 2009). Specifically, the Big Five personality traits (EACESI), moderated by employees' educational level, will predict the

DV, readiness for change, as evidenced by employees' attitudes toward change (Figure 1).

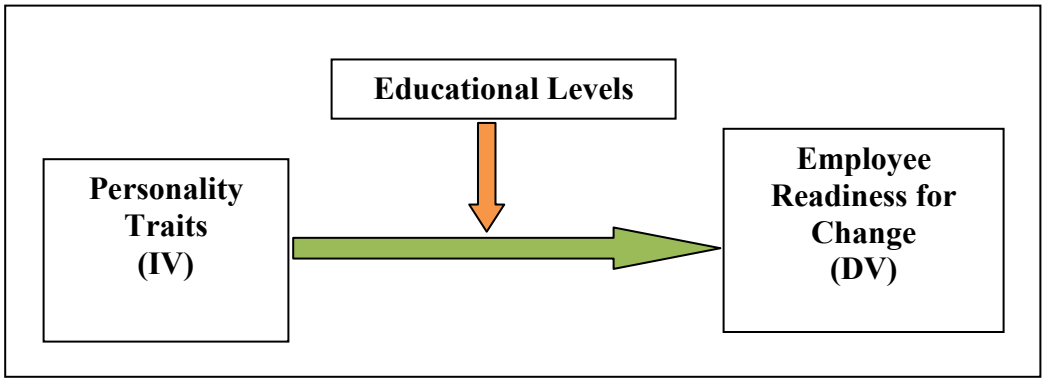


Figure 1. Conceptual Framework: Moderated Personality Traits on Employee Readiness for Organizational Change

The literature has shown that attitudes are structured along the dimensions of *cognitive, affective* (emotional) and *intentional* responses (Armenakis et al., 1993; Piderit, 2000) to organizational change, and that these dimensions of attitude inform readiness for change. This study sought to investigate whether or not (a) the Big Five factors of personality traits was correlated to EROC, and (b) the effects of personality traits on employee readiness for organizational change is moderated by an employee's educational level.

Organization of the Remainder of the Dissertation

Chapter 1 introduced the problem that inspired and guided this dissertation effort. The remainder of this dissertation is arranged as follows: A review of the literature and the conceptual framework that informed this study is presented in Chapter 2; the methodology that was used in this research is explained in Chapter 3; the analysis and

interpretation of the findings are presented in Chapter 4 and, finally, conclusions about the findings and recommendations for future research are discussed in Chapter 5.

CHAPTER 2. LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Introduction

The change literature has exceeded half a century, and the seminal and contemporary literatures have shown that change in organizations is disruptive and happens as a result of planned or unplanned actions that can be episodic or continuous (Axley & McMahon, 2006; Becker, Lazaric, Nelson, & Winter, 2005; Beer & Nohria, 2000; M. Choi & Ruona, 2011;Vakola & Nikolaou, 2005; Weick & Quinn, 1999). There is unanimous agreement in the literature that today's organizations are confronted by change as never before and, in fact, change is viewed as characteristic of today's organizations, with failure rates of 70% or more (Axley & McMahon, 2006; Bateh, Casteneda, & Farah, 2013; Burke, 2010; M. Choi & Ruona, 2011; Decker et al., 2012; Higgs & Rowland, 2005; Kotter, 1996; D. Miller, 2002; Pellettiere, 2006; Strebel, 2009; Warrick, 2009). The purpose of this chapter is to review the body of literature that pertains to two concepts that are foundational to this study: *personality traits* and *employee readiness for organizational change*.

The premise of this study is that (a) unreadiness for change contributes to high failure rates of change initiatives, (b) failed change initiatives exert an exorbitant cost on organizations each year, (c) personality traits might inform employee readiness for change, and (d) this study can make a significant contribution to the corpus of literature on organizational change and to organizations because organizations have a persistent

interest in understanding why change initiatives fail. Therefore, a discussion about the failure rate of change will first be presented in which a dissenting view concerning this 70%-plus failure rate is discussed. A historical view of organizational change will then be presented, followed by discussions on readiness for organizational change and personality traits in relation to employee readiness for organizational change. For the purpose of this study, the Smollan et al. (2010) broad view of organizational change will be applied. In this view, organizational change is viewed as "any variation of existing conditions" (p. 36), whether or not it affects the individual, the group, or the whole organization.

Failure Rates and Costs of Failed Organizational Change

Today, the organizational change phenomenon continues to engage the interests of organizational leaders and scholars alike as efforts to understand the seemingly symbiotic relationship between change and employee responses to change persist (Vakola & Nikolaou, 2005). There is consensus in the literature that as many as 70% of change initiatives fail (Bateh, Casteneda, & Farah, 2013; Burke, 2010; Higgs & Rowland, 2005; Kotter, 1996; D. Miller, 2002; Pellettiere, 2006; Strebel, 2009; Warrick, 2009), that employee unreadiness for change can result in resistance to change that can be costly to organizations, and that employee support for change initiatives is crucial for successful change implementation (Kotter & Cohen, 2002; Van Knippenberg et al., 2006; Whelan-Berry et al., 2003). However, there has been recent dissent regarding the common assertion that the claim of a 70% failure rate has been too readily accepted and repeated

without critical analysis. For example, while the organizational change literature is rife with assertions that more than 70% of change initiatives fail, Hughes (2011) questioned the origin of this startling statistic and traced it to Hammer and Champy (1993), who admitted to an "unscientific estimate" that "50 – 70% of the organizations that undertake a reengineering effort do not achieve the dramatic results they intended" (p. 452). The statement in the Hammer and Champy article was specifically directed to an estimated failure rate regarding re-engineering efforts, and not specifically to organizational change; nevertheless, according to Hughes, this unscientific estimate seemed to have been adopted by Beer and Nohria (2000) who, in a Harvard Business Review (HBR) article, cited Hammer and Champy, and extended the Hammer and Champy unscientific estimate to a broader organizational context when they stated "the brutal fact is that more than 70% of all change initiatives fail" (p. 133).

Hughes reported that other claims citing the 70% change failure rate followed, but that those claims were founded on the self-confessed unscientific estimate of the 1993 Hammer and Champy article, and on the Beer and Nohia (2000) HBR earlier assertions, which cited and expanded on the Hammer and Champy (1993) speculations. In addition to singling out Hammer and Champy and Beer and Nohia as the originators of this claim, Hughes also named Kotter (2008) and Senturia et al. (2008), in tracing the roots and progression of the 70% failure rate claim. Since Hammer and Champy and Beer and Nohia, this claim has become ubiquitous in the organizational change management literature. Nevertheless, while Hughes seemed to imply that the 70% failure rate claims

were, at best, uncritical acceptance of a speculation that was not intended to be taken as fact, it seems that he did not take into consideration the work of Cândido and Santos (in press), which examined a variety of organizational change initiatives from industry reports and which was based on empirical evidence from consulting reports, ROI (return on investment) studies, and executive opinions that, presumably, were based on the latter.

Decker et al. (2012) cited Cândido and Santos (in press) in providing ample quantified references of the rates of change failure in organizational efforts such as joint ventures (61%), abandoned projects (30%), failed launch of advanced technological efforts in manufacturing efforts (81%), failed total quality management (TQM) initiatives (91%), and so on; other areas of organizational change failures are reported on page 40 of the Decker et al. article. Hughes (2011) also did not mention the much earlier work of Grenier (1967), which predates the first claimed mention of the 70% failure rate by Hammer and Champy by almost 30 years.

According to Decker et al., a meta-analysis conducted by Grenier indicated that the organizational change fail rate exceeded 70%; therefore, altogether, the body of research seems to suggest that the failure rate of organizational change initiatives had been identified earlier than Hughes reported, and was even higher than Hammer and Champy's speculative 70% failure rate claim. This raises the question as to whether or not Hammer and Champy might have based their speculative numbers on Grenier (1967). Nevertheless, Hughes' claim that the 70% failure rate originated with Hammer and Champy's speculative pronouncement seems to be disputable. Yet, although Hughes

questioned the 70% failure rate claim, he nevertheless agreed that failure to successfully implement organizational change can be very costly to organizations. Furthermore, extant literature has shown that a major part of the reason for the failure of change efforts is attributable to the fact that management ignored the employee's role in the change effort (Armenakis et al., 1993; Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004; Hall & Hord, 1987; Isabella, 1990; Lau & Woodman, 1995). In fact, seminal research since the 1940s has consistently shown that employees often resist change even when the change is in their best interests (Bouckenooghe, 2010; Oreg, 2003); therefore, due to the high failure rate of organizational change and the high costs associated with it, interest in the subject remains high.

Historical View of Organizational Change (OC) Literature

The sprawl of the change and organizational change management literature is vast and its seminal roots extend back more than a century to works by, for example, Frederick Taylor (1856 – 1915) whose book *Scientific Management* (c.1911) expounded on ways to scientifically manage change; research by Lewin (1947), Coch and French (1948), Grenier (1967), Yuchtman and Seashore (1967), Weick (1969), Tushman and O'Reilly (1996), and others followed. There is agreement in the literature that organizational change is a change from one state to another, that it is driven by internal and external forces, that it can be planned or unplanned, and that organizations experience the need for change due to such things as extreme competitive pressures caused by globalization, technological innovations, mergers, acquisitions, changing

consumer tastes, political, social, and environmental demands (Axley & McMahon, 2006; Barnett & Carroll, 1995; Becker et al., 2005; M. Choi & Ruona, 2011; Karp & Helgø, 2008; Vakola & Nikolaou, 2005). Organizational change has been described as being episodic and continual (Bommer et al., 2005; Weick & Quinn, 1999), and can involve major transformational efforts such as mergers and acquisitions, or smaller scaled changes that are incremental and might address processes that can affect the whole organizational system (Burke, 2010); furthermore, many change efforts can simultaneously involve several types of change (M. Smith, 2002). Businesses are, therefore, operating in highly volatile, continuously changing environments, which demand that they respond quickly and adroitly (Axley & McMahon, 2006; Hallencreutz & Turner, 2011). Programs such as business process re-engineering (BPR) and TQM attempted to apply scientific techniques to change management (Harwood, 2012) but, due to the continuing high cost of failed initiatives in organizations, effective change management discussions continue to engage organizational change studies today.

Weick (1999) pointed out that discussions of organizational change generally occur in the context of some sort of failure; this seems to hold true today as it has been true in the past since the literature continues to claim that the percentages of organizational change initiatives that are successful range from a mere 7% to 30%, costing organizations billions of dollars annually (Cândido and Santos, in press & Santos, 2008, in Decker et al., 2012; Higgs & Rowland, 2005; Kotter, 1996; Oakland & Tanner, 2007). Effective change management is therefore of strategic importance to organizations

and has been a continued focus of organizational studies (Bouckenooghe et al., 2009; Oreg et al., 2011).

Models of Change

Lewin (1947) recognized that for change to happen, established routines had to be broken. He identified a three-phase process that could accomplish this, which he termed unfreezing, moving, and refreezing (Lewin, 1951). In this process, an organization lets go of long-held beliefs and practices (*unfreezing* process), is able to change (*moving* process), and institutionalizes the new change (*refreezing* process). Barczak, Smith, and Wilemon (1987) articulated a four-step process that they described as: (a) *pattern breaking*, in which ineffective system-wide processes are discarded, (b) *experimenting*, in which novel patterns that are more appropriate for present conditions are implemented, (c) *visioning*, in which new perspectives inform systems reorganization, and (d) *bonding and attunement*, in which members of the organization are "harmonized" into moving the system toward doing, thinking, and learning differently (p. 26). Judson (1991) expanded on Lewin's model and suggested a five-phase process that involved two new processes in addition to Lewin's 3-phase process: (a) actively planning for the change, and (b) securing stakeholders' support for the change (as cited in Holt, Self, Thal, & Lo, 2003). Following this, Clarke and Garside (1997) sought to distill the important steps and processes that were, by then, identified in organizational change management to three concepts that involved (a) mapping out the process, (b) exploring the tools and methods that were used to accomplish similar purposes, and (c) combining and applying

theoretical and practical approaches gathered from the literature, and from surveying companies that were actually experiencing change. These approaches have all been represented as models of change that promote best practices for initiating organizational change.

Traditional Focus on Management Perspective

While organizations' interest in understanding successful change implementation remains high, the OC literature has shown that, until the late 1990s, change had mainly been studied from a management perspective and change failures have traditionally been attributed to its implementation and management, or change agent failures (M. Choi, 2011; Graetz & Smith, 2010; Oreg et al., 2011), with less attention paid to the change receiver's perception of the change initiatives, how those perceptions might be influenced by trait characteristics, or how traits might influence their dispositional responses to change (Oreg et al., 2011; Werther, 2003). Since then, the literature has expanded on organizational change management to the employee unit level of study.

Focus on Employees' Perspective

According to Oreg et al. (2011), since the 1990s, the phenomenon has been studied from the employees' perspective, and their roles in change failures have been scrutinized; consequently, there has been consensus that when employees are ready for change, they are more apt to support it, and the change effort will be more successful (Armenakis et al., 1993; Edmonds, 2011); however, Holt et al. (2007) traced the foundations of an employee level of change readiness back to Lewin (1947) and Coch

and French (1948). Although the seminal and contemporary literatures assert that when employees are prepared for change they are more likely to embrace and support it, literature has also shown that even when changes are in the employees' best interest, many still resist it (Backer, 1997; Bateh, Casteneda, & Farah, 2013). According to Holt et al. (2007), organizational readiness for change involves organizational behavior that is focused on all of the individuals in an organization; this study focuses on readiness for organizational change, as a precursor of resistance to change, at the individual (employee) level of analysis.

Resistance to Change

The "term resistance to change" has been credited to Kurt Lewin who, according to Dent and Goldberg (2006), conceptualized the successful change process as one that involves "unfreezing, moving, and refreezing" (p. 30) – a series of processes that an organization goes through as it lets go of old or inefficient ways of doing things, moves toward the change vision, and settles back into a position that supports or holds the change in place. Defining "resistance" has been problematic for researchers (Szabla, 2007) and, according to Bareil (2013), the term itself have been undergoing a change; nevertheless, it has been defined in various ways, and has a long tradition of being negatively conceptualized by social scientists such as Coch and French (1948), Kotter, (1995), and Marx (1818-1883) (as cited in Szabla, 2007). For example, Ansoff (1988) described it as multi-faceted and the reason that delays, additional costs, and instabilities are introduced into change efforts. Zaltman and Duncan (1977) defined resistance as that

which preserves the status quo against efforts to change the status quo (as cited in Waddel & Sohal, 1998).

Employees' Responses to Change

Although people who respond positively to change are valued by most industrial societies, employees continually resist organizational change for a variety of reasons (Oreg et al., 2003), some of which include: uncertainty and fear of how they would be affected by the change; misalignment of the employees' interests with the benefits of the change to their organizations; poor communications about the change that does not explain why it is needed and what it will entail, and a lack of resources to support the changes (Adcroft et al., 2008; Armenakis et al., 1999; Zwick, 2002). Change is endemic in the internal and external business environments and, for change initiatives to be successful, organizations need employees to support it by being ready for it (Armenakis et al., 1993; Edmonds, 2011; Saksvik & Hetland, 2009). This state of readiness has been described by Armenakis et al., (1993) as similar to Lewin's concept of an *unfreezing* state in which an organization is able to unfreeze or let go of previously held beliefs and systems, and move from the status quo to the direction that the organizations wants to go in; however, supporting organizational changes by unfreezing implies employee-based responses to organizational change.

These responses are explicit and involve three main dimensions: the *cognitive, affective,* and *intentional* aspects of readiness; that is, employees' beliefs about the change and how they understand it, their attitudes about the change and how they feel

about it, and how they intend to behave toward it (Armenakis et al., 1993; Bouckenooghe et al., 2009; Oreg et al., 2003). These dimensions are expressed in support toward the change, ambivalence toward the change, cynicism toward the change, or outright resistance to the change (Armenakis et al., 1993; Dean, Brandes, & Dharwadkar, 1998; Lamm & Gordon, 2010; Oreg & Sverdlik, 2011; Watt & Piotrowski, 2008). The literature asserts that the reasons for this type of resistance to change can be mitigated by preparing employees for change and making them ready for change, since employee readiness for change is the biggest factor in employees' initial support for organizational change (Armenakis et al., 1993; Armenakis et al., 1999; Lewin, 1947; Mueller et al., 2012).

Positive Views of Resistance

Although resistance to change has been considered the enemy of change due to the high costs that are associated with employee resistance to organizational change initiatives, there has been a stream of literature that asserts that not all employee resistance to change is detrimental to the organization, and resistance has value and can produce beneficial results for organizations when it prevents the organization from adopting potentially harmful changes (Bareil, 2013; Dent & Goldberg, 1999; Fazeli, 2012; Ford & Ford, 2009; Waddel & Sohal, 1998; Zwick, 2002). While it has been acknowledged that there is a positive side to resistance to change that must be considered (Avey, Wernsing, & Luthans, 2008), nonetheless, the present study is concerned with employees' unreadiness for organizational change initiatives, which has been shown to contribute to resistance to change, and which is considered to be undesirable due to the

high cost of change failures in organizations. A discussion of the concept of readiness for organizational change and suggested best practices that contribute to readying employees for change follows.

Employee Readiness for Organizational Change (EROC)

The concept of readiness has deep seminal roots (e.g., Jacobson, 1957, as cited in Holt et al., 2007; Lewin, 1947). In organizational studies, it has generally been subsumed in the body of literature on resistance to change; however, readiness for change is distinguishable from resistance to change (Armenakis et al., 1993) and it has long been recognized as a precursor to behaviors toward change in the medical and psychology literatures. According to Stevens (2013) *readiness* is not clearly conceptualized in the extant literature despite the many definitions that have been offered, and despite the many theoretical proposals that have attempted to capture the concept. Stevens speculated that the problem might lie in the fact that readiness has traditionally been conceptualized as a state, rather than as a process, and this might have added to the imprecision of the term (p. 334). In the literature, readiness for change has been variously defined as the cognitive antecedent to the behaviors of either resistance to, or support for, a change effort (Allport, 1967; Armenakis et al., 1993; Holt et al., 2007); the degree to which an employee is willing to take part in an organizational activity that is different from routine activities (Huy, 1999, as cited in Desplaces, 2005), and mental and physical preparedness for an experience (Walinga, 2008, p. 316). Bouckenooghe et al., (2009) described readiness for change as a multi-faceted concept that comprises cognitive, emotional, and

intentional dimensions of change (p. 502). Earlier, Holt et al. (2007) maintained that readiness was "a comprehensive attitude that is influenced simultaneously by the content, process, context, and individuals involved" (p. 235). *Attitude toward change* had been earlier conceptualized by Elizur and Guttman (1976) as "a tri-dimensional concept" that encompassed cognitive, affective, and intentional/behavioral components (p. 501), a conceptualization that was adopted by Bouckenooghe et al. (2009), and applied to the present study.

Readiness for Change Theory

In organizations, employees' attitude toward change often finds expression in responses such as ambivalence toward the change, support of the change, or cynicism and resistance toward it. Readiness for change theory posits that when employees are ready for change, they will be better prepared for it, and will be more likely to support it (Armenakis et al., 1993; Bouckenooghe et al., 2009). This study will be guided by the Armenakis et al. (1993) and the Holt et al., (2007) conceptualizations of the phenomenon since, combined, both definitions capture the complexity of the phenomenon as a triadic attitude that is informed by cognition, emotion (affect), and intention, and is expressed in behaviors such as support of, ambivalence toward, or resistance to change. Combining the two conceptualizations is justified since, as Rafferty et al. (2013) pointed out, the original (and most widely accepted) definition of readiness for change did not include the affective domain of readiness. Perhaps this is due to the fact that, after brief interest in the 1930s, affect or emotion was largely ignored in the organizational literature due to claims

of its subjectivity, when objectivity was preferred; however, *affect* is now experiencing a resurgence in interest (Elfenbein, 2007).

Bouckenooghe et al. (2009) measured this tripartite conceptualization of readiness for change in the Employee Readiness for Change section of their Organizational Change measuring instrument and included Affect as one of the component dimensions of Employee Readiness for Organizational Change (EROC); it is this instrument that will be used in the present study to capture data on EROC. Szabla (2005) opined that in order to understand resistance to change (which is informed by readiness for change) one must understand it on three dimensions, which are *cognitive, affective*, and *intentional* aspects of readiness (p. 530).

Cognitive Dimension

Kitchen and Daly (2002) pointed out that change is not just about how people act, but also about how they think. Attitudes toward change have been identified in the literature as cognitive precursors to behaviors such as resistance or support of change efforts (Armenakis et al., 1993; M. Choi, 2011; Lamm & Gordon, 2010; Oreg & Sverdlik, 2011). Scherer (1999) defined cognition as a thought process in which a person has an initial awareness of stimuli, and then considers how to behave toward it (in Smollan, 2006). Cognition has to do with thoughts and understanding and, in an organizational change context that is viewed at the employee unit level, it has to do with how employees appraise, perceive, or understand the change (Armenakis et al., 1993). Employees can become aware of change initiatives through a variety of channels

(including unofficial channels) and form their own perceptions of the change (Jones et al., 2008; Michael et al., 1999; Smollan, 2006). The literature has shown that when employees do not understand the reason for the change, or how it will affect them, they experience feelings of stress, fear, and uncertainty and are more apt to resist the change (Jones et al., 2008; Self & Schraeder, 2009; Pech & Oakley, 2005, as cited in Lattuch & Young, 2011). Ways to mitigate this have long been proposed in the literature and clear and effective communications with employees have been proposed, as well as involving them in the change process by changing their behaviors (Kitchen & Daly, 2002; Robertson, Roberts, & Porras, 1993, as cited in Peus, Frey, Gerkhardt, Fishcer, & Traut-Mattausch, 2009), and by soliciting their input into the change processes (J. Choi, Sung, Lee, & Cho, 2011; Kotter & Schlesigner, 1979). According to Borghans, Duckworth, Heckman, and Bas (2008), cognition influences many aspects of personality. Cognitive and affective responses to change can produce responses that can inform employees' decision to support or resist change (Piderit, 2000). In fact, a Kim, Payne, and Tan (2006) study explored the role of cognition and affect in strategic decision making and found that certain behaviors that were linked to leaders' decision-making were informed by their cognitive-affective response to environmental stimuli; therefore, it is possible that employees' decision-making processes during the launch of change initiatives might be strategic in nature as they decide, based on cognition and affect, whether to support the change or not.

Affective/Emotional Dimension

According to Crites, Fabringar, and Petty (1994), *affect* consists of separate and distinct emotions such as love, hate, delight, sadness, happiness, annoyance, calmness, excitement, boredom, relaxation, anger, acceptance, disgust, joy, and sorrow (p. 625, as cited in Rafferty et al., 2012). A. Carr (2001) pointed out that the role of affect or emotion in organizations had been generally ignored in favor of studies that emphasized the cognitive domain of responses to change, even though change elicits deep emotions; they speculated that this could have been so due to the subjectivity of the phenomenon. Furthermore, Carr explained that the psychoanalytic literature took for granted that emotions and emotionallity were considered to be an *affect*, the manifestations of which are rooted in mental processes that might not be understood by the individuals who experience it. Earlier, Frijda (1988) postulated that certain types of events educe emotions in individuals who determine the importance of the event in relation to themselves; in fact, emotions are intimately and primitively connected with all human thought and action (Barbalet, 2006; Cacioppo, John, & Gardner, 1999), and can vary in intensity (Larsen & Buss, 2005).

Elfenbein (2007) noted that there has been a resurgence of interest in emotions in organizations in recent years. Pointing to a study in which Gersick (1991) linked emotional reactions to incremental and radical organizational change, Smollan (2006) remarked on the fact that although extant literature had shown that change is an emotional event, in the organizational literature the affective or emotional domains of the

responses to change had not been studied as much as behavior and cognition. This is surprising since affective or emotional responses to change produce corresponding behaviors such as positive (support of change), negative (resistance to change), neutral (neither support nor resistance), or mixed feelings about the change (Armenakis et al., 1993; Lamm & Gordon, 2010; Oreg & Sverdlik, 2011). Vakola & Nikolaou (2005) noted that organizational change is stressful to individuals and pointed to the seminal work of Coch and French (1948), whose studies showed that organizational change challenges the status quo and, as a result, employees become stressed, fearful, and uncertain about the change.

A. Carr (2001) addressed the paucity of studies on the emotional aspect of change and opined that a dichotomous style of thinking in the organizational discourse was responsible for the lack of attention that had been paid to the role of emotions or affect in the change literature. According to Carr, this style of thinking is steeped in rationality and sought to reduce ambivalence and ambiguity to an absolute minimum (p. 422), and there is much ambivalence and ambiguity where emotion is concerned; this, Carr proposed, led to only a partial appreciation of the behavior of change-recipients. For example, as Vakola and Nikolaou pointed out, change causes stress, which is an emotional reaction to the change as employees question their roles and identity within the organization. Identity, according to Sigmund Freud (1856–1939), might be a source of affective response, as well as account for the intensity and strength of the response (as cited in Carr, 2001). Stress can give rise to a host of negative outcomes that can affect

organizational efficiency, and role stress has been positively correlated with Emotional Stability (Rai & Kumar, 2012). Other types of emotions that have been associated with change include, grief, anger, frustration, excitement, fear, joy, or relief, and these can vary depending on the type, speed, and duration of the change (Smollan et al., 2010). Furthermore, these feelings can and do inform employees' intentions or behaviors to act in specific ways (A. Smith & Reynolds, 2009), including toward impending change; failure to adapt to the reality of ever-present change can lead to intention to resist behaviors (Liu & Perrewé, 2005, as cited in Klarner, Todnem & Diefenbach, 2011; Spiker, 1994, as cited in Klarner et al., 2011). However, Woolbert (1924) explained that, in order to make sense of stressful situations, intellect helped to regulate emotion; this allowed the individual to behave in ways that effectively managed the emotions.

Intentional/Behavioral Dimension

Intention was defined by Piderit (2000) as a construct of attitude and, according to Allport (1967) attitude informs behavior. Prior empirical studies have shown that employees' responses to change are informed by their readiness for organizational change and their readiness for change is itself an attitude and a disposition (Desplaces & Beauvais, 2004, as cited in Desplaces, 2005) that has been predictive of other attitudes that produce behaviors such as ambivalence toward change, support of change initiatives, or outright resistance to change (Armenakis et al., 1993; Lamm & Gordon, 2010; Oreg & Sverdlik, 2011). Jimmieson, Peach, and White (2008) referred to the Theory of Planned Behavior, which defines intention as the willingness of an individual to behave in a

certain way. In relation to organizational change, the employees' intentions about the change initiative can result in behaviors that support the change, show ambivalence or cynicism toward it, or outright resist it; however, the literature has shown that strategies for effectively managing change have been proposed.

Discussion of Best Practices for Initiating Organizational Change

Hallencreutz and Turner (2011) and Edmonds (2011) cautioned that the idea of best change management practices might be a panacea that lulls organizational leaders into thinking that they can successfully manage change by following certain procedures; furthermore, they contend that since there has been no codification of such practices, the idea of best change initiation practices cannot be supported. Additionally, Hallencreutz and Turner claimed that, after a review of the literature, which spanned the period 1961 - 2010, a search for common themes that might shed light on exactly what the concept of best practices meant in relation to organizational change produced no evidence of clear-cut best change management practices. They cited a lack of codification and clear definitions about what best change practices actually *were* as possible reasons. Surprisingly, the researchers found that even though their search using the term *best practices* or *organizational change* produced thousands of hits, the specific combination of the terms *best practices* and *organizational change* produced only two scholarly articles on the subject. Nevertheless, this exhaustive search of the literature revealed two fundamental but seemingly contradictory beliefs about best practices in initiating organizational change management.

The first fundamental belief viewed organizational change as a series of processes and asserted that organizational change could be actively planned and managed in structured step by step processes that moved individuals, teams, and the whole organization from the undesired status quo to a desired changed state. A second contradicting theory held that, by nature, change is organic and thus cannot be managed. The convergence of both beliefs spoke to what Hallencreutz and Turner referred to as the *harder* and *softer* sides of change. These two positions dealt with strategy, structure, tools and technology (the harder systems), and the change management processes that attended to the people side of change; that is, the individual, group, and culture considerations (the softer side systems). Despite the theoretical differences that were observed in the literature, suggestions for addressing both sets of beliefs in relation to initiating organizational change are evident.

These suggestions are rooted in project management (PM) practices, and can be applied to all organizations (Crawford & Nahmias, 2010). These PM principles line up with what has been identified in the literature as best practices and involve (a) preplanning activities that identify the need for change and estimating the costs and benefits involved in the change, (b) developing clear lines of communication that keep all stakeholders informed about the initiative and how they will be affected by the change, (c) securing the commitment and support of key stakeholders and change agents, (d) attending to the social and cultural needs of the organization by building learning organizations that are prepared for, and receptive to, change, and (e) building self-

directed and self-managed teams that can work harmoniously and efficiently across departmental borders (Armenakis et al.,1993; Holt et al., 2011; Lewin, 1947; I. Smith, 2006) . Five best practices suggestions emerge consistently in the change management literature and, at the very least, could be considered generic best change management practices that increase employee readiness for change.

Best Practice #1: Actively Planning and Preparing for Change

Strategy has to do with the proactive plans that firms create to gain a competitive edge over their peers by increasing market share and profitability (Adcroft, Willis, & Hurst, 2008; Mintzberg, Ahlstrand, & Lampel, 2005), and change management is strategic to organizations. It has, therefore, been suggested that as a best practice, firms must proactively plan for change before they launch change initiatives, thus making them ready for change, as readiness for change contributes to the success of change initiatives (Armenakis et al., 1993; Bateh, Casteneda, & Farah, 2013; Edmonds, 2011). Weiner (2009) opined that organizational readiness for change has not been as theoretically developed or as extensively studied as individual readiness for change, but nevertheless conceptualized it as the intention of organization members to make a commitment to support the change by their actions, and with resources. Earlier, Clarke and Garside (1997) had described the planning and preparations as *process mapping*, which involves understanding the company's capabilities, strengths, and weaknesses, and addressing issues as they are identified. However, process mapping can be a complex process since issues might be interconnected with other organizational processes. Leaders and other

change agents must also attend to social aspects of the organization such as addressing the needs of those who will be affected by the change and building teamwork, ensuring that the links between the teams and the change efforts are clear (Clarke & Garside, 1997; I. Smith, 2006). Nonetheless, two important issues that must be addressed are employees' readiness for change, and leaders' commitment to supporting the change.

Optimally, organizations seek dialectical change in which organizational and individual cognition, feelings, and beliefs about the change are in alignment with each other (Van de Ven & Poole, 1995). Cameron (2008) posited that when the organizational climate is positive, change can be a positive experience. Some of the proposed strategies to deal with employees' responses that produce change resistance include improving communication about the change so that the proposed change, as well as the reason for it, and how employees will be affected by it is explained throughout the organization (M. Choi & Ruona, 2011). Other proposals include engaging employees in decision-making processes, education, training, and retraining, as education has been recognized as the impetus for beneficial change (Ebert et al., 2003; Freire, 1970). Further suggestions include supporting the change with adequate resources (Bolt, 2007; M. Choi, 2011; Lattuch & Young, 2011).

Best Practice #2: Clear Communications

To counteract the effects of fear and other uncertainties, it has been advised that clear lines of communication should be established that explain the drivers of change, the purpose for the change, the repercussions of the change, how employees would be

affected by it, and the methods that would be employed to make the change happen (Adcroft et al., 2008; Lewin, 1947; Oakland & Tanner, 2007). Additionally, Holt et al. (2007) suggested that employees should be allowed to contribute ideas to the change efforts since this type of participatory involvement empowers them by engaging them in the effort, and helps to minimize stress by helping to generate positive feelings of control in the process. In the literature, *engagement* is often referred to as *buy in*, and employee buy-in is crucial to the success of change initiatives (Edmonds, 2011). While clear lines of communication help to keep employees informed and engaged in the change process, engaging the commitment of other stakeholders in the organization is also necessary for successful change management.

Best Practice #3: Securing Stakeholder Commitments to the Change

In an organizational change context, a stakeholder is anyone who will be affected by the change, or who has input into the change and, depending on his or her position in the company, some may be key stakeholders, and some may be secondary stakeholders. Change agents and/or organizational leaders (alternately referred to in this study as leaders or as *management*) are considered key stakeholders, and the literature has shown that securing their committed support is crucial to the success of change initiatives. Management is not only a champion of change initiatives; it is also responsible for supplying the necessary tools and resources to facilitate change efforts. Edmonds (2011) suggested that at least 70% of management must be involved in, and support, change initiatives if success is to be achieved. As champions of change, managers are early

proposers and adopters of change initiatives and can facilitate the change process by motivating organization members to support the effort, for the betterment of the organization (Chrusciel, 2008). Effective champions are politically astute, have charisma, can elicit the trust of the organization, and understand that change is part of an organizational learning process that must be encouraged in order for the organization to thrive (Sims, Faraj, & Yun, 2009). Management can also provide training in project management practices that prepare the organization in the methods for achieving change, or even engage the services of other change agents such as outside consultants who can contribute expert knowledge on effective change management (Oakland & Tanner, 2007). Leaders and change agents are also influential in attending to social and cultural considerations and building teamwork.

Best Practice #4: Social and Cultural Considerations

Culture can be understood as the glue that keeps the status quo in place. Mintzberg et al. (2005) associated organizational culture with collective cognition, and described it as the mind of the organization that expresses itself in beliefs, traditions, and habits; therefore, the organization has to be understood as a collective social system in which learning and change making is a collective process. Schein (1992) suggested that leaders shape organizational culture by signals that they give out concerning their values and beliefs, and how they respond to events in the organization; in turn, these signals help to shape employees' attitudes (as cited in Oreg et al., 2011). Mintzberg et al. (2005) noted that culture is resistant to change, whereas learning organizations are more adaptive and

more responsive to change pressures, making them better ready for change. Organizations are advised to develop a climate that is receptive to change, which would keep it in a state of readiness for change (Clarke & Garside, 1997; I. Smith, 2006).

Best Practice #5: Building Effective Teamwork through Self-managed Teams

An organization can be viewed as a complex, interconnected system that must work cooperatively to accomplish its goals, and the seminal literature has shown that team work is an important way to bring about this synergy (Kotter, 1996; Lewin, 1947). Although the seminal literature has shown that resistance to change occurs at the individual level, it can also occur at the group level, expressing itself in group-think and an adhesion to old ways of thinking and doing (Ginsberg & Abrahamson, 1991); still, when they are managed effectively, teams can facilitate organizational learning and help prepare organizations for change. Teams possess collective knowledge that individual managers might lack, and drive processes; therefore, they are important in organizations because of the facilitative roles that they play in learning, establishing, and stabilizing common organizational goals and objectives, and providing crucial support to accomplish organizational goals (Alpander & Lee, 1995; Kepa, Little, & MacBryde, 2002). Nevertheless, as Gallie, Zhou, Felstead, and Green (2012) pointed out, there has been disagreement in the literature on the efficacy of teamwork in achieving organizational outcomes. However, as Gallie et al. also noted, self-directed teams have been shown to be far more productive and supportive of organizational goals than directed groups. This is because self-managed teams feel a sense of empowerment and control over their work

environments, and are more committed to their organizations, and committed employees support organizational goals (p. 24). The implication is that in confronting change, team efficacy depends on the culture of the organization, and therefore on the type of leadership within the organization.

Summary

Since, as evidenced by the high failure rate of organizational change, strategies for successfully managing change has long been shown to be unsuccessful, and since organizations continue to be interested in the phenomenon (Bouckenooghe et al., 2009; Chin & Benne, 1961; Nutt, 1986; Rafferty et al., 2013), understanding the role that personality traits play in employees' readiness for change might enable organizational leaders to understand whether or not personality traits, which have been shown to be genetic and inherited (G. Allport & F. Allport, 1921; Goldberg, 1993; Jang, McCrae, Angleitner, Riemann, & Livesley,1998; Just, 2011; Oreg, 2003; Su, Cheung, & Su, 2012), might be a reason for the continued high failure rates of change initiatives. If, as the literature suggests, personality traits can change in adulthood, this new understanding might help organizations craft additional strategies to manage change that are unique to personality types. Since education changes individuals' ways of thinking and understanding, organizations might also form strategies that are based on education and training.

The literature has shown that personality traits can and do change in adulthood, and can be experimentally manipulated (Allemand, Steiger, & Hill, 2013; Boyce, Wood,

& Powdthavee, 2012; Burley, 2012); since education has been recognized as the impetus for beneficial change (Ebert et al., 2003; Freire, 1999), the major focus of this study was to understand if the manipulation of personality traits and education (i.e., the interaction of personality traits and education at various educational levels) combine to predict or explain variances in employees' readiness for organizational change. Therefore, this study might also help to educate organizations on the relationships among change readiness, education, and personality traits. It might also help employees to make conscious behavioral decisions that can modify their personality traits so that they may be more flexible and accommodative of change.

Literature on Personality Traits

Personality refers to "individual differences in characteristic patterns of thinking, feeling and behaving" (American Psychological Association, 2013), and can be described in terms of discrete or individual traits (Cattell, 1943), which inform behavior (Allport, 1926; H. Carr & Kingsbury, 1938; Just, 2011; Van Egeren, 2009). Although in modern times Allport, Cattell, and Eysenck have been closely associated with traits psychology, according to Hofstede and McCrae (2004), the study of trait psychology is not new for it has roots that extend to ancient Greece; however, according to Schettler (1941), the modern day concept of personality traits was unheard of before 1900. Until that time, from as far back as Aristotle (382 – 322 BCE) and the Greek Philosopher Plato (c. 428 – 348 BCE) to modern times, people "thought and spoke in terms of soul, faculty [of the human mind], idea, instinct, etc." (p. 165); yet, according to Schettler (1941), the modern

day understanding of personality traits accommodate many of the characteristics of soul, faculty, idea and instinct. Schettler traced philosophical interest in these concepts through different periods in time; for example, the concept of *soul* had been fashionable from the time of the Greek Philosopher Plato (c. 428–348 BCE) to Hume (1711–1776); *faculty* and *ideas* to Descartes (1596–1650), Wolff (1679–1754), Kant (1724 – 1804), and others, until Darwin's (1809–1882) evolutionary thought replaced these philosophies, and the early concept of heritability emerged. For example, early modern philosophers such as Wilhelm Maximilian Wundt (1832–1920), William James (1942–1910), and Sir Francis Galton (1822–1911) linked concepts such as sensation, instinct, and ability to heritability (as cited in Schettler, 1941), while Sigmund Freud promoted the concept of a link between personality and behavior. In 1844 and 1924 the first attempts to organize personality traits into a comprehensive and comprehensible lexicon (referred to as "the lexical hypothesis" or "the lexical approach") was developed.

Lexicon of Personality Traits

The lexical hypothesis holds that throughout some or all of the world languages common terms are used to describe the most significant individual differences in human interactions (Goldberg, 1993). Although a lexical approach to describing and taxonomizing personality traits was first attempted by Sir Francis Galton, the English scientist who, in 1884, assembled a list of 1,000 words that described personality (Goldberg, 1993; John, Angleitner, & Ostendorf, 1988), it was the 20th Century philosopher, Gordon Allport (1897 – 1967), who has been credited with popularizing the

study of trait psychology when, at Harvard University in 1924, he introduced to America and taught what has been speculated to be the first ever course on personality traits in a college in North America (Pettigrew, 1999). Of the many books that Allport penned, two were highly influential books on personality: *Personality: a Psychological Interpretation* (1937) and *Pattern and Growth in Personality* (1967). Allport and Odbert (1937) developed various personality tests and, using a lexical approach to identifying the structure of personality, developed a lexicon of almost 18,000 words that he associated with traits that he referred to as personal dispositions (as cited in Ashton & Lee, 2005), which could describe human personality; these were gleaned from the 400,000 word second edition of the Merriam Webster's unabridged dictionary (Block, 1995; Buss & Finn, 1987). Furthermore, he divided these personality traits into, first, a hierarchical order from least important to the most important, and then arranged these into three groups of traits: *cardinal* (pervasive traits), *secondary* (particular behavioral predispositions), and *central* (transient characteristics), and it was his belief that individuals possessed traits that were unique to them, and no two people possessed precisely the same trait (Cattell, 1943; Roeckelein, 2006). Nevertheless, Allport acknowledged the effect of heredity and environment was similar enough in a culture so that adult behavior would be similar across cultures, giving rise to common traits (in Cattell, 1943).

G. Allport (1927) articulated a consensus that social scientists of his time had arrived at; that is, that traits were a unit of personality, and that there was evidence that

there was a hierarchical order to them. Furthermore, he observed that personality informed human beings' mental thought processes and their behavior; it was, according to Allport, the "totality of mental life and behavior" (p. 290), and *that* was the most unique thing about human beings. The major contribution that Allport made to the field of personality psychology is the insight that he gave into the relationship among terms that are used to describe personality, and other researchers built on that to investigate further the nature of those relationships in order to build a structure that represented descriptions of personality (Goldberg, 1993). Following Allport, Norman (1967) extended the list with terms from the third edition of the Webster's unabridged dictionary (Goldberg, 1993). Almost a century later, Van Egeren (2009) pointed out that the many theories about personality posit that human behavior is driven by personality (p. 94), and was careful to stress that, rather than actually manifesting behavior, personality traits were related to "regulatory controls" (para. 3) that underlie behavior patterns - an observation that seems to agree with Allport's (1927) earlier assessment, and lends support to Roberts and Mroczek's (2008) claim that personality traits change in adulthood.

According to Omazic et al. (2011) and Zopiatis and Constanti (2012), Allport's (1937) conceptualization of personality is one that is most frequently used in the organizational psychology literature. Omazic et al. explained Allport's definition of personality as an individual's "dynamic organization of psycho-psychic systems" (p. 158) that governed individuals' unique and consistently stable ways of adapting to their

environments, as well as their general and personal predilections. Nevertheless, Omazic et al. applied the Robin, Judge, and Campbell (2010) conceptualization of personality to their study. Robin et al. (2010) defined personality as the totality of ways that individuals can react to, and treat, events around themselves; and these are described in measurable traits (in Omazic, et al., 2011). Since this dissertation research emerged from the Omazic et al. study, for the purpose of this study, the Judge et al. (2010) conceptualization of personality will be applied to this study.

Personality Traits Theory

In psychology, traits conveniently explain differences in human beings (Allport, 1926; Uher, 2013) and J. Miller, Lynam, and Jones (2008) suggested that an understanding of germane traits can allow for targeted interventions to obtain more desirable behavioral results. In an organizational context, organizations can create unique strategies to shape better outcomes when implementing change initiatives if they understand the relationships between relevant traits and employee behaviors. The corpus of seminal and contemporary literature on personality traits has shown that personality traits are universal and stable across countries and cultures (Allik & McCrae, 2004; Allport, 1947; Eysenck, 1952; Goldberg, 1993; McCrae & John, 1997; McCrae & Terraciano, 2005); they have a genetic component, are inherited, and they underlie and can affect behavior such as employee responses toward change initiatives (Allport & Allport, 1921; Goldberg, 1993; Jang et al.,1998; Krueger & Johnson, 2008, as cited in Yang, 2014; Oreg, 2003; Su et al., 2012).

According to personality traits theory, traits are basic elements of personality and they are universal among humans, and affect human behavior (Allport, 1927; Goldberg, 1993; McCrae & Costa, 1997; McCrae & Terraciano, 2005); additionally, they are supported or disrupted by environmental factors, and can be experimentally manipulated, can change in adulthood, and are modified by experiences (Allemand et al., 2013; Boyce et al., 2012; Burley, 2012; Roberts & Mroczek, 2008; Van Egeren, 2009). After Allport's initial attempt to classify the thousands of words that described personality traits, other models that taxonomized these elements of personality emerged over the years (e.g., Jackson, 1984, in Buss & Finn, 1987; Murray, 1938), and two in particular have been dominant in the literature: the 16 factor model of personality traits, and the five factor model of personality traits, also referred to as the "Big Five" in the literature.

Raymond Cattell's 16 Factors of Personality

Personality traits had been researched since the 1940s by Raymond Cattell who, along with R. B. Marshall, and S. Georgiades, reduced Allport's taxonomy of traits first to 171terms, then, after a series of iterations, to 16 by applying factor analysis (Block, 1995). Cattell developed the 16 personality factor traits questionnaire in the1950s, which measured 16 bipolar traits; these 16 dimensions of personality are represented in Table 1. Since Cattell, other researchers working independently of each other, and applying various statistical techniques, were able to identify and describe the same five broad and identical factors of personality, which underlie and inform the 16 personality factors; these broad factors are now commonly referred to as the Five Factor Model (FFM) or the

Big Five factors of personality from various separate studies in the 1980s by McCrae and by Goldberg.

Table 1: *Cattell's 16 Factors of Personality*

Description of Traits	Polar Opposite/Contrasting Traits
Less Intelligent	More Intelligent
Affected by feelings	Emotionally Stable
Humble	Assertive
Sober	Happy-go-lucky
Expedient	Conscientious
Shy	Venturesome
Tough-minded	Tender-minded
Trusting	Suspicious
Practical	Imaginative
Forthright	Astute
Self-assured	Apprehensive
Conservative	experimenting
Group-dependent	Self-sufficient
Undisciplined	Self-controlled
Relaxed	Tense

Note: Descriptions from Subjective Ratings of Cattell's 16 Personality Factors by A.F. Friedman, J. Sasek, and J.A Wakefield, 1976, *Journal of Personality Assessment, 40*, p. 204. Copyright 1976 by Journal of Personality Assessment.

The Five Factor Model (FFM) of Personality

Digman (1990) speculated that Goldberg (1981) may have been the first to use the term "Big Five" (p. 425). Since the five global factors of personality were identified and taxonomized in the FFM model, the model has been applied to a wide variety of studies that examined human behavior and its correlation to personality. Seminal literature on its application to organizational studies has shown that the FFM can be predictive of various different criteria across different types of jobs, and can expand the understanding of interpersonal and group interactions in organizations (Mount, Barrick, & Stewart, 1998). Goldberg (1993) traced the identification of the five broad factors of personality to a pioneer in the development of factor analysis, L.L. Thurstone (1934).

According to Goldberg, Thurstone explained that he gave 60 commonly used adjectives that described personality to 1,300 raters and asked them to think of people that they knew well, and to select every adjective that they thought would conversationally describe that person. When Thurstone applied multiple factor methods to the analysis of the correlation coefficients of the 60 trait terms, he found that five factors sufficiently accounted for the coefficients and specifically declared that only five independent common factors actually accounted for all of the 60 trait terms (Thurstone, 1934, in Goldberg, 1993); furthermore, Thurstone postulated that this evidence indicated that the scientific description of personality was simpler than expected. Despite this early breakthrough, Thurston did not follow up on further testing of this hypothesis and, instead, it was not until two United States Air Force researchers, Tupes and Christal

(1961), conducted research on personality that further investigations led to the rediscovery of the five broad factors of personality.

Tupes and Christal used various analytical methods to re-examine Cattell's data along with new data and consistently found five recurring factors of personality each time. Since their findings were reported in an obscure technical report, they were largely unnoticed by the research community until Warren Norman (1963) replicated their studies and confirmed their findings. Norman named the five broad factors of personality traits Extroversion/Surgency, Agreeableness, Conscientiousness, Emotional Stability, and Culture. According to Goldberg (1993) other researchers confirmed these five factors of personality; for example, Costa and McCrae (1980s), J.M. Digman (1989), and Lewis Goldberg (1980s) continued investigations of these five factors, applying different statistical methods in addition to using different trait terms.

Historical Events in the Development of the FFM

Goldberg (1993) traced the development of the FFM from its seminal roots in 1884 to 1992 and the following information (Table 2) was gleaned and tabulated mainly from a concise - *not* a comprehensive - review and discussion of the history of the identification and taxonomization of the FFM by Goldberg (1993), although other sources are referenced. Since this time, the FFM has become ubiquitous in the personality literature, and in informing many disciplines in the social sciences.

Table 2. *Concise Historical View of the Development of the FFM of Personality Traits*

Period	Researcher/Works	Contribution to the FFM theory
1884	Galton, F. (1884). Measurement of character. *Fortnightly Review, 36,*179-185.	Lexical approach; used a dictionary to glean 1000 terms that described personality; hypothesized that personality was inherited.
1934	Thurstone, L. L. (1934). The vectors of mind. *Psychological Review, 41*(1)*,* 1-32.	Used factor analysis to examine 60 common terms to describe personality; found five common factors that could describe the list of 60 terms. Did not follow up on these early findings.
1936	Allport, G. W., & Odbert, H. S. (1936). Trait-names: A psycho-lexical study. *Psychological Monographs*, 47, No. 211.	Culled from a second edition Merriam Webster dictionary almost 18,000 common language terms to describe personality.
1943	Cattell, R. B., Marshall, M.B., & Georgiades, S. (1957). "Personality and motivation: Structure and measurement." *Journal of Personality Disorders, 19* (1), 53–67. doi:10.1521/pedi.19.1.53.62180	Reduced, through factor analysis, Allport and Odbert's (1936) taxonomy to 171 terms, then, after a series of iterations, to 16. Cattell remained unconvinced that five factors were sufficient to describe personality.
1949	Fiske, D. W. (1949). Consistency of the factorial structures of personality ratings from different sources. *Journal of Abnormal and Social Psychology, 44*(3)*,* 329-344.	Analyzed a set of 22 variables developed by Cattell; found five factors that replicated across samples of self-ratings, observer ratings, and peer ratings: Confident Self-Expression (Factor I), Social Adaptability (Factor II), Conformity (Factor III), Emotional Control (Factor IV), and Inquiring Intellect (Factor V) (Goldberg, 1993). Did not follow up on these early findings.
1961	Tupes, E. C., & Christal, R. E. (1961). Recurrent personality factors based on trait ratings. *USAF ASD Tech. Rep. No. 61-97.* Lackland Air Force Base, TX: U.S. Air Force.	Called the "true fathers" of the FFM by Goldberg (pg. 27). Analyzed various findings from research (including Fiske's) that applied Cattell's variables; consistently found five factors that were replicable; named Factor V "Culture". Published findings in obscure technical Air Force journal.

Table 2. *Concise Historical View of the Development of the FFM of Personality Traits, continued* .

1963	Norman, W. T. (1963). Toward an adequate taxonomy of personality attributes: Replicated factor structure in peer nomination personality ratings. *Journal of Abnormal and Social Psychology, 66*(6)*,* 574-583.	Confirmed the set of five factor variables from Cattell's taxonomy.
1964a, 1964b	Borgatta, E. F. (1964a). The structure of personality characteristics. *Behavioral Science, 9*(1)*,* 8-17.	Examined the work of Tupes and Christal and found five factors that he labeled Assertiveness (Factor I), Likability; (Factor II), Responsibility (Factor III), Emotionality (Factor IV), and Intelligence (Factor V).
1967	Norman, W. T. (1967). *2800 personality trail descriptors: Normative operating characteristics for a university population.* Ann Arbor: University of Michigan, Department of Psychology.	Supplemented the Allport and Odbert list with 2800 additional trait terms from the 3rd edition of the Merriam Webster dictionary. Criticized Cattell's list based on the argument that computational methods used by Cattell to identify the 16 factors of personality were limited, and therefore the five factor findings that were based on Cattell's results were not expansive enough. This claim has been disproved and the Big Five model persists. Considered the first serious critic of the Big Five.
1967	Smith, G. M. (1967). Usefulness of peer ratings of personality in educational research. *Educational and Psychological Measurement, 27*(4)*,* 967-984.	Analyzed findings based on three large samples at separate times and identified five factors Extraversion (Factor I), Agreeableness (Factor II), Strength of Character (Factor III), Emotionality (Factor IV), and Refinement (Factor V) (p. 28). Did not follow up on initial findings (p. 28, para.1).
1981	Digman, J. M., & Takemoto-Chock, N. K. (1981). Factors in the natural language of personality: Re-analysis, comparison, and interpretation of six major studies. *Multivariate Behavioral Research, 16*(2)*,* 149-170.	Assumed that the dimensions of personality were more numerous than 5; after various analyses, proposed a 10-factor model; tried to disprove the Big 5 model, but eventually became convinced of the FFM after performing a series of factor analyses. Considered the second serious critic of the Big 5.

Table 2. *Concise Historical View of the Development of the FFM of Personality Traits, continued* .

1985	McCrae, R. R., & Costa, P. X, Jr. (1985a). Updating Norman's "adequate taxonomy": Intelligence and personality dimensions in natural language and in questionnaires. *Journal of Personality and Social Psychology, 49*(3)*,* 710-721.	Used different set of variables to Cattell's taxonomy. Through factor analysis, developed a 144 item questionnaire (the three factor NEO Personality Inventory (NEO-PI) scale instrument) that measured three dimensions of personality (Emotional Stability, Extraversion, and Culture which they renamed "Openness to Experience").
1986	Digman, J. M., & Inouye, J. (1986). Further specification of the five robust factors of personality. *Journal of Personality and Social Psychology, 50*(1)*,* 116-123.	Used set of variables different from Cattell's taxonomy; re-confirmed the Big 5 in 1986.
1990	Digman, J. M. (1990). Personality structure: Emergence of the five-factor model. In M. R. Rosenzweig & L. W. Porter (Eds.), *Annual review of Psychology, 41,* (pp. 417-440). Palo Alto, CA: Annual Reviews.	Initially assumed dimensions of phenotypic personality traits to be extremely large. Analyzed Cattell's 16 variables and reviewed works by other researchers, only able to replicate five factors; confirmed the existence of the five broad factors of personality.
	John, O. P. (1990). The "Big Five" factor taxonomy: Dimensions of personality in the natural language and in questionnaires. In L. A. Pervin (Ed.), *Handbook of personality: Theory and research* (pp. 66-100). New York: Guilford Press.	Reviewed the works of researchers and confirmed the five broad factors.
1990	Goldberg, L. R. (1990). An alternative "Description of personality": The Big-Five factor structure. *Journal of Personality and Social Psychology, 59*(6)*,* 1216-1229.	Reviewed and confirmed the five factors. Renamed Factor V "Intellect".

Table 2. *Concise Historical View of the Development of the FFM of Personality Traits, continued* .

1992	Goldberg, L. R. (1992). The development of markers of the Big-Five factor structure. *Psychological Assessment, 4*(1), 26-42.	Investigated other sets of variables and reported similar five-factor structures. Developed the Goldberg Big Five markers IPIP scale with factors based on the lexical model. Original Goldberg IPIP scale consisted of 100 items (20 per factor); revised to 50 items to reduce redundancy.

Note: Although not mentioned here, the works of Dean Peabody (1968, 1985) and Eysenck (1991) and their identification and steadfast support of a three factors model of personality theory, which was at first supported by Lewis Goldberg, is discussed in Goldberg (1993).

Naming Convention of the Five Factors of Personality

In science, a common language is necessary when researchers are studying the same phenomena and, in the field of personality psychology, a common language and structure helped to advance knowledge in this area (Shiner & DeYoung, 2013). Personality traits, according to Costa and McCrae (1999) have a hierarchical order in which many narrow, specific traits coalesce to describe factors that are broader and global. For example, in the Big Five model, underlying the global factor *Extraversion* are narrower traits such as warmth, gregariousness, excitement seeking, and the positive emotions (Lord, 2007). According to Costa (1991), supporters of the FFM agree that the vast majority of constructs that are described and measured by lexical inventories and scales can be described as an aspect of one of the Big Five factors. In the 1961 work of Tupes and Christal the terms used for the five factors were: Factor I, *Surgency* (or Extraversion); Factor II, *Agreeableness*; Factor III, *Dependability*; Factor IV, *Emotional Stability*; Factor V, *Culture* (Tupes & Christal, 1992). Later, Norman used the terms

Factor I, *Surgency* (or Extraversion); Factor II, *Agreeableness*; Factor III, *Conscientiousness*; Factor IV, *Emotional Stability*, and Factor V, *Culture.* Today, the two most conspicuous models of personality traits are the Five Factor Model (FFM) of personality traits, or the Big Five (Table 3); these are the Goldberg Big Five markers IPIP scale (Goldberg, 1992), and the NEO-IP (McCrae & Costa, 1987), and the terms adopted by Goldberg (1992) and Costa and McCrae & Costa (1987) are the most commonly used in the literature (Block, 1995).

Table 3. *Five Factor Model (FFM) Terms of Personality Traits (EACESI - The Big 5) with original and subsequent terms*

Personality Trait	Facet Description	Polar Opposite
Extraversion/Surgency (Factor I)	sociable	introverted
Agreeableness (Factor II)	affable	reserved
Conscientiousness (Factor III)	well-organized	wasteful
Emotional Stability (Factor IV)	insecure	self-assured
Intellect/Openness to Experience (Factor V)	creative/resourceful	wary/guarded

Note: Adapted from descriptions found in The Structure of Phenotypic Personality Traits by L. R. Goldberg, 1993, *American Psychologist, 48*, p. 27. Copyright 1993 by *American Psychologist*.

The Big Five or FFM model is not meant to be the comprehensive compilation of personality traits –which is vast– but is simply five broad dimensions of personality, which are used to describe personality in human beings (Goldberg, 1993). As Cattell (1943) explained, each broad trait (e.g., extraversion, etc.) is built on the foundation of

many minor, specific traits. In the personality traits literature, various terms have been used to describe the five factors of personality (Fiske, 1949), and sometimes polar opposite terms are used to describe the same trait; an example of this is the trait "Neuroticism" (McCrae & Costa, 1985), whose polar opposite is "Emotional Stability" (Goldberg, 1992). These five personality factors (applying Goldberg's 50-item Big Five markers IPIP scale labeling) are Extroversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect (EACESI). Since the polar opposite terms "Emotional Stability" and "Neuroticism" have been used interchangeably in the literature, for the purpose of this study, "Emotional Stability" will be used to describe the totality of this domain's underlying traits. These terms and their definitions, as explained in the literature are as follows:

Factor 1 (Extraversion)

In the taxonomy of the Big Five personality traits, *Extraversion* ranks highest amongst the other broad domain of traits. It has been described in the literature as the high order dimension of personality that includes facets of behavior such as sociability, talkativeness, adventurousness, cheerfulness, frankness, and assertiveness (Buss & Finn, 1987; Cattell, 1943; Lukaszewski & Roney, 2011; McCabe & Fleeson, 2012). According to McCrae and Costa (1987), Extraversion has to do with the tendency to be positively affective. Extraverted individuals tend to be socially active and the activities that they engage in tend to be those that have positive affect (Hassan, Tahir, & Zubair, 2010; Lucas, Le, & Dyrenforth, 2008); additionally, extraverts do not tolerate monotony very

well, and appreciate taking risks (Abidin & Daud, 2012). Risk-taking is behavior that has long been associated with entrepreneurism (Chen, Su, & Wu, 2012; Coven & Slevin, 1989, as cited in Lau, Shaffer, Chan, & Yan Man, 2012; Stearns & Hills, 1996).

Stress has long been associated with change and D. Gallagher (1990) found that extraverts' affective way of coping with stress was by viewing it positively as a challenge and in terms of hopefulness, eagerness and confidence, rather than negatively (e.g., hopelessness, apathy, or doubt). Studies have shown that extraverts are generally more cheerful in their outlook and more likely to be more positive in their evaluations of situations (Costa & McCrae, 1992, as cited in Rai & Kumar, 2012). Rai & Kumar (2012) asserted that many studies have shown a negative correlation between extraversion and outcome variables such as role ambiguity, stress, and emotional exhaustion; all of these have been associated with employees' reactions to organizational change initiatives when employees question their roles and place in the changing organization. Furthermore, according to Rai and Kumar, people who are at the polar opposite of extraversion (i.e., introverts) experience these reactions when such things as job objectives, expectations, and scope of one's own responsibilities and those of colleagues are unclear. These are situations that often occur during organizational change initiatives; this is why it has been suggested that, in creating employee readiness for change, managers and change agents develop clear lines of communications that address and clarify these areas lest speculations give rise to perceptions that might cause employees to resist change (Kitchen & Daly, 2002; Robertson et al., 1993, as cited in Peus et al., 2009). It is

expected that, for this study, there will be an inverse relationship between extraversion and the behaviors that denote employees' readiness for change such that more employees will be readier for change.

Factor II (Agreeableness)

Graziano and Tobin (2002) commented that of the five factors of personality traits, Agreeableness seemed to be the least understood, and part of the reason might be because self-reporting responses to Agreeableness might be biased by self-favoring; that is, ascribing more of the trait to oneself that is deserved. Nevertheless, a lot has been discussed in the recent literature about this factor of personality. Some of the narrow and specific facet level traits that underlie agreeableness include warmth, flexibility, understanding, cooperativeness, and the desire to reduce or avoid causing discomfort in others; its polar opposite is antagonism, inflexibility, and lack of sympathy (Antonioni, 1998; Buss & Finn, 1987; Forrester & Tashcian, 2010; Tupes & Christal, 1961). According to Kristjánsson (2006), agreeableness is often expressed by a willingness to help others in the work environment and everyday life. Additionally, Agreeableness has been positively related to behaviors such as reducing interpersonal conflicts, enhancing cooperation amongst groups, and willingness to negotiate (Graziano, Hair, & Finch, 1997; Graziano, Jensen-Campbell, & Hair, 1996; Graziano & Tobin, 2002). Mount et al., (1998) proposed that this factor was most important in work situations where tolerance and flexibility were needed. In the context of readiness for change, since change engenders stress and other negative emotions that produce counterproductive behaviors,

it is logical to assume that the underlying facets that contribute to Agreeableness (e.g., trust, cooperation) are important factors that can contribute to an employee's readiness for change.

Factor III (Conscientiousness)

The trait facets that underlie the Conscientiousness factor of personality include thoroughness, scrupulousness, orderliness, practicality, organization, and reliability, while the polar opposite of these facets are negligence, unreliability, and carelessness (Goldberg, 1993; McCrae & Costa, 1987). According to Witt et al., (2002) conscientious workers are more likely to be dependable, disciplined, and focused on the tasks before them than employees with low levels of conscientiousness. Since traits inform behavior (Armenakis et al., 1993; Lamm & Gordon, 2010; Oreg & Sverdlik, 2011; Van Egeren, 2009), these important attributes can be a stabilizing force during times of organizational change, as the literature has shown that change often engenders feelings such as stress, uncertainty, and fear, and these feelings can result in behaviors that resist change (Jones et al., 2008; Pech & Oakley, 2005, as cited in Lattuch & Young, 2011; Self & Schraeder, 2009). As Witt et al., (2002) pointed out, people with low conscientiousness will not be predisposed to be flexible, focused, or hardworking; additionally, Mount et al., (1998) pointed out that extant literature had established a positive correlation between Conscientiousness, Agreeableness, and interpersonal and team interactions. Therefore, given the heightened interactions that can occur among employees during change, it can be assumed an employee's predisposition to be conscientious or not will inform their

behaviors toward their readiness for organizational change initiatives, especially in how they apply themselves to the proposed changes.

Factor IV (Emotional Stability vs. Neuroticism)

Personality, according to Gutierrez, Jiménez, Hernández, and Puente (2005), has been regarded as the most predictive indicator of behavior and, in their 2005 study, through regression analysis, the authors concluded that Emotional Stability in particular was one of the most significant correlates with subjective well-being; additionally, of the Big Five, it's polar opposite (Neuroticism) was the most likely to be predictive of negative emotions. Emotional Stability has to do with being calm and even-tempered, while neuroticism is associated with nervousness, moodiness, being high-strung, and temperamental (Costa & McCrae, 1992; Goldberg, 1993; Spagnoli & Caetano, 2012) and higher levels of Neuroticism has been associated with higher levels of stress, uncertainty, and negative emotions (Aizzat, Ramayah, & Kumaresan, 2005). As previously demonstrated in the literature, organizational change initiatives elicit emotions that inform behavior, which has a bearing on employees' feelings of well-being in relation to their place and role in the organization and, consequently, on their readiness for change; if employees feel stressed, fearful, or threatened by the change, they resist it (Jones et al., 2008; Pech & Oakley, 2005, as cited in Lattuch & Young, 2011; Self & Schraeder, 2009). It is expected that, for employees higher in Emotional Stability, readiness for organizational change would be higher, and for employees with low emotional stability, i.e., high neuroticism, readiness for change will be lower.

Factor V (Intellect/Openness to Experience)

As previously mentioned, Factor V (*Culture*) was one of the Big Five factors of personality that was proposed by Tupes and Christal (1961). It was reinterpreted as *Intellect* by, most conspicuously, Digman and Takemoto-Chock (1981) and Peabody and Goldberg (1989), while Costa and McCrae (1992) reinterpreted it as *Openness to Experience*. The trait facets that underlie Factor V have to do with being open to new experiences, intellectual curiosity, fantasy, creativity, liberalism, daring, and willingness to question one's own values and those of authority (Goldberg, 1993; Lord, 2007; McCrae, 1987). Goldberg (1993) explained that the difference in terms for these factors stem from the fact that one model is lexical, trait-adjective-based (Hofstee & Goldberg, 1992), while the other, the NEO-PI, is rooted in phrase-sentences that are questionnaire-based (originally measuring a three-factor model). However, Saucier (1992) dismissed these semantic differences explaining that neither *Intellect* nor *Openness to Experience* fully capture the fundamental trait clusters that underlie and describe Factor V; instead, Saucier suggested that *Imagination* more appropriately defined the Factor V clusters of traits. Since Saucier, there have been others who have questioned the naming of some of the five factors pointing out overlaps in underlying traits (e.g., in those of *Intellect* and *Openness to Experience*) that seem to cast doubt on the appropriateness of one name or another. Nonetheless, for all intent and purpose, the terms *Intellect* and *Openness to Experience* carry the same or similar meaning, as pointed out by Trapnell (1994), since openness is evidenced by open minds, which are indicative of intellect; people with high

intellect are intellectually curious, embrace new learning, and know how to organize knowledge in constructive ways. Thus, as far as being ready for change, which is a disruption and movement from something old or routine to something new (Axley & McMahon, 2006; Becker et al., 2005; M. Choi & Ruona, 2011; Vakola & Nikolaou, 2005), it is logical to conclude that intellect and/or openness are necessary for organizing the new knowledge and ways of doing or being that comes with change.

For the purpose of this study, since the Goldberg (1992) Big Five markers 50-item IPIP scale was used to gather self-report personality traits data from 300 study participants, and since the terms *Intellect* and *Openness to Experience* imply similar meaning in the literature, the lexical inspired Goldberg term (Intellect) and the McCrae and Costa questionnaire inspired term (Open to Experience) will be used interchangeably throughout the study, as in "Openness to experience or Intellect".

Recent Criticism of the Big Five (FFM)

There have always been critics of the Big Five (Judge & Ilies, 2002), and according to McCabe & Fleeson (2012), a key strength of the FFM is the fact that factor analysis methods have indicated a hierarchical order to personality traits. DeYoung, Quilty, and Peterson (2007) claim that at the top of the hierarchy (above the Big Five), are *stability* and *plasticity*, two broad traits (in McCabe & Fleeson, 2012), followed by the Big 5, and several other "smaller subcomponent traits" below the Big 5 (Widiger & Simonsen, 2005, in McCabe & Fleeson, 2012, p. 1498). However, McCabe and Fleeson (2012) also point out that there is a common, fundamental weakness to the Big 5 Model

in that the model is descriptive and does not explain the function of the traits, nor does it show a purpose or a process. The weakness, they claim, is related to the fact that factor analysis only groups things together in factors but provides no theory-based rationale for this grouping. According to McCabe and Fleeson, in this approach, traits describe characteristics of people, but their purpose and function is unclear. For example, they point out that extant literatures (Eysenck & Eysenck, 1985; McCrae & Costa, 2003) have proposed that traits are inherited and affect behavior and adaptations. Indeed, the fact that personality traits inform behavior has been supported by many other researchers (Armenakis et al., 1993; Kornør & Nordvik, 2004; McCrae & Costa, 1999; Shahrazad et al., 2011; Su et al., 2012; Van Egeren, 2009). However, McCabe and Fleeson (2012) argue that, in its current form, the FFM does not explain just *how* people's traits affect their behaviors, or why there are individual differences along dimensions, a question that was also posed earlier by Lukaszewski and Roney (2011); this, McCabe and Fleeson explained, is because factor analysis is atheoretical and atheoretical statistical methods are not concerned with rationales for why items such as traits, for example, are grouped in factors.

McCabe and Fleeson further explained that in traits theory the phenomenon has hitherto been discussed from the separate perspectives of descriptions (the lexical approach) or explanations, in which the descriptive parts or actual traits are expressed in behavioral manifestations, while the explanatory parts can be explained through hereditary, the environment, and reasoning. They proposed an alternate perspective on

these approaches to traits theory, which is Whole Trait Theory (McCabe & Fleeson, 2012). This theory postulates that traits should be conceived holistically as a combination of both descriptive and explanatory parts since both parts are linked, and because the explanatory part causes the behavioral part. Nevertheless, a discussion of the function and purpose of traits is beyond the scope of this study, and a focus on the investigation of relationships between personality traits and readiness for organizational change when moderated by employee's educational level will be the goal of this effort.

Studies on Personality Traits and Readiness for Change

As far back as Mount et al. (1998), studies were conducted that investigated personality traits in relation to personal and group interactions. Employees have personal, group, team, or cross-departmental interactions, and since organizational change has been shown to affect employee behavior in various ways, it is important to understand if there is a relationship between personality traits and employees' readiness for change since employees' communications and behaviors can be infectious and can affect organizational change initiatives (Kitchen & Daly, 2002). Additionally, if correlates of personality traits, employee readiness for organizational change, and the moderating effects of education are understood, theories on employee readiness for change can be expanded or formulated. However, although correlations between personality traits and work performance have long been recorded in the literature (Mount et al., 1998; Witt, Burke, Barrick, & Mount, 2002), and even though employee readiness for change has

long been studied (Weiner, 2009), surprisingly, the literature on the aspects of personality traits and readiness for change seems to be sparse (Saksvik & Hetland, 2009).

According to Saksvik and Hetland (2009), the only other study on personality traits and response to change as of 2009 was the 2003 study by Oreg, which anticipated a cognitive, affective, and behavioral response to change. That study produced an instrument scale to measure an employee's personality trait disposition to resist change. Nevertheless, in recent years interest in the change receiver's perspective on OC initiatives has emerged (Bouckenooghe, 2010; M. Choi, 2011), and the literature is expanding. For example, Holt and Vardaman (2010) issued a call for papers on employee readiness for change, citing the increasing complexity of the ever changing environments that organizations are confronted with; the interactions of psychological, contextual and other factors in individual and organizational readiness for change, and the lack of understanding of the role that readiness for change plays in this environment.

While the Oreg (2003) and Saksvik and Hetland (2009) studies confirmed a relationship between personality traits and disposition to respond to change, and even though the Oreg study produced a scale instrument to measure the dispositional inclination to resist change, a recent study by Omazic et al. (2011) explored the relationship between personality traits and readiness for change and did not find a relationship between personality traits and readiness for organizational change, which is not a finding that is consonant with extant literature on personality traits and behavior. Admitting to sampling limitations in their quantitative study, the authors strongly advised

that additional studies were needed to gain deeper understanding of the effect of personality traits on response to change, and suggested that a mixed methodology (quantitative/qualitative) should be employed . They further recommended that a larger, more educationally diverse population be sampled, since the unique composition of their sample introduced a homogeneity bias (pp. 161–162), which could have skewed the results of the study (Patten, 2010). These considerations created an opportunity to conduct a study of personality traits and readiness for change with a larger, more educationally heterogeneous sample.

Theoretical Bases

Following Omazic et al. (2011), the two theory bases that guided and focused this study were personality traits theory (Goldberg, 1990, 1992, 1993; McCrae & John, 1992) and change readiness theory (Armenakis et al., 1993; Bouckenooghe et al., 2009). Specifically, the theoretical framework that informed this study was the Five Factor Model of personality traits (FFM), also known as the Big Five factors of personality traits (Goldberg, 1993). These traits (the independent variables), moderated by employees' educational level (Less-than-a-Bachelor Degree, Bachelor Degree, and Master Degree), will predict the DV (Employee Readiness for Organizational Change), as evidenced by employees' cognitive, affective and intentional (CAI) responses to organizational change. These relationships are represented in Figure 2.

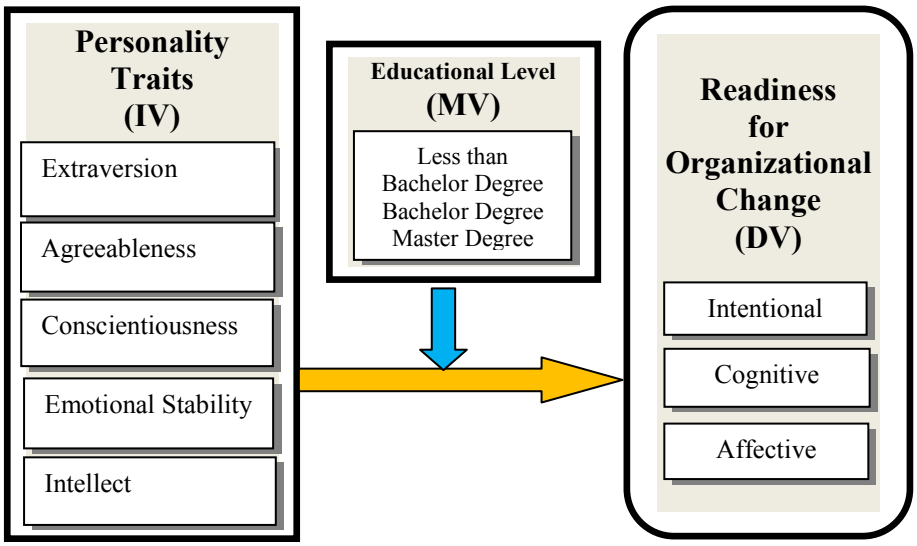


Figure 2. Theoretical Framework of Personality Traits Relationship to Readiness for Change, Moderated by Educational level.

Specifically, the 50-item Goldberg Big Five markers IPIP scale questionnaire (Goldberg, 1992), and the OCQ-R questionnaire (Bouckenooghe et al., 2009) were used to gather information on personality traits and employees' readiness for organizational change from 300 respondents across the country, and two statistical tests - a standard multiple regression test and a moderated multiple regression test - were used to investigate the relationships between personality traits and employee readiness for organizational change, and whether or not educational level exerted a moderating effect on personality traits in regard to readiness for change.

As Weiner (2009) pointed out, there is no one best way to improve success in organizational change; however, in order to achieve success in organizational change outcomes, individuals who make up the organization must be ready for change before the

organization as a whole can be change ready. Testing the theory that personality traits, moderated by educational level, exerts an influence on an employee's readiness for change will shed light on the role that the Big Five, moderated by education, has on employees' readiness for organizational change.

Education and Change

The power of education to change the status quo has long been known. Paulo Freire (1921–1997) has been called one of the greatest minds in 20th Century education. As an educator, he saw education as the most powerful means to effect social change by moving individuals from one undesirable social state to another more desirable one. Kristjánsson (2008) postulated that all education is about change and, indeed, a study by Sotomayor (2004) confirmed the power of education to effect positive change to reduce poverty in Brazil. Education's power and reach extend to all facets of society, including organizational functioning and performance. Michael et al. (1999) reported on a case study of the Pan Pacific Hotels and Resorts (PPHR) commitment to fully educate its workforce with university-recognized Associate Degree level to Master Degree level of education so as to meet the challenges of persistent organizational change and to maximize the opportunities posed by globalism. The introduction of this initiative was, itself, a change initiative that was quickly and readily embraced by the whole organization as the initiative was clearly communicated throughout the organization, and members understood what the change was about, why it was needed, how they would benefit from it, and what their role and place in the organization would be because of the

change; these are all outcomes that have been identified in the literature as being the result of best change management practices. So successful was the effort that it became part of the organization's change management strategy to remain a learning organization.

While education has been positively identified as a positive way to ready employees for change, personality, too, has been linked to educational outcomes as the literature has demonstrated correlations among different personality traits and educational performance (Abidin & Daud, 2012; Chamorro-Premuzic & Furnham, 2003; Hassan et al., 2010; Ree & Earles, 1991; Varela, Cater, & Michel, 2012). Although the Michael et al. (1999) findings indicated that education contributed to employees' change readiness, what was not known for sure, or at least not made clear in the literature, was whether or not the interaction of personality traits and education made employees readier for change, or whether one or the other contributed more to employee readiness for change; hence the call by Omazic et al. (2011) for further studies in this area of research.

The Methodological Literature: Brief Overview of SMR and MMR

According to Azen and Budescu (2009), in the late nineteenth century Sir Francis Galton first conceptualized the regression model while studying the inheritability of characteristics across generations. Galton's ambition was, based on parental characteristics, to be able to predict characteristics of the progeny. Galton had observed that extreme characteristic values (e.g., very tall or very short) in one generation produced offspring whose characteristic values were closer to the mean or average in the subsequent generation, and coined the term regression to the mediocre to describe the

phenomenon; later, this was amended to regression to the mean. Additionally, this observation extended to previous generations, prompting the conceptualization of the multiple regression model, which was mathematically formalized by Karl Pearson (Azen & Budescu, 2009).

Multiple Regression Analysis (MRA)

Multiple regression is a term that embraces many types of statistical tests, which, according to Pedhazur (1997), allow the researcher to assess correlations among variables, and also to assess variations in the dependent variable, based on information provided by several independent variables (as cited in Kraha, Turner, Nimon, Zientek, & Henson, 2012). Multiple regression also allows one to predict a criterion (dependent) variable based on several predictor (independent) variables and is ideal for conducting sophisticated, real-life investigations of phenomena (Pallant, 2010; Vogt, 2009); for this reason, it has become ubiquitous in organizational research and across disciplines (Davis-Stober, Dana, & Buduscu, 2010; Nimon & Oswald, 2013). Organizational researchers who apply multiple regression analysis to their studies continually seek to make inferences about the role and importance of independent variables in relation to the dependent variable (Nimon, Gavrilova, & Roberts, 2010; Zientek, Capraro, & Capraro, 2008, as cited in Nimon & Oswald, 2013); standard and hierarchical multiple regression are but two types of analytical tests that are used to accomplish this.

Standard Multiple Regression (SMR)

Standard multiple regression is one of the most frequently used multiple regression tests; in this procedure, all of the variables are simultaneously entered into the regression equation and one regression model is formed (Pallant, 2010). This test is used when a researcher wishes to know how much of the variance in a dependable variable such as Employee Readiness for Organizational Change can be explained by a set or block of independent variables (such as the Big Five factors of personality traits). When the criterion variables are entered sequentially in multiple blocks, this method of performing a multiple regression is referred to as a hierarchical or sequential multiple regression analysis; decisions that inform how the variables are entered are based on theoretical grounds. This type of multiple regression is used when the researcher desires to understand the contribution that each additional variable (or blocks of variables) adds to the variability of the DV, rather than just the contribution to the variance in the DV that *all* of the IVs make to the DV simultaneously (as is the case with SMR). Another type of multiple regression is *stepwise multiple regression*, the discussion of which is beyond the scope of this study. All multiple regression tests are based on assumptions that must not be violated, so that results can be accurate and trustworthy; these assumptions are further discussed in Chapter 4.

Moderated Multiple Regression

While multiple regression analysis has been favored in organizational research, a particular form of multiple regression–moderated multiple regression analysis–has

increasingly been the preferred statistical method used in this type of research since 1977 (Aguinis, 1995; Aguinis & Gottfredson, 2010), as growing recognition of the presence of other variables (referred to as *confounding* variables) helped researchers understand how these variables can interfere with the association of the IVs and the DV, thus distorting the effect of the IV on the DV. This is especially relevant to organizational studies where various conditions might interact with the independent variables and their effect on the DV.

Aguinis (1995) pointed out that many management theories had developed to levels of sophistication such that researchers had become interested in not only the main effects of predictor variables but also in their moderating effects. Zedeck (1971) explained that the presence of an interactive (i.e., moderating) effect implied that another variable (the moderator) affected the relationship between two variables (i.e., between the *x* predictor and the *y* criterion variables). In order to perform a moderated multiple regression, the independent variables are multiplied by the moderator variable(s) to form a new variable (referred to as an interaction term), then entered into the regression equation by hierarchical regression analysis. For the present study, an SMR was used to assess whether or not the Big Five factors of personality predicted Employee Readiness for Organizational Change (DV), and their contributions to variances in the DV. Additionally, a moderated multiple regression test was applied to assess if education interacted with personality traits to explain variances in the DV.

Summary

This chapter discussed the literature on organizational change, employee response to change, personality traits theory, readiness for change theory, and offered an overview of the multiple regression literature as it pertains to organizational studies. It provided alternate views on the value of resistance to change in organizations, as well as the value of employee readiness for organizational readiness for change. Chapter 3 discusses the research design and strategy that was applied to this study. A discussion of the sampling methods, instrumentation, and data collection methods, followed by discussions of the variables and constructs that were used in the study are presented, as well as discussions concerning the preparation and handling of the data and the systematic selection of the statistical tests that were used to analyze the data.

CHAPTER 3. RESEARCH METHODOLOGY

Introduction

The literature has shown that organizational change presents opportunities to stimulate innovation as well as to gain, or to increase competitive edge; it has also shown that all organizations today operate in environments that are characterized by change (Axley & McMahon, 2006; Bareil, 2013; M. Choi & Ruona, 2011). The literature has also revealed that over 70% of organizational change initiatives fail, and the fail rate might actually be as high as 93% (Burke, 2010; Decker et al., 2012; Higgs & Rowland, 2005; Kotter, 1996; D. Miller, 2002; Pellettiere, 2006; Bateh, Casteneda, & Farah, 2013; Strebel, 2009; Warrick, 2009). A major reason for failed organizational change initiatives has been attributed to employees' resistance to change, which has been linked to their unreadiness for change; therefore, according to M. Choi (2011), researchers have recently begun to study individual readiness for organizational change. The literature has shown that successful change initiatives depend on employees' readiness for change, and their support of organizational change initiatives (Armenakis et al., 1993; Edmonds, 2011); however, change is a disruption of routine and, even when this disruption is in employees' best interests, they too often resist it (Oreg, 2003).

Although organizations continue to show an interest in understanding this phenomenon, traditionally, the phenomenon has been studied from a management perspective and failure of change initiatives have been attributed to management or

change agents' mismanagement of the change processes (Backer, 1997; Bommer et al., 2005; Bouckenooghe, et al., 2009; D. Miller, 2002; Nohe et al., 2013; Rafferty et al., 2013; M. Smith, 2002; Vakola & Nikolaou, 2005). Recent studies, however, have begun to examine the roles that personality traits might play in employees' cognitive, affective, and intentional attitudes toward change; in the literature, these attitudes have been used to describe the concept of employees' readiness for change (Bouckenooghe et al., 2009; Omazic et al., 2011; Rafferty & Simons, 2006; Saksvik & Hetland, 2009).

A recent Croatian study by Omazic et al. (2011) showed no correlation between personality traits and readiness for change; however, the small sample size and homogeneous makeup of the sample, which consisted of what the authors described as "highly educated postgraduate students who were professionals in their fields" (p. 159), might have biased the study and contaminated the results so that erroneous conclusions were drawn and generalizability of the results was not possible. The authors admitted to this limitation of the study and suggested that a larger, more educationally heterogeneous sample should be used to re-examine the relationship between personality traits and employee readiness for organizational change in order to ascertain whether or not the educational level of their sample could have moderated the effects of personality traits on employee readiness for change. Additionally, a 2009 study by Rammstedt et al. showed that the Big Five was sensitive to educational level; however, since a very abbreviated 10-item personality questionaire scale was used in that study, the authors also admitted to the brevity of the scale as a limitation that affected the generalization of the results and

called for further research using more detailed scales. Following the Omazic et al. recommendations, and those of Rammstedt et al., the purpose of this study was to extend the literature on personality traits and readiness for change theories, and to test the theories by investigating (a) whether or not personality traits predicted readiness for change, and (b) whether or not employees' educational level moderated the influence of personality traits on readiness for change.

The study rested on two theory bases that guided and focused this study: (a) personality traits theory (Goldberg, 1990, 1992, 1993; McCrae & John, 1992) and (b) change readiness theory (Armenakis et al., 1993; Bouckenooghe et al., 2009). Specifically, the Big Five personality traits (Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect- EACESI), moderated by employees' educational level (Less-than-a-Bachelor degree, Bachelor Degree, and Master Degree) was used to predict the DV, Employee Readiness for Organizational Change, as evidenced by employees' intentional, cognitive, and affective (emotional) responses to organizational change. This chapter focuses on the design of the research, which includes discussions about the overall methodology that was applied to the study, sampling considerations, instrumentation, data collection, data analysis, and ethical considerations.

Research Design

The study design was a quantitative, cross-sectional (non-experimental) exploratory research using standard and moderated multiple regression analyses to examine any statistically significant relationships between an IV and a DV (Field, 2009),

and between an IV and a DV when the IV is affected by a moderating variable (MV) (Aguinis & Pierce, 2006; Field, 2009; Stone-Romero & Anderson, 1994). In this case, any statistically significant relationship between the dimensions of personality traits (IV) and readiness for change (DV) among educationally diverse employees (MV) was what was being investigated. Quantitative research methods are suitable for studying large groups and for generalizing from the sample under study to broader populations, but are also very suited to using smaller groups to make inferences about larger groups (Swanson & Holton, 2005). A major strength of quantitative studies is that they are concerned with generalizability or the ability to use the results with other groups at different times (Trochim, 2006). The applicability of this study to the broader population of organizations will be valuable in contributing to the understanding of the phenomenon from the individual unit of analysis. The scope of the study was limited to an American perspective.

Population, Sample Frame, Sample

According to Vogt (2009), a population is a group of people or objects that share common traits or characteristics. The population of interest was working adults (≥ 18 years) who were employees of USA based companies. Kalleberg, Mardsen, Aldrich, and Cassell (1990) advised that the sampling frame should depend on the markers that are most consistent with the purpose of the study; consequently, the markers that were most consistent with this study were employed adult who had attained high school or higher education, including college or university degrees. From this sample frame, a sample of

300 employed adults who had completed high school and obtained less than a Bachelor Degree, a Bachelor, or a Master Degree was drawn and stratified by 100 respondents in each educational level. The less-than-a-Bachelor Degree level comprised employees who had obtained a high school diploma, certificates, some college, and/or Associate Degrees. Since the Omazic et al. (2011) study was based on a sample of post-Master degree students, it was not necessary to re-sample that population since the sample composition of the present study allowed for the detection of trends or changes among change recipient employees at each level of education, up to a Master Degree level. Additionally, since the respondents in this sample completed their formal learning beyond high school and were utilizing their additional learning in organizations across the US, in investigating readiness for change among these employees it was expected that the educational and regional diversity in the present study would contribute to the generalizability of the findings. In order to further generalize the findings, the sample was not limited to mainly business students, as was the case in the Omazic et al. (2011) study, but included respondents from all disciplines at the Less-than-a-Bachelor, Bachelor, and Master Degree level of education.

Sample Size

Although sample size can be determined through the use of G-Power3, a heuristic or rule of thumb that is based on the number of variables used in the study is generally appropriate and heuristic rules are frequently used in multiple regressions (Tabachnick & Fidell, 2007). According to Field,(2009), Nunnally (1977) suggested 15 participants per

variable and, as further postulated by Field, a common heuristic to go by when selecting a sample size is for a researcher to have at least 10–15 participants per variable; furthermore, he described a large sample size as 30 or more participants. Based on heuristic tradition, since there are seven (7) variables in this study, applying the 15 samples per variable heuristic would have ensured a sample size of 105, which is larger than the sample size of 83 that was used in the Omazic et al. (2011) research from which this study emerged; this would have satisfied the Omazic et al. call for further studies with a larger sample. However, for MMRs, other considerations supersede sample size decisions that are based solely on heuristics. For example, since there are three subgroups in EDUC, that would have resulted in small sample sizes of approximately 35 per subgroup.

According to Aguinis and Gotfredson (2010), Shieh (2009, 2010) and others, very small sample sizes such as this would introduce bias and cause low statistical power to detect effect sizes to result. Aguinis (1997) referred to extant literature that showed that unless a sample size of at least120 was used in moderated multiple regression tests, medium and large moderating effects were undetected. Additionally, unequal group sizes can also lower statistical power and compromise the validity of conclusions that are based on moderated multiple regressions (Aguinis & Gottfredson, 2010). Heeding these warnings, and following Aguinis (1997), this study used a sample size of 300 participants and assigned equal numbers of 100 participants to each educational group, such that the composition of the moderating variable EDUC was as follows: Less-than-a-Bachelor

Degree, n = 100; Bachelor Degree, n = 100; Master Degree, n = 100. The sample size for this study satisfied the recommendation by Omazic et al. (2011) for a sample size that was larger than the one used in their study. Based on the purpose of the study, it was also appropriate for the research question, the statistical techniques that were used to test the hypotheses, and for the time and cost considerations related to completing a dissertation study. For the present study, there were no missing responses and the response rate was 100% (n = 300).

Sampling Methods

According to Winsip and Mare (1992), selection bias is a common problem in social science research and occurs when random sampling techniques are not employed. Selection bias is therefore a threat to the validity of studies, and one way to reduce this threat is to employ random sampling techniques when recruiting research participants (Patten, 2012; Stolzenberg & Relles, 1997). Data for this study were randomly collected by SurveyMonkey.com and the combinations of simple random sampling methods that were applied are *stratified* (various educational level), and *criterion* sampling (Patten, 2012). Both of these techniques helped to mitigate a limitation that was stated in the Omazic et al. (2011) study, which could have affected the results of their study; that is, the homogeneity of the sample. Homogeneity in a sample makeup can introduce selection bias as it excludes other cases such as, in the case of the Omazic et al. study, less-than-a-Bachelor, Bachelor, and Master Degree students. Selection bias can cause incorrect

inferences and conclusions to be made, thus limiting the external validity (and thus the generalizability) of the findings (Heckman, 1979; Orcher, 2005; Patten, 2012).

Access and Data Collection

The services of SurveyMonkey for data collection has been recognized and accepted as a trustworthy data gathering service (Vogt, 2007) and was therefore well suited for this study because it provided an efficient and economical means of distributing the survey, receiving responses, allowing for high security measures, and participant anonymity (SurveyMonkey, 2014), and for providing for fast result turnaround. Capella University**,** The George Washington University, Louisiana State University, Morgan State University, North Central University, The Ohio State University, and Purdue University are but a few of the colleges and universities that recognize SurveyMonkey as a reliable and valid sample recruiting and data gathering service, and many colleges and universities recommend SurveyMonkey for data collection (Vogt, 2007). The authorized questionnaire instruments that were used for data collection were reproduced in SurveyMonkey, and a link to the survey was provided to the company for dissemination to participants. Demographic information that included identifying features such as names, addresses, e-mails or IP addresses, or places of employment was not collected; however, the respondents' educational levels were collected since the various levels of education that were investigated were LTBDs, BDs, and MDs. Other information such as gender, age group, and region was also collected in order to provide the reader with a picture of the structural makeup of the sample. Survey

questionnaire instruments collected this type of demographic information, and also collected data on the Big Five personality traits (EACESI) and Employee Readiness for Organizational Change.

Inclusion and Exclusion Criteria

Five (5) inclusion criteria informed the sample collection: (a) the study participants were required to be 18 years of age or older, (b) they had to be employed in the USA at the time of the study, (c) they had to have completed high school and acquired additional higher learning in any discipline at the Certificate, Associate, Bachelor, or Master Degree level, (d) the sample had to be stratified by educational level, and (e) there had to be an equal number of respondents in each educational category. Unemployed degree holders, employees under the age of 18, employees with less than high school education, and employees outside of the USA were excluded from the study.

Instrumentation

The two types of survey questionnaires that were used to collect information on personality traits (PT) and employee readiness for organizational change (EROC) were the reduced 50-item Goldberg Big Five markers International Personality Item Pool (IPIP) scale (Goldberg, 1990, 1992, 1993, 2008) and the "**R"** section of the Organizational Change Questionnaire (OCQ-C,P,R) scale.

The Goldberg Big Five Markers 50-item IPIP Scale

The original Goldberg Big Five markers 100-item IPIP scale measured the previously mentioned Big Five personality traits factor structure (EACESI) and has been

put into the public domain to benefit social scientists worldwide. The scale was developed in 1999 and has been used in research and studies across countries and cultures since its development. In the original scale, 20 items measured each of the personality traits factors and was subsequently reduced to a 50-item scale to eliminate redundancy of questions; it is this 50-item scale that was used in this study. The reliability and validity of this scale has been confirmed repeatedly in the extant literature; for example, in a 2011 Croatian study by Omazic et al., the authors reported the following reliability Cronbach's alpha (α) coefficients: Extraversion = .91; Agreeableness = 0.88; Conscientiousness = 0.88; Emotional Stability = 0.91, ad Intellect = 0.90. In a Chinese context, concurrent validity and reliability rated quite high on every factor (Zheng et al., 2008), and similar results have been noted in America (Goldberg et al., 2006); Scotland (Gow, Whiteman, Pattie, et al., 2005), and other countries. Additionally, a comprehensive and growing list of studies that used this instrument can be inspected at the IPIP.org website at the following location: http://ipip.ori.org/newPublications.htm.

Ten items measure each of the five personality traits factors, and a five-point Likert scale (1 = *very inaccurate*, 5 = *very accurate*) gathered data on each personality trait construct; therefore, a total of 50 items (10 x 5) were to be tested. It has been documented in the literature that the five factors of personality have a hierarchical order, which is: Factor 1 = Extraversion; Factor 2 = Agreeableness; Factor 3 = Conscientiousness; Factor 4 = Emotional Stability, and Factor 5 = Intellect. Examples of items that addressed each dimension of the five personality traits are:

(a) Extraversion (*sociable* vs. *introverted*): "I am the life of the party."

(b) Agreeableness (*affable vs. reserved*): "I sympathize with other people's feelings."

(c) Conscientiousness (*well-organized* vs. *wasteful*) "I leave my belongings around."

(d) Emotional Stability (*self-assured* vs. *insecure*): "I have frequent mood swings."

(e) Intellect (*creative/resourceful* vs. *wary/guarded*): "I have a vivid imagination"

(Goldberg, 1990, 1992, 1993; McCrae & John, 1992).

There were five reverse scored items under *Extraversion*, four under *Agreeableness,* four under *Conscientiousness,* eight under *Emotional Stability,* and three under *Intellect.* The average time to complete this survey was <15 minutes.

The Employee Readiness for Change Scale

The complete Organizational Change Questionnaire scale is a three-questionnaire diagnostic measurement tool that consists of three sections: (**C**) Climate for Change; (**P**) Process of Change, and (**R**) Readiness for Change (Bouckenooghe et al., 2009). It is copyrighted by Bouckenooghe, Devos, and Van den Broeck (2009) and was normed for organizational use (for profit and non-profit). It measures three dimensions of employee readiness for change and the original scales displayed average to strong levels of internal reliability for the three constructs (Vogt, 2007): *Emotional* ($\alpha = .70$)*, Cognitive* ($\alpha = .69$), and *Intentional* ($\alpha = .89$) (Bouckenooghe et al., 2009). The average reliability coefficient for the original total Readiness for Change scale was 0.76, which indicated acceptable reliability and validity.

In the development of the Readiness for Change scale, three standards of validity (content, construct, and criterion-related validity) were examined in four studies: study #1 examined content validity; study #2 tested the factor structure and construct validity of the items; study #3 examined the replicability of the scales that emerged from study #2, and study #4 was the first step toward developing an English version of the original Dutch OCQ-C, P, R. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were conducted and the 15 items questions were reduced to nine, with three items addressing each construct. EFA, Pearson's Correlation, ANOVA, and Regression analyses were used to examine the different types of validity, which were supported by the results (Bouckenooghe et al., 2009, pp. 582–590). This is a five-point Likert scale questionnaire instrument (1 = *very inaccurate*, 5 = *very accurate*) and it was designed so that all parts could be administered simultaneously or separately, depending on the variables that the researcher wished to examine. For the purpose of this research, only the readiness for change section of the instrument was used (i.e., OCQ-R). Examples of the items that make up each dimension of the EROC scale are: Intention = "I want to devote myself to the process of change"; Cognition = "I think that most changes will have a negative effect on the clients we serve" (reversed scored), and Affect (Emotion) = "I have a good feeling about the change project". Three items on the scale that measured the construct "Cognition" were reverse scored items. The average time to complete this survey was <5 minutes.

Measurement of Constructs

For studies to produce results that are trusted, valid, and generalizable to larger populations, the instruments that are used to gather data must be reliable so that they will consistently gather data across studies. This is important for future researchers to replicate studies since instruments must measure the constructs of interests, and not something else; therefore internal consistency (instrument reliability) and external validity are important to the credibility of studies.

Reliability. The five constructs that constitute personality traits (EACESI), and the three constructs that constitute readiness for organizational change were measured for internal consistency by applying the Cronbach's alpha (α) statistical test which, according to Vogt (2007), is the most widely used index for estimating the reliability of measurement instruments. Cronbach's α indicates whether or not items on a scale are measuring the same construct, which is a determination of the internal consistency of items on the test. Cronbach's α is a numerical coefficient of reliability that ranges from 0 to 1.0 and, heuristically, alpha should be .70 to be considered adequate, and above .80 to be considered very reliable (Field, 2009; Reynaldo & Santos, 1999). The Cronbach's α for the original Goldberg 50-item IPIP Big Five personality traits scale exhibited instrument reliability as evidenced by Extraversion, $\alpha = .87$; Agreeableness, $\alpha = .82$; Conscientiousness $\alpha = .79$; Emotional Stability, $\alpha = .86$, and Intellect; $\alpha = .84$; and, in overall scale reliability, $\alpha = .84$. Likewise, psychometric properties of the original OCQ-R scale exhibited acceptable reliability properties: Cognitive, $\alpha = .69$, Affective, $\alpha = .70$,

and Intentional Readiness for Change; α = .89; overall α = .76. The reliability of these two scales lent to the validity of the instruments; that is, the scales were consistent in measuring the constructs that they purported to measure. Construct measurement is important because the reliability of the instrument, as exhibited in its Cronbach's α, contributes to the internal validity of the research (Vogt, 2007).

Validity. There are two types of validity: internal and external. Internal validity has to do with how truthful the research is; that is, how appropriate and relevant the design and measurement are to the study, for this will inform the accuracy of the conclusions. It also answers questions such as whether or not the variables that are meant to be tested are really being tested, or if what is being observed or queried is what the researcher meant to be observed or queried (Vogt, 2007). It must be noted that in this way, instrument reliability contributes to research validity; however, reliability is not dependent on validity. External validity has to do with the representativeness of the sample selection, and whether or not the sample reflects the characteristics of the population from which it was drawn. Validity lends to the generalizability of the results; that is, the degree to which what is known about the sample informs what is known about the population. Threats to internal validity can be due to the makeup or characteristics of the sample when non-random sampling techniques are employed (Cantrell, 2011). One way that this can be reduced or eliminated is by choosing random (probability) sampling methods, and using larger samples, both of which were accomplished in this study.

The Research Questions, Subquestions, and Hypotheses

This study investigated (a) the relationship between personality traits and employee readiness for organizational change, and (b) whether or not varying educational levels moderated the effects of personality traits on readiness for organizational change. The omnibus research question that guided this research was:

> RQ0: How does the Five Factor Model of Personality Traits (FFM) theory, alternately referred to in the literature as the Big Five factors of personality traits, explain the relationship between the dependent variable Employee Readiness for Change and the five independent variables EACESI (Personality Traits), controlling for the moderating effects of Educational Level?

From henceforth, the FFM will be referred to as the Big Five factors of personality traits or the Big Five. The omnibus hypotheses (H0, HA) that were used to address the omnibus research question (RQ0) were:

> H0: The Big Five factors of personality traits theory does not explain the relationship between the dependent variable Employee Readiness for Change and the five independent variables EACESI (Personality Traits), controlling for the moderating effects of Educational Level.
>
> HA: The Big Five factors of personality traits theory will explain the relationship between the dependent variable Employee Readiness for Change and the five independent variables EACESI (Personality Traits), controlling for the moderating effects of Educational Level.

Two research questions (RQ1, RQ2), two null and alternative hypotheses (H01 and H02), as well as five Subquestions ($RQ1_a$ – $RQ1_e$) and sub- hypotheses ($H01_a$ – $H01_e$) are implied in the H0; these are as follow:

Research Question 1 (RQ1) and Hypothesis 1 (H01)

RQ1: *To what extent do the Big Five factors of personality traits theory predict a statistically significant effect on employee readiness for organizational change?*

> H01: The Big Five factors of personality traits theory do not have a statistically significant effect on employee readiness for organizational change.
>
> HA1: The Big Five factors of personality traits theory will have a statistically significant effect on employee readiness for organizational change.

Since the Big Five factors of personality traits are made up of Extraversion, Agreeableness, Conscientiousness, Emotional Stability and Intellect, the following subquestions and subhypotheses emerged from the research question (RQ1) and the hypothesis (H01):

Subquestions ($RQ1_a$ – $RQ1_e$) and Subhypotheses ($H01_a$ – $H01_e$)

Subquestion 1_a: *To what extent does Extraversion predict a statistically significant effect on employee readiness for organizational change?*

> Subhypothesis $H0_{1a}$: Extraversion does not predict a statistically significant effect on employee readiness for organizational change.
>
> Subhypothesis HA_{1a}: Extraversion will predict a statistically significant effect on employee readiness for organizational change.

Subquestion 1_b: *To what extent does Agreeableness predict a statistically significant effect on employee readiness for organizational change?*

> Subhypothesis $H0_{1b}$: Agreeableness does not predict a statistically significant effect on employee readiness for organizational change.
>
> Subhypothesis HA_{1b}: Agreeableness will predict a statistically significant effect on employee readiness for organizational change.

Subquestion 1_c: *To what extent does Conscientiousness predict a statistically significant effect on employee readiness for organizational change?*

Subhypothesis $H0_{1c}$: Conscientiousness does not predict a statistically significant effect on employee readiness for organizational change.

Subhypothesis HA_{1c}: Conscientiousness will predict a statistically significant effect on employee readiness for organizational change.

Subquestion 1_d: *To what extent does Emotional Stability predict a statistically significant effect on employee readiness for organizational change?*

Subhypothesis $H0_{1d}$: Emotional Stability does not predict a statistically significant effect on employee readiness for organizational change.

Subhypothesis HA_{1d}: Emotional Stability will predict a statistically significant effect on employee readiness for organizational change.

Subquestion 1_e: *To what extent does Intellect predict a statistically significant effect on employee readiness for organizational change?*

Subhypothesis $H0_{1e}$: Intellect does not predict a statistically significant effect on employee readiness for organizational change.

Subhypothesis HA_{1e}: Intellect will predict a statistically significant effect on employee readiness for organizational change.

Research Question 2

Additionally, the interactive effects of education on the Big Five factors of personality traits and how those interactions moderated the effects of personality traits on employee readiness for organizational change were also being investigated; these were addressed in the second research question.

RQ2: *To what extent do the interactions of EDUC and the Big Five factors of personality traits predict a statistically significant moderating effect on Employee Readiness for Organizational Change?*

H02: Education will not interact with the Big Five factors of personality traits to predict a statistically significant moderating effect on employee readiness for organizational change.

HA2: Education will interact with the Big Five factors of personality traits to predict a statistically significant moderating effect on employee readiness for organizational change.

Since respondents were stratified into groups based on their educational level, three levels of education were represented in the sample (1 = Less-than-a-Bachelor Degree, $n = 100$; 2 = Bachelor Degree, $n = 100$; 3 = Master Degree, $n = 100$). The interaction of these three education levels with respondents' personality traits was what was being tested against the DV; therefore, three subquestions that emerged from the second research question, and the hypotheses that will address them were as follows:

$RQ2_a$: *To what extent do the interactions of EDUC at the Less-than-Bachelor Degree level and the Big Five factors of personality traits predict a statistically significant moderating effect on Employee Readiness for Organizational Change?*

$H0_{2a}$: The interactions of EDUC at the Less-than-Bachelor Degree level and the Big Five factors of personality traits will not predict a statistically significant moderating effect on Employee Readiness for Organizational Change.

HA_{2a}: The interactions of EDUC at the Less-than-Bachelor Degree level and the Big Five factors of personality traits will predict a statistically significant moderating effect on Employee Readiness for Organizational Change.

$RQ2_b$: *To what extent do the interactions of EDUC at the Bachelor Degree level and the Big Five factors of personality traits predict a statistically significant moderating effect on Employee Readiness for Organizational Change?*

$H0_{2b}$: The interactions of EDUC at the Bachelor Degree level and the Big Five factors of personality traits will not predict a statistically significant moderating effect on Employee Readiness for Organizational Change.

HA_{2b}: The interactions of EDUC at the Bachelor Degree level and the Big Five factors of personality traits will predict a statistically significant moderating effect on Employee Readiness for Organizational Change.

$RQ2_c$: *To what extent do the interactions of EDUC at the Master Degree level and the Big Five factors of personality traits predict a statistically significant moderating effect on Employee Readiness for Organizational Change?*

$H02_c$: The interactions of EDUC at the Master Degree level and the Big Five factors of personality traits will not predict a statistically significant moderating effect on Employee Readiness for Organizational Change.

$HA2_c$: The interactions of EDUC at the Master Degree level and the Big Five factors of personality traits will not predict a statistically significant moderating effect on Employee Readiness for Organizational Change.

In order to address these questions and subquestions, Employee Readiness for Organizational Change (DV) was regressed against each of the Big Five factors of personality traits (the IVs) and interaction terms that was be created by multiplying each of the Big Five factors by each educational level. A hierarchical multiple regression analysis was then applied to assess any moderating effects of the IVs on the DV.

Data Handling and Management Procedures

The data were downloaded from the researcher's account on the SurveyMonkey server and imported into the IBM SPSS program on the researcher's laptop; this program was used to analyze the data. Before the data could be analyzed, responses to items on the measuring instruments had to be reverse-scored. Reverse-scoring was accomplished by applying a *Transform into Different Variables* data transformation command in SPSS. Consequently, 25 items on the 50-item Goldberg Big Five markers IPIP scale, and three

on the Readiness for Change scale were reverse scored. After reverse-scoring, the values and labels of these items were changed to reflect the results of the reverse-scoring commands. Subsequent to these actions, since the two scales used in this study are multi-item scales, the means of the responses to the scale were obtained in order to avoid analyzing each question/item response separately.

Data Analysis Procedures

Two multiple regression tests were applied to this study to test the null hypotheses. A standard multiple regression test was used to investigate a linear relationship between each of the five personality traits (EACESI) and readiness for organizational change. A moderated multiple regression test (hierarchical multiple regression with interaction terms) investigated the hypothesis that EDUC did not moderate the relationship between PT and EROC. Moderated multiple regression has grown in popularity since the 1970s and is now commonly used in organizational research to investigate the interaction effect of a moderating variable upon independent variables in predicting the dependent variable (Aguinis & Gottfredson, 2010; Dawson & Ritcher, 2006; Irwin & McClelland, 2001; Shieh, 2009).

The moderator variable *Z* (EDUC) is the second variable, which is hypothesized to moderate the *X*-*Y* relationship (PT – EROC). Descriptives Statistics, Frequency, and an Exploratory Data Analysis (EDA) command were run, as well as a reliability check function to check the internal consistency of the constructs under investigation. The descriptive command summarized data information and produced statistics on such things

as the number of cases in the dataset, mean, standard deviation, range, skewness, and kurtosis of the data. The Frequency command produced graphs and pie charts that gave visual data about the demographic makeup of the dataset, and histograms also provided visual evidence of skewness and kurtosis. The EDA provides information about missing data and outliers that could be identified through examination of, for example, the boxplot, histograms, and stem and leaf outputs (Field, 2009); for the present study, there were missing data. The constructs were measured for internal consistencies by obtaining the Cronbach's alpha (α) statistics for each subscale; this, according to Vogt (2007), is the most widely used index for estimating the reliability of measurement instruments. Cronbach's α indicates whether or not items on a scale are consistent in measuring the same construct, which is a determination of the internal consistency of items on the test. Cronbach's α is a numerical coefficient of reliability that ranges from 0 to 1.0 and, heuristically, alpha should be.70 to be considered adequate, and above.80 to be considered very reliable (Field, 2009; Reynaldo & Santos, 1999).

In the present study there were no missing data; however, such data can be handled by making a determination on the value of the contribution of the missing data to the study and making one of several choices offered by SPSS on how to handle them. One way to handle missing data might be to recode them, another might be to perform a *Select Cases* action in the Data function of SPSS, and eliminate the outliers. Outliers can skew the data, and SPSS offers a variety of choices to deal with these situations that include data transformation, selecting out cases, and "Pairwise" and "Listwise"

commands. “Pairwise” and “Listwise” are two options that SPSS offers to handle missing data. When “Listwise” is used, the case that contains the missing data is removed. Unlike *Listwise*, “Pairwise” allows for the continued use of a case when analyzing other variables with no missing values; additionally it is allowed in correlation and regression studies such as this (IBM, n.d.). Nevertheless, caution is advised when removing cases since other unanticipated effects can result (Aguinis, Gottfredson, & Joo, 2013).

Ethical Considerations

Capella has recommended SurveyMonkey.com in colloquia, and their services were employed for data collection for the present study. Since data were collected from human beings, ethical concerns dealing with humans in research had to be addressed. This study necessarily had to be reviewed by Capella’s proposal committee and was also approved by the Institutional Review Board (IRB) before any data gathering could commence. Therefore, in accordance with the ethical principles established by the Nuremberg Code, the Helsinki Declaration, and the Belmont Report, the principles of *respect for persons, beneficence* and *justice* had to be upheld.

Informed Consent

Since data were collected through an online survey, respondents were asked to complete an electronic consent form in which they acknowledged their voluntary participation in the research effort, their complete understanding of what the research is about, and their right to terminate their participation in the research at any time, without penalty. This form preceded the survey, and the participants gave their informed consent

to participate in the research when they chose to click on the "Yes" button that was located at the bottom of the form. Participants who chose not to participate by clicking on the "NO" button were directed to a disqualification page and were not granted access to the survey. Prospective participants were guaranteed protection from harm, and their identities were protected as no personally identifying information was collected, and they were able to complete the surveys at their convenience, online, and at locations of their choosing. Additionally, any participant of the study was allowed to terminate their participation in the study at any time, with no consequence for doing so. The principle of justice was upheld by equitably selecting participants through random sampling (Research Ethics, 2010), and no incentives were given to participants by the researcher; every participant was treated in the same manner.

Summary

This chapter described the research design and methodologies that were applied to the present study. A quantitative, non-experimental, cross-sectional design was applied to the study, and random sampling techniques were used to draw a criterion-based sample from working adults across the USA. The research questions, null hypotheses, and their Subquestions and subhypotheses were articulated, and descriptions of the instrumentation and statistical measures that would be used to test the hypotheses were explained. In the following chapter, the analytical procedures, data analysis and interpretation, and discussions of the study's findings are dealt with. This is followed by the final chapter

(Chapter 5), which recaps and summarizes the findings and also discusses the limitations of the study, and recommendations for future research.

CHAPTER 4. RESULTS

Introduction

The overarching intent of this study was (a) to investigate the interactive effect of a moderating variable (education) on the independent variables *Extraversion, Agreeableness, Conscientiousness, Emotional Stability*, and *Intellect* (EACESI), also known as the Big Five factors of personality traits, (b) to determine if that moderation contributed to any variances in the dependent variable, Employee Readiness for Organizational Change (EROC), and if so, (c) to assess how much of the variance in the dependent variables were contributed by the independent variables. This chapter describes the research methodology, presents, and reports the results of the study. In this cross-sectional correlational design, the Five Factor Model (FFM) of Personality Traits theory, alternately referred to in the literature as the *Big Five factors of personality traits*, was tested to evaluate whether or not it explained the relationship between the dependent variable (EROC), and the independent variables (EACESI), controlling for the moderating effects of EDUC (Education). Three dimensions of readiness (cognitive, affective, and intentional readiness for change) comprised the scale that indicated and measured employee readiness for organizational change, and three sub-scales gathered data on these dimensions of EROC. What had to be determined first was whether or not the Big Five personality traits could predict employees' readiness for change; next, a determination had to be made as to whether or not the moderating effect of education on

personality traits changed the effect of personality traits on EROC, and how much variance in EROC might be explained by the independent variables. Two types of analyses, a standard multiple regression (SMR) test and a moderated multiple regression (MMR) test, were used to answer the research questions and test the hypotheses and subhypotheses that were generated from two separate research questions, which were inherent in the omnibus research question. These procedures investigated linear relationships between personality traits and employee readiness for change, and also investigated possible interaction or moderating effects of employees' educational level on personality traits; furthermore, it sought to explain how much variance in EROC might be explained by the independent variables.

Data Collection

This study used three instruments to gather data; one instrument collected demographic data such as respondents' gender, age, education, geographic region, and information about the type of change that their organizations were going through. No personally identifying information such as name, address, or phone number was collected. Two existing reliable and validated questionnaires, the Goldberg 50-item IPIP questionnaire, and the OCQ-R section of the three-part OCQ-C, P, R questionnaire, collected data on the Big Five personality traits and employee readiness for organizational change. The 50-item IPIP questionnaire measured the five personality traits, and the OCQ-R question measured the three dimensions of employee readiness for change. The latest version of the SPSS® Statistics program by IBM (Premium Grad Pack

22) was used to analyze the data, which had been collected by SurveyMonkey.com and downloaded into SPSS for data analysis.

In the following sections, the research questions are discussed, as well as the results of the SMR and MMR tests; however, data collection and a description of the population sample are first presented. This is followed by discussions of the statistical analyses and results, and how these informed the research questions and the hypotheses.

Description of the Population and Sample

The services of SurveyMonkey.com were employed to disseminate the surveys to a randomly selected criterion-based sample from its population of 30 million voluntarily registered adult panels throughout the United States of America (USA). Before respondents could participate in the survey, they were required to read and electronically acknowledge that they understood the description of the study, which also explained how participants would be protected from harm, how the study might benefit them, and how the information that they provided would be protected; furthermore, they were informed that they could quit participation in the survey at any time, without consequences. Thus, in compliance with the Belmont Principles pertaining to the ethical treatment of human beings in research, the participants were able to make a voluntary and informed decision to participate in the study or not. Willing participants were directed to the survey, while unwilling participants were redirected to an exit page.

Sample Frame and Sample Size

From the population of interest, a sample frame of employed adults was targeted and from this frame a sample of 300 actively employed individuals who were stratified by educational level (1 = Less-than-a-Bachelor Degree, 2 = Bachelor Degree, and 3 = Master Degree) was randomly drawn. The response rate was 100% (n = 300), and there were no missing responses; 100 participants were assigned to each educational level. The LTBD group consisted of high school graduates who had obtained some additional higher education after high school up to the Associates Degree level, but less than a Bachelor Degree; for example, diploma, certificate holders, and Associate Degree holders were included in this group. In quantitative studies, sample size is often guided by acceptable heuristics such as 10, 15, or 30 participants per variable (Field, 2009; Nunnally, 1977; Pedhazur & Schmelkin, 1991); however, larger sample sizes have been recommended for multiple regression analyses (Aguinis, 2010;Nunnally, 1977). In fact, according to Maxwell (2000), Nunnally recommended sample sizes of 200 to 400 for this type of analysis– an opinion that Aguinis et al. (2010) agreed with.

The size of the sample for the present study was based on recommendations by Aguinis et al. (2010) for a larger sample to be used in moderated multiple regression tests. Using a larger sample size in these types of tests allowed for the study to have the power to more accurately detect effect sizes so that the researcher might avoid a Type 1 error and fail to reject a null hypothesis when, in fact, it should be rejected. Sample size is important because the generalizability of a study can be limited by sampling error (Kraha

et al., 2012). In moderated multiple regression tests, the power to detect a medium-sized moderating effect in a sample size of 300 that was randomly chosen was .81 (Aguinis, 1995), which is considered enough power to correctly reject a null hypothesis (Noordjiz et al., 2010). In the present study results were deemed to be statistically significant at the $p < .05$ level, with a confidence level of .95 (Vogt, 2007), and these statistics were used to reject or fail to reject the null hypotheses.

Unemployed adults who satisfied the educational criterion were excluded from the study, as well as under aged participants (<18years old) who may have otherwise satisfied this criterion. Additionally, postgraduate degree holders were not included in the study since, based on the Omazic et al. (2011) study from which this research emerged, it would have been redundant to do so since the sample in the Omazic et al. study was composed of postgraduate respondents. The educational make-up of the present study allowed for the opportunity to compare results of the present study to the Omazic et al. study. Since the present study was testing the hypothesis that educational level will not moderate the effects of personality traits on readiness for change, this researcher concluded that the educationally diverse sample, stratified on three levels of increasing education, was sufficiently adequate to detect trends or changes in the interaction of the different education levels and personality traits on employee readiness for change. More detailed explanations of this decision are provided in Chapter five. The following section discusses the composition of the sample, as well as descriptive statistics.

Description of the Participants

Although certain characteristics of the Omazic et al. (2011) sample were retained in the present study (e.g., employed adults), the sample composition of this study differed significantly from the Omazic et al. study from which this research emerged. For example, the Omazic et al. convenience sample of university students was composed of 83 postgraduate college students who were professionals in their fields and who were pursuing additional postgraduate education in Croatia. In this present study, a larger, more heterogeneous, randomly drawn sample was used, and wide regional diversity was included since participants were represented from every region of the United States. Three hundred participants were stratified by age grouping and educational level and were assigned to three groups of 100, based on these criteria. The composition of the age groups (Table 4) were as follows: 34 – 53 years old (n = 121) who made up 40.33% of the sample; 18 – 33 years old (n = 104, 37.67%), and 54 years old and over (n = 75, 25%).

Table 4. *Population by Gender, Age, Education, and Type of Change*

	%	*n*
Gender		
Male	24.7%	74
Female	75.3%	226
Age		
<18	0.0%	0
18 – 33	34.7	104
24 – 53	40.3%	121
54 and older	25%	75
Education		
Less than Bachelor	33.3	100
Bachelor Degree	33.3	100
Master Degree	33.3	100
Type of Change		
Continuous	97	32
Episodic	170	57
Continuous and Episodic	33	11

Note: n = 300

Education levels were classified as *Less-than-a-Bachelor Degree* (LTBD), *Bachelor Degree* (BD), and *Master Degree* (MD). Women predominated in the gender makeup, and this composition was not representative of the general population in the USA. According to its most recent supplemental report (2013), the US Census Bureau recorded the gender makeup of the US as 42.2% male, and 50.8% female. In the present study, there were three times as many females as males in the sample.

Table 5. *Education Makeup by Age and Gender*

	Present Study		US Census Bureau Report (2013)	
Variables	*%*	*n*	*%*	*N**
Education Level by Age (Male)				
Less than Bachelor			33%	**66
18 - 33	2%	7		
34 - 53	3%	9		
54 and older	2%	7		
Bachelor Degree			11%	**21
18 - 33	1%	4		
34 - 53	2%	7		
54 and older	3%	9		
Master Degree			4%	**8
18 - 33	2%	7		
34 - 53	3%	9		
54 and older	5%	15		
Education Level by Age (Female)			*%*	*N*
Less than Bachelor			36%	**72
18 - 33	9%	26		
34 - 53	12%	35		
54 and older	5%	16		
Bachelor Degree			12%	*23
18 - 33	12%	37		
34 - 53	10%	29		
54 and older	5%	14		
Master Degree			5%	*10
18 - 33	8%	23		
34 - 53	11%	32		
54 and older	5%	14		

Source: US Census Bureau Supplemental Report, 2013, by sex, all ages.
Note: n = 300; Based on **N* = 200 million male and female adults 18 years and older.
All numbers rounded off to the nearest whole number.

In the 18 – 33 age group, more females than men (*n* = 77, 26%) had attained less than a Bachelor Degree; however, in the 54 and over age group, more than twice as many females as men (*n* = 69, 23%) had attained a Master Degree. As of 2013, in the general US population of 236 million adults 18 years and older, 204 million adults had obtained

education that ranged from a high school diploma to a Master Degree (Table 5). Of these, 49% were males, compared to 51% of females as reported by the 2013 supplemental Census Bureau. Table 5 shows a comparison of the educational composition of the present study versus that of the general US population of adult males and females 18 years of age and older; not included in the Census report was the employment status of this population. The nine regions of America from which the sample was drawn showed extensive geographic diversity (Table 6).

Table 6. *Geographic Make-up by Census Region*

Respondents' Geographic Location	*%*	*n*
New England (Maine, New Hampshire, Vermont, Massachusetts)	2.7%	8
Middle Atlantic (New York, New Jersey, Pennsylvania)	19.3%	58
East North Central (Ohio, Indiana, Illinois, Michigan, W	16.3%	49
West North Central (Minnesota, Iowa, Missouri, North Dakota	5.0%	15
South Atlantic (Delaware, Maryland, District of Columbia	23.7%	71
East South Central (Kentucky, Tennessee, Alabama, Mississippi	7.7%	23
West South Central (Arkansas, Louisiana, Oklahoma, Texas	8.3%	25
Mountain (Montana, Idaho, Wyoming, Colorado, New Mexico,	6.7%	20
Pacific (Washington, Oregon, California, Alaska, Hawaii)	10.3%	31
Total	100.0	300

Note: $n = 300$

Of the nine regions of the country, sample frequencies were highest in the South Atlantic ($n = 71$), the Middle Atlantic ($n = 58$), and the East North Central ($n = 49$).

Since all participants were employed, the geographic diversity of the sample also indicated a diversity of organizations in which participants were employed. No information on employees' type of employment or organization was collected; however, the wide geographic representation of the working population implied a wide representation of industries in the USA, which lent to the generalizability of the study. Since America is a highly diversified country in terms of race, ethnic diversity of the sample is assumed.

Type of Organizational Change Experienced by Respondents

According to the literature, change is ever-present in the business environment. Based on their own perceptions of the changes that their organizations were going through, respondents were asked to choose one response from the following question: *What type(s) of change(s) is happening at your organization?* The response choices were (a) continuous change (b) episodic/major change (c) both types of change (Table 7). The respondents' interpretations of the two types of changes that their organizations were undergoing were based on admittedly limited information provided in the questionnaire, which briefly described types of organizational changes as follow:

> Some of the changes that organizations go through are major changes such as mergers and acquisitions, while some are different and might involve such things as changes in processes and procedures, or changes in policies (the ways that things are normally done, etc.). These changes can be continuous or episodic. (Tappin, 2014)

Since organizations can experience both types of changes simultaneously, the choice of "Both types of change" was added to the response choice.

Table 7. *Type of Change from Employees' Perspectives*

Description	*%*	*n*
Continuous change	57.7%	170
Episodic/Major change	11%	33
Both types of change	32.3%	97

Note: n = 300.

In response to the question "What type(s) of change(s) is happening in your organization?" 56.7% of respondents (n = 170) indicated that their organizations were undergoing continuous change; 11% (n = 33) described their organizational changes as episodic or major, while 32.3% (n = 97) described their type of organizational changes as a combination of both continuous and episodic/major (Table 7).

Research Design and Methodology

In alignment with the positivist philosophical tradition, this cross-sectional study applied quantitative methods (multiple regression tests and analyses) to probe the relationship, and the size of the relationship, between several independent variables (i.e., the five broad dimensions of personality traits-EACESI) and the dependent variable, Employee Readiness for Organizational Change (EROC). It also sought to examine variances in EROC that may have emerged due to the interactive effects of education on personality traits. In other words, how much the independent variables contributed to any

variance in the dependent variable was what was being probed. Standard multiple regression and moderated multiple regression analyses were applied to test the hypotheses and answer the research questions that were generated from this omnibus research question:

> RQ0: How does the Five Factor Model (FFM) of Personality Traits theory, alternately referred to in the literature as the Big Five personality traits, explain the relationship between the dependent variable, Employee Readiness for Organizational Change (EROC) and the independent variables, the Big Five factors of personality traits (EACESI), controlling for the moderating effects of Education (EDUC)?

Conventionally, all of the independent variables are entered at the same time in a standard multiple regression step, while the moderator variable (which is also an independent variable) is entered in sequential steps in a moderated (hierarchical) multiple regression test. The nature of the research question supported the research design and methodology since multiple regression tests are used to predict relationships and/or to explain variations in the dependent variable, given a set of independent variables with known values (Laerd, 2013; Zedeck, 1971); furthermore, the use of random sampling techniques and close-ended Likert scale survey instruments to collect data also aligned with the positivist tradition of data collection in which the researcher does not interact with survey respondents, but takes an objective stance.

Measures

Two questionnaire survey instruments were used to collect data concerning personality traits and employee readiness for organizational change via the Internet from

a randomly chosen sample of employed adults across the USA. The Goldberg 50-item IPIP Big Five personality scale was developed by Dr. Lewis Goldberg and put into the public domain to encourage research, and the Employee Readiness for Organizational Change is part of a three-part questionnaire (OCQ-C, P, R) that measures employees' cognitive, affective (emotional), and intentional (behavioral) readiness for change. Permission was graciously granted by one of the instrument's creators, Dr. Dave Bouckenooghe, for use in this study.

Instrument Reliability and Validity

The two questionnaire instruments that were used to collect personality traits and employee change readiness data were existing instruments that had been used in extant research, and the reliability and validity of both instruments have been established in the literature. As explained in Chapter 3, reliability has to do with whether or not an instrument is consistent in measuring what it is supposed to measure, whether or not the design of the study is consistent so that future researchers are able to replicate the study by using the same research design to study the same phenomena, and whether or not repeating the design will allow other researchers to arrive at conclusions akin to those of the original researcher (Field, 2009; Trochim, 2006; Vogt, 2007; Wikman, 2007). Reliability of an instrument is very important to the validity of results for, if the instrument is not measuring what it is supposed to, results will not be valid; therefore, the reliability of an instrument lends to the validity of the results. For the present study, the documented reliability of the original instruments contributed to their validity.

The Goldberg 50-item IPIP Big Five Personality Scale

This five-point Likert scale instrument was composed of five subscales, each of which was composed of 10 items/questions that measured each of the Big Five factors of personality traits (EACESI). Responses were measured on scales that ranged from 1 to 5, with 1 = *very inaccurate*, 2 = *inaccurate*, 3 = *neither inaccurate nor accurate*, 4 = *accurate*, and 5 = *very accurate*. Psychometric properties of the original individual sub-scales for the Goldberg 50-item IPIP Big Five personality scale exhibited strong reliability properties (Extraversion, $\alpha = .87$; Agreeableness, $\alpha = .82$; Conscientiousness $\alpha = .79$; Emotional Stability, $\alpha = .86$, and Intellect; $\alpha = .84$; for overall scale reliability, $\alpha = .84$.

The Employee Readiness for Organizational Change Scale

The Organizational Change Questionnaire – Climate, Process, Readiness (OCQ-C, P, R) scale is a three-sectioned instrument that was developed by Bouckenooghe et al. (2009). This questionnaire was designed so that the three parts can be used together to measure an organization's climate, process, and readiness for change at the organizational and individual level of unit. Alternately, they could be used independently of each other to measure each of those three underlying constructs of an organization's climate, process, or readiness for change separately. The OCQ-R section of the scale measures employees' readiness for organizational change; therefore, the present study used this portion of the questionnaire scale (OCQ-R) to measure employee readiness for organizational change since it was the employee unit level that was under investigation.

The OCQ-R is composed of three sub-scales that measure employees' cognitive, affective, and intentional readiness for change. Self-report responses were collected on 5-point Likert scales with the following ranges: 1 = *totally disagree*, 2 = *disagree*, 3 = neutral, 4 = *agree*, and 5 = *totally agree*. Psychometric properties of the original OCQ-R scale exhibited acceptable reliability properties overall ($\alpha = .76$). Individually, the psychometric properties of the original OCQ-R sub-scales also exhibited acceptable reliability properties (Cognitive Readiness, $\alpha = .69$, Affective Readiness, $\alpha = .70$, and Intentional Readiness for Change; $\alpha = .89$). As explained in Chapter 3, both scales had been normed for use in organizational research.

Data Management Procedures

Before analyzing the data, it was necessary to conduct certain procedures in order to obtain reliable and valid results. Both five-point Likert scale questionnaire instruments contained items that had to be reverse-scored. In the OCQ-R questionnaire, several items in each of the Goldberg 50-item Big Five IPIP scale had to be reverse-scored (Table 8), and all three of the items in the Cognitive scale (Table 9)

Table 8. *The Goldberg Big Five 50-item Personality Traits Scales with Reverse-scored Items*

Big Five Personality Traits Scale Items	Reversed –Score for Each Big Five Sub-scale Item
Extraversion:	
6. Don't talk a lot	5 = 1
7. Keep in the background	4 = 2
8. Have little to say	3 = 3
9. Don't like to draw attention to myself	2 = 4
10. Am quiet around strangers	1 = 5
Agreeableness:	
7. Am not interested in others	5 = 1
8. Insult people	4 = 2
9. Am not interested in other people's problems	3 = 3
10. Feel little concern for others	2 = 4
	1 = 5
Conscientiousness:	
7. Leave my belongs around	5 = 1
8. Make a mess of things	4 = 2
9. Often forget to put things back in their proper	3 = 3
place	2 = 4
	1 = 5
Emotional Stability:	
3. Get stressed easily	5 = 1
4. Worry about things	4 = 2
5. Am easily disturbed	3 = 3
6. Get upset easily	2 = 4
7. Change my mood a lot	1 = 5
8. Have frequent mood swings	
9. Get irritated easily	
10. Often feel blue	
Intellect:	
	5 = 1
8. Have difficulty understanding abstract ideas	4 = 2
9. Am not interested in abstract ideas	3 = 3
10. Do not have a good imagination	2 = 4
	1 = 5

Source: Adapted from The International Personality Item Pool and the future of public-domain personality measures by Dr. L. Goldberg, public domain, http://ipip.ori.org/newBigFive5broadKey.htm.

Table 9. *Reverse-scored Items Employee Cognitive Readiness for Change Scale*

Cognitive Scale Items	Reverse Scoring for Each Item
1) I think that most change will have a negative effect on the clients we serve	5 = 1 4 = 2 3 = 3 2 = 4 1 = 5
2) The plans for the future will not come to fruition	
3) Most change projects that are supposed to solve problems around here will not do much good	

Note: Adapted from *Background Information OCQ-CPR* provided by D. Bouckenooghe 12/2013. Also published by D. Bouckenooghe, G. Devos, & H. v. d. Broeck, 2009 in *The Journal of Psychology, 143*(6), 575. Copyright D. Bouckenooghe, G. Devos, & H. v. d. Broeck, 2009. Permission granted by Dr. Dave Bouckenooghe 12/2013.

After the completion of the reverse-scoring actions, reliability statistics were obtained in order to ascertain the reliability of the scales; scale reliability lends to the validity and generalizability of a study's results.

Present Study Scale Reliability and Validity

In the present study, the OCQ-R scale exhibited better psychometric properties than the original OCQ-R scale (Table 10), as follow: for Cognitive Readiness for Change, $\alpha = .86$; for Emotional (affective) Readiness for change, $\alpha = .92$, and for Intentional Readiness for Change, $\alpha = .89$. Overall reliability average was $\alpha = .89$, an indication of instrument validity.

Table 10. *Cronbach Alpha Reliability Testing Results*

Scale	α (present study)	No. of items	α (original study)
Intentional Readiness	.89	3	.89
Cognitive Readiness	.86	3	.69
Affective/Emotional Readiness	.92	3	.70
Extraversion	.93	10	.87
Agreeableness	.89	10	.82
Conscientiousness	.86	10	.79
Emotional Stability	.93	10	.86
Intellect	.87	10	.84

Note: For overall OCQ-R scale reliability (present study), α = .89; original OCQ-R scale reliability, α = .76. For overall Goldberg 50-Item IPIP Big Five scale (present study), α = 90; original α = .84

Likewise, in this present study, the Goldberg 50-item IPIP scale showed very good reliability as follows: Extraversion, α = .93; Agreeableness, α = .89; Conscientiousness, α = .86; Emotional Instability, α = .93, and Intellect, α = .87; average reliability, α =. 90; all statistics were rounded to the next whole number. In this study, the instrument exhibited better psychometric properties than the original instrument (Table 10) and indicated that the items were consistent in measuring what they were supposed to measure, thus lending to the validity of the instrument. It must be noted that differences in scale reliability from original reports, and from study to study, are affected by sample size and composition. Further evidence of the instruments' ability to measure what it purported to measure (and not something else) can be determined by examining the

statistics in the correlation matrices of the major variables; low statistical correlations indicate that no constructs in the variables are correlated with each other and, therefore, are not redundant, thus ensuring discriminant validity.

After reverse-scoring was completed, reliability statistics on both scales were obtained, and all subscale responses to both scales were averaged. The averaged OCQ-R scales (Cognitive Readiness for Change, Affective Readiness for Change, and Intentional Readiness for Change) were labeled T-Cognitive, T-Affective, and T-Intentional but will from henceforth be referred to as Cognitive, Affective, and Intentional readiness for change. It was necessary to further average the three means in order to produce one overall mean response for Employee Readiness for Change; this new mean of the three previously averaged scales was labeled "Change Readiness". Hereinafter, this label term will be used interchangeably with Readiness for Change and will carry the same meaning as *Employee Readiness for Organizational Change* (EROC). Likewise, the averaged responses for the Big Five factors of personality were re-labeled T-*Extraversion, T-Agreeableness, T-Conscientiousness, T-Emotional Stability,* and *T-Intellect*; the original trait names will be retained throughout the study.

Summary of Results

The preceding section dealt with the data management actions that were taken to prepare the data for analysis. Descriptive Statistics painted a picture of the composition of the sample that was used in this study. While the makeup of the sample (n = 300) was criterion based, since the sample was randomly drawn, it was observed that there was

age, gender, educational, and regional diversity in the makeup of the sample; however, in gender makeup, women predominated men by 3 to 1(n = 226). Reliability statistics differed from those of the original scales and showed stronger psychometric properties than reported in the original studies; this lent to the validity of the instruments. The composition of the sample reflected gender, educational, regional, and change-experience diversity, which also lent to the strength and generalizability of the study. The following section deals with the details of the analyses and the results.

Details of Analysis and Results

This study probed the interactive effects among education and the Big Five personality traits in predicting employees' readiness for organizational change. The two goals of this study were (a) to determine if the independent variables (the Big Five personality traits of Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect) predicted and/or explained the dependent variable EROC (Employee Readiness for Organizational Change) by examining how much of any variation in the dependent variable can be explained by the independent variables, and (b) to determine whether or not EDUC interacted with the Big Five personality traits such that EDUC moderated the effect of the Big Five on EROC. It was hypothesized that Personality Traits would not have a statistically significant effect on employee readiness for organizational change (H01), and the interactive effect of EDUC on personality traits would not predict a statistically significant variance in employee readiness for organizational change (H02). Standard multiple regression (SMR) analysis was used to

test the first hypothesis (H01), and moderated multiple regression (MMR) analysis was applied to test H02. Multiple regression tests are used to investigate variances in the criterion variable, given the predictor variables (Kraha et al. 2012). MMRs are used to probe the interaction effect(s) of one or more independent variables (the MVs) upon other independent variables and, in turn, determine whether or not the MVs influence the effect of the IVs upon the DV (Aguinis & Stone-Romero, 1997; Baron & Kenny, 1986).

First, responses to each of the three underlying dimensions of EROC were averaged into composite scores (that is, T_Cognitive, T_Affective, T_Intentional Readiness for Change), then the means of these composite scores were aggregated into one overall score for EROC (Change Readiness in the data file), with higher scores indicating higher levels of readiness at the cognitive, affective, and intentional dimensions, and also at the overall EROC level. By averaging these scores, one score that represented EROC (i.e., Change Readiness) could be computed. Responses to the Big Five factors of personality scales were also averaged into mean scores (T_Extra = Extraversion; T_Agree = Agreeableness; T_Consc = Conscientiousness, T_Emot = Emotional Stability, T_ Intell = Intellect in the data file); higher scores indicated higher levels of expression of each particular personality trait. These were regressed against overall Change Readiness and also against each of the means of the three underlying dimensions of EROC in order to ascertain (a) the overall predictive value of each of the Big Five on EROC, and (b) the individual predictive value of the Big Five on each of the underlying dimensions of Change Readiness. In order to run multiple regression tests

certain assumptions must hold true; in the following sections, these assumptions will be discussed and certain statistics and graphs will be examined to test for violations of these assumptions.

Means and Standard Deviations

For AgeGroup, participant observations ranged from 1.00 to 3.00 (1 = 18 – 33, 2 = 34 – 54, and 3 = over 54 years of age), with an average observation of 1.90 (*SD* = 0.77) showing that the average age group that participants fell into was above the 18 – 33, but just under the 34 – 54 age group.

Education and Gender

For EDUC, participant observations ranged from 1.00 to 3.00, with an average observation of 2.00 (*SD* = 0.82), denoting that the average educational level was at the Bachelor Degree level. The frequency of women in the sample exceeded that of men by a 3:1 ratio (*n* = 226:74).

Employee Readiness for Organizational Change (EROC)

To obtain a picture of the average participant responses that indicated their readiness for organizational change, EROC was examined at the overall readiness for change level, and at the individual dimensions level; results showed the following:

Dimensions of Readiness for Change

For Intentional readiness for change, participant observations ranged from 1.00 to 5.00, with an average observation of 3.72 (*SD* = 0.78), an indication that employees' intentions to support organizational change was generally slightly above neutral,

suggesting that employees had not intentionally committed themselves to the change effort(s) . For Cognitive readiness for change, participant observations ranged from 1.00 to 5.00, with an average observation of 3.41 (*SD* = 0.90), again showing that their beliefs about the change was far less than fully supportive of the change. Finally, for Affective readiness for change, participant observations ranged from 1.00 to 5.00, with an average observation of 3.49 (*SD* = 0.89), once again showing that employees had feelings that reflected less than full support of the change. The implications of these results are discussed in Chapter 5.

Overall Readiness for Change

For average overall Employee Readiness for Organizational Change, participant observations ranged from 1.00 to 5.00, with an average observation of 3.54 (*SD* = 0.69). On the whole, mean observations indicated that participant readiness for change was above neutral, but lower than full support of the change.

Five Factors of Personality Traits

The expressions of the Big Five personality traits among respondents were examined at each factor level, and a picture emerged that showed how these traits were dispersed in the sample. Means and standard deviations for each trait were as follow:

For Extraversion, participant observations ranged from 1.00 to 5.00, with an average observation of 3.08 (*SD* = 0.89) (Table 11). For Agreeableness, participant observations ranged from 1.60 to 5.00, with an average observation of 4.06 (*SD* = 0.63). For Conscientiousness, participant observations ranged from 2.40 to 5.00, with an

average observation of 3.95 (*SD* = 0.62). It must be noted that, as mentioned Chapter 2, the literature asserts that sample participants tend to be biased in self-reports on the Agreeableness factor and, seemingly consistent with the literature, compared to the other traits, this was factor was expressed as being higher than the other traits in the sample.

Table 11. *Means and Standard Deviations for Continuous Variables*

Variable	*M*	*SD*
Age group	1.90	0.77
Change Readiness	3.54	0.69
Intentional	3.72	0.78
Cognitive	3.41	0.90
Affective	3.49	0.89
Big Five Personality Traits		
Extraversion	3.08	0.89
Agreeableness	4.06	0.63
Conscientiousness	3.95	0.62
Emotional Stability	3.33	0.87
Intellect	3.85	0.60

Note: Respondents' age groups were as follow: 1 = 18-33; 2 = 34-54, 3 = over 54.

For Emotional Stability, participant observations ranged from 1.00 to 5.00, with an average observation of 3.33 (*SD* = 0.87). For Intellect participant observations ranged from 2.10 to 5.00, with an average observation of 3.85 (*SD* = 0.60). The insights provided by these results are discussed in Chapter 5.

Assumptions and Testing of Assumptions Related to SMR and MMR

Assumptions that are related to an MMR are the same as those of a standard multiple regression, which are the same for a linear regression. For example, it is assumed that residuals are not exerting any influence upon each other (*independence of errors*). It is also assumed that a linear relationship exists between the predictor variables and the dependent variables (*linearity*); the variances along the line of best fit remain similar along the line (*homoscedasticity*); two or more residuals are not highly related to each other as this can cause confusion about which variable is contributing to the variance in the dependent variable (*multicollinearity*); no data points are so deviated from the normal pattern that they skew results, affect the normality of the distribution, and produce erroneous results (*significant outliers/influential points*); and finally, errors are normally distributed (*normality of distribution*) (Field, 2009; Rahman, Sathik, & Senthamarai, 2012). These assumptions allow one to (a) provide information on the accuracy of the predictions, (b) test how well the regression model fits the data, (c) determine the variation in the dependent variable explained by the independent variables, and (d) test hypotheses on the regression equation.

Testing of Assumptions

A linear regression equation was calculated, as well as the statistical significance of the overall model and each predictor variable, and a measure of effect size (Laerd, 2014). A linear regression test was first run in order to test the assumptions, and each of the IVs was regressed against overall EROC and against each of the underlying

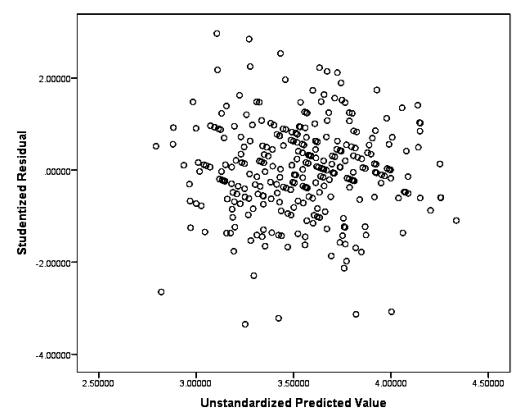
dimensions of EROC (Cognition, Affect, and Intention); assumptions were tested as follows:

Independence of Errors

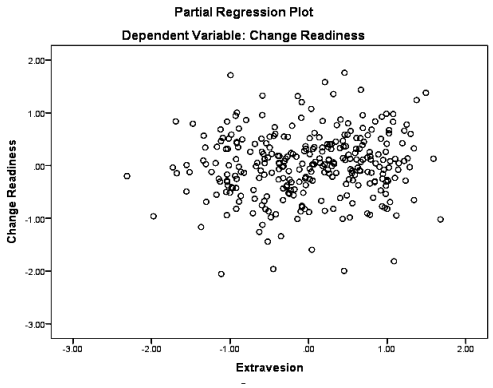
The composite means of the Big Five personality traits and the composite mean of the three underlying constructs of Employee Readiness for Change, expressed as Change Readiness, were examined for independence of errors; as assessed by the Durbin-Watson Statistic of 2.023, the assumption of independence among residuals was not violated. The Durbin-Watson statistic was also examined for evidence of independence of errors among all five of the predictor variables and the three individual dimensions of Readiness for Change; independence of errors was evident as assessed by the following Durbin-Watson Statistics: Cognitive Readiness for Change, 1.963; Affective Readiness for Change, 1.983; Intentional Readiness for Change, 2.027.

Linearity

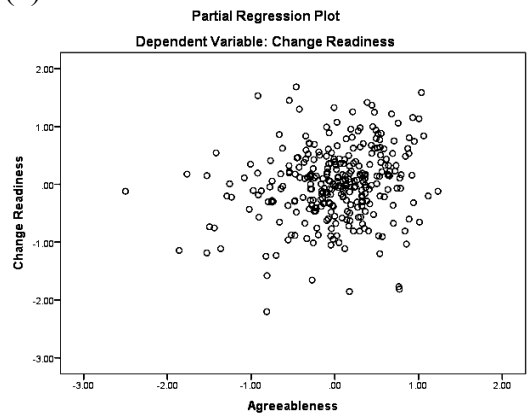
The overall Change Readiness mean was plotted against the IVs (Figure 3). An examination of the partial regression plots, showed a linear relationship between EROC and Extraversion, an approximately linear relationship between EROC and Agreeableness, and linear relationships between EROC and Conscientiousness, EROC and Emotional Stability, and EROC and Intellect; these results confirmed that the assumption of linearity had not been violated.



(1)



(2)



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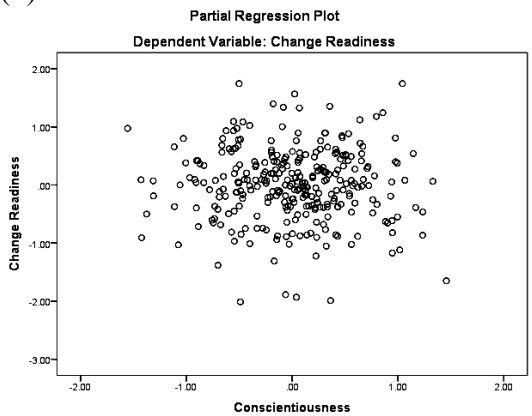

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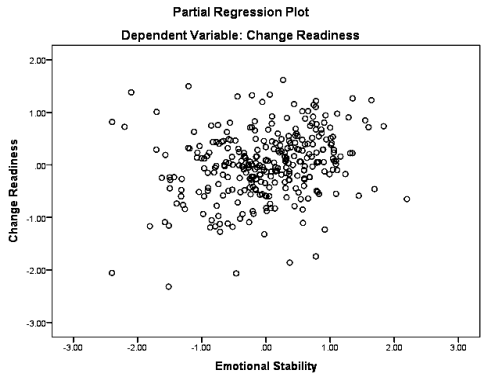
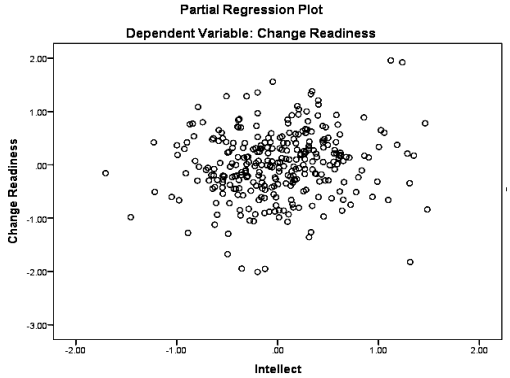


(5)



(6)

Figure 3. Scatter Plots SRE_1 and the IVs against Readiness for Change showing: (1) Studentized Residuals by Unstandardized Predicted Value; (2) Change Readiness (CR) by Extraversion; (3) CR by Agreeableness; (4) CR by Conscientiousness; (5) CR by Emotional Stability (6) CR by Intellect

Additionally, Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect were individually plotted against each of the three DVs that comprised EROC and an examination of the scatter plot that was generated from plotting the studentized residuals (SRE_1) against the (unstandardized) predicted values (PRE_1) confirmed linear or approximately linear relationships between each of the individual predictors (EACESI) and the dependent variables, Cognitive Readiness for Change, Affective Readiness for Change, and Intentional Readiness for Change.

Homoscedasticity of Residuals

A re-examination of the plot of the studentized residuals and the unstandardized predicted value (Figure 3, plot 1) indicated that the residuals were spread across the predicted values of the DV; therefore, homoscedasticity was evident. Partial regression plots also confirmed that the residuals were spread evenly over the predicted values of the dependent variables Change Readiness; therefore, the assumption of homoscedasticity of residuals was upheld.

Multicollinearity

When two or more independent variables are highly correlated with each other, multicollinearity exists. Confusion arises when multicollinearity exists as it becomes difficult to understand or explain which variable contributes to the variance explained, causing problems with the multiple regression model; for example, although overall predictions can still be made, the confounding effects of collinearity can cause misleading interpretations and conclusions that are based on the size of the regression

coefficients, their standard errors, or the associated *t*-tests (Mason & Perrault, 1999, p. 268). An examination of the Tolerance/VIF statistics (Table 12), as well as the Correlation Table (Table 13), determined whether or not multicollinearity existed.

Table 12. *Coefficients Table: Collinearity Statistics.*

Model	Tolerance	VIF
1 Constant		
Extraversion	.763	1.311
Agreeableness	.812	1.231
Conscientiousness	.783	1.277
Emotional Stability	.828	1.208
Intellect	.746	1.34

Note: Dependent variable: Change Readiness

The Tolerance statistic should not be less than 0.1, and the VIF (the reciprocal of the Tolerance) should not exceed 10; additionally, no correlation statistic for the IVs should be greater than 0.7 (Field, 2009; Lehman, 1989, in Mason & Perrault, 1991). In this dataset, Tolerance levels for the Big Five personality traits were all > 0.1 as evidenced by: Extraversion = 0.76, Agreeableness = 0.81, Conscientiousness = 0.78, Emotional Stability = 0.83, Intellect = 0.75. Additionally, at the aggregate level with Change Readiness (DV), all of the correlation statistics were < 0.7; therefore, the assumption of no collinearity was upheld.

Table 13. *Correlation Matrix among Change Readiness, Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect*

	1	2	3	4	5
1) T_Readiness	-				
2) T_Extra	.28*	-			
3) T_Agree	.32*	.34*	-		
4) T_Consc	.17*	.23*	.27*	-	
5) T_Emotion	.33*	.30*	.25*	.32*	-
6) T_Intell	.27*	.38*	.33*	.37*	.18*

Note. $p < .01$. Change Readiness (DV).

Similarly, an inspection of the correlations of the individual levels (Cognitive, Affective, and Intentional Readiness for Change), showed no correlation statistic that was > 0.7; again, the assumption of no collinearity was upheld.

Outliers

Outliers are data points that deviate from the normal pattern and their influence in a dataset can skew results, affect the normality of the distribution, and produce erroneous results (Rahman et al., 2012). The Casewise Diagnostics output table with Change Readiness (DV) was examined for potential outliers that were greater than ± 3 standard deviations, and cases numbered 26, 32, 79, and 93 were identified as potential outliers. Likewise, each of the Case Diagnostics tables for each three underlying dimensions of Change Readiness was inspected, and several potential outliers were also identified. It must be noted that three standard deviations were chosen due to the large sample size.

Most of the potential outliers (n = 6) that were identified were cases associated with the Intentional Readiness for Change scale. The studentized deleted residuals (SDR_1) that were created when the IVs were regressed against Readiness for Change were sorted in descending order and examined for residuals > ±3 standard deviations as this allowed for a more careful identification of residuals that fell within this category.

Five potential outliers were detected in SDR_1, which was created in the regression model when the Big Five personality traits were regressed against the overall Readiness for Change variables. Upon an inspection of the individual dimensions of EROC (i.e., the Cognitive, Affective, and Intentional dimensions of Readiness for Change variables) regressed against the Big Five factors of personality traits, two potential outliers were detected in the Cognitive dimension, three were in the Affective dimension, and five were in the Intentional dimension. Nevertheless, no action was taken to remove or select out these cases since inspections of the Histogram (Figure 4) indicated that their effect on the study seemed to be minimal, as the histogram seemed to be fairly normally distributed despite minimal negative skewness; additionally, an inspection of the standardized residuals (ZRE_1) showed the highest value to be 3.27, and no values were less -3.30 or above 3.30, indicating an absence of outliers (Tabachnick & Fidell, 2007). It must be noted that not all outliers have an influence on the regression model. Cases were further examined to determine whether or not any residual exhibited undue influence or leverage over others.

Leverage Points

The LEV_1 variable (also LEV_2, LEV_3 and LEV_4 variables), in which the leverage value for each variable is stored, was assessed for high leverage points. Heuristically, leverage values less than 0.2 are considered safe, 0.2 to less than 0.5 are considered risky, and values of 0.5 and above are considered dangerous (Field, 2009). The LEV_1 variable that was created by the regression of the Big Five against Readiness for Change holds the residuals, which were sorted in descending order for easy detection of high leverage points and it was revealed that one residual was slightly greater than 0.2 at 0.266; based on heuristics, it was decided to keep the residual since the risk that it presented to the study was deemed to be acceptable. Since the residual with the highest leverage point was only 0.266 the assumption of absence of high influential points was not violated. Similar results were obtained from an inspection of the underlying dimensions of EROC. Although the Casewise Diagnostic tables had been inspected and had revealed potential outliers, examinations of the SDR_1, SDR_2, SDR_3, and SDR_4, and LEV_1, LEV_2, LEV_3, and LEV_4 variables showed that none of the residuals exhibited high leverage points. Finally, an additional check for influential points was conducted by examining the COO_1, COO_2, COO_3, and COO_4 variables, which contained the Cook's Distance values for each case when the Cook's option was selected.

Influential Points

Cook's distance is a measure of influence and, heuristically, any value above 1.00 should be investigated (Field, 2009). COO_1, COO_2, COO_3, and COO_4 were created

in the overall Readiness for Change model and in the individually regressed Cognitive, Affective, and Intentional Readiness for Change, which are the underlying dimensions of Readiness for Change. After sorting the values in descending order, an assessment of this variable revealed that no value was > 1, indicating that no potential outlier exerted undue influence in the model; therefore, the assumption of no influential points was not violated. Outliers can also be visually identified by examinations of the scatter plot, stem and leaf, and histogram outputs.

Normal Distribution of Errors/Residuals

Crucial to inferential statistics is the normal distribution of residuals. This can be checked by examining graphs and statistics such as (a) the histogram with the normal bell curve (Figure 4) that was superimposed on it when that option was chosen when the linear regression test was run, (b) the Normal Q-Q Plot of the studentized residuals (the SRE outputs), which was an option that was also chosen in the linear regression test, and (c) the Shapiro-Wilk section of the Test For Normality that was obtained when an Explore command was launched (Table 13). Since the sample size was less than 2000, the Shapiro-Wilk statistics, and not the Kolmogorov-Smirnov statistics, was assessed for normality of distribution. An assessment of the Shapiro-Wilk statistics (Table 14) showed that the distribution of residuals was statistically significantly non-normal, $p < .05$. However, it has been reported in the literature that multiple regression is robust to non-normalcy (Mason & Perrault, 1991; Osborne & Waters, 2002). Further examinations of the histograms and P-P Plots (Figure 4 and Figure 5) seem to support this claim.

Table 14. *Shapiro-Wilks Test for Normalcy of Distribution*

	Shapiro-Wilk		
Variable	Statistic	df	Sig.
Change Readiness	.985	300	.004
Intentional Readiness	.910	300	.000
Cognitive Readiness	.969	300	.000
Affective Readiness	.953	300	.000
Extraversion	.989	300	.019
Agreeableness	.959	300	.000
Conscientiousness	.975	300	.000
Emotional Stability	.988	300	.013
Intellect	.989	300	.005

Note: $p < .05$.

An examination of the Casewise Diagnostics output with Change Readiness (DV) revealed four cases (26, 32, 79, and 93) as potential outliers. Inspection of these cases showed that responses were extreme in that there was little variation in their responses. Respondents 26 and 32 were most extreme in that for each of the dimensions of Change Readiness, and for each of the factors of personality, they simply entered the same scale response of 2 or 4; understandably, these responses negatively skewed the data (Table 15). However, since all of the skewness and kurtosis statistics showed values that, except for the subscale *Intentional Readiness*, which showed kurtosis of 1.82, were all less than an absolute value of 1, a fairly normal distribution was indicated.

Table 15. *Skewness and Kurtosis*

Variable	Skewness	Kurtosis
Change Readiness (CR)	-.275	.141
Cognitive Readiness (sub-scale of CR)	-.323	-.209
Affective Readiness (sub-scale of CR)	-.361	-.195
Intentional Readiness (sub-scale of CR)	-.830	1.815
Extraversion	.104	-.399
Agreeableness	-.668	.293
Conscientiousness	-.092	-.735
Emotional Stability	-.220	-.440
Intellect	-.001	-.432

An inspection of the histogram for normality of distribution confirmed some negative skewness to the left that seemed to be -3SD from the mean, and some very slight positive skewness to the right that appeared to be slightly over 3SD from the mean, indicating some non-normalcy of distribution; however, since the sample was large (n = 300), from a visual inspection, it was evident that the histogram also indicated relative normality of distribution.

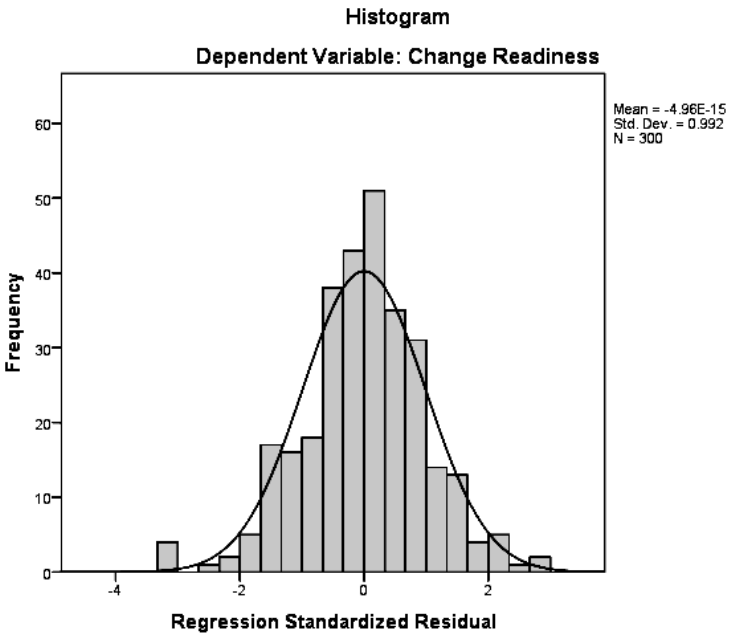


Figure 4. Histogram of Normal Distribution of Errors

Visually, histograms can be deceptive as the size of the bars can visually distort the result; therefore, the alignments of the residual points along the regression line of the Normal P-P Plot (Figure 5) were assessed in order to confirm the evidence of relative normality that was indicated by the histogram.

The alignments of the residual points along the regression line of the Normal P-P Plot (Figure 5) were assessed in order to confirm the evidence of approximate normality that was indicated by the histogram. According to Laerd (2013), perfect alignment of the points along the regression line is not realistic; however, the regression analysis tolerates deviations from normality. Nevertheless, the P-P Plot of the overall Readiness for Change variable that was generated when the Descriptives command was run displayed very

robust indications of normality as the residuals fitted closely with the regression line, and their points were also strongly aligned with the regression line, although there was slight deviation along the line of regression.

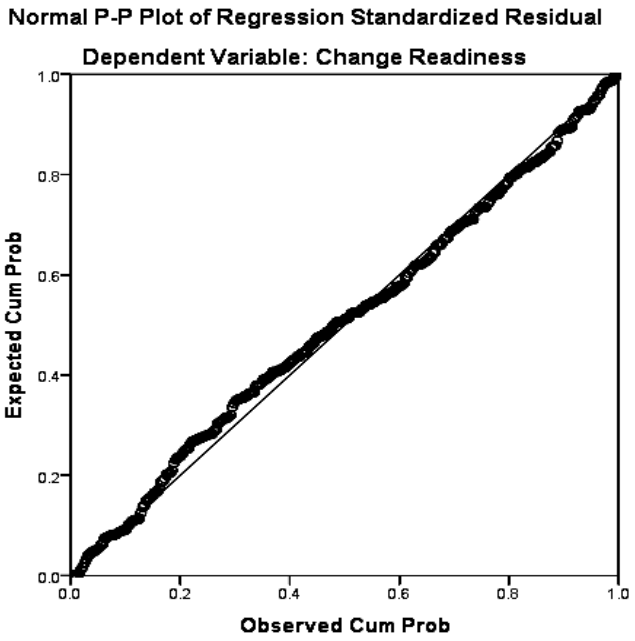


Figure 5. P-P Plot of Distribution of Residuals

Summary of Assumptions

Multiple regression (MR) is used widely in behavioral and organizational research (Mason & Perrault, 1991). Ultimately, the purpose of MR is to probe and understand if the independent variables predict the dependent variables, and the extent to which independent variables explain variances in a dependent variable (Barron & Kenny, 1986; Kraha et al., 2012). It is also used to predict the values of the dependent variable when the values of the independent variables are known; however, in order for the test to

produce valid and reliable results, certain assumptions must hold. Multiple regression is robust to some violations such as normal distribution of errors (Mason & Perrault, 1991; Osborne & Waters, 2002); however, conventionally, examinations of various statistics and graph outputs are used to confirm that the assumptions concerning independence of errors, linearity, homoscedasticity of residuals, collinearity, absence of significant outliers, and normal distribution of errors are violated. These assumptions allow one to (a) provide information on the accuracy of the predictions, (b) test how well the regression model fits the data, (c) determine the variation in the dependent variable explained by the independent variables, and (d) test hypotheses on the regression equation. In the present study, although potential outliers were identified, examinations of the Durbin-Watson statistics, the LEV_1, LEV_2, LEV_3, and LEV_4 variables, in conjunction with the COO_1, COO_2, COO_3, and COO_4 variables, the histogram, and P-P Plot indicated that the potential outliers exerted no undue influence or high leverage on other residuals such that the results of the study might be compromised, and the Shapiro-Wilks statistics confirmed normality of distribution. Consequently, a determination was made to retain the potential outliers in the study.

Testing of the Hypotheses: Standard Regression Analysis

The independent variables that constituted the Big Five personality traits are Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect. The data that had been collected on each of the personality factors and dimensions of employee readiness for organizational change had been averaged to form composite

scores for better data analysis and is represented in the dataset as T_Extra, T_Agree, T_Consc, T_Emotion, and T_Intell (IVs), while overall employees' change readiness is represented by T_Readiness, and the sub-dimensions of Change Readiness are represented by T_Cognitive, T_Affective, and T_Intentional.

Means and Standard Deviations for Change Readiness and its Sub-dimensions

Participants' scores for Change Readiness ranged from 1.22 to 5, with a mean score for employees' overall readiness for organizational change (T_Readiness) of 3.54 (*SD* = 0.69). Observations for the Cognitive dimension of Change Readiness ranged from 1 to 5, with a mean score of 3.41 (*SD* = 0.90). Participants' response scores for Affective Readiness ranged from 1 to 5, and averaged 3.49 (*SD* = 0.89). Observations for Intentional Readiness ranged from 1 to 5, with a mean score of 3.72 (*SD* = 0.78) (Table 15).

Means and Standard Deviations for the Big Five Factors of Personality

Observations for Extraversion (T_Extra) ranged from 1 to 5, with average observations of 3.08 (*SD* = 0.69). For T_Extra, participant observations ranged from 1.00 to 5.00, with an average observation of 3.08 (*SD* = 0.89). Agreeableness (T_Agree) participant observations ranged from 1.60 to 5.00, with an average observation of 4.06 (*SD* = 0.63). For Conscientiousness (T_Consc), participant observations ranged from 2.40 to 5.00, with an average observation of 3.95 (*SD* = 0.62). For Emotional Stability (T_Emotion), participant observations ranged from 1.00 to 5.00, with an average observation of 3.33 (*SD* = 0.87); finally, participant observations for Intellect (T_Intell)

ranged from 2.10 to 5.00, with an average observation of 3.85 (*SD* = 0.60). These results are summarized in Table 16.

Table 16. *Descriptive Statistics Related to H01*

Variable	*M*	*SD*	*n*
Overall Employee Readiness for Change (EROC)*	3.54	.69	300
Cognitive Readiness**	3.41	.90	300
Affective Readiness**	3.49	.89	300
Intentional Readiness**	3.72	.78	300
*Big Five Personality Traits****			
Extraversion	3.08	.89	300
Agreeableness	4.06	.63	300
Conscientiousness	3.95	.62	300
Emotional Stability	3.33	.87	300
Intellect	3.85	.60	300

Note: *DV; ** Dimensions of EROC; ***IVs

Two main effect hypotheses (H01, H02) and their subhypotheses were tested using standard and moderated multiple regression analyses. Research Question 1 asked: *To what extent do the Big Five factors of personality traits predict a statistically significant effect on employee readiness for organizational change?*

Hypothesis 1

> **H01:** Personality Traits will not have a statistically significant effect on employee readiness for organizational change.

The outcome variable that is associated with this hypothesis is Employee Readiness for Organizational Change (EROC), also referred to as "Change Readiness" and represented in the dataset as T_Readiness. The predictor variables are Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect, and are represented in the dataset as T_Extra, T_Agree, T_Consc, T_Emotion, and T_Intell. To test the main effect hypothesis (H01) that personality traits will not have an effect on employee readiness for change, a standard multiple regression test was done in which all of the IVs were entered at the same time into the regression model and regressed against Employee Readiness for Change (DV); descriptive statistics procedures produced a summary of the regression model. A multiple linear regression test was run to determine whether or not Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect predicted Employee Readiness for Organizational Change (EROC). The assumption of normality had previously been assessed through an examination of the P-P Plot (Figure 5), and the alignment of the residuals' points along the regression line confirmed normality. Other tests had also confirmed that the assumptions associated with multiple regression tests had not been violated.

Four values indicated the fit of the model with the data: R, R^2, R^2_{adj} and the standard error of the estimate (Laerd, 2013). The value of R can range from 0 to 1, and

higher numbers denote a closer correlation between the predicted values and the dependent variable, which means that the higher *R* is, the better the IVs are in predicting the DV. This model indicated that the ability of the IVs (personality traits) to predict EROC was adequate, signifying a moderate level of prediction (44.5%), $R = .445$. Results were significant, $R^2 = .198$, $R^2_{adj} = .184$, $F = (5,294) = 14.517$, $p < .0001$. This suggested that personality traits moderately predicted EROC for, as indicated by R^2_{adj}, 18.4% of the variance in overall Employee Readiness for Organizational Change was accounted for in this model, indicating a very modest effect size; nevertheless, it was statistically significant at the $p < .005$ level. As indicated in Table 17, at least three personality trait factors: Agreeableness, ß = .195, 19.5%, $p < .05$; Emotional Stability, ß = .240, 24%, $p < .05$, and Intellect, ß = .138, 13.8%, $p < .05$) statistically significantly contributed to the prediction; therefore, the overall null hypothesis, H01, was not supported.

Table 17. *Summary of Multiple Regression Analysis*

Variable	*B*	SE_B	*ß*	*t*	*p*
Intercept	1.365	.315			
Extraversion	.070	.046	.091*	1.52	.129
Agreeableness	.213	.063	.195*	3.36	.001
Conscientiousness	-.036	.065	-.033*	-.55	.580
Emotional Stability	.191	.046	.240*	4.19	.000
Intellect	.157	.069	.138*	2.28	.023

Note: **p* <. 05; *B* = unstandardized regression coefficient; SE_B = Standard error of the coefficient; *ß* = standardized coefficient

The strength and direction of the relationships among the variables were also examined by assessing the results of the Pearson's Correlation Matrix (Table 18). Since each variable was used five times, a Bonferroni correction to the alpha level was used; consequently, the new alpha level was .010 (.050 / 5). Results showed that Change Readiness was significantly positively correlated with Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect, and the strength of those relationship between the IVs and the DV ranged from small (Conscientiousness = .17) to medium (Emotional Stability = .33) (Cohen, 1988).

Table 18. *Correlation Matrix among Change Readiness, Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect*

	1	2	3	4	5
1) Change Readiness	-				
2) Extraversion	.28*	-			
3) Agreeableness	.32*	.34*	-		
4) Conscientiousness	.17*	.23*	.27*	-	
5) Emotional Stability	.33*	.30*	.25*	.32*	-
6) Intellect	.27*	.38*	.33*	.37*	.18*

Note: * $p < .01$; $n = 300$.

Extraversion was significantly positively correlated with Agreeableness, Conscientiousness, Emotional Stability, and Intellect. Agreeableness was significantly positively correlated with Conscientiousness, Emotional Stability, and Intellect. Conscientiousness was significantly positively correlated with Emotional Stability and Intellect. Emotional Stability was significantly positively correlated with Intellect. Table 16 shows the full correlation matrix. For a significant positive correlation, when one variable increases, the other variable also increases. The predictors were then examined at the individual traits level, to test the sub-hypotheses.

Evaluation of Subhypotheses $H01_a$-$H01_e$

Since there were five factors of personality that were being tested against the DV, five subquestions that emerged from Research Question 1 asked to what extent did each of the five personality traits predict a statistically significant effect on employee readiness

for organizational change. The hypotheses ($H01_a$-$H01_{e)}$ that addressed the research questions were as follow:

> Subhypothesis $H0_{1a}$: Extraversion does not predict a statistically significant effect on employee readiness for organizational change.
>
> Subhypothesis $H0_{1b}$: Agreeableness does not predict a statistically significant effect on employee readiness for organizational change.
>
> Subhypothesis $H0_{1c}$: Conscientiousness does not predict a statistically significant effect on employee readiness for organizational change.
>
> Subhypothesis $H0_{1d}$: Emotional Stability does not predict a statistically significant effect on employee readiness for organizational change.
>
> Subhypothesis $H0_{1e}$: Intellect does not predict a statistically significant effect on employee readiness for organizational change.

Based on results from the multiple regression tests, the following assessments were made:

$H01_a$: Extraversion was not found to be a significant predictor of Readiness, B = .070, p = .129 ($p > .01$); therefore, the null subhypothesis ($H01_a$) that Extraversion did not predict employee resistance to organization change with any statistical significance was supported.

$H01_b$: Agreeableness was a statistically significant predictor of Change Readiness, $B = 0.21$, $p = .001$ ($p < .01$), suggesting that for every one unit increase in Agreeableness, Change Readiness increased by 0.21 units; therefore, the null subhypothesis that Agreeableness will not statistically significantly predict employee Change Readiness was not supported.

$H01_c$: Conscientiousness, $B = .036$, $p > .05$ was not a statistically significant predictor of Employee Readiness for Organizational Change; therefore, the null subhypothesis was accepted.

$H01_d$: Emotional Stability was a significant predictor of employee change readiness, $B = 0.19$, $p < .001$, suggesting that for every one unit increase in Emotional Stability, Change Readiness increased by 0.19 units; therefore the null subhypothesis that Emotionally stability was not a statistically significant predictor of Employee Readiness for Organizational Change was not accepted.

$H01_e$: Intellect was a statistically significant predictor of Employee Readiness for Organizational Change, $B = 0.16$, $p = .028$ ($p < .05$), suggesting that for every one unit increase in Intellect, Change Readiness increased by 0.16 units; therefore, the null subhypothesis that Intellect will not predict Employee Readiness for Organizational Change (EROC) was not accepted.

Summary of Results of the SMR Analysis on Readiness for Change

A standard multiple regression analysis was used to test the explanatory power of the Five Factor Model (FFM) of Personality Traits theory on the Employee Readiness for Change theory by first (a) investigating if the FFM predicted employee readiness for organizational change (EROC), (b) investigating any variances in EROC that may have been caused by the Big Five factors of personality traits, and (c) assessing the strength of relationships between the personality traits and EROC. This analysis addressed the hypothesis and its subhypotheses that emerged from the omnibus question, which asked:

How does the Five Factor Model (FFM) of Personality Traits theory, alternately referred to in the literature as the Big Five personality traits, explain the relationship between the dependent variable, Employee Readiness for Organizational Change (EROC) and the independent variables, Personality Traits (EACESI), controlling for the moderating effects of Educational Level (EDUC)?

The first effect null hypothesis (H01) stated that personality traits will not predict EROC, and five null subhypotheses ($H01_a$ – $H01_e$) stated that EACESI will not predict EROC. The first research question asked "To what extent do the Big Five factors of personality traits predict a statistically significant effect on employee readiness for organizational change?" and the hypothesis that responded to this question stated: Personality Traits will not have a statistically significant effect on employee readiness for organizational change (**H01).**

A multiple linear regression was conducted to assess if the Big Five Factor Model of personality (represented in the dataset by T_Extra, T_Agree, T_Consc, T_Emotion, and T_Intell) predicted Employee Readiness for Organizational Change, represented in the dataset by T_Readiness. Results showed that H01 could not be supported as the model displayed modest level of prediction (44.5%): $R = .445$. Results were significant, $R^2 = .198$, $R^2_{adj} = .184$, $F = (5,294) = 14.517$, $p < .001$. These results indicated that 19.8% of the variance in EROC was accounted for by the Big Five factors of personality (T_Extra, T_Agree, T_Consc, T_Emotion, and T_Intell). Further analysis of the individual factors of personality traits to be statistically significantly predictive of EROC showed that three personality traits statistically significantly predicted EROC, while two

did not. Consequently, $H01_a$ (Extraversion, $B = .070$, $p = .129$, $p > .05$) and $H01_c$ (Conscientiousness, $B = -.036$, $p = .580$, $p > .05$) were supported, while $H01_b$ (Agreeableness, $B = 0.21$, $p = .001$, $p < .05$), $H01_d$ (Emotional Stability, $B = 0.19$, $p = .000$, $p < .001$), and $H01_e$ (Intellect, $B = 0.16$, $p = .023$, $p < .05$) were not accepted; these results are summarized in Table 19.

Table 19. *Results of Standard Multiple Regression Test of H01, Sub-$H01_a$ – $H01_e$*

Hypotheses	Null Supported (Yes)	Null Not Supported (No)	*p* value
H01	-	No	*p = .000, p* < .001
Sub-$H01_a$	Yes	-	*p = .129, p* > .05
Sub-$H01_b$	-	No	*p = .001, p* <. 05
Sub-$H01_c$	Yes	-	*p = .580, p* > .05
Sub-$H01_d$	-	No	*p = .000, p* < .001
Sub-$H01_e$	-	No	*p = .023, p* < .05

Note: When three or more paths are significant, a hypothesis is supported.

In order to get a more granular understanding of the predictive ability of the Big Five on the three individual dimensions of EROC (i.e., Cognitive Readiness [T_Cognitive], Affective Readiness [T_Affective], and Intentional Readiness for Change [T_Intent]), these variables were regressed against the Big Five personality traits, and the results were assessed and reported.

Results of SMR Analysis on Sub-dimensions of Change Readiness

Prior to the analyses of the three dimensions of Employee Readiness for Organizational Change, assumptions related to multiple regression analysis had been checked and assessed to have not been violated.

Cognitive Readiness for Change

Results of the linear regression were deemed to have been statistically significant: $F(5,294) = 6.36$, $p < .001$, $R^2 = 0.10$. This suggests that altogether T_Extra, T_Agree, T_Consc, T_Emotion, and T_Intell accounted for 10% of the variance in T_Cognitive. Further examinations of the individual predictors revealed that T_Extra, T_Consc, and T_Intell were not found to be significant predictors of T_Cognitive, while T_Agree (B = 0.27, $p = .002$), and T_Emotion ($B = 0.23$, $p < .001$) were statistically significant predictors of Cognitive readiness for change. The result suggests that for every one unit increase in T_Agree, T_Cognitive increased by 0.27 units, and for every one unit increase in T_Emotion, T_Cognitive increased by 0.23 units. These results are presented in Table 20.

Table 20. *Results for Multiple Linear Regression with T_Extra, T_Agree, T_Consc, T_Emotion, and T_Intell Predicting T_Cognitive*

Source	*B*	*SE*	β	*t*	*p*
T_Extra	-0.01	0.06	-.01	-0.11	.909
T_Agree	0.27	0.09	.19	3.06	.002
T_Consc	-0.05	0.09	-.04	-0.58	.563
T_Emotion	0.23	0.06	.22	3.67	.001
T_Intell	0.01	0.10	.00	0.07	.944

Note: $p < .05$.

The correlations among the variables were examined through an analysis of the Pearson Correlation.

Pearson Correlation

A Pearson correlation matrix (Table 21) was created among T_Cognitive, T_Extra, T_Agree, T_Consc, T_Emotion, and T_Intell and, since each variable was used five times, a Bonferroni correction to the alpha level was used. Hence, the new alpha level is .010 (.050 / 5). Results indicated that T_Cognitive was significantly positively correlated with T_Agree and T_Emotion. T_Extra was significantly positively correlated with T_Agree, T_Consc, T_Emotion, and T_Intell. T_Agree was significantly positively correlated with T_Consc, T_Emotion, and T_Intell.

Table 21. *Correlation Matrix among T_Cognitive, T_Extra, T_Agree, T_Consc, T_Emotion, and T_Intell*

	1	2	3	4	5
1) T_Cognitive	-				
2) T_Extra	.12*	-			
3) T_Agree	.23*	.34*	-		
4) T_Consc	.09	.23*	.27*	-	
5) T_Emotion	.26*	.30*	.25*	.32*	-
6) T_Intell	.09	.38*	.33*	.37*	.18*

Note. * $p < .010$.

T_Consc was significantly positively correlated with T_Emotion and T_Intell, and T_Emotion was significantly positively correlated with T_Intell.

Affective Readiness for Change

In order to assess if T_Extra, T_Agree, T_Consc, T_Emotion, and T_Intell predicted T_Affective, a multiple linear regression was conducted. The results of the linear regression were significant, $F(5,294) = 11.66$, $p < .001$, $R^2 = 0.17$, suggesting that altogether T_Extra, T_Agree, T_Consc, T_Emotion, and T_Intell accounted for 17% of the variance in T_Affective. The individual predictors were examined further. T_Extra was a significant predictor of T_Affective, $B = 0.17$, $p = .005$, suggesting that for every one unit increase in T_Extra, T_Affective increased by 0.17 units. T_Agree was not found to be a significant predictor of T_Affective; likewise, T_Consc was not found to be a significant predictor of T_Affective. T_Emotion was a significant predictor of

T_Affective, $B = 0.21$, $p < .001$, suggesting that for every one unit increase in T_Emotion, T_Affective increased by 0.21 units.

Table 22. *Results for Multiple Linear Regression with T_Extra, T_Agree, T_Consc, T_Emotion, and T_Intell Predicting T_Affective*

Source	*B*	*SE*	β	*t*	*p*
T_Extra	0.17	0.06	.17	2.82	.005
T_Agree	0.12	0.08	.08	1.44	.152
T_Consc	-0.09	0.09	-.07	-1.10	.272
T_Emotion	0.21	0.06	.21	3.52	.001
T_Intell	0.24	0.09	.16	2.58	.010

Note: $p <$. 05

T_Intell was a significant predictor of T_Affective, $B = 0.24$, $p = .010$ ($p < .05$), suggesting that for every one unit increase in T_Intell, T_Affective increased by 0.24 units. Results of the multiple linear regression are presented in Table 22.

Pearson Correlation

To assess the correlations among the variables, a Pearson correlation matrix was created among T_Affective, T_Extra, T_Agree, T_Consc, T_Emotion, and T_Intell. Since each variable was used five times, a Bonferroni correction to the alpha level was used. Thus the new alpha level is .010 (.050 / 5). It was shown that T_Affective was significantly positively correlated with T_Extra, T_Agree, T_Emotion, and T_Intell.

T_Extra was significantly positively correlated with T_Agree, T_Consc, T_Emotion, and T_Intell.

Table 23. *Correlation Matrix among T_Affective, T_Extra, T_Agree, T_Consc, T_Emotion, and T_Intell*

	1	2	3	4	5
1) T_Affective	-				
2) T_Extra	.31*	-			
3) T_Agree	.23*	.34*	-		
4) T_Consc	.12*	.23*	.27*	-	
5) T_Emotion	.29*	.30*	.25*	.32*	-
6) T_Intell	.27*	.38*	.33*	.37*	.18*

Note. * $p < .010$.

T_Agree was assessed to be significantly positively correlated with T_Consc, T_Emotion, and T_Intell. T_Consc was significantly positively correlated with T_Emotion and T_Intell. T_Emotion was significantly positively correlated with T_Intell. Table 23 shows the matrix between the variables.

Intentional Readiness for Change

To determine whether or not T_Extra, T_Agree, T_Consc, T_Emotion, and T_Intell predicted T_Intent, a final standard multiple regression analysis was run. Results of the linear regression were significant, $F(5,294) = 11.93$, $p < .001$, $R^2 = 0.17$, suggesting that altogether T_Extra, T_Agree, T_Consc, T_Emotion, and T_Intell

accounted for 17% of the variance in T_Intent. Further examinations of the individual predictors revealed that T_Extra and T_Consc were not found to be statistically significant predictors of T_Intent; however, T_Agree was a significant predictor of T_Intent, $B = 0.25$, $p < .001$, suggesting that for every one unit increase in T_Agree, T_Intent increased by 0.25 units.

Table 24. *Results for Multiple Linear Regression with T_Extra, T_Agree, T_Consc, T_Emotion, and T_Intell Predicting T_Intent*

Source	*B*	*SE*	β	*t*	*p*
T_Extra	0.05	0.05	.05	0.86	.389
T_Agree	0.25	0.07	.20	3.36	.001
T_Consc	0.04	0.08	.03	0.52	.601
T_Emotion	0.13	0.05	.14	2.39	.018
T_Intell	0.23	0.08	.18	2.87	.004

*Note: *p < .05*

Moreover, T_Emotion was a significant predictor of T_Intent, $B = 0.13$, $p = .018$ ($p < .05$), suggesting that for every one unit increase in T_Emotion, T_Intent increased by 0.13 units, and T_Intell was also a significant predictor of T_Intent, $B = 0.23$, $p = .004$, ($p < .05$), suggesting that for every one unit increase in T_Intell, T_Intent increased by 0.23 units. These results are presented in Table 24.

Pearson Correlation

A Pearson correlation matrix was created among T_Intent, T_Extra, T_Agree, T_Consc, T_Emotion, and T_Intell. Since each variable was used five times, a

Bonferroni correction to the alpha level was used. Thus the new alpha level is .010 (.050 / 5). It was shown that T_Intent was significantly positively correlated with T_Extra, T_Agree, T_Consc, T_Emotion, and T_Intell. T_Extra was significantly positively correlated with T_Agree, T_Consc, T_Emotion, and T_Intell. T_Agree was significantly positively correlated with T_Consc, T_Emotion, and T_Intell. T_Consc was significantly positively correlated with T_Emotion and T_Intell. T_Emotion was significantly positively correlated with T_Intell. Table 25 shows the full correlation matrix. Figure 1 shows the scatterplot matrix between the variables. For a significant positive correlation, when one variable increases, the other variable also increases.

Table 25. *Correlation Matrix Among T_Intent, T_Extra, T_Agree, T_Consc, T_Emotion, and T_Intell*

	1	2	3	4	5
1) T_Intent	-				
2) T_Extra	.24*	-			
3) T_Agree	.32*	.34*	-		
4) T_Consc	.21*	.23*	.27*	-	
5) T_Emotion	.25*	.30*	.25*	.32*	-
6) T_Intell	.30*	.38*	.33*	.37*	.18*

Note. * $p < .010$.

Pearson Correlation

A Pearson correlation matrix was created among T_Affective, T_Extra, T_Agree, T_Consc, T_Emotion, and T_Intell. Since each variable was used five times, a Bonferroni correction to the alpha level was used. Thus, the new alpha level is .010 (.050 / 5). T_Affective was shown to be statistically significantly positively correlated with T_Extra, T_Agree, T_Emotion, and T_Intell, while T_Extra was also significantly positively correlated with T_Agree, T_Consc, T_Emotion, and T_Intell. T_Agree was significantly positively correlated with T_Consc, T_Emotion, and T_Intell.

Table 26. *Correlation Matrix among T_Affective, T_Extra, T_Agree, T_Consc, T_Emotion, and T_Intell*

	1	2	3	4	5
1) T_Affective	-				
2) T_Extra	.31*	-			
3) T_Agree	.23*	.34*	-		
4) T_Consc	.12*	.23*	.27*	-	
5) T_Emotion	.29*	.30*	.25*	.32*	-
6) T_Intell	.27*	.38*	.33*	.37*	.18*

Note. * $p < .010$.

T_Consc was significantly positively correlated with T_Emotion and T_Intell. Similarly, T_Emotion was significantly positively correlated with T_Intell. Table 26 shows the full

correlation matrix. For a significant positive correlation, when one variable increases, the other variable also increases.

Summary of Results for SMR Analysis of the Three Dimensions of EROC

In order to get a deeper understanding of how the Big Five factors of personality predicted, and contributed to, variances in the three dimensions of Employee Readiness for Organizational Change (i.e., the cognitive, affective, and intentional dimensions of EROC), T_Cognitive, T_Affective, and T_Intentional were regressed against the Big Five factors of personality (EACESI). Results (summarized in Table 27) showed that personality traits had higher correlations with the Intentional readiness for change dimension, and the lowest correlations were among personality traits and Cognitive readiness for change. Implications of these findings are further discussed in chapter five.

Table 27. *Correlations among Overall Change Readiness and the Individual Dimensions of Change Readiness with the Big Five Factors of Personality Traits*

	Overall Change Readiness	Cognitive Readiness	Affective Readiness	Intentional Readiness
Extraversion	.28	.12	.31	.24
Agreeableness	.32	.23	.23	.32
Conscientiousness	.17	.09	.12	.21
Emotional Stability	.33	.26	.29	.25
Intellect	.27	.09	.27	.30

The following section presents a restatement of the research question, Hypothesis 2 (H02), and the subhypotheses that addressed the research question. Additionally, it reports the results of the second effect null hypothesis.

Restatement of Research Question 2 and Hypothesis 2

Research Question 2 asked: *To what extent do the interactions of EDUC and the Big Five factors of personality traits predict a statistically significant moderating effect on Employee Readiness for Organizational Change?*

Moderated multiple regression analysis was conducted to test the main hypothesis (H02) and subhypotheses ($H02_a$ - $H02_e$) that were formed to address this question. Hypothesis 2 (H02) stated "Education will not interact with the Big Five factors of personality to predict a statistically significant moderating effect on employee readiness for organizational change".

Satisfying Assumptions

The assumptions that are related to moderated multiple regression tests are the same as those of linear regressions. Various procedures were implemented in order to test assumptions related to linearity, outliers, leverage and influential points, homoscedasticity, and normal distribution. Scatter plots of the DV against the IVs indicated that the assumption of linearity had been met for both groups of the moderator variables. Two potential outliers (-3.28, -3.09) were identified by assessing the SDR_1 variable which was created in the regression model when the Big Five personality traits were regressed against the overall Readiness for Change variables, with the moderator

variable present. Since no values were less -3.30 or above 3.30 (Tabachnick & Fidell, 2007), the decision was made not to treat these values as outliers. Furthermore, the Mahalanobis Distance detects outliers in multivariate regression analyses and SPSS prints out a Casewise Diagnostics if outliers are detected; however, for this analysis no Casewise Diagnostics was provided after applying the Mahalanobis Distance option. Additionally, the LEV_1 variable and Cook's Distance variables were examined, and it was determined that neither exerted high leverage nor undue influence in the dataset. Heuristically, leverage values less than 0.2 are considered safe, 0.2 to less than 0.5 are considered risky, and values of 0.5 and above are considered dangerous (Field, 2009). The highest leverage point was 2.7, and was considered to be of acceptable risk; therefore, no cases were eliminated. A visual inspection and assessment of the studentized residuals plotted against the predicted values confirmed homoscedasticity, and an inspection of the Shapiro-Wilk confirmed a slight deviation from normality ($p <$ .05); however, multiple regressions are robust to deviations from normality (Osborne & Waters, 2002). Since the assumptions relating to running a multiple regression test held, the multiple regression analysis was performed.

Testing of the Interaction Effects: Moderated Multiple Regression

The literature suggests that before performing an MMR analysis, preparations for conducting the analysis should include (a) creating dummy variables from any categorical moderator variable (Kraemer & Blasey, 2004), (b) mean-centering of the dummified moderator variables (Cohen, Cohen, West, & Aiken, 2003), and (c) creating

interaction terms for each dummy variable by multiplying each one with the independent variable (Aguinis, 2004). For this present study, respondents' education was represented by the categorical variable "EDUC". Based on steps for conducting a moderated multiple regression that were proposed by Sharma, Durand, and Gur-Arie (1981), EDUC was split into three stratified groups by levels of education: 1=Less than Bachelor Degree (LTBD); 2=Bachelor Degree (BD) and 3=Master Degree (MD) and, following Kraemer and Blasey (2004), was dummy-coded as follows: 1 = LTBD was coded: 00 = "EDUC is not 1"; 1.00 = "EDUC is 1 (LTBD)"; 2 = BD was coded: 00 = "EDUC is not 2"; 1.00 = "EDUC is 2 (Bachelor Degree)"; finally, 3 = MD was coded: 00 = "EDUC is not 3"; 1 = "EDUC is 3 (Master Degree). New names for these dummy variables were automatically generated in SPSS (e.g., EDUC_d1, EDUC_d2 and EDUC_d3). While mean-centering has been a recommended step in conducting MMRs, there have been contentions in the literature that it is not a necessary step since, for example, it does alleviate problems with collinearity (Echambadi & Hess, 2007), and does not change the statistical results (Glantz & Slinker, 2001; Kromrey & Foster-Johnson, 1998, as cited in Kraemer & Blasey, 2004). However, for the present study, mean-centering was not performed since each educational level was made up of 100 participants, with an equal number of participants in each educational group; thus, the mean of each educational group was exactly the same (M = 33.3). Each dummified moderator variable was multiplied by each of the five factors of personality, which had earlier been averaged into one mean response such as T_Extra (transformed Extraversion, etc.). In this way, new variables (interaction terms)

were created (e.g., EDUC_d1_x_T-Extra). Three subhypotheses addressed the effect of the interaction of overall education and each educational level with personality traits on employee readiness for organizational change:

Subhypotheses $H02_a$ – $H02_e$

> $H0_{2a}$: The interaction of education at the less-than-Bachelor Degree level and the Big Five factors of personality traits will not predict a statistically significant moderating interaction effect on employee readiness for organizational change.

> $H0_{2b}$: The interaction of education at the Bachelor Degree level and the Big Five factors of personality traits will not predict a statistically significant moderating interaction effect on employee readiness for organizational change.

> **$H0_{2c}$:** The interaction of education at the Master Degree level and the Big Five factors of personality traits will not predict a statistically significant moderating interaction effect on employee readiness for organizational change.

Analysis Process

After completion of the data management procedures, to address the research question and test hypothesis two (H02) by entering the interaction terms in Block 2 of a hierarchical multiple regression process, a moderated multiple regression was performed; in this process, two regression models were formed.

Result of the Interaction of Overall EDUC and Personality Traits on EROC

The results of the hierarchical regression (Model 1) were statistically significant $F(6,293) = 13.86$, $p < .001$, $R^2 = .22$, $R^2_{adj} = .21$ suggesting that T_Extra, T_Agree, T_Consc, T_Emotion, T_Intell, and EDUC accounted for 21% of the variance in T_Readiness. However, when the interaction terms of EDUC and the five factors of

personality (e.g., EDUC_d1*T_Extra, etc.) were entered (Model 2), on the whole, the interactions minimally contributed to ± 1% of the variance in T_Readiness, suggesting that when education interacted with the Big Five factors of personality traits, no statistically significant variance in Employee Readiness for Organizational Change was achieved. Results were statistically nonsignificant ($p > .05$, .95); therefore, H02 was supported. A second analysis was run to assess the interaction of education at less than the Bachelor degree of education (EDUC_d1) with the Big Five factors of personality traits to determine any explained variance in Employee Readiness for Organizational Change at a more granular or individual level of education.

Result of the Interaction of EDUC_d1 and Personality Traits on EROC

Two regression models were formed based on the interactions among the Less than Bachelor level of education (EDUC_1) and personality traits on readiness for change. Results of the hierarchical regression to test $H20_a$ were assessed and results of Model 1 output were statistically significant, $F(6,293) = 13.96$, $p < .001$, $R^2 = .22$, $R^2_{adj} = .21$ .suggesting that T_Extra, T_Agree, T_Consc, T_Emotion, T_Intell, and EDUC_d2 contributed to 21% of the variance in Employee Readiness for Organizational Change and predicted Employee Readiness for Organizational Change. However, when the interaction terms of EDUC_d1 and the five factors of personality were added in Model 2, results showed that this interactions was not statistically significant ($p >. 05$, .88); therefore, $H02_a$ was supported. No further analysis was conducted as recommended by Sharma et al. (1981). A third and final analysis was conducted to examine any possible

contributing effect to variances in Employee Readiness for Organizational Change caused by interactions among education at a Master Degree level (EDUC_d3) and the Big Five personality traits.

Result of the Interaction of EDUC_d3 and Personality Traits on EROC

Two regression models were formed based on the interactions among the Master Degree level of education (EDUC_3) and the Big Five personality traits on readiness for change.

Table 28. *Summary Results of Hypotheses*

Hypotheses	Model	Model Summary	Null Accepted
H02 (EDUC)	1	$F(6,293) = 13.86$, $p < .001$, $R = .470$, $R^{2*} = .221$, $R^2_{adj} = .205$	
	2	$F(5,288) = .009$, $p > .05$ (.95), $R = .473$, $R^2 = .224$, $R^2_{adj} = .195$	Yes**
$H02_a$ (EDUC_d1)	1	$F(6,293) = 13.95$, $p < .001$, $R = .471$, $R^2 = .222$, $R^2_{adj} = .206$	
	2	$F(5,288) = .358$, $p > .05$ (.88), $R = .476$, $R_2 = .227$, $R^2_{adj} = .198$	Yes**
$H02_c$ (EDUC_d3)	1	$F(6,293) = 12.92$, $p < .001$, $R = .457$, $R^2 = .209$, $R^2_{adj} = .193$	
	2	$F(5,288) = .285$, $p > .05$ (.92), $R = .462$, $R^2 = .213$, $R^2_{adj} = .183$	Yes**

Note: $p < .05$

*According to Cohen's (1988) classification of effect sizes, .90 to 2.0 is considered a large effect size, from .60 to .80 = medium, and from .0 to .20 = small.

Results of the hierarchical regression to test $H20_c$ were assessed and results of Model 1 output were statistically significant, $F(6,293) = 12.92$, $p < .001$, $R^2 = .21$, $R^2_{adj} = .19$ suggesting that T_Extra, T_Agree, T_Consc, T_Emotion, T_Intell, and EDUC_d3 contributed to approximately 19% of the variance in Employee Readiness for

Organizational Change, and predicted Employee Readiness for Organizational Change. However, when the interaction terms of EDUC_d3 and the five factors of personality were added in Model 2, results showed that the interactions were not statistically significant (p >. 05, .92); therefore, $H02_c$ was accepted. These results are presented in Table 28.

Although no further analysis was necessary, a decision was made to assess the relationship between education and employee readiness for organizational change, since evidence in the literature supported the conclusion that education positively contributed to employee readiness for organizational change (Michael et al., 1999). In the Michael et al. study, education at the Associates through Master Degree levels positively contributed to employees' readiness for change at the multi-national Pan Pacific Hotel Chain after management fully supported and offered university level education from the Less-than-Bachelor Degree level (i.e., Associate Degree level) to the Master Degree level. To gain clarity on the role that education might play in EROC, absent personality traits, multiple linear regression tests were run.

When overall EROC was regressed against overall EDUC, results of the linear regression test were statistically nonsignificant, $F(1,298) = 2.77$, $p = .097$ ($p > .05$), suggesting that overall education scores did not predict employee readiness for organizational change (Table 29). A closer look at the individual levels of education also produced results that were statistically nonsignificant, $F(2,297) = 1.71$, $p = .182$, $R^2 =$

0.01, suggesting that education scores up to the Associate Level and Master Degree level did not predict EROC (Table 30). No further analyses were conducted.

Table 29. *Results for Multiple Linear Regression with Overall EDUC Predicting Change Readiness*

Source	*B*	*SE*	β	*t*	*p*
EDUC	-0.08	0.05	-.10	-1.66	.097

Note. $F(1,298) = 2.77$, $p = .097$, $R^2 = 0.01$

Table 30. *Results for Multiple Linear Regression with Individual Levels (EDUC_d1 and EDUC_d3 Predicting T_Readiness*

Source	*B*	*SE*	β	*t*	*p*
EDUC_d1*	0.15	0.10	.10	1.54	.125
EDUC_d3**	-0.01	0.10	-.01	-0.13	.900

Note. $F(2,297) = 1.71$, $p = .182$, $R^2 = 0.01$
* EDUC_d1 = Less than Bachelor Degree
** EDUC_d3 = Master Degree

Summary

Chapter 4 presented the results of a study that applied standard multiple regression and moderated multiple regression procedures to assess the ability of the Big Five factors of personality to predict Employee Readiness for Organizational Change. It also assessed increases in variation explained by the addition of interaction terms among education and the Big Five factors of personality traits on Employee Readiness for

Organizational Change. Results of the standard multiple regression indicated that personality traits predict Employee Readiness for Organizational Change on three paths; therefore, the null hypotheses were not supported; however, results of the moderated multiple regression indicated that at no educational level did the interaction of education and the Big Five factors of personality contribute to variances in Employee Readiness for Organizational Change. These results, including implications of the study to organization, management education, and individuals, as well as recommendations for future studies and concluding remarks are presented in Chapter 5.

CHAPTER 5. RESULTS, CONCLUSIONS, RECOMMENDATIONS

Introduction

The organizational change literature has been rife with assertions that up to, and even more than, 70% of all organizational change initiatives fail (Bateh, Casteneda, & Farah, 2013; Burke, 2010; Decker et al., 2012; Higgs & Rowland, 2005; Kotter, 1996; D. Miller, 2002; Pellettiere, 2006; Strebel, 2009; Warrick, 2009). Although recent research has questioned the veracity of such astonishing statistics, organizations still continue to be interested in understanding why organizational change initiatives fail, since the cost associated with these failures are so high (Bouckenooghe et al., 2009). One compelling reason that has been offered for the high rate of failure has been the claim that when employees are not ready for change, they resist it (Armenakis et al., 1993; Bouckenooghe, et al., 2009; Lewin, 1945; Stevens, 2013). The literature shows that employees' responses to change are informed by their readiness for change and that their readiness for organizational change has been predictive of behaviors such as ambivalence toward change, support of change initiatives, or outright resistance to change (Armenakis et al.,1993; Lamm & Gordon, 2010; Oreg & Sverdlik, 2011; Van Egeren, 2009). The literature has also confirmed that readiness for organizational change is influenced by employees' attitudes, beliefs, and intentions toward the change, and that attitude is a tripartite concept that encompasses three dimensions: cognitive, emotional, and intentional responses (Piderit, 2000). According to Armenakis et al. (1993), these three

dimensions of attitude are the "precursors to the behaviors of either resistance to, or support for, a change effort" (para. 1).

The literature has also revealed that such precursory responses can be influenced by personality traits (Van Egeren, 2009) and that human personality is composed of many parts that interact in coherent, though sometimes conflicting ways, to produce behavioral results (Paunonen & Ashton, 2001; Van Egeren, 2009). However, despite ample evidence linking personality traits with human behavior, and despite evidence that has linked readiness for change with human behavior, the findings of a recent study on personality traits and readiness for organizational change by Omazic et al. (2011) indicated that there was no correlation between personality traits and employee behavior toward organizational change initiatives, which could indicate their readiness for organizational change. Nevertheless, the researchers provided some caveats that provided an opportunity for further research in this area, and made recommendations to address the limitations that they identified. For example, a limitation of the Omazic et al. study was inherent in the sample size and composition.

Small sample sizes can limit the power to detect effect sizes, and Type 1 errors can result (Noordzij et al., 2010). A Type 1 error is one in which the null hypothesis is not accepted, when it should have been. In the case of the Omazic et al. study, a small sample size of 83 was used in the study. While their sample size, based on heuristics of, for example, 10 -15 respondents per variable could be considered large enough to analyze the data and make inferences about the sample (Field, 2009; Nunnally, 1977), the

researchers admitted that it was not large enough to generalize findings for the population from which the sample was drawn; therefore, the homogeneity of the sample could also have biased the results since members of other educational groups were excluded from the study (Patten, 2012; Stolzenberg & Relles, 1997). Additionally, the sample was composed of only highly educated postgraduates who were professionals in their fields, and who were pursuing additional studies; this suggested that the sample might not have been geographically diverse, and thus a limited number of industries might have been represented in the sample. Consequently, the researchers recommended that future research was needed "to obtain a clear picture about the relationship between personality and readiness for organizational change" (Omazic et al., 2011, p. 161), and further recommended that a larger, more educationally diverse sample be used to enhance generalizability of the findings.

This present research followed the recommendations of Omazic et al. (2011) to clarify the relationship between personality traits and readiness for organizational change and to extend the literature on organizational change. It also sought to extend the change literature further by probing whether or not education interacted with personality traits to moderate the effect of personality traits on employee readiness for organizational change. The present study also followed the recommendation to use a larger, more educationally heterogeneous sample in the study, and extended this recommendation by drawing a very geographically diverse sample from across the USA, thus ensuring that a very wide representation of industries was included in the sample.

Restatement of Description of the Sample

The present study employed a large sample size (n = 300), that was also age diverse as it was drawn from adult respondents age 18 years and older, extending to employees who were over 54 years of age, and who worked in organizations across the USA. It was also educationally diverse, since respondents were stratified into three educational groups (1 = Less-than-a-Bachelor Degree, n = 100; 2 = Bachelor Degree, n = 100; 3 = Master degree, n = 100). Not included in the sample were employees who filled the specified criteria, but who were less than 18 years old, or who were unemployed. Finally, the frequency distribution of women was n = 274, while males made up 25% of the sample. Women predominated in the gender makeup, which was not representative of the general population makeup in the USA. According to the US Census Bureau (2013), the distribution of men and women in the population is 42.2% male, 50.8% female; there were three times as many females as males in this sample.

Discussion

The overarching purpose of the proposed study was to discern whether or not education interacted with the Big Five factors of personality traits to moderate the effects of personality traits on employees' readiness for organizational change. The omnibus research question (RQ0) that guided this study was: *How does the Five Factor Model (FFM) of Personality Traits theory, alternately referred to in the literature as the Big Five factor of personality traits, explain the relationship between the independent variable* (Personality Traits) *and the dependent variable Employee Readiness for*

Organizational Change (EROC)*, controlling for the moderating effects of Education* (EDUC)*?*

Two types of multiple regression analyses were performed: a standard multiple regression test, and a moderated multiple regression test. The main effect standard multiple regression test assessed a linear relationship amongst several independent variables and one dependent variable, and the ability of the independent variables to predict the criterion (outcome) variable. The predictor variables were the five factors of personality traits (Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect), and the dependent variable was Employee Readiness for Organizational Change. The second test combined a moderator variable, EDUC (Education), with the independent variables to create interaction terms, which were used in a hierarchical multiple regression analysis to probe the interaction effect between education and personality traits on readiness for organizational change. Additionally, the variable EDUC was dummy-coded so as to separate out the levels of respondents' education by sub-groups (Zedeck, 1971). These sub-groups were then individually combined with the predictor variables and hierarchical regression tests were performed to assess the ability of the interactive effect of EDUC and EACESI (the Big Five factors of personality traits) on EROC (Employee Readiness for Organizational Change). Results of these actions are discussed in the following sections.

Hypothesis One

The premise of H0 was that the Big Five factors of personality traits did not have a statistically significant effect on employee readiness for organizational change. A multiple regression test was run to test this hypothesis, and results were analyzed and interpreted; discussions of the results follow.

Discussion on the Results of the SMR Analysis (H0)

Results of the standard multiple regression indicated that the omnibus null hypothesis could not be supported since the multiple correlation coefficient statistic R = .45, suggested that the independent variables (EACESI) were correlated to the dependent variable, and predicted Employee Readiness for Organizational Change. The R value ranged from 0 to 1.0 and the closer to 1.0 this value is, the closer the correlation to the DV, and so the better the IVs were at predicting the DV; therefore, a correlation coefficient of .45 denoted a moderate to strong correlation between personality traits and EROC. The coefficient of determination statistic (R^2) provided information on the percentage of the contribution of the IVs to the DV or, stated differently, the proportion of the variance in the DV that could be explained by the IVs; in this case, R^2 = .198 and explained 19.8% of the variance of the DV. However, since this result was based on the sample, it was considered to be positively biased and therefore larger than it ought to be when generalizing to the larger population (Laerd, 2013). Consequently, as dictated by convention, the adjusted R^2 statistic (R^2_{adj} = .184, 18.4%), which is considered to be a size of the effect of the IVs on the DV, was assessed as being more representative of the

larger population as it corrected for this bias and provided a statistic that was smaller, but one which was based on the larger population; it contributed to 18.4% of the variance in the DV. According to Cohen (1988), a small effect size falls in the range of 0.10 to 0.29; medium = 0.30 to 0.49; large = 0.50 to .10 (pp.79 – 89). In this case, the size of the effect of the IVs on the DV was small, and the Big Five factors of personality traits statistically significantly predicted Employee Readiness for Organizational Change.

Refutation of the Omazic et al. (2011) Findings

This evidence refuted the results of the Omazic et al. (2011) study, which showed no relationship between the Big Five factors of personality and employee Readiness for Organizational Change as evidenced by reported findings of $F(5,77)=0.94$, $p>.05$, $R = 0.126$, $R^2 = 0.016$. Additionally, the evidence satisfied a major goal of the present study, which, on the recommendation of Omazic et al. (2011), was to bring clarity to the question of whether personality traits predicted employee readiness for change; clearly, they do. One conjecture that influenced this study was that the small sample size in the Omazic study and the composition of the sample may have caused a Type 1 error and biased the results. This would have caused the null hypothesis to be accepted, when in fact it should not have been accepted. The results of the present study emphasize the importance of sample size, and sample composition, and how these can produce bias in quantitative studies. A closer examination of the relationships among the individual personality traits and the individual dimensions of Readiness for Organizational Change

were warranted in order to understand how the personality traits and the dimensions of EROC were distributed in the sample.

Expression of Employee Readiness for Organizational Change in the Sample

In this sample, results of the standard multiple regression also indicated that the mean observation of Change Readiness = 3.5 (*SD* = 0.69). Results indicated that, while positive, respondents' readiness for change was not high. Extant literature posits that for organizational change initiatives to be successful, employees must support the change (Armenakis et al., 1993; Lamm & Gordon, 2010; Oreg & Sverdlik, 2011; Van Egeren, 2009); however, although the logical conclusion would be that the higher the support for the change initiative, the more successful it would be, just how high that support must be is not known and might be an area for future research. To better understand the relationships among personality traits and EROC, more granular assessments of the relationships among the personality traits and the dimensions of EROC were made in order to understand the extent to which employees' cognitive, emotional, and intentional responses contribute to EROC (Armenakis et al., 1993; Piderit, 2000). If this relationship at the dimensional level of EROC is understood, perhaps organizations might be able to craft strategies to manage these dimensions of EROC through education or training in order to better manage employee's readiness for organizational change. Therefore, in three separate standard multiple regression procedures, Cognitive, Affective, and Intentional Readiness for Change responses were regressed against the Big Five factors of personality traits, and the findings were assessed.

The Effect of Personality Traits on Cognitive Readiness for Change

An employee's cognitive readiness for change has to do with his or her understanding of the change and what it means to each in the context of place and role in the organization. When employees do not understand the reason for the change, or how it will affect them, they experience feelings of stress, fear, and uncertainty and are more apt to resist the change (Jones et al., 2008; Pech & Oakley, 2005,as cited in Lattuch & Young, 2011; Self &Schraeder, 2009). Cognition, therefore, informs attitudes toward change and attitudes are precursors to behaviors such as resistance or support of change efforts (Armenakis et al., 1993; Choi, 2011; Lamm & Gordon, 2010; Oreg & Sverdlik, 2011). To better understand the effects of the Big Five factors of personality traits on employees' understanding of organizational change, Cognition was regressed against the Big Five factors of personality traits.

Results. Observations of Cognitive Readiness for Change in the sample ranged from 1 to 5, and the mean observation of Cognitive Readiness for Change in the sample was 3.41 (SD = .90). This suggested that employees had their own fairly developed understanding about change in their organizations, although what that understanding was is not known in the present study. Results of the linear regression were statistically significant, $F(5,294) = 6.36$, $p < .001$, $R^2 = 0.10$, suggesting that Extraversion, Agreeableness, Conscientious, Emotional Stability and Intellect accounted for 10% of the variance in employees' cognitive readiness for change. This is a small effect size (Cohen, 1988); however, in the change literature, a great deal of emphasis has been placed on the

cognitive domain of employee's perception of the change (A. Carr, 2001) as cognition of the impending change exerts a major influence on employees' attitudes toward the change. Cognition informs employees' emotional (affective) responses to the change, including their intentions to support or not support the change. In the present study, a review of the literature supported encouraging management attention to how change initiatives are communicated as this informs employees' understanding of the change, and subsequently affects employee readiness for change and ultimately their support of the change. An examination of the predictors at their individual factor levels revealed that of the five factors of personality traits, Agreeableness (B = .27, p < .002) and Emotional Stability (B = .23, p = < .001) statistically significantly predicted employees' cognitive readiness for change such that for every unit of increase in Agreeableness and Emotional Stability, there was a corresponding increase of .27 and .23 units in Cognitive Readiness for Change respectively.

Literature Support of the Evidence

Findings that Agreeableness and Emotional Stability contribute to employees' cognitive response to change seem to be supported by extant literature, which posits that the Agreeableness factor is most important in work situations where tolerance and flexibility were needed (Mount et al., 1998), and Emotional Stability is concerned with being calm and even-tempered (Costa &McCrae, 1992; Goldberg, 1993; Spagnoli & Caetano, 2012), characteristics that would be valuable under stressful situations such as those engendered by change. In other words, expressions of these two factors of

personality in employees might be able to allow employees to weather the stress and uncertainty that organizational change initiatives produce.

Agreeableness on cognitive readiness. Trait facets that are associated with Agreeableness include warmth, flexibility, understanding, cooperativeness, and the desire to reduce or avoid causing discomfort in others; its polar opposite is antagonism, inflexibility, and lack of sympathy (Antonioni, 1998; Buss & Finn, 1987; Forrester & Tashcian, 2010; Tupes & Christal, 1961). As previously discussed in the Literature Review (Chapter 2), extant studies have positively correlated the Agreeableness factor of personality traits with concern for others, the ability to diffuse anger and conflicts, and with the ability to effectively manage intragroup cooperation; if employees who possessed high expressions of this trait were to be engaged as employee representatives in the change process, harnessed, and applied appropriately in change management strategies, this trait factor could be a valuable tool in helping to marshal the cooperation of other employees. However, caution is advised in identifying employees who have self-identified through surveys as being high in the Agreeableness trait since there is evidence in the literature that of the five factors of personality traits, Agreeableness seemed to be the least understood, and part of the reason might be because self-reporting responses to Agreeableness might be biased by self-favoring; that is, ascribing more of the trait to oneself that is deserved (Graziano & Tobin, 2002). In identifying such employees, direct observations of expressions of the Agreeableness trait might be prudent before assigning to them employee representative roles in any change management strategy.

Emotional stability on cognitive readiness. Emotional Stability has to do with being calm and even-tempered, while its polar opposite, neuroticism is associated with nervousness, moodiness, being high-strung, and temperamental (Costa & McCrae, 1992; Goldberg, 1993; Spagnoli & Caetano, 2012) and higher levels of Neuroticism have been associated with higher levels of stress, uncertainty, and negative emotions (Aizzat et al., 2005) – all of which have been related to reasons that are associated with employees' unreadiness for change, and their subsequent resistance to change initiatives. As previously discussed in Chapter 2, the literature has demonstrated that organizational change initiatives elicit emotions that inform behavior, which has a bearing on employees' feelings of well-being in relation to their place and role in the organization and, consequently, on their readiness for change; if employees feel stressed, fearful, or threatened by the change, they resist it (Jones et al., 2008; Pech & Oakley, 2005, as cited in Lattuch & Young, 2011; Self & Schraeder, 2009). Given the evidence, it is logical to assume that the underlying facets of Agreeableness and Emotional Stability are important factors that contribute to an employee's readiness for change.

This insight is meaningful in that it might be beneficial for management to identify employees who exhibit high expressions of these two traits, and incorporate these types of employees into the change management strategy, since employee involvement in the change process has been identified as a good practice in effectively managing change. For example, involving employees in the change process and communicating clearly with employees before and during change initiatives have been

proposed as ways to change their behaviors to support change initiatives (Kitchen & Daly, 2002; Robertson et al., 1993, as cited in Peus et al., 2009). Since Cognition is associated with how employees appraise, perceive, or understand the change (Armenakis et al., 1993), and since they can become aware of change initiatives through a variety of channels and form their own perceptions of the change (Jones et al., 2008; Smollan, 2006), if organizations engage employees who embody high Agreeableness and high Emotional Stability traits as change ambassadors early in the change process, they can help to manage the perceptions about the change through these employees and thus increase readiness for change. For example, through their interaction with their colleagues, employees who are high in Agreeableness and Emotional Stability might be able to positively affect the change communication process, help influence moods, and shape and spread the change messaging amongst organization members so that the change initiatives might be less stressful and less conflict-generating to those employees who might be more prone to fear and stress during change. Further studies to test this idea might be warranted, given the high failure rate and cost of failed change initiatives. This information can be useful to organizations if they can form strategies to increase these two factors of personality among their employees.

The Effect of Personality Traits on Affective Readiness for Change

Employees' affective or emotional readiness for change is connected to their feelings about the change. Frijda (1988) noted that certain types of events educe emotions in individuals who determine the importance of the event in relation to themselves; in

fact, according Barbalet (2006), and Cacioppo and Gardner (1999), emotions are intimately and primitively connected with all human thought and action. Given the fact that the literature supports the claims that organizational change educes feelings of stress, anxiety, and fear among employees, it is not surprising that the seminal literature has linked emotional reactions to incremental and radical organizational change (A. Carr, 2001; Gersick, 1991). Smollan (2006) remarked on the fact that although extant literature had shown that change is an emotional event, in the organizational literature the affective or emotional domains of the responses to change had not been studied as much as behavior and cognition, a point that A.Carr had made earlier. For the present study, a standard multiple regression analysis was conducted to assess if the Big Five factors of personality traits predicted an employee's Affective readiness for organizational change.

Results. Results of the linear regression were significant, $F(5,294) = 11.66$, $p < .001$, $R^2 = 0.17$, suggesting that Extraversion, Agreeableness, Conscientiousness, Emotional Stability , and Intellect accounted for 17% of the variance in employees' affective readiness for organizational change. Amongst respondents, observations ranged from 1.00 to 5.00, and the mean expression of Affective Readiness for Change in the sample was a little above neutral (m = 3.49, $SD = 0.89$), suggesting less than enthusiastic feelings about change within their organizations. Further examination of the individual predictors revealed that Extraversion statistically significantly predicted Affective Readiness for Change ($B = 0.17$, $p = .005$), suggesting that for every one unit increase in Extraversion, Affective Readiness for Change increased by 0.17 units. Emotional

Stability was also a statistically significant predictor of Affective Readiness for Change ($B = 0.21$, $p < .001$), suggesting that for every one unit increase in Emotional Stability, Affective Readiness for Change increased by 0.21 units. Likewise, Intellect was a statistically significant predictor of Affective Readiness for Change ($B = 0.24$, $p = .010$), suggesting that for every one unit increase in Intellect, Affective Readiness increased by 0.24 units. Neither Agreeableness nor Conscientiousness was a statistically significant predictor of Affective/ Emotional Readiness for Change; however, since McCrae and Costa (1991) found that Agreeableness was positively related to increased positive affect, a closer investigation of the relationship between Affective Readiness for Change and Agreeableness might be warranted.

Literature Support of the Evidence

Organizational change can produce role stress, which has been positively correlated with Emotional Stability. It causes employees to question their worth to the organization, and their place in the organization when they do not understand the need for the change, or how it will affect them; consequently, it can give rise to a variety of negative emotions and outcomes that can affect organizational efficiency (Rai & Kumar, 2012). Other types of emotions that have been associated with change include grief anger, frustration, excitement, fear, joy, or relief, and these can vary depending on the type, speed, and duration of the change (Smollan et al., 2010). Thus far, in concert with the literature, results have shown that in the present study employees' understanding (cognition) of their organizations' change initiatives was not high, and that their affective

(emotional) response was higher than their cognitive response; in other words, when cognition is low, emotions run high. Furthermore, these feelings can and do inform employees' intentions or behaviors toward the impending change at various levels, and failure to adapt to the change can lead to intention to resist behaviors (Liu & Perrewé, 2005, as cited in Klarner et al., 2011; Spiker, 1994, as cited in Klarner et al., 2011).

Extraversion and affect. In agreement with a recent study by Hassan et al. (2010), in the present study Extraversion statistically significantly predicted Affective Readiness for Change ($r = .27$, $p < .01$); this is not surprising since, according to McCrae and Costa (1987), Extraversion is related to the tendency to be positively affective. Extraverted individuals tend to be risk-takers, socially active, and the activities that they engage in tend to be those that have positive affect (Abidin & Daud, 2012; Hassan et al., 2010; Lucas, Le, & Dyrenforth, 2008). Risk-taking is behavior that has long been associated with entrepreneurism (Chen, et al., 2012; Lau et al., 2012), so extraverts might process the uncertainty of change more positively, and from an entrepreneurial point of view. This is an area that might be explored more fully in future studies.

In an organizational change process context, individuals from among those who have been identified as having a high expression of the Extraversion trait can be targeted as being part of the change process strategy that includes employees in the early planning stages for change. Rafferty et al. (2007) pointed out that in emotionally charged situations, such as during organizational change initiatives, individuals seek out and align themselves with others who share similar feelings in their efforts to articulate their

emotions about the change. Since positive emotions have long been known to be core aspects of successful change efforts (McCrae & Costa, 1987), their enthusiasm might be invaluable for the positive emotions that they can inject into the change process as this might beneficially influence the change messaging, especially as the literature claims that information about impending change comes to employees from many different sources, and misinformation about the change can inform the change messaging (Jones et al., 2008; Michael et al., 1999; Smollan, 2006); this can add stress and uncertainty to change experiencing situations. In light of the possibilities inherent in this scenario, further studies might be warranted to assess the influence that extroverts might exert on employees' affective readiness for change. This might be investigated at the managerial and at the employee unit.

Emotional stability and affect. Emotional Stability has to do with being calm and even-tempered, while its polar opposite, neuroticism, is associated with nervousness, moodiness, being high-strung, and temperamental (Costa &McCrae, 1992; Goldberg, 1993; Spagnoli & Caetano, 2012), and higher levels of Neuroticism have been associated with higher levels of stress, uncertainty, and negative emotions (Aizzat et al., 2005); therefore, emotional stability relates to positive affect/emotions. Organizational change initiatives elicit emotions that inform behavior, which has bearing on employees' feelings of well-being in relation to their place and role in the organization and, consequently, on their readiness for change; if employees feel stressed, fearful, or threatened by the change, they resist it (Jones et al., 2008; Pech & Oakley, 2005, as cited in Lattuch &

Young, 2011; Self & Schraeder, 2009). In the same study referred to earlier, Hassan et al. (2010) found that, just as in this study, Emotional Stability was positively related to Affect ($r = .29$, $p < .01$). The calm and even-temperedness of employees who express the Emotional Stability trait can be valuable in the change process when high emotions might predominate.

Intellect and affect. The trait facets that underlie Intellect are related to being open to new experiences, intellectual curiosity, fantasy, creativity, liberalism, daring, and willingness to question one's own values and those of authority (Goldberg, 1993; Lord, 2007; McCrae & Costa, 1987). The terms *Intellect* and *Openness to Experience* carry the same or similar meaning, as pointed out by Trapnell (1994), since openness is evidenced by open minds, which are indicative of intellect. People with high intellect are intellectually curious, embrace new learning, and know how to organize knowledge in constructive ways. Thus, as far as being ready for change, which is a disruption and movement from something old or routine to something new (Axley & McMahon, 2006; Becker et al., 2005; M. Choi & Ruona, 2011; Vakola & Nikolaou, 2005), intellect and/or openness are necessary for organizing the new experience, new knowledge and new ways of doing or being that comes with change; nevertheless, change is fraught with emotion. In the seminal literature, Woolbert (1924) discussed the link between emotion (affect) and intellect and explained that intellect helps to regulate emotions so as to make sense of stressful situations, allowing the actor to behave in ways that effectively manage

emotions. In the Hassan et al. (2010) study, findings showed that Intellect was positively related to Affect and contributed to 30% of the variance in Affect ($r = .30$, $p < .01$).

The Effect of Personality Traits on Intentional Readiness for Change

Jimmieson et al. (2008) referred to the Theory of Planned Behavior, which defines intention as the willingness of an individual to behave in a certain way. In relation to organizational change, the employees' intentions about the change initiative can result in behaviors that support the change, show ambivalence or cynicism toward it, or outright resist it. Employees' readiness for change, as evidenced by their intention to support or resist the change, is first informed by their understanding of the change in terms of why it is needed and how it will affect them (M. Choi & Ruona, 2011), and then by their feelings about the change.

Results

Observations of employees' Intentional Readiness for Organizational Change ranged from 1.00 to 5.00, with a mean observation of 3.72 ($SD = .078$); this dimension of EROC was expressed more highly in the sample than any of the others and suggested that employees had comparatively strong intentions toward change in their organizations, although what that intention was is not known. In the present study, when viewed holistically, results were that average Cognition in the sample was lower than either Affect or Intention, suggesting that low cognition may have resulted in high emotion, which, in turn, produced a higher intention toward the organizational change. The results of the linear regression were significant, $F(5,294) = 11.93$, $p < .001$, $R^2 = 0.17$; this

suggested that altogether Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect accounted for 17% of the variance in Intentional Readiness for Change. However, when the individual predictors were examined further, neither Extraversion nor Conscientiousness was found to be a significant predictor of Intentional Readiness. Agreeableness was a statistically significant predictor of Intentional Readiness, $B = 0.25$, $p < .001$; this suggested that for every one unit increase in Agreeableness, Intentional Readiness increased by 0.25 units. Emotional Stability was also a significant predictor of Intentional Readiness, $B = 0.13$, $p = .018$, suggesting that for every one unit increase in Emotional Stability, Intentional Readiness increased by 0.13 units. Finally, Intellect was a significant predictor of Intentional Readiness, $B = 0.23$, $p = .004$, suggesting that for every one unit increase in Intellect, Intentional Readiness increased by 0.23 units.

Literature Support of the Evidence

This result agrees with the literature, which has confirmed that Cognition (employees' understanding about the change) informs Affect (employees' feelings about the change), and Affect informs Intention (Smith & Reynolds, 2009). In an organizational change context, *Intention* is employees' intent/behavior to support, reject, or be ambivalent toward the change. Results support assertions in the literature that low cognition of change initiatives produce high emotions and high resistance to change. Furthermore, the results of the present study agree with that of the Hassan et al. (2010) study, which found that Extraversion, Emotional Stability, and Intellect all statistically

significantly contributed to Affect, as these three traits seem to exhibit a positive influence on emotion, and therefore exhibit a propensity to regulate emotion. This influence on Affective Readiness for Change positively relates to intentional behaviors toward the change. For example, extraverts might see change as exciting and adventurous since they tend to be risk-takers, while emotionally stable people have a calm and measured approach to flux, and intellectual individuals adopt a thoughtful, curious approach to challenges. These findings are summarized in Table 30.

Table 30. *Summary of Associations among EACESI and Dimensions of EROC*

	Extraversion	Agreeableness	Conscientiousness	Emotional Stability	Intellect
Cognitive	No	yes	No	Yes	No
Affective	Yes	No	No	Yes	Yes
Intentional	No	Yes	No	Yes	Yes

Hypothesis Two

The research question that guided the testing of this hypothesis asked "To what extent do the interactions of EDUC and the Big Five factors of personality traits predict a statistically significant moderating effect on Employee Readiness for Organizational Change?" Moderated multiple regression analysis was applied to test the hypothesis (H02) that the interaction of EDUC at the Less-than-Bachelor Degree, Bachelor Degree, and Master Degree level with the Big Five factors of personality traits did not predict a statistically significant moderating effect on Employee Readiness for Organizational

Change. Interaction terms were created by multiplying the dummified educational levels with each of the personality traits and these were entered in blocks into a hierarchical regression equation and two regression models that included the Less-than-Bachelor Degree and Master Degree levels of education were formed. Results of the moderated multiple regression test (i.e., the hierarchical multiple regression) indicated that the interactions between personality traits and education did not statistically significantly predict or explain Employee Readiness for Organizational Change; therefore, findings supported the claims of the null hypothesis on all educational levels, and the null hypothesis was accepted. No further analysis was needed (Sharma et al., 1981); however, clarity was needed on whether or not education, separate from personality, contributed to EROC, so further tests were conducted to assess overall EDUC on EROC, and individual levels of education on EROC. In both instances, results were nonsignificant ($p > .05$); no level of education predicted employee readiness for change.

Summary of Discussion of Findings

The findings of the present study supported the first hypothesis (HA1) that, overall, the Big Five factors of personality traits predict Employee Readiness for Organizational Change and, individually, personality traits predict individual dimensions of EROC. A closer examination of the predictive ability of the individual personality traits on EROC indicated that, except for Conscientiousness which did not predict any of the domains of EROC, all of the other personality traits predicted at least one of the three

domains of EROC; in fact, Emotional Stability alone predicted all of the domains of EROC, while Extraversion predicted only Affective Readiness for Change.

The present study also revealed that education did not interact with personality traits to moderate EROC, and therefore supported the second hypothesis (H02) that the interaction of EDUC and Personality traits will not moderate EROC. Moreover, since there was evidence in the literature that indicated education was positively related to employees' change readiness (Michael et al., 1999), a closer examination of the relationship between education and readiness for change seemed to be warranted. The results of a linear regression to assess this relationship were not statistically significant, $F(2,297) = 1.71$, $p = .182$, $R^2 = 0.01$. The result suggested, contrary to a finding in the literature, that education at no level predicted Employee Change Readiness; however, it raised other questions.

Given the results of the Omazic et al. (2011) Croatian study that produced findings opposite to the present American study, and given the fact that education did not exert an interaction effect on personality traits relative to EROC, the question still lingers as to why the Omazic et al. results were so starkly different from that of this present study's. Possible answers might be related to the sample size and composition of the Omazic et al. study, which may have caused a Type 1 error; in contrast, the sample size and composition of the present study was larger and more diverse. Therefore, in addition to the difference in sample size and composition, the fact that the two studies sampled

different respondents from different countries and cultures, and the fact that the sample in the present American study was geographically very diverse cannot be ignored.

Although information of the racial and ethnic diversity of the sample that was used in the present study was not collected, the American workforce is very diverse. However, what was not known beyond the age group, gender, and educational makeup of the present study's sample, was the cultural and ethnic diversity makeup of the sample. In a global economy, many domestic firms are multinational companies that are spread across the globe. There is evidence in the literature that the problem of resistance to change is a global one (DeFruyt et al., 2004; Gow et al., 2009; McCarthy et al., 2008; Omazic et al., 2011; Pihlak & Alas, 2012). Since the universality of personality traits across international borders and cultures has long been established in the seminal literature (Cattell, 1943; Goldberg, 1993; McCrae & Terracciano, 1997, 2005; Rammstedt et al., 2009), there are implications regarding how change messaging is perceived among different cultures and nationalities. Therefore, it might be of interest to organizations to understand whether or not personality traits predict the same dimensions of EROC among culturally diverse employees, as was predicted in this American study, especially as cognition informs many aspects of personality (Borghans et al., 2008). Additionally, since there is evidence in the literature that self-reporting of the Agreeableness trait might be biased in favor of self, this too, might be investigated to see if the phenomenon of this self-favoring bias might be more evident in specific cultures

globally then in others; this might have implications on engaging employees in the change process domestically, as well as globally.

Furthermore, despite the finding of no moderation effect on EROC when education interacted with personality traits, there *was* clear evidence in the literature that seemed to suggest that additional education at all levels (less-than-a-Bachelor degree level to Master Degree level) resulted in more change-prepared employees who were readier to support organizational change, when that education was aligned with the organization's needs and goals, and championed and supported by organizational leaders and resources (Michael et al., 1999). However, this evidence conflicted with findings of the present study; therefore, additional research is warranted in this area. Implications of the findings follow, as well as practical recommendations that might contribute to organizations' change management strategies, and guide future studies; these were based on evidence in the literature and findings of the present study.

Implications and Recommendations

The present study, with its emphasis on the employee unit of readiness for change based on the domains of organizational change, contributed to the corpus of literature on organizational change psychology and management by clarifying whether or not the Big Five factors of personality predicted employee readiness for change, and by assessing whether or not additional formal or professional education beyond high school, and up to a Master Degree level, increased employee readiness for organizational change. The

results, combined with evidence in the extant literature, hold certain implications for businesses, management education, and individuals.

Implications

It is quite common for businesses to subject employees to personality tests in attempts to assess prospects of obtaining desired organizational outcomes in hiring, placement, training, and other objectives. Additionally, it is common for prospective employers to list descriptions of positive personality traits, along with educational requirements, in job postings. Although the interaction of personality trait and education did not statistically significantly account for any variance in Employee Readiness for Organizational Change, findings from the present study indicate that personality traits do predict Employee Readiness for Organizational Change, with specific personality traits having more of a relationship than others on the Cognitive, Affective, and Intentional domains of Employee Readiness for Change, and other personality traits having no relation to EROC at all. For example, Conscientiousness showed no relationship with any of the three domains of EROC. These findings have implications for organizations and management education in the following ways:

Implications for Organizations

Findings indicate that specific personality traits align and sometimes overlap with specific domains of Employee Readiness for Organizational Change; however, caution is advised in interpreting what this means in practical terms since findings of the present study have shown that specific personality traits inform specific domains of change

readiness. Employers might exercise caution in placing too much emphasis on personality traits expression and making conclusions about an individual's organizational fit based on such conclusions – especially as there are indications in the literature that personality traits can be manipulated and changed through interventions, and individuals might be biased in self-reporting on the Agreeableness trait. This insight can have implications for training interventions that use role-playing, for example, as a way to encourage employees to change negative trait induced behaviors to more positive ones.

Additionally, M. Choi and Ruona (2010) pointed out that although personality has been shown to inform readiness for change, much depends on the specificity of the change, and that specificity is based on the particular type of change situation. This implies that personality traits might be expressed more or less according to the type and level of change; additional studies to understand the dynamics involved in change specificity and personality traits might be warranted, and how interventions might modify employees' change support intentions. The study also has implications on how the change message might be communicated and understood among diverse cultures. Results of the study indicated that in this American sample, cognition regarding organizational change was rather low, emotion toward it was high, and intention toward changes in their organizations was very high comparatively speaking. It must be noted that the direction of the intent (to support or not support the change) was not explicated in the study. Nevertheless, given the evidence in the literature, these findings support extant claims that when the change recipients' understanding of the change is low,

emotions run high, and this informs their intentions and behaviors toward the change; such as, ambivalence toward the change, support of it, or downright resistance toward it (Armenakis et al., 1993; Bouckenooghe et al., 2009; Oreg et al., 2003). It might be of interest to organizations to understand whether or not their change communication strategies are uniquely suited to their organizations, domestically and internationally, and, if not, how they can remedy that dysfunction. It might also be of interest to organizations domestically and internationally, to understand whether or not personality traits predict the same dimensions of EROC among culturally diverse employees, as was predicted in this American study. This would have implications related to domestic and international change management strategies and change messaging amongst diverse organizational members.

Implications for Management Education

While the present study did not indicate that the interaction of education and personality traits moderated employees' readiness for organizational change, and while it did not indicate that readiness for organizational change was positively related to educational levels, it did confirm that personality traits statistically significantly contributed to EROC, and had a relatively strong correlation with EROC (R = .45). This, and the identification of which traits specifically predicted EROC, can be applied to inform management education courses so that students (who are present and future employees and organizational leaders) can gain insight into their responses to

organizational change. The literature showed that personality traits, though genetic in nature, can change.

Since organizations value flexible employees who are willing to support organizational change strategies, management education that stresses this organizational need might be able to create curricula that are aligned with this particular organizational need. For example, that individuals can change their personality through contra-trait activities has been demonstrated in the literature (P. Gallagher et al., 2011; McNiel & Fleeson, 2006); therefore management educators might influence individuals to self-reflect, gain insight into their own personalities and how their personality traits might inform their dispositions toward change, and consciously adopt behavior contrary to their trait genetic expressions when those traits educe negative emotions and contribute to negative behavior such as resistance. Management educators might consider arming students with the knowledge and strategies of how to change their personalities to be more critically change receptive. M. Choi (2011) postulated that employees' attitudes toward change can be shaped by appropriate organizational efforts; management education can be aligned with organizational efforts by laying the foundation for change receptivity in the classroom.

Implications for Individuals

In an economic environment that is fraught with change, businesses operate on what has been described as the edge of chaos (Axley & McMahon, 2006), the change-infused work environment can be stressful to many employees; consequently, employers

value flexible, change recipient employees who would be most likely to be aligned with organizational goals (Oreg et al., 2003). What this study has revealed is that personality can predict employees' readiness for organizational change, and so can additional education; however, combined, education adds no predictive power to personality traits.

Job postings for employment routinely describe the desired educational level that is required for the position in the organization, and desired personality characteristics such as *organized*, *friendly and outgoing*, *team player*, etc. are frequently embedded in these postings; job applicants, too, routinely use those same keywords in describing themselves in resumes for job applications. Given that organizations and individuals are aware of the roles that education and personality play in job qualification, hiring and placement, it would behoove individuals and job applicants to gain personal insight into their own personalities. There are many personality measuring tools available online that individuals can use to gain this insight about their expression of personality traits – *provided that they self-report* honestly; in the present study there was clear evidence that some respondents were not honest in their responses. The insight gained through these measures might be useful for individuals to have an accurate understanding of how their personality test results and education level may be perceived by hiring managers, and how these variables inform hiring practices since there might be a possibility that hiring managers who administer personality tests might erroneously conflate results with educational requirements and come to erroneous conclusions about job applicants.

In an organizational context, negative emotions cause resistance, while positive emotions induce cooperation; nevertheless, the literature has shown that negative personality traits can be manipulated and this manipulation can change an individual's negative emotions to positive ones. McNiel and Fleeson (2006) experimentally demonstrated that individuals can change a particular trait behavior when they act contrary to that trait expression, and thus change the negative emotions that accompany negative traits, or vice versa. Since these types of emotions inform the intention to act negatively or positively, individuals can potentially change their emotions and behaviors by consciously choosing to act positively. However, caution is advised since another study revealed that acting contrary to one's natural trait expression takes sustained effort and individuals can become fatigued from the effort to maintain the contra-trait behavior, and return to their normal personality state (P. Gallagher, Fleeson, & Hoyle, 2011).

Limitations of the Study

There were two major limitations that were inherent in the present study. The first major limitation of the study was due to the fact that data were collected based only on self-report survey instruments, and therefore the veracity of the responses could not be vouched for. Indeed, a close inspection of the data revealed that some responses might be suspect as some respondents may not have given serious and honest thought to the questions, and simply chose the same response throughout the questionnaires. For example, in each of the personality trait scales some respondents simply filled out all 3s, 4s, or 5s without variation. Choosing these responses added some skewness to the data,

was responsible for outliers in the data, and threatened the normal distribution of the data. However, it could have affected the data in other ways; for example, in addition to the normal tendency for respondents to favorably self-report on the agreeableness scale, the effect of this sort of thoughtless response brings into question the trustworthiness of all of the responses; hence, caution is advised in drawing conclusions about this research. To overcome this type of limitation in the future, it is recommended that a similar study be conducted using qualitative methods, where change recipients can be observed and behaviors can be assessed during the change process.

Another potential limitation involved the frequency of females in the data. Women predominated in the distribution of the sample and outnumbered men 3:1; thus, the gender composition of the sample was not representative of the population of adult Americans, and this may have also introduced bias into the study, causing a null hypothesis to be rejected when it should have been accepted (Vogt, 2007). This limitation could have been avoided if gender selection had been based on the distribution indicated in US Census Bureau population data.

Recommendations

It bears repeating that the Omazic et al. (2011) study, which inspired the present study, found that personality traits did not predict employee readiness for organization change among highly educated postgraduate business students. This finding was contrary to the extant literature since a study by Michael et al. (1999) presented evidence that education made employees more change ready at a multi-national hotel chain. Following

the recommendations of Omazic et al., the present study sought to shed light on whether or not a specific sample characteristic (i.e., the very high level of education among the respondents) could have modified the effect of personality traits on the outcome (Employee Readiness for Organizational Change).

Since findings of the present study indicated that education level combined with personality traits did not moderate EROC, the question now arises as to whether or not there may have been some other underlying reason for the different outcomes in the two studies– and could that reason have extended beyond sample size and makeup to include cultural differences or ethnic diversity differences between the American sample and the Croatian sample. Arguably, America might be a far more ethnically diverse culture than Croatia; so, given the very different results between the present American-based study and the Omazic et al. Croatian-based study, if education did not interact with personality to predict Employee Readiness for Organizational Change, the question arises as to whether or not something else (e.g., cultural or ethnic diversity) might have confounded the results in either sample to produce such different results.

Recommendations for Future Studies

Future studies to understand if cultural diversity interacts with personality traits to predict or moderate employee change readiness, and to what extent any interaction between cultural diversity and personality traits explain employee readiness for organizational change will expand the organizational change literature, and give particular insight into change readiness at the employee level when variables such as

ethnicity and culture are considered. Qualitative methods might be considered as these methods allow for observing human behaviors under a variety of conditions, and also allow for a deeper, richer understanding of individuals' lived experiences (Weick & Quinn, 1999). Qualitative methodologies would be appropriate in organizational field settings where change initiatives produce emotional outcomes that inform employees' behavioral intentions toward organizational change initiatives. It might also be of interest to organizations to understand whether or not personality traits predict the same *dimensions* of EROC among culturally diverse employees, as was predicted in this American study, especially as cognition informs many aspects of personality (Borghans et al., 2008); therefore, studies in this area are recommended. Since the universality of personality traits across international borders and cultures has long been established in the seminal and contemporary literatures (Cattell, 1943; Goldberg, 1993; McCrae & Terracciano, 1997, 2005; Rammstedt et al., 2009), there are implications regarding how change messaging might be perceived among different cultures and nationalities domestically and internationally.

Finally, as previously mentioned, Kim et al. (2006) explored the role of cognition and affect in strategic decision making and found that certain behaviors that were linked to leaders' decision-making were informed by their cognitive-affective response to environmental stimuli. Change happens in the environment of the organization and has a stimulative effect upon employees so that many employees often feel threatened and fearful during organizational change. It is possible that employees' decision-making

process during change initiatives might be consciously or unconsciously strategic in nature as they decide, based on cognitive and affective assessments of the environment, whether to support the change or not; strategic opposition to the change might simply be a way of protecting themselves against the unknown by maintaining the status quo and preserving their role and place in the organization. Findings of the present study were that Agreeableness and Emotional Stability predicted Cognition (e.g., employees' understanding of the change and its effects on their emotional stability). It has been established in the literature that Affect informs employees' intentions and subsequent behaviors to support, resist, or be ambivalent toward change and, in the present study, Extraversion, Emotional Stability, and Intellect predicted Affect or emotions about the change. Future studies into employees' personal change management strategies, and the relation between these strategies and personality traits are recommended. If the associations amongst these particular personality traits, cognition, affect, and employee strategies to deal with change are better known and understood, in addition to shaping the change messaging more effectively, perhaps, as was accomplished in the McNiel and Fleeson (2011) study, learning institutions and organizations will be able to experimentally change employee readiness outcomes through the use of role-playing as a training tool.

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APPENDIX A. STATEMENT OF ORIGINAL WORK

Academic Honesty Policy

Statement of Original Work and Signature

I have read, understood, and abided by Capella University's Academic Honesty Policy (3.01.01) and Research Misconduct Policy (3.03.06), including the Policy Statements, Rationale, and Definitions.

I attest that this dissertation or capstone project is my own work. Where I have used the ideas or words of others, I have paraphrased, summarized, or used direct quotes following the guidelines set forth in the APA *Publication Manual*.

Learner name and date	Ruth M. Tappin, 12/23/2014
Mentor name and school	Dr. Barbara A Bailey, SOBT