

A Correlational Study: Dispositional Style and Innovative Work Behavior of Educators in a K-

12 High Performing Charter School

Submitted by

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in a K-12 High Performing Charter School

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Abstract

The purpose of this quantitative correlational study was to examine to what extent a relationship exists between dispositional style and innovative work behavior of educators in a high performing K-12 charter school in Colorado. This study was conducted within the framework of Personality Theory and Innovation Theory. Four research questions asked to what extent each of the four dispositional styles measured by TTISI DISC relates to the four dimensions of innovative work behavior measured by IWBS. The researcher collected primary data through electronic survey from a convenience sample of 88 educators to included 71 teachers, 12 administrators, and 5 counselors. The results of the Kendall's tau-b correlation analysis revealed no statistically significant relationships between Dominance, Influence, Steadiness, and Compliance as the four dispositional styles and the four dimensions of IWBS, Opportunity Exploration, Idea Generation, Idea Promotion, and Reflection. It is possible that administrators and counselors differ significantly from teachers in terms of dispositional style and innovative work behavior. Further causal-comparative research is warranted to test that hypothesis.

Keywords: Dispositional style, innovative work behavior, high performing charter school, IWBS, TTISI DISC.

Dedication

Indeed, the doctoral journey is never a solo adventure. Without the constant support and encouragement, time and space, sacrifice and stability given to me by so many, the accomplishment of becoming a ‘doctor’ would still be a dream. However, because my mom, my children, and my champions believed I could, I set the goal and persevered to its attainment. In the end, *she believed she could, so she did.*

I dedicate this work to my unsung heroes: Gloria Herriott (mom), Ryan Reyes (son), Jaden Reyes (son), Steve Maersk-Moller (champion), Daddy & Lisa (cheerleaders), Megan Freeman (champion), Jen Dauzvardis (champion), Kim Weintraub & Amanda Stone (cheerleaders), Ricky & Stacy (Cohort Buds). I am most grateful to you and for you.

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Chapter 1: Introduction to the Study

Introduction

American education desperately needs effective innovations of scale to address the demand for high-quality learning outcomes (Serdyukov, 2017). The future of our children, our country and, indeed, our world depends on how well the challenges of improving our education system are met. The Charter School represents an innovative solution intended to meet said challenge. In fact, the impetus behind the charter school initiative was to create an option within the established school system to provide “innovative learning opportunities and creative educational approaches” to improve education (Maryland Public Charter School Act 2003). Although the majority of states promote charter schools to encourage innovation in academic programs, the extent to which charter schools are innovative remains disputed (Lubienski, 2017; Preston et al., 2012; Wohlstetter, Smith, & Farrell, 2013). Still, charter schools are considered the epitome of educational innovation and represent a promise of an improved education system by way of innovative process and procedure. Innovation scholars are investigating curricular choices, instructional methods, organizational conditions, and educator’s individual characteristics within charter schools to increase understanding of innovation’s existence and influence on charter school success (Cannata & Engel, 2012; Cannata & Penaloza, 2012; Fryer, 2014; Goff, Mavrogordato, & Goldring, 2012).

For at least two decades organizational innovation has been deemed a crucial factor in maintaining competitiveness in today’s global economy (Van der Merwe & Malan, 2013). Given the relationship between innovation and organizational success, employee innovative work behavior continues to be a topic of interest with regard to

organizational change and strategic planning (Anderson, Potočnik, & Zhou, 2014).

Innovative work behavior is defined as the individual engagement in initiation and implementation of new and useful ideas, processes, products or procedures for the purpose of organizational advantage (de Jong & den Hartog, 2010). Innovative individuals recognize challenges and generate ideas, champion ideas to other stakeholders, and implement iterations for further assessment and adoption (de Jong, Parker, Wennekers, & Wu, 2015).

Leaders in education desperate for improved student achievement are interested in translating successful innovative business practices into the education realm (Hall & McGinity, 2015; Zhu & Engels, 2014). While innovation is typically associated with the business sector, public organizations including educational institutions stand to benefit from innovative efforts as well. Educational innovations such as charter schools are purposed to improve the quality and effectiveness of the education system and ultimately learning outcomes for students (Berends, 2015; Cuban, 2013; Fryer, 2014). Decidedly employees are the most important source of innovation. Consequently, high performing organizations including educational organizations must seek and hire employees who have the predisposition to engage in innovative behavior. To keep pace with societal and economic change, to improve academic outcomes, and ultimately, prepare students for higher education and future employment innovation is a non-negotiable (Fryer, 2014; Kaur & Gupta, 2016; Messmann & Mulder, 2015).

High performing charter schools recognized for exemplary student achievement are believed to skillfully incorporate innovative methods at both the organizational and individual levels (Fryer, 2014; Spring, 2015). Charter schools that incorporate innovative

practices have become leaders in the education industry (Berends, 2015; Spring, 2015). Organizational factors such as leadership and culture have been extensively studied and conclude structural and contextual factors significantly influence innovative behavior in employees (Balkar, 2015; Choudhary, 2014). However, a gap existed to identify individual level factors related to innovative work behavior. Determining valid antecedents of innovative job behaviors directed the need for research at the individual level to extend understanding related to innovation in high performing schools (Binnewies & Gromer, 2012; Fryer, 2014).

Like other professions, the success of education depends on individual engagement in innovative behaviors (Berends, 2015; Messmann & Mulder, 2014; Sagnak, 2012). Supporting the need to investigate reasons for both success and failure of contemporary educational practices, Cuban (2013) concluded, “Factors at the policymaking level that explain the minimal impact on classroom practice include a misplaced trust in structural reform, an understanding of schools as complicated rather than complex systems, and the tendency not to distinguish educator quality from the quality of teaching” (p.123).

A variety of criteria exist identifying and measuring the qualifications, characteristics, and practices of a highly qualified and effective educator (Fryer, 2014). Student achievement is a common gauge used to identify exceptional educators, which directly relates to performance by way of individual level differences (Berends, 2015). Multiple researchers interested in identifying characteristics of effective educators and effective schools have examined a variety of individual differences including demographic, environmental, and psychological factors (Berends, 2015; Thurlings,

Evers, & Vermeulen, 2015). Aligning with current research related to innovation within high performing corporate organizations, educator innovative work behavior and its antecedents are of great interest and presented a gap in the current research. Educational institutions must adopt innovative practices in order to remain relevant and successful. Innovation only happens as a result of employees' innovative behavior.

This study is important because the demands of our rapidly changing society are increasing, and schools must address said changes with new technologies and new insights by way of innovative individuals. In addition, filling our schools with innovative educators capable of modelling innovative behavior may serve to develop future generations of innovative citizens. Knowing the educator's influence on student achievement is four times more important than that of the 'school as a whole'. A better understanding of if, and to what extent, dispositional style of educators is related to the susceptibility to engage in innovative work behavior is paramount (Muijs & Reynolds).

Previous researchers have used the Five Factor Model (FFM) personality assessment to measure individual level factors related to innovative behavior in both the business and education setting (McCrae & Costa, 2003; Potočnik, Anderson, & Latorre, 2015). Drawing on the Big Five model of personality (McCrae, 1987) openness to experience and conscientious are consistently described as a personality trait associated with a higher propensity toward innovative work behavior (Potočnik, Anderson, & Latorre, 2015). However, more recent practitioners suggested the FFM might be "too broad to predict criteria such as creativity and innovative behavior" (Patterson & Zibarras, 2017, p. 425). Results from a study with healthcare educators, suggested within the conscientious trait of the FFM, only some of the facet traits are directly related to

innovative work behavior. For example, achievement striving, competence, and self-discipline facets were found to positively relate to innovative behavior, while deliberation, order, and dutifulness facets of conscientiousness did not. These findings revealed a need to use alternative reliable and valid instruments to identify at the facet level descriptive behavioral characteristics and tendencies to demonstrate innovative work behavior.

Contemporary researchers label descriptive behavioral characteristics as disposition (Smith & Skarbek, 2013). Schussler and Knarr (2013) argued that disposition influences an educator's perceptions and how they connect intentions to practice within a teaching situation. Tillman and Richards (2010) posited, "Dispositions are typically inferred from observed educator behaviors. Consistent patterns of behaviors, activities, and attitudes likely reflect authentic disposition" (p. 6). Educator performance research links educator disposition to effectiveness and identifies specific dispositional traits as criteria for success in the education profession (Ravitch, 2013). Further, disposition, the behavioral aspect of personality, linked to employee innovative work behavior is an understudied topic related to organizational performance of educational institutions and presented a significant gap in the research (Fryer, 2014; Messmann & Mulder, 2015; Ravitch, 2013; Yesil & Sozbilir, 2013).

The DISC (Dominance, Influence, Steadiness, and Compliance) is a widely used assessment tool used in the corporate world to identify and describe patterns of behavior called dispositional style (Bonnstetter & Suiter, 2013; Prochaska, et al., 2015). The four-quadrant behavioral model has been used to describe the typical behaviors of individuals in the work environment (Bonnstetter & Suiter, 2013). While a variety of versions of the

DISC instrument exists, the TTISI DISC is a valid and reliable version used globally for evaluating individual factors that affect the tendency or inclination to act (Bonnstetter & Suiter, 2013).

For nearly 30 years, the Target Training International Success Insights' (TTISI) DISC has identified dispositional styles of individuals within the work place, more recently in schools, to guide hiring decisions, predict performance, and maximize human potential (Aldisert, 2013; Bonnstetter, Bonnstetter & Marston, 2012). The TTISI DISC instrument is intended to identify behavioral traits among individuals and provide specific descriptors of typical behaviors connected to problem-solving, communication, and level of inclination toward a variety of work related tasks (Bonnstetter, Bonnstetter & Marston, 2012). "Studies have revealed that more than 81% of a participant's colleagues see the DISC instrument as an accurate picture of a person's habitual behavior patterns" (Jones & Hartley, 2013, p. 461). By definition, the tendency or inclination to act is considered disposition (disposition, 2018). For the purpose of this study, one of the variables, dispositional style, was identified based upon the highest score among all dispositional styles for each individual. Previous studies have demonstrated correlation may be found between a DISC profile and other individual and organizational variables (Yost, Gardner, Bell, Fann, Lisk, Cheadle, & Woods, 2015). Thus, dispositional style, one of the variables for the proposed study, which is defined as 'the pattern of behavioral inclination or tendency of habitual behaviors' (disposition, 2018) was measured using the TTISI DISC instrument.

Employee innovative work behavior is critical for organizational change and strategic planning (Anderson, Potočnik, & Zhou, 2014). Conceptually, innovative work

behavior, the second variable in this study, is an explanatory construct to describe employee contributions to innovation and stems from organizational psychological models of creativity and implementation of innovation (Amabile, 1988). Innovative work behavior is a dynamic and context-bound construct; a compilation of physical and cognitive activity in a work setting through solitary and social efforts to achieve innovation development (Kanter, 1988; Messmann & Mulder, 2012). The four-dimensional construct of innovative work behavior includes four sub-domains: Opportunity exploration, Idea generation, Idea promotion, and Reflection (Messmann & Mulder, 2012, 2014). To measure innovation engagement of educators at the individual level, the Innovative Work Behavior Scale (IWBS) was utilized in this study (Messmann & Mulder, 2012). Messmann & Mulder (2012) created the IWBS instrument based on previous research related to measuring IWB in the work place (Janssen, 2003; Kleysen & Street, 2001; Scott & Bruce, 1994) and adapted it for the education setting. The culminating instrument was determined to be valid and reliable through multiple studies with vocational and K-12 educators. Cronbach's alpha indicated good internal consistency and homogeneity (Messmann & Mulder, 2012; Kaur & Gupta, 2016).

While the study of organizational innovation is not new, very few studies had correlated personality and behavior variables to the four dimensions of innovative work behavior. Instead, studies had correlated personality and behavior variables to an overall innovative work behavior score (Messmann & Mulder, 2014). To address this gap in the research, the variable, dispositional style was correlated with the variable, innovative work behavior to include each dimension of innovative work behavior. This quantitative correlational study examined if and to what extent a relationship exists between

dispositional style and the four dimensions of innovative work behavior of educators in a high performing K-12 charter school in Colorado.

Without innovative educators, it is difficult to expect the progression of an innovative generation. The results of this study sought to provide future educational leaders with a dispositional profile of innovative educators. Additionally, the identification of a relationship between dispositional style and innovative work behavior found within a successful K-12 charter school continues to uncover individual level factors indicative of high performing schools.

Background to the Study

While multiple variables exist influencing the performance of high performing schools, long established is the notion that the educator is the number one influence on student achievement (Darling-Hammond, 2015). Studies show effective educators possess specific characteristics and knowledge of subject matter, classroom management, instructional skill, and many other diverse behaviors, which are attributed to high student achievement (Kraft & Duckworth, 2014). Additionally, educators' beliefs and work-related perceptions correlate with student achievement (Collie, Shapka, Perry, & Martin, 2016). In a longitudinal case study Previts and Bauer (2013) showed educators who demonstrated proactive dispositions valued and remained focused on best practices and superior student achievement, whereas educators with less responsive dispositions emphasized traditional methods focused on the status quo predominantly focused on high stakes standardized testing. Identifying high performing educators by way of dispositional style and innovative work behavior, may prompt an increase in attracting,

hiring, and developing exceptional teachers for all schools, ultimately having a significant impact on student achievement (Bonnstetter & Suiter, 2013).

In response to a failing educational system and a demand for revolution instead of reform, charter schools exist as a mechanism for radical systemic change (Berends, 2015). By definition, the charter school is an innovative initiative (Berends, 2015). However, both proponents and opponents of the charter movement agree variation exists in the measured effects of charter schools (Berends, 2015; Furgeson et al., 2012). Fryer, (2014) recently conducted a quasi-experimental study to determine the impact specific tenets common to high performing charter schools such as “increased time, better human capital, more student-level differentiation, frequent use of data to alter the scope and sequence of classroom instruction, and a culture of high expectations” had when implemented in low performing schools. Results provided evidence suggesting systematic implementation of best practices present in successful charter schools (i.e. better educators) can significantly increase student achievement similar to the performance of currently recognized high performing charter schools (Fryer, 2014). Still, extant research regarding the degree to which each of the tenets influenced school performance is needed because organizational level conditions and characteristics of effective charter schools vary (Berends, 2015). Aligned with previous gaps identified in this study, Fryer (2014) indicated further research is required to ascertain additional unique and specific individual level characteristics of ‘better human capital’ within successful schools that may further explain exemplary results in high performing charter schools (Berends, 2015; Furgeson et al., 2012).

While current research indicates organizational innovation is critical to continued success and relevance (Özbağ, 2014; Yesil & Sozbilir 2013), rapid change in education in areas such as state and national mandates related to curriculum, instruction, and evaluation also underscores the necessity for educators to engage in innovative behavior (Berends, 2015). Hence, further research was needed to identify specific individual factors through behavior analysis related to engagement in innovative work behavior (Thurlings et al., 2015; Yesil & Sozbilir, 2013). Through an investigation of individual behavior profiles called dispositional style, using more descriptive measurements such as the TTISI DISC instrument, valuable indicators emerged useful for the identification of common dispositions related to innovative work behavior of educators within high performing charter schools.

Disposition, the behavioral dimension of personality, includes variables such as patterns of behaviors and motivators (Bonnstetter & Suiter, 2013). Examining organizational performance by way of individual behavior continued to be a needed and popular topic of research (Thurlings et al., 2015). Individual variables such as personality, years of experience, and motivators impact organizational innovation and may hold clues to the building and nurturing of an innovative culture and work force (Choudhary, 2014). Leaders in education recognize the need for successful innovative practices to improve student achievement. Thus, it is important to understand if and to what extent a relationship exists between dispositional style and the four dimensions of innovative work behavior of educators in a K-12 high performing charter school.

Moolenaar, et al., (2014) investigated high performing charter schools by way of individual characteristics associated with collaboration and social network intentionality.

Results indicated educators with a strong inclination toward social connections perceived school climate more innovative. To continue to address the reasons why some schools are high performers while others struggle, Moolenaar et al. (2014) called for further research to extend investigation of both organizational and individual level characteristics related to innovation to other high performing charter schools. While many researchers and practitioners support that both environmental and individual factors influence innovative behaviors, Kaur and Gupta (2016) and Messmann and Mulder (2014) emphasized individual factors require increased examination. In addition, because most current personality research related to educators' innovative work behaviors utilized the Meyers Briggs Temperament Instrument (MBTI) and/or the Five Factor Model (Big Five), researchers urged future studies utilizing a wider variety of behavior-related measures to further expand and deepen the knowledge of the relationship between individual characteristics and innovative work behavior (Patterson & Zibarras, 2017; Thurlings et al., 2015; Wiens & Ruday, 2014).

Attracting, hiring, and developing educators with a disposition to innovate is essential to improving education (Messmann & Mulder, 2015; Van der Merwe & Malan, 2013). Many policy makers see innovation as a catalyst for change in public education (Berends, 2015). Innovation blends the art and science of acknowledging and addressing needed change. Smith and Peterson (2011) contended public sector innovation happens “when visionary people try to do things differently, despite being surrounded by people doing things the way they always have” (p. 1). Organizations depend on employees for creative ideas and innovative effort (Yesil & Sozbilir, 2013). Thus, individual innovative behavior in the workplace is a central pillar of high performing organizations (Berends,

2015). Because discrepancies exist in the literature related to the quality and performance of charter schools as a whole, a call for research exists at both the macro and micro levels (Berends, 2015; Moolenaar, et al., 2014; Wake & Bunn, 2016). To better understand charter school success, many researchers advocate for examining characteristics of high performing schools as well as educator characteristics and qualifications to gather detailed information about organizational conditions and individual factors that promote achievement (Cannata & Penaloza, 2012; Choudhary, 2014; Cravens, Goldring, & Penaloza., 2012; Goff, et al., 2012).

Previously studied characteristics of schools and specific innovative practices illuminated understanding at the organizational level (Gleason, Tuttle, Gill, & Nichols-Barrer, 2014; Law, Niederhauser, Christensen, & Shear, 2016). A growing body of evidence suggested certain organizational practices such as extended instructional time, strict behavior expectations, evidence-based teaching methods in reading and math skills, discriminating hiring practices, and teacher (Dobbie & Fryer, 2015; Fryer, 2014). However, a dearth in the literature still remained at the individual level, as the relationship between disposition and innovative work behavior of educators had not been sufficiently explored and documented (Berends, 2015; Kaur & Gupta, 2016; Messmann & Mulder, 2012; Thurlings et al., 2015). While a plethora of research would support that educators' individual level characteristics influence both process and performance of effective schools, a gap in the research existed in the area of examining the relationship between dispositional style and the four dimensions of innovative work behavior (Berends, 2015; Kramer, Bhave, & Johnson, 2014; Madrid, Patterson, Birdi, Leiva, & Kausel, 2014). In addition, until now no researcher had investigated individual level

factors such as disposition using the TTISI DISC behavior assessment tool and its correlation to innovative work behaviors in high performing charter schools (Berends, 2015; Dobbie & Fryer, 2015; Fryer, 2014; Kaur & Gupta, 2016; Messmann & Mulder, 2012; Previts & Bauer, 2013).

This study addressed that gap with a specific focus on if and to what extent a relationship exists between dispositional style and innovative work behavior of educators within a K-12 high performing charter school in Colorado. Through an investigation of the relationship between dispositional style and innovative work behavior of educators, valuable indicators emerged useful for the identification of common dispositions and deepen understanding of the influence individual characteristics have on organizational performance.

Problem Statement

Prior to this study, it was not known if and to what extent a relationship existed between dispositional style and innovative work behavior of educators in high performing K-12 charter schools in Colorado. While multiple variables influence the performance of charter schools, questions remained related to the specific dispositions of effective educators that yield or contribute to high academic performance (Thurlings et al., 2015). Rode, Arthaud-Day, Mooney, Near, and Baldwin (2008) point out that students see multiple educators during their school years. If only a few educators are exceptional, learners will not experience the most beneficial opportunities for growth and improvement.

Innovation is necessary in education and ensures practice and process remains current in response to a rapidly changing society (Berends, 2015; Fryer, 2014). Schools

as organizations have the opportunity to model and instill skills of innovative behavior in future citizens safeguarding society's competitive stance (Van der Merwe & Malan, 2013). In other words, educators' innovative work behavior is critical for the continued advancement of a knowledge based society. Clearly, without innovative educators, it would be difficult to expect the next generation to be so. Therefore, it was reasonable to assume that innovative work behavior should be found central to the practices of educators in high performing schools. Moreover, to enhance educator programs, it was important to know which individual factors can be developed to affect innovative work behavior of future educators (Messmann & Mulder, 2012; Previts & Bauer, 2013).

Benefits to a current understanding of the link between dispositional style and innovative work behavior of educators occurred as a result of theorizing, measuring and identifying specific individual level commonalities among the most innovative organizations (Choudhary, 2014; Messmann & Mulder, 2012). To address an investigation of individual level factors related to high performance in K-12 charter schools, identifying a relationship between dispositional style and the four dimensions of innovative work behavior of educators in one high performing K-12 charter school could illuminate a scalable identifier with which to attract, hire, and develop effective educators for all schools.

Purpose of the Study

The purpose of this quantitative correlational study was to assess the relationship between the four dimensions of dispositional style: Dominance (D), Influence (I), Steadiness (S), and Compliance (C) and the four dimensions of innovative work behavior: Opportunity Exploration, Idea Generation, Idea Promotion, and Reflection

among educators in a high performing K-12 charter school in Colorado. A convenience sample of 123 educators who work in one K-12 high performing charter school in Colorado was recruited for this study. Educators invited to participate work in one K-12 high performing charter school in the Western region of the United States, which had been identified as ‘high performing’ and ‘elite’ by outside evaluators year after year (Spring, 2015). Because modern scholars indicated innovation is critical to organizational success, it is reasonable to assume high performing schools exhibit innovation (Berends, 2015; Cannata & Engel, 2012; Cannata & Penalosa, 2012; Cravens et al., 2012; Goff et al., 2012). Innovation originates from innovative people. Thus, examining the relationship between disposition and innovative work behaviors of educators in a K-12 high performing charter school served to illuminate a scalable characteristic of high performing charter schools needed to improve the performance of all schools as well as provide new knowledge that may inform educational leaders interested in promoting innovation through educator selection processes.

Disposition was measured using the TTISI DISC instrument identifying dispositional style as Dominance (D), Influence (I), Steadiness (S), and Compliance (C) (Bonnstetter & Suiter, 2013; Marston, 1928). Participants ranked 24 frames. Each frame was ranked 1-4 with 1 being most likely and 4 being least likely to describe the individual within the work place. The raw scores were converted into normed scores. While the exact conversion is a trade secret of TTISI, the company disclosed the scores were determined using a combination of percentile and sten scores. The outcome of the assessment was a numerical score of a whole value between 0 and 100 for each dispositional style (Prochaska, Sampayo, & Carter, 2015). Innovative work behavior, the

second variable, was measured using the Innovative Work Behavior Scale (Messmann & Mulder, 2012). Innovative work behavior is a dynamic and context bound phenomenon of four sequential and iterative behaviors identified as Opportunity Exploration, Idea Generation, Idea Promotion, and Reflection (Messmann & Mulder, 2012, 2014). Participants indicated, using a 6-point Likert scale (1-does not apply; 6-fully applies) the degree to which 20 statements related to each dimension of IWB applied to their work day experience.

Individual variables such as personality, years of experience, and motivators impact organizational innovation and may hold clues to the building and nurturing of an innovative culture and work force (Choudhary, 2014). An examination of the relationship between dispositional style and innovative work behavior of educators in a high performing K-12 charter school in Colorado was conducted to illuminate a scalable identifier with which to attract, hire, and develop effective educators for all schools.

Research Questions and/or Hypotheses

Innovative practices in education are necessary for producing high quality learning outcomes. Innovation requires innovators, and many of them (Serdyukov, 2017). A gap in the research existed identifying individual-level variables, such as disposition, related to innovative work behavior, which may be responsible for the effective performance of schools identified as high performing (Berends, 2015; Cannata & Engel, 2012; Cannata & Penaloza, 2012; Cravens et al., 2012; Goff et al., 2012). The purpose of this study was to examine if and to what extent a relationship exists between dispositional style and the four dimensions of innovative work behavior of educators in a high performing K-12 charter school in Colorado.

Dispositional style, the first variable, was operationalized as Dominance (D), Influence (I), Steadiness (S), and Compliance (C), and measured using the TTISI DISC instrument that measures dispositional style with four parallel scales (Bonnstetter, Bonnstetter & Marston, 2012). Participants ranked 24 frames of 4 items corresponding to the four DISC scales. Each frame was ranked 1-4; 1 being most likely and 4 being least likely to describe the individual in the work environment. The outcome of the assessment was a numerical score with a whole value between 0 and 100 for each style (Prochaska, Sampayo, & Carter, 2015). Scores were converted using a combination of percentiles and sten scores.

Innovative work behavior, operationalized as Idea Exploration, Idea Generation, Idea Promotion, and Reflection, the second variable, was measured using the Innovative Work Behavior Scale (Messmann & Mulder, 2012). Each participant indicated on a Likert scale from 1(does not apply) to 6 (fully applies) how frequently he or she engaged in the 20 activities related to the four dimensions of innovative work behavior. Individual level data were collected from participants using instruments administered online. The correlational analysis provided insight into direction and magnitude of the relationships between educator dispositional style and innovative work behavior. All measures for these variables were continuous. The research questions and associated hypotheses guided the study to examine a relationship between dispositional style and innovative work behavior of educators in a K-12 high performing charter school in Colorado.

RQ1: To what extent, if any is ‘Dominance’ as measured by the TTISI DISC related to the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado?

- H₀₁: There is no significant relationship between ‘Dominance’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.
- H_{1a}: There is a significant relationship between ‘Dominance’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.
- RQ2: To what extent, if any is ‘Influence’ as measured by the TTISI DISC related to the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado?
- H₀₂: There is no significant relationship between ‘Influence’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.
- H_{2a}: There is a significant relationship between ‘Influence’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.
- RQ3: To what extent, if any is ‘Steadiness’ as measured by the TTISI DISC related to the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado?

- H₀₃: There is no significant relationship between ‘Steadiness’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.
- H_{3a}: There is a significant relationship between ‘Steadiness’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.
- RQ4: To what extent, if any is ‘Compliance’ as measured by the TTISI DISC related to the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado?
- H₀₄: There is no significant relationship between ‘Compliance’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.
- H_{4a}: There is a significant relationship between ‘Compliance’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.

Advancing Scientific Knowledge and Significance of the Study

Extending the investigation of characteristics of high performing charter schools by way of examining educators who work within them could lead to a better

understanding of the direct relationship between disposition and innovative work behavior. Using Marston's theory of behavior (1928) and personality theory, studying the dispositional styles of educators, through the TTISI DISC may help identify common characteristics of educators in high performing schools apart from outside variables such as educational degree, content area, and geographical location. Exploring common educator dispositional styles existent in high performing schools as it relates to innovative work behavior through the Innovative Work Behavior Scale (Messmann & Mulder, 2012; Scott & Bruce, 1994) could further current understanding of educator characteristics that influence charter school performance.

Educators are the most important school-related factor found to facilitate student learning and likely explain at least some of the differences between high and low performing schools (Loeb, Kalogrides, & Béteille, 2012). Although school success requires the combined efforts of all who serve the school, the number one influence on student achievement is the educator (Darling-Hammond, 2015). Therefore, identifying specific dispositional styles of innovative educators within successful schools may provide criteria for purposeful recruitment of top performing educators (Dobbie & Fryer, 2015; Fryer, 2014).

Educator dispositional style, in addition to skill set, may be the greatest contributing factor to the degree of success in high performing schools (Smith, 2015). Similarly, identifying specific dispositions of educators within both traditional and charter high performing schools may provide criteria for successful recruitment of stellar educators (Previts & Bauer, 2013). To add to the scientific knowledge base and extend research in the area of high performing charter schools, a correlational study was

conducted to examine if and to what extent a relationship exists between dispositional style and innovative work behavior of educators in a K-12 high performing charter school in Colorado, which may increase understanding of unique characteristics of educators who work in high performing schools.

Numerous quantitative studies have used the Five Factor Model personality instrument (Agreeableness, Conscientiousness, Neuroticism, Openness to experience, and Extraversion) to assess personality as it related to innovation (Ali, 2018). Consistently, researchers have found parts of the traits of Conscientiousness and Openness to Experience significantly related to IWB leaving a gap in understanding about which sub traits or facets within the broad traits are antecedents of IWB (Ali, 2018; Potočnik, Anderson, & Latorre, 2015). Investigating that gap, Patterson and Zibarras (2017) examined the relationship between IWB and Conscientious at the facet level and determined the sub traits Achievement Striving, Competence, and Self-Discipline were positively related while the Deliberation and Order and Dutifulness sub traits were not.

Messmann and Mulder (2012) created a theory-based, valid, and reliable tool to assess and investigate innovative work behavior (IWB) of vocational teachers in Germany. Researchers quantitatively investigated to what extent educators exhibit behaviors associated with the process of innovation. In the 2014 study, using their IWBS instrument, researchers found intrinsic motivation significantly related to innovative work behavior of educators in the highest level of vocational schools in Germany (Messmann & Mulder, 2014). In 2015, the same researchers examined reflection as a facilitator of innovative work behaviors. Extending Messmann and Mulder's (2014) work, Kaur and Gupta (2016) examined the impact of individual level characteristics on IWB of K-12

educators in India using Messmann and Mulder's (2012) instrument. Investigating at the individual level, positive affect and internal locus of control were the strongest predictors of IWB of educators in the sample. Also, Kaur and Gupta (2016) echoed Messmann and Mulder's (2012) call for other relevant factors such as individual behaviors, motivators, and values to be examined related to innovative work behavior in other types of schools.

Innovation research in the progressive corporate arena indicated innovative work behavior yields high organizational performance (Konermann, 2012). Identifying a relationship between dispositional style and innovative work behavior of educators within a K-12 high performing charter school could extend current organizational research findings to the educational institutions (Dobbie & Fryer, 2015; Fryer, 2014; Previts & Bauer, 2013). Further, administrators equipped to identify innovative educators through measures such as the TTISI DISC instrument could recruit and develop a teaching staff perched to create new ways of addressing the education crisis and support superior student performance. Miranda (2012) indicated that the most important attribute of an outstanding educator is disposition. The second attribute is instructional skill, followed by knowledge of content. Contemporary educational challenges cannot be solved with status quo thinking and subsequent behavior (Ikeda & Marshall, 2016). Identifying specific behavior styles called dispositions of educators within successful schools may provide hiring teams insight into which dispositional style is more likely to engage in innovative behaviors.

Although researchers have examined aspects of educator personality related to innovative work behavior in the school setting using the MBTI (Meyers-Briggs Type Indicator) and the FFM (Five Factor Model), until now no studies had explored

individual dispositional styles and innovative work behavior of educators in a K-12 high performing charter school. Thus, further research on this topic in diverse school settings such as high performing charter schools sought to fill this gap (Berends, 2015; Kaur & Gupta, 2016; Thurlings et al., 2015).

Educators are the front-line influence on school success by way of student achievement (Darling-Hammond, 2015). Empirical studies support the idea that a positive relationship exists between innovative orientation and organizational performance (Kanter, 1988; Patterson & Zibarras, 2017; Serdyukov, 2017). In a world where critical thinking and creative problem solving are foundational to competitive advantage, elucidating prevalent characteristics and dimensions of successful charter schools may provide a framework for the creation of exceptional learning organizations nation wide. American education desperately needs effective innovations of scale to address the demand for high-quality learning outcomes (Serdyukov, 2017). Capitalizing on observed success in some schools and increasing knowledge of specific characteristics of educators there in, could further the discovery of scalable strategies and practices to improve current educational standards ensuring all children receive the best education possible.

Rationale for Methodology

The focus of this study was to investigate if and to what extent a relationship exists between dispositional style and innovative work behavior of educators in a K-12 high performing charter school in Colorado. To assess the relationship between dispositional style and innovative work behavior of educators, the researcher conducted a quantitative study. Quantitative research attempts to create statistical models and

constructs suitable for ascertaining relationships and generalizing across groups of people (Stage & Wells, 2014). The relationship between dispositional style and innovative work behavior of educators was not yet sufficiently defined (Thurlings et al., 2015). Further quantitative inquiry increases relevance to social research when utilizing analytic practices from quantitative methods to study people in context providing possible platforms for future qualitative study (Stage & Wells, 2014).

One advantage of quantitative methodology is “the ability to use smaller groups of people to make inferences about larger groups that would be prohibitively expensive to study” (Holton, 1997, p. 71). Quantitative methods result in numerical data that statistically represents the extent of a relationship between variables. Quantitative methods are used when researchers seek to confirm a hypothesis and results are documented using objective language. At the same time, an advantage of using qualitative study is the rich descriptive data captured through means such as interviews in which participants’ perspectives in words and other actions related to a phenomenon are analyzed. Typically, qualitative methods are used when wanting to study a particular phenomenon in depth asking questions such as why a phenomenon occurred by way of participant perspective (Fetter, Curry, & Creswell, 2013). For this study, the researcher was only interested in determining the extent of a relationship between the two variables, dispositional style and innovative work behaviors, using quantitative and reliable measures. Thus, qualitative methods were not appropriate. However, many times quantitative studies provide support for further qualitative study (Fetter, Curry, & Creswell, 2013).

In this study, the researcher used the TTISI DISC instrument to measure dispositional style, which resulted in a score (0-100) for each style (Dominance (D), Influence (I), Steadiness (S), and Compliance (C)) indicating the degree to which the individual displays certain patterns of behaviors at work. While an individual demonstrates parts of each dimension, the style with the highest score was considered the dispositional style for this study. To quantify innovative work behaviors the researcher used the Innovative Work Behavior Scale based on Scott and Bruce's (1994) and Janssen's (2003) studies and adapted by Messmann and Mulder (2012) for the education context. This instrument consists of four dimensions of innovative work behavior which includes; Opportunity Exploration, Idea Generation, Idea Promotion, and Reflection. Scores for each dimension resulted for each individual. For the purpose of this study, the researcher correlated educators' dispositional style (highest score among the four scales) with each of the four dimensions of innovative work behavior to determine if and to what extent a relationship between the two variables existed.

Nature of the Research Design for the Study

This study used a correlational research design because the purpose of this study was to examine relationships among quantitative variables. The questions posed for this study asked if and to what extent a relationship exists between dispositional style and the four dimensions of innovative work behavior of educators in a K-12 high performing charter school. The researcher did not intend to assess cause-effect relationships; therefore, the researcher rejected both a causal-comparative design and a quasi-experimental design. In addition, because the researcher could not affect the dispositional

style or engagement of innovative work behavior of the survey participants, the nature of the research was exploratory and non-experimental.

When exploring if and to what extent two variables are related, the most appropriate design is correlational (Morgan, Leech, Gloeckner, & Barrett, 2012). The benefit of a correlational design is it allows the researcher to investigate the extent of the relationship without the burden to identify the cause (Boslaugh, 2013). For this study, a correlational design was chosen to determine if and to what extent a relationship exists between dispositional style and the four dimensions innovative work behavior of educators in a K-12 high performing charter school in Colorado.

Although a causal-comparative design is similar to a correlational design in that it is non-experimental, causal-comparative designs do not examine relationships between variables (Boslaugh, 2013). If this study were aimed at establishing reasons for differences between groups, a causal-comparative design would have been appropriate (Gay, Mills, & Airasian, 2011). Establishing a cause and effect is the goal of causal-comparative; however, no attempt to examine cause of phenomena between groups was made in this study. Therefore, a correlational design was the most appropriate choice for examining the relationship between dispositional style and the four dimensions of innovative work behavior of educators.

The target population for this study was educators who work in a K-12 high performing charter school in Colorado. The target population consisted of 33 elementary educators, 35 middle school educators, 38 high school educators, 12 administrators, and 5 counselors in one high performing K-12 charter school in Colorado. All educators had worked in this school for at least 2 years while a majority had been with this school for

more than six years. Given the years of service in this specific high performing school, it was reasonable to suspect the educators at this school would be representative of the typical employees attracted, hired and developed at this school and appropriate to explore individual dispositional style as an influence on the success of the school. The researcher analyzed data using Kendall's Tau-b correlational analysis. While the number of participants ($N=88$) exceeded the required size of 84, due to the small subsets for each dispositional style (D=4; I=32; S=32; C=20) Kendall's Tau-b was appropriate. Although the sample size requirement had been met for Pearson correlation analysis, the test of assumptions were not satisfied (Appendix H, I, J). The sample size requirement for Spearman's Rho was not attained, thus, the data was analyzed using Kendall's Tau-b correlation.

Quantitative data was collected through two reliable and validated instruments: the TTISI DISC (Bonnstetter & Suiter, 2013) to collect dispositional style data and the Innovative Work Behavior Scale (Messmann & Mulder, 2012) to collect innovative work behavior data. Both instruments are self-reporting measures. The study findings regarding the relationship among the variables of interest provided new knowledge that may inform education leaders interested in attracting, hiring and developing educators inclined to engage in innovative work behavior in order to improve school performance.

Definition of Terms

A number of terms associated with charter schools and innovation were incorporated in this study. In research, terms are defined with reference to relevancy and comprehension. Specific to this study, the following selected terms were used throughout and are defined for increased understanding.

Charter school. A charter school is a public school of choice that operates under the terms of a charter, or contract, with an authorizer, such as the state and local boards of education (Berends, 2015). Charter schools receive public funding without the mandate to adhere to all the regulatory restrictions traditional public schools do. One main distinction between charter and public schools is the hiring process. Besides satisfying the No Child Left Behind legislation for teachers in core areas charter schools have near total autonomy related to hiring and firing (Cannata & Engel, 2012).

Dispositional style. Researchers define disposition as the behavioral dimension of personality (Cervone & Pervin, 2015; McCrae, 2015). In the academic arena disposition is defined as “Professional attitudes, values, and beliefs demonstrated through both verbal and non-verbal behaviors as educators interact with students, families, colleagues, and communities” (NCATE, 2008, p. 89-90). According to Buss and Craik (1983), *disposition* refers to a consistent demonstration of patterns in behavior. Disposition represents a predictable behavioral style that is relatively stable and enduring and predisposes a person to behave in accordance with specific characteristics (Mello & Rentsch, 2014). Dispositional style is a set of observable behaviors routinely demonstrated in the work context; a conglomeration of perceptions or beliefs that influence behavior (Bonnstetter, 2006). Relevant to this study and by way of a brief example, ‘D’ dispositional style (Dominance) tends to accept challenge, take risks, and enjoys achieving immediate results. An ‘I’ dispositional style (Influence) tends to demonstrate freedom of expression, collaboration, and value relationships. An ‘S’ dispositional style (Steadiness) is described as calm, patient, predictable. A ‘C’ (Compliance) dispositional style values quality and accuracy.

Educator. An educator is considered a certificated professional at a school site: principal, teacher, and/or counselor.

Five Factor Model (Big Five). The Big Five is a self-report instrument used to measure personality traits and has been used to predict job performance. The five traits are Conscientiousness, Agreeableness, Neuroticism, Extraversion, and Open to Experience (Costa & McCrae, 1992). Most research aimed at understanding individual differences related to innovation has utilized this instrument resulting in Open to Experience and Conscientiousness having the most significant relationship.

TTISI DISC. An assessment resulting in a quantitative and qualitative description of dispositional style, the behavioral dimension of personality. Disposition is categorized into four quadrants with associated behaviors. The four quadrants are Dominance (D), Influence (I), Steadiness (S), and Compliance (C). Taken together, this measure results in numerical outcomes for each quadrant providing a unique description of the individual's dispositional style indicative of expected behaviors in a given context. Used widely in the corporate world the TTISI DISC is recently being introduced and utilized in the educational setting (Bonnstetter & Suiter, 2013; Yost, Gardner, Bell, Fann, Lisk, Cheadle, & Woods, 2015).

Innovation. Innovation refers to a new policy, practice, and/or process adopted by an organization or employee (Demircioglu & Audretsch, 2017). Innovation also refers to the creation and implementation of new ideas. Innovation can occur at any level within the organization, or simultaneously at multiple levels (Anderson, Potočnik, & Zhou, 2014).

Innovative work behavior. Innovative Work Behavior is the activity of individuals that overtime involves creating and proposing new ideas while investing collaborative effort in testing and implementing these ideas as a result of opportunity recognition, resource utilization, and problem solving (Pihie, Asimiran, & Bagheri, 2014). Bolton and Lane further defined innovative work behavior as a predisposition to act creatively, experiment, and introduce new products or practices (Bolton & Lane, 2012). Individual innovative work behavior is an explanatory construct for employees' contributions to innovation, which includes "the intentional creation, introduction and application of new ideas within a work role, group or organization, in order to benefit role performance, the group, or the organization" (Janssen, 2003, p. 356). Because individual innovation involves self-initiated action or proactivity to bring about change particularly related to idea implementation, individual innovation behavior could be considered a type of action related to disposition (Chen, Farh, Campbell-Bush, Wu, & Wu, 2013).

Innovative work behavior scale (IWBS). Innovative Work Behavior is the activity of individuals that overtime involves creating and proposing new ideas while investing collaborative effort in testing and implementing these ideas as a result of opportunity recognition, resource utilization, and problem solving (Pihie, Asimiran, & Bagheri, 2014). Bolton and Lane further defined innovative work behavior as a predisposition to act creatively, experiment, and introduce new products or practices (Bolton & Lane, 2012). Individual innovative work behavior is an explanatory construct for employees' contributions to innovation, which includes "the intentional creation, introduction and application of new ideas within a work role, group or organization, in

order to benefit role performance, the group, or the organization" (Janssen, 2003, p. 356). Because individual innovation involves self-initiated action or proactivity to bring about change particularly related to idea implementation, individual innovation behavior could be considered a type of action related to disposition (Chen et al., 2013).

Assumptions, Limitations, Delimitations

This section identifies the assumptions and specifies the limitations, as well as the delimitations, of the study.

Assumptions. An assumption is a self-evident truth. Recognizing the assumptions associated with this study provided additional perspective when interpreting the results and attempting to generalize the conclusions. The general assumption was that there was a relationship between educator dispositional style and the propensity toward performing innovative work behavior. The following assumptions were also present within this study.

1. It was assumed that participants in this study would not be deceptive with their answers, and that the participants would answer questions honestly and to the best of their ability. This assumption was necessary because the researcher had no way to confirm if participants were honest and put forth the intentional effort to answer each question to the best of their abilities.
2. It was assumed that a characteristic of high performing schools, like high performing organizations, is innovation.
3. It was assumed that educators in high performing schools exhibit innovative practices.

Limitations and delimitations. Limitations are influences that the researcher had no control over, such as bias. In contrast, delimitations are influences over which the researcher had control, such as location of the study.

Limitations. This study had the following limitations:

1. Generalization of the study could only be made within high performing charter schools. Ideally, this study would have included more than one charter school, and/or one identified, and one not identified as high performing. However, to minimize the potential of increased variation by way of organizational climate and internal systems, the sample population was narrowed to include only educators from one school.
2. Only dispositional style was considered in the attempt to establish a relationship between individual level characteristics and innovative work behavior. The addition of motivators and soft skills to the equation would deepen the richness of the conclusions.
3. The scope of this study was limited by the scope of the validated instruments used for data collection. Using other instruments to collect data for the same variables may have yielded different results.
4. Data collection involved self-reporting. To minimize subjectivity, the researcher used a quantitative method and validated survey instruments. However, the researcher acknowledges the risk of desirability bias.
5. The convenience sample of volunteer respondents may not be representative of the target population.

Delimitations. This study had the following delimitations:

1. The survey of K-12 educators was delimited to only one high performing charter school in Colorado, which may not be representative for all high performing charter schools in Colorado. Including other schools would have increased the generalizability to a larger population.
2. The researcher used correlational analysis to identify statistically significant correlations between the two variables of interest. The results of correlation analysis could not show cause-effect relationships. The results of this study sought to identify possible dispositional influences among educators in high performing schools, which remain worthy of examination with future qualitative research methodology or with other quantitative research designs such as causal-comparative design.
3. The researcher delimited the study to only two variables. Adding an organizational level variable such as perception of innovative climate as it relates to dispositional style and innovative work behavior would have increased the richness of the study.

Summary and Organization of the Remainder of the Study

This chapter includes an overview of the research related to individual level characteristics and innovation of educators emerging in the field of education in response to a call for school reform. The amount of research in the area of individual innovative work behavior has grown extensively in recent years (Thurlings et al., 2015). This study addressed a gap in the research regarding the relationship between dispositional style and innovative work behavior of educators. There was a need for investigation of dispositional style of educators in high performing charter schools to further understanding of key factors that influence innovative practices in response to an increased demand for high academic performance in a globally competitive world (Berends, 2015; Burns, 2017; Messmann & Mulder, 2014; Previts & Bauer, 2013). It was not known if and to what extent a relationship exists between dispositional style and innovative work behavior of educators in a K-12 high performing charter school in Colorado. The primary research question for this study was as follows: To what extent, if any, does a relationship exist between dispositional style measured using TTISI DISC survey and the four dimensions of innovative work behavior measured using IWBS instrument, of educators in a K-12 high performing charter school in Colorado?

The methodology chosen for this study was quantitative. The design chosen for this study was correlational. The research questions called for measuring a possible relationship between the two individual level variables, which were both measured on a continuous scale. The researcher collected data using two validated instruments (TTISI DISC and IWBS) designed to collect quantitative data from a population of 117 educators in one high performing charter school in Colorado. Data was collected via

electronic survey through a data portal created by Target Training Institute. Convenience sampling strategy was used because the researcher works in the K-12 charter school to be investigated providing ease of access. The TTISI DISC instrument included 24 questions to collect data for dispositional style and the IWBS included 20 questions to collect innovative work behavior data. The study produced new knowledge about the relationship between dispositional style and innovative work behaviors of educators, which was thought to be a contributing factor to the success of a high performing K-12 charter school. Data collected was statistically analyzed using Kendall's Tau-b correlational analysis (Lund & Lund, 2013)

Chapter 2 will include an evaluation of the foundational and current literature relevant to individual level characteristics of educators and innovative work behavior. As a justification for this study, recent researchers suggested an influencing relationship between individual characteristics and innovative work behaviors (Berends, 2015; Thurlings et al., 2015). Innovation research in the business world indicated innovative work behavior yields high organizational performance (Konermann, 2012). Identifying a relationship between the dispositional style and innovative work behavior of educators within a K-12 high performing charter school sought to extend current organizational research findings to educational institutions (Dobbie & Fryer, 2015; Fryer, 2014; Previts & Bauer, 2013). The review of the literature will include a synthesis of four key areas relevant to the topic of this study: (a) innovation, (b) charter schools, (c) educator disposition, and (d) educator innovative work behavior. The review will reveal a gap in the research focused on the relationship between disposition and innovative work

behavior of educators in high performing charter schools which was addressed in this study.

Chapter 3 will include a detailed discussion of the research methodology, design, and data collection procedures. The research methodology was quantitative, while the design chosen was correlational. Data collection procedures included an electronic survey, which aligned with the methods, design, and data collection procedures of current research in the area of disposition and innovative work behavior (Bonnstetter, Bonnstetter & Marston, 2012; Messmann & Mulder, 2012).

Chapter 2: Literature Review

Introduction to the Chapter and Background to the Problem

If education is to truly reform, concerted efforts to recruit and retain “future change agents in our classrooms” must be one of the highest priorities (Bonnstetter, 2006, p. 10). Attracting, hiring, and developing educators with a disposition to innovate is essential to improving education (Van der Merwe & Malan, 2013). A review of the literature was conducted using peer-reviewed, scholarly journal articles, books, and dissertations located with the aid of EBSCOhost and ProQuest search engines. Key phrases and words used with these search engines included educator disposition, high performing charter school, educator innovative work behavior, effective teacher, personality, and charter school innovation. The researcher limited the search to locate journal articles, books, and dissertations from 2012 to 2018. However, some preexisting knowledge bases, older articles, books, and dissertations were included in this study.

The purpose of this quantitative correlational study was to assess the relationship between the four dimensions of dispositional style: Dominance (D), Influence (I), Steadiness (S), and Compliance (C) and the four dimensions of innovative work behavior Opportunity Exploration, Idea Generation, Idea Promotion, and Reflection among educators in a high performing K-12 charter school in Colorado. Disposition is defined as the behavioral dimension of personality, which is both stable and predictable over time (Cervone & Pervin, 2015). Examining organizational performance of educational institutions by way of individual behavior continues to be a popular topic of research (Thurlings et al., 2015). Innovative work behavior (IWB) is defined as a broad set of behaviors identified as idea exploration, idea generation, idea promotion, and reflection,

that support creativity and innovation at the individual, team, and organization level (De Jong & Den Hartog, 2010).

Disposition and Innovative work behavior are related because any innovative venture and outcome results from the activity (behavior) of creative individuals who propose new ideas and engage in collaborative efforts toward new ways of doing business (Amabile, 1988; Kanter, 1988). Therefore, it is reasonable to suggest individuals predisposed to innovative work behavior most likely engage in and produce innovations. Since innovation has been determined to be a critical component of successful organizations, studying educators in the organizational setting, specifically high performing charter schools, may identify behavior profiles, dispositional styles, of innovative individuals, which may indicate a scalable variable, and a contrast between schools who are effective and those that are not.

Identification of the Gap

Educators are being challenged to consider new approaches to teaching students and running schools. Self-initiated innovative behavior is central to organizational success (Choudhary, 2014). While many researchers and practitioners support that both environmental and individual factors affect innovative behaviors, Messmann and Mulder (2015) and others declared individual factors have been largely ignored related to educator's innovative work behavior (Kaur & Gupta, 2016). In addition, because most of current individual level research related to educator's innovative work behavior utilized the Meyers Briggs Temperament Instrument (MBTI) and the Five Factor Model (FFM), researchers urged future study utilizing a variety of behavior-related measures to further expand and deepen the knowledge of the relationship between individual characteristics

such as susceptibility or tendency of behavior (disposition) and innovative work behavior (Jones & Hartley, 2013; Messmann & Mulder, 2014, 2015; Thurlings, Evers & Vermeulen, 2015; Wiens & Ruday, 2014).

Based on the current body of literature, questions remain as to the influence individual level factors such as disposition have on innovative work behavior of educators. Research has focused on educator characteristics such as years of experience, motivation, and broad personality traits, but there is little information on the influence of disposition (Emo, 2015; Messmann & Mulder, 2014; Zhu & Engels, 2014). Further, previous research on educator disposition has generally involved preservice teachers, leaving a gap in the research for investigations involving practicing educators, whose dispositions may differ (Schussler & Knarr, 2013; Smith & Skarbek, 2013).

Educator disposition research as it relates to innovative work behavior stops short of identifying *specific* behaviors that correlate with the capacity and inclination to innovate (Messmann & Mulder, 2014, 2015; Thurlings et al., 2015). To address the gap, this researcher is particularly interested in examining the relationship between the dispositional style and innovative work behavior of educators in a K-12 high performing charter school. The findings of this study were expected to support administrators' efforts toward improved school performance by way of attracting, hiring, and developing educators with a dispositional draw to innovate.

The following section offers the theoretical foundations supporting this study further discussing the possible relationship between dispositional style and innovative work behavior of educators in a K-12 high performing charter school. The literature review is based on personality theory, the theory of innovative work behavior, and the

DISC model of behavior. The review of the literature will illuminate the concepts of innovative work behavior, disposition, dispositional style, and the assessment tools to be used in the study. Methodology and research design, as well as instruments currently used in research in this area are also identified in the literature review providing additional insight into the gap driving the study.

Theoretical Foundations

The purpose of this research is to examine if and to what extent a relationship exists between the dispositional style and the four dimensions of innovative work behavior of educators in a K-12 high performing charter school in Colorado. The following section will discuss the theory of innovative work behavior (IWB) and the associated instrument used in the study, the TTISI DISC model of behavior and the associated instrument used in the study, and finally a historical perspective of the theory of personality as it relates to behavior and disposition.

Innovative work behavior. Some believe high performing educators are natural innovators because they inherently look for inspirational ways to engage and teach their students (Nadelson, & Seifert, 2016). Conceptually, IWB is based on organizational psychological research of creativity and innovation (Amabile, 1988; Kanter, 1988). Innovative work behavior (IWB) is a framework for considering and examining innovation at the individual level (Janssen, 2003; Scott & Bruce, 1994). The theory and application of IWB draws on the idea that any innovative venture and outcome results from the activity of creative individuals who propose new ideas and engage in collaborative efforts toward evaluation and implementation (Kanter, 1988).

Innovation at the individual level of analysis represents the two phase iterative tasks that employees engage in to create and implement novel ideas (Janssen, 2003; Messmann & Mulder, 2012; Scott & Bruce, 1994). Kleysen and Street (2001) defined individual innovative behavior as “all individual actions directed at the generation, introduction, and/or application of beneficial novelty at any organizational level” (p. 285). As a result, Messmann and Mulder (2012) comprehensively defined IWB as, “the sum of all physical and cognitive work activities employees carry out in the work context, either individually or in social interaction, in order to accomplish a set of interdependent innovation tasks required for the development of an innovation” (p. 45). Thus, IWB consists of a broad set of behaviors originally identified as Idea Exploration, Idea Generation, Idea Promotion, and Idea Realization, that demonstrate an iterative process of creativity and innovation initiated and carried out by individuals, teams, and organizations (De Jong & Den Hartog, 2010; Messmann & Mulder, 2012).

In 2014 and 2015, Messmann and Mulder examined reflection as a facilitator of IWB. Researchers demonstrated work related reflection is significantly related to the process of innovation and should be considered a separate dimension. In the same studies, idea realization was closely associated with idea promotion and idea generation. Consequently, reflection was added as the fourth dimension replacing idea realization; and the original items assessing idea realization were embedded in the idea promotion and idea generation dimensions.

Idea exploration. The ability and practice of constant awareness directed at ongoing developments and changes in the work environment results in early and constant recognition of problems and needs through which innovation can address. Exploration of

current practices or procedures as it relates to new ways of addressing current or predicted problems is the introduction to the innovative process and is a preliminary innovative work behavior (Amabile, 1988; Kanter, 1988; Messmann & Mulder, 2014).

Idea generation. When areas of need are identified the generation of ideas to meet the need ensues. An explanation of the problem is necessary prior to brainstorming opportunities to create innovative solutions. Both the exploration and recognition of need and the subsequent ideas related to a solution are part of the creative component of innovative work behavior (Amabile, 1988; Kanter, 1988; Messmann & Mulder, 2014).

Idea promotion. Ideas generated must be communicated. Individuals engaged in this aspect of innovative work behavior understand the importance of introducing, disseminating, and convincing the right people the ideas suggested address an actual need in a way that benefits the organization. At this point in the process, gaining the support key players legitimizes the innovation and facilitates its implementation (Amabile, 1988; Kanter, 1988; Messmann & Mulder, 2014).

Idea realization. Application of the innovation is where change is demonstrated. A physical or intellectual prototype of the innovation is offered with the expectation for critical examination of solutions and outcomes is offered. Messmann and Mulder (2014) offered that the idea realization milestone is where personal reflection is essential for innovation to affect competitive change and can provide an avenue for professional development towards future innovative work behavior.

Reflection. Innovation specific reflection is a unique task implemented throughout the innovation process. Pause and contemplation of interactions between behavior and outcome accompany flexibility in thinking that allows for unfamiliar and

unexpected outcomes. Innovation requires ongoing analysis of work activities and evaluation of social interactions, decision processes, and errors. It includes examination of how and why successful outcomes occurred as well as how and why mistakes and failures were caused. Reflection has been recognized as a powerful force in the process of innovation development, to include social and cultural factors along with past experience to facilitate future endeavors (Messmann and Mulder, 2015).

Innovative work behavior scale (IWBS). Modern scholars view innovation as a main determinate of organizational success (Balkar, 2015; Choudhary, 2014; Messmann & Mulder, 2012; Sagnak, 2012). In empirical studies, IWB is influenced by individual and contextual factors such as perception of expectations and organizational culture (Thurlings et al., 2015). Contemporary researchers contended IWB has two main characteristics; dynamic and context-bound (Messmann & Mulder, 2012). Further, the innovative process includes a creative stage (recognition and generation of ideas) and an implementation stage (championing and application of ideas).

Based on studies of creativity and innovation, IWB requires the accomplishment of four iterative tasks: Opportunity Exploration, Idea Generation, Idea Promotion, and Reflection. In 2015, Messmann and Mulder examined the innovation task of reflection and determined it must be considered its own dimension. In the same study, researchers embedded the idea realization questions within the idea promotion and generation items on the assessment. To align with previous research and for the purpose of this study, the valid and reliable IWBS instrument used by Messmann and Mulder (2014) and Kaur and Gupta (2016) in the education setting was used. Each participant indicated on a Likert

scale from 1(does not apply) to 6 (fully applies) how frequently he or she engages in the 20 activities related to the four dimensions of innovative work behavior.

DISC model of disposition. The theoretical basis for the DISC states that people's feelings about the environment and belief in their power to control the environment are the underpinnings of the behavior they choose to display in response to any given situation (Marston, 1928). While the propensity toward certain behaviors is clearly influenced by personality, the DISC (Dominance, Influence, Steadiness, and Compliance) focuses on individual actions, not the cause (Bonnstetter & Suiter, 2013). The DISC is a behavioral assessment measure identifying behavioral patterns or dispositional styles. It does not measure broad personality traits, intelligence, aptitude, or values.

The theory and application of the DISC first began in the 1920s, in the theoretical works of an American psychologist named William Moulton Marston. While Jung's work, Marston's contemporary, targeted the reason people differed from one another by identifying fundamental personality traits or preferences rooted in biology, Marston's work was based on how "normal" people felt and intuitively behaved as they interacted with the world around them. While Marston did not create the DISC instrument, his work provided the framework for several iterations of the psychological behavior assessment with Geier credited as the originator of the tool in 1958 (Bonnstetter & Suiter, 2013). Among others, the TTISI DISC instrument identifies four dispositional styles to include Dominance, Influence, Steadiness, and Compliance. Individuals exhibit behaviors associated with each of the four defined dispositions, however, the highest value describes the individual's typical behavior pattern or dispositional style.

TTISI DISC. In 1984, the organization Target Training Institute Success Insights produced the first digital DISC assessment and interpretation report (Bonnstetter & Suiter, 2013). The DISC scales of behavior (Dominance, Influence, Steadiness, Compliance) report has helped individuals across the world increase self-knowledge related to behavioral responses to conflict, motivators, stressors, communication styles, and problem-solving preferences (Bonnstetter & Suiter, 2013). The value of the insight gained through the TTISI DISC assessment report includes increased understanding of the effects disposition has on co-workers by way of impressions, communications, and other social interactions related to the work environment (Bonnstetter & Suiter, 2013). For example, a task that requires careful analysis of information and data lends itself to a person with skills related to attention to detail as opposed to a ‘big picture’ person (Bonnstetter & Suiter, 2013). Decisions related to employee-task matching can be made more effective when considering individuals’ disposition and preferences.

In addition to the numerical data, interpretations of the D, I, S, and C scales describe behavior manifestations of personality. Thus, the DISC assessment is a measure of patterns of behavioral personality or disposition (Bonnstetter & Suiter, 2013). The TTISI DISC provides descriptions of an individual’s typical and preferred behavior in the work environment. Descriptions are provided for characteristic responses to challenges, potential influences on and contributions toward organizational efforts, and the individual’s preferred communication style and processing speed. In addition, the common behavioral response to rules and procedures is described associated with the determined dispositional style. Dispositional styles have universal application to any

human performance area at the individual, department and organizational level (Gardner & Quigley, 2015).

According to TTISI, the DISC “is the language of how we act” i.e. our behavior style (Bonnstetter & Suiter, 2013). Research has consistently shown that behavioral characteristics can be grouped together into four quadrants, or styles (Jung, 2014; McCrae & Costa, 2003). People with similar styles tend to naturally exhibit specific types of behaviors common to that style. A person’s behavior is an integral part of who they are. Some believe high performing educators are natural innovators because they inherently look for inspirational ways to engage and teach their students (Nadelson, & Seifert, 2016). The TTISI DISC model analyzes disposition and provides both qualitative and quantitative analysis (Bonnstetter & Suiter, 2013). The four primary TTISI DISC dispositional styles are identified as Dominance (D), Influence (I), Steadiness (S), and Compliance (C). The following descriptions are taken directly from Vrba (2008).

Dominance. Dominance dispositional style is direct and decisive. These individuals are compelled to achieve goals, do not need to be told what to do, and innately set high standards for themselves and others. When projects take too long they tend to grow impatient: they enjoy competition and want to win. They are sometimes blunt in communication and come to the point directly. “D” individuals tend to be direct, controlling, risk-taking, pessimistic, judging, extroverted, and change-oriented.

Influence. The Influence dispositional style reflects outgoing, optimistic individuals who love to communicate, and are people persons. These individuals are socially driven and tend to participate in team and group activities; they like the limelight

though may not want to lead. “I” individuals prefer to be direct, accepting, risk-taking, optimistic, perceiving, extroverted, and change-oriented.

Steadiness. The Steadiness dispositional style demonstrates sympathetic and cooperative behavior. These individuals need expectations to be clearly communicated and consistently adhered to. Helping others and fitting in are important to these individuals though they are hesitant to implement change and do not like to be put on the spot. “S” individuals tend to be indirect, accepting, calculated risk takers, optimistic, perceiving, introverted, and continuity-oriented.

Compliance. Compliance dispositional style tends to be reliable and trustworthy. These individuals will plan out a strategy considering all the facts and possible malfunctions, and they prefer to work alone. Rules are important, and these individuals feel compelled to abide by the letter of the law. “C” individuals prefer to be indirect, controlling, calculated risk takers, pessimistic, judging, introverted, and continuity-oriented.

The TTISI DISC instrument collects individual responses to situations regarding behaviors that are most likely to be chosen in the work environment as well as behaviors least likely to be chosen. The two responses are used to create two profiles, adapted and natural behavior profile. The adapted disposition describes the behaviors most readily demonstrated to others in the work environment as a result of ‘adapting’ behaviors to be successful in the environment (Bonnstetter & Suiter, 2013). For example, an individual may have a natural tendency to avoid conflict; however, working in a management position requires handling difficult situations. In this case, the natural disposition (conflict aversion) is associated with an Influence dispositional style, but the job may

require an adaptation of behavior indicative of a Dominance dispositional style (direct and decisive) to accomplish duties successfully. The natural disposition profile considers the least likely responses in reverse, which is described as the predicted observable behaviors expected when an optimal person-job match is experienced (Bonnstetter & Suiter, 2013). The larger the discrepancy between the adapted and natural profiles the greater the stress experienced by the individual in the work environment (Bonnstetter & Suiter, 2013).

The TTISI DISC is widely utilized and accepted as a valid and reliable measurement of behavior in the organizational setting (Bonnstetter & Suiter, 2013). Historically, the TTISI DISC instrument has been used in the corporate setting, but as recently as 2003 has entered the education world as a tool to assess behavior styles of educators and students with the purpose of identifying individual characteristics related to performance and person-organization fit (Bonnstetter, 2006). In 2017, measures of reliability were repeated and computed for all four scales (D, I, S, C) from TTI Style Insights survey (Gehrig, 2017). Cronbach's alpha was used as a measure of the internal consistency of the scales. Further, as an organization, via their website, TTISI contended, "Data norming and rigorous data analysis conducted by internal research teams and independent statisticians help ensure the assessment is the most reliable and accurate tools in the marketplace" (Gehrig, 2017). Based on the findings of the 2017 study, the TTISI DISC is confirmed as internally consistent and reliable (Gehrig, 2017).

Multiple studies have utilized the TTISI DISC to predict success. One study found the assessment useful in predicting the success of young gifted students (Deviney, Mills, & Gerlich, 2010). Another study used the TTISI DISC to try to predict medical

student achievement (Yost et al., 2015). Bonnstetter (2006) studied 670 high performing sales people from companies in both the U.S. and Germany. He found correlations between the D, S, and C dispositions and the identified top performing sales employees in both countries. Another study suggested the TTISI DISC could be used to define and describe occupational roles and hire skilled individuals with matching indicators, which could predict organizational improvement (Furlow, 2000). Clearly, the TTISI DISC can be one instrument used to predict individual success by way of dispositional style in both the academic as well as the business setting.

Disposition can have a positive or negative impact on peers and co-workers as well as on job performance. Like top performing sales people, some believe high performing educators are natural innovators inclined and predisposed to engage in novel practices to engage and teach their students (Nadelson, & Seifert, 2016). An educator's behavior can contribute to organizational success by way of professional performance. At the same time, problematic and or complacent behavior can also inhibit success (Cowhurst, 2013). The TTISI DISC research related to educator behavior and performance, does not suggest that one dispositional style is superior to another in terms of educator effectiveness, however current research shows some dispositional styles can influence and positively respond to change, which is necessary for educational reform.

Personality, behavior, and disposition. Personality is the pattern of characteristic thoughts, feelings, and behaviors that distinguishes one person from another and that persists over time and situations (Allport, 1966; Fleeson & Jayawickreme, 2015; Kramer et al., 2014; Saucier & Srivastava, 2015). For over 2000 years, people have been interested in classifying individual differences in an effort to

describe, define and predict behavior. The study of personality is an attempt to make sense of human behavior as well as describe and predict behavior in general and specific situations (Fleeson & Jayawickreme, 2015; Kramer et al., 2014; Saucier & Srivastava, 2015). Patterns of behavior can be observed repeatedly in similar manner in response to a given situation (Phelps, 2015).

Personality is both psychological and physiological. Modern psychological scientists discovered that the sizes of various brain parts are linked to different personality traits (Cervone & Pervin, 2015). For example, people who are conscientious tend to have bigger lateral prefrontal cortex; neurotic people have larger brain regions responsible for negative emotions; agreeable individuals have larger regions that enable an understanding of others' emotions and thoughts (Cervone & Pervin, 2015). While some theorists would assert personality to be a phenomenon connected to the brain, research also shows biological and physical needs and mechanisms affect one's personality and consequently behavior (Cervone & Pervin, 2015). Depending on the theory, personality influences behavior and/or behavior explains personality. For the purposes of this study, a focus on the behavioral aspect of personality, disposition, is primary.

Hippocrates (400 BC) and Galen (140 AD) were among the first to classify biologically based typology identified as four temperaments related to different bodily mixtures; blood, phlegm, yellow bile, and black bile (Cervone & Pervin, 2015). According to Hippocrates, the level of each mixture present in a body, related to the affective attributes demonstrated; sanguine (easy going), phlegmatic (apathetic), melancholic (depressed) and choleric (intense). Extending Hippocrates work, Jung,

another type theorist, asserted that one's psychological make-up, "temperament", "style", or "type" influences and limits judgment and establishes relationships to the interactive world (Jung, 2014). Another important concept in Jung's theory is the four temperaments of personality. According to Jung's type theory of personality, people are characterized by a combination of thinking, feeling, sensing, or intuition temperaments (Jung, 2014). The four types are further organized into two major types, introverts and extroverts, which are indicative of the way a person perceives and interacts with their environment to include whether a person 'recharges' through interaction with others or time spent alone (Jung, 2014).

Behavioral theorists have also devoted considerable attention to the topic of personality. B.F. Skinner proposed that differences in learning experiences influence individual differences in behavior (Phelps, 2015). Skinner argued individuals respond to various reinforcements and behavior and personality traits can be shaped and controlled by the environment (Phelps, 2015). Thus, if behavior is to change, the environment must change first (Skinner, as cited in Phelps, 2015). Another behaviorist, Julian Rotter presented personality as a representation of the interaction between the person and the environment (Cervone & Pervin, 2015). Therefore, Rotter's theory posits consideration is appropriately given to both the individual and the environment prior to a complete understanding of individual behavior. Rotter believed that personality is a set of potentials that people demonstrate in response to certain circumstances (Cervone & Pervin, 2015). Skinner and Rotter both believed that personality and behavior are connected merging into what some call disposition.

The trait theory of personality is another way to delve into what makes humans unique and is one of the most critically debated topics in the field of personality studies (Fleeson & Jayawickreme, 2015). Many psychologists have theorized using the trait approach to personality to defend, define and describe the differences between individuals (Allport, 1937; Costa & McCrae, 1992). Gordon Allport is considered by some as the “inventor” of the concept of personality as defined by the trait theory of personality (Phelps, 2015). McCrae and Costa (2003) defined traits as “dimensions of individual differences in tendencies to show consistent patterns of thoughts, feelings, and actions” (p.25). Another definition of traits offered by Hamaker, Nesselroade, & Molenaar (2007) is “individual differences in terms of inclinations, preferences, styles, and/or tendencies to perform different modes or manner of behavior” (Cited by Phelps, 2015, p. 558).

According to Allport (1966), 4000 words from the English dictionary appropriately describe single personality traits. From those descriptors, he categorized traits into three general levels; *cardinal* which are descriptions capturing the entirety of an individual such as Christ-like, *central* which are general descriptors such as kind and sincere, and *secondary* which are traits that only come out in certain situations (Saucier & Srivastava, 2015). From Allport's list of about 4,000, Raymond Cattell decreased the number to 1713 eliminating what he determined to be uncommon traits. He eventually decreased the list to 16 and developed the Sixteen Personality Factor Questionnaire (16PF), an assessment tool commonly utilized today (Cervone & Pervin, 2015).

Unlike Allport and Cattell, theorist Hans Eysenck only included three general traits in his list: introversion/extraversion, Neuroticism-Emotional Stability, and

Psychoticism. As a result of thorough research on Cattell's and Eysenck's personality trait theories, the Big Five theory (FFM) was formulated (Mõttus & Allerhand, 2017). This model states five core traits when combined form a single stable personality; Extraversion, Openness to Experience, Agreeableness, Contentiousness, and Neuroticism. The five-factor model (FFM) is the most commonly cited view of trait theory (McCrae & Costa, 2003; Mõttus & Allerhand, 2017; Phelps, 2015). However, McCrae (2015) proposed many individual differences are not addressed within the FFM indicating a need for research using additional methods and instruments of assessment to thoroughly distinguish unique characteristics of the individual.

Allport, Cattell, and Eysenck posited traits should be defined as general behavioral trends expressed as specific observable behaviors in response to environmental stimuli (Fleeson & Jayawickreme, 2015). Allport declared famously, "A trait is known not by its cause, but by what it causes; not by its roots but by its fruits" (p. 289). Contemporary definitions of traits are notably uniform in asserting that traits are stable and consistent patterns of affect, behavior, and cognition that distinguish people from one another (Fleeson & Jayawickreme, 2015). Allport insisted few people could be described well by a single characteristic (Fleeson & Jayawickreme, 2015). Instead, personal dispositions not only describe an individual's personality; they represent behavioral tendencies specific to that individual. Personality and behavior theorists agree to one degree or another each person's combination of personal dispositions, including the salience of the characteristic and how he or she interacts with the environment, form a unique pattern of individuality (Cervone & Pervin, 2015; McCrae, 2015). In other words, disposition represents a dimension of personality that is relatively stable and enduring

and predisposes a person to act in accordance with that characteristic in a given situation (Cervone & Pervin, 2015).

Personality dimensions are important to review as they illuminate motives, behavior, values, and temperaments such as entrepreneurship and innovativeness (Van der Merwe & Malan, 2013). Through the lens of personality, many organizational topics have been explored to include organizational and individual job performance related to individual dispositions (Thurlings et al., 2015; Yost et al., 2015;). In addition, researchers have determined personality traits and related behaviors such as efficacy, creativity, flexible thinking, and resilience can predict job satisfaction, performance, retention, and well-being (Balkar, 2015; Ionesco, 2012; Kramer, et al., 2014). This barrier between an educator's knowledge and skills and an educator's actions can be attributed to disposition (Fryer, 2014). Thus, it is reasonable to expect individual disposition may be related to innovative work behaviors of educators and may be an indicator of high performing schools (Messmann & Mulder, 2012).

Personality traits are shown to be predictive of success in a variety of areas (Turban, Moake, Wu, & Cheung, 2017). Far and above, most personality-organizational success research focused on the Big 5 factors of personality: Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (McCrae, 2015; Seibert & DeGeest, 2017). However, according to McCrae (2015) hidden within the research on these five broad personality factors are more precise descriptors, which aid in identifying characteristics that lead to success in specific areas. Established is the understanding that behavior occurs in accordance with an individual's personality, as

such it is plausible to identify characteristics of innovative work behavior, at least in part, as a function of an individual's disposition regardless of profession.

Review of the Literature

In the following literature review the importance of innovation to organizational success will be discussed in terms of individual contributions by way of dispositional style and innovative work behaviors. The purpose of reviewing prior research and theory is to establish an understanding of the literature, which has served to illuminate and validate the need for further study. In addition, a review of the current literature provides the rationale for the methodology, design, and instrumentation chosen to address the research questions. The review of the literature is organized into the following themes: personality and disposition, educator personality and performance, DISC and performance, educators innovative work behavior, innovation in education, innovation in charter education, and innovation in a high performing school. This literature review will conclude with a brief rationale for the study to include methodology and instrumentation and a summary of the themes presented in the review.

Personality and disposition. Personality research has investigated a variety of aspects of organizational success to include climate, culture and leadership styles (Balkar, 2015). Since an organization is only as good as the people within it, examining organizational dynamics related to individual behavior may help determine the impact an employee's disposition has on organizational performance. Specifically, organizational research is needed focused on educator individual level characteristics within charter schools as it relates to school performance (Berends, 2015; Kramer, et al., 2014; Messmann & Mulder, 2015; Wake & Bunn, 2016).

Depending on the theory, personality influences behavior and/or behavior explains personality (McCrae, 2015). According to type theorist Jung, a person has a predisposition influenced by personality to act in a certain manner (Jung, 2014). B.F. Skinner proposed that differences in learning experiences influence individual differences in behavior (Phelps, 2015). Skinner argued individual behavior and personality traits could be shaped and controlled by the environment as responses are made to various reinforcements (Phelps, 2015). McCrae and Costa (2003) defined traits as “dimensions of individual differences in tendencies to show consistent patterns of thoughts, feelings, and behavior” (p.25). Finally, personality as defined by Hamaker, Nesselroade, & Molenaar (2007) is “an individual difference in terms of preferences, inclinations, styles, and tendencies to perform different modes or manner of behavior” (Phelps, 2015, p. 558). Taken as a whole, personality denotes the *why* behind a behavior while disposition describes the *what*, the observable behavior patterns.

Educator personality and performance. The role of individual differences influencing work-related behaviors of educators has been a topic of interest for researchers over the past decade (Thurlings et al., 2015). Relative to this study, the relationship between individual characteristics of educators and choice of profession, instructional success, collaboration skills, and career length has been explored (Cowhurst, 2013). As a whole, research has shown that personality measures can assist leaders in predicting educators who will do well and those that may not in areas such as classroom management, co-teaching, creativity, and working with students who learn differently (Emo, 2015; Moolenaar et al., 2014). However, none have examined the relationship of

disposition, the behavioral dimension of personality, as it relates to innovative work behaviors among educators who work in a high performing charter school.

Utilizing the Five Factor Model (FFM), Lee and Kemple (2014) quantitatively examined the relationships among educators' personality traits and creative teaching practices. Lee and Kemple (2014) sought to answer the questions regarding which personality traits relate positively to beliefs concerning teaching practices that foster children's creativity and whether educator engagement in creativity promotes the integration of instructional practices that foster children's creativity. With a sample of 302 elementary pre-service educators, researchers found through the FFM and the Creativity-Fostering Teacher Index (CFTI) a correlation between educators with a higher score on openness to experience and creative teaching behaviors. Also, those educators who had more creative experiences were more likely to value creativity and implement creativity in their instructional practice.

The descriptive traits identified with openness to experience were creative, open-minded, and non-conventional. Researchers conclude the trait identified by the FFM, openness to experience, positively relates to a tendency to incorporate teaching strategies such as independent learning opportunities and cooperative groups that have been shown to support children's creativity. Creative educators have a tendency to use creative strategies. In other words, educators who have a higher creative efficacy quotient tend to value and implement practices that induce behaviors determined to be that of effective educators in the 21st century (Lee & Kemple, 2014).

Authors suggest future research examining the relationship between educator creative practices and personality is a profitable next step. Because creativity is an aspect

of innovation, it was reasonable to examine if and to what extent a relationship exists between educator disposition and innovative work behaviors. In addition, utilizing an alternative measure such as the DISC provided richer data through specific descriptions of educator behavior profiles with which to select future change agents for all classrooms.

Attempting to determine if personality and intelligence are related to professional performance of higher education educators, Ionesco (2012) conducted a quantitative study to answer the questions what relationship exists, if any, between intelligence level and educator performance and what relationship exists, if any, between personality and educator performance. Researcher used 179 volunteer educators from a Romanian University and 1765 student appraisals were collected. A revised NEO PI-R based on the Five Factor Model (Costa & McCrae, 1992) was used to assess personality, Raven Standard Progressive Matrices was used to measure IQ, and a behavioral Observation Scale was used to measure performance from students' perspective. Results showed no correlation between IQ and performance; however, several significant correlations did exist between personality traits and performance. Extroversion, with sub traits gregariousness, assertiveness and open to emotions were high with correlates to perceptions of effective professional performance from students' perspective.

Ionesco (2012) suggested implications for selection process of effective educators exist and could support the increase in quality of instruction at the university level. While broad personality characteristics were found to be related to educator performance, specific identifiers by way of observable behaviors with which to use to attract and select quality educators remains unknown. Thus, because innovation is a foundational characteristic of high performing organizations, to uncover educator dispositions that

correlate with engagement in innovative work behaviors addresses an existing gap in the literature and remains a valuable topic of study.

Qureshi and Niazi (2012) evaluated the impact effective educators ($N=200$) had on student achievement by identifying traits and instructional skills in a qualitative study using perception data gathered through two questionnaires. The research questions investigated which traits effective educators display and what strategies do they employ, and what is the impact effective educators who employ effective strategies have on student achievement. The sample used was a randomly selected group of educators, students, and principals. The findings indicate a list of ten indicators of educator behaviors to include competent, hard working, fair, unbiased, set clear goals, know content, punctual, and democratic in approach, but firm, innovative, and problem solving. The limitation in this study is the non-generalizability of the subjective data collected. However, the qualitative data does align with previous indicators of effective educators (Lee & Kemple, 2014).

Ultimately, the study did not address the research questions. Rather than measuring the impact effective educators have, a list of indicators of effective educator behaviors was gleaned. The gap remains in identifying methods to identify favorable traits during the hiring stage of educators. Thus, utilizing the DISC to identify dispositions that correlate with engagement in innovative work behaviors addresses the gap in the research related to attracting, hiring, and retaining high quality educators which may be a differential between high and low performing schools.

The DISC and performance. Since the early 80's the DISC has been used for job profiling to help companies make better hiring decisions such that employee retention

and job success are maximized (Bell, Fann, Morrison, & Lisk, 2012). Support for hiring practices that intentionally result in a closer match between an employee's behavior preferences and job skills are found in companies as diverse as Walt Disney's the Magic Kingdom and Southwest Airlines (Wells, 2013). Companies are apt to use behavior profiling assessments to identify motivated employees, decrease attrition rates, reduction in hiring costs, and improved overall organizational performance (Collins & Clark, 2003). For example, research has shown individuals with high I and low D dispositional style typically have an increased capacity for motivation and leadership coupled with diplomacy while having a low comfort level for conflict. Obviously, these are important characteristics conducive to high levels of collaboration (Ferneda, do Prado, Sobrinho, & Balaniuk, 2012).

Although not as prevalent in the education setting, the DISC has also been used to profile college students prior to their entering the job market in an attempt to predict personal and professional success. Using the TTISI DISC and GPA (Grade Point Average), Deviney et al., (2010) identified characteristics of gifted and talented students to include a preference for analytical skills, competitiveness, organized work place, and sense of urgency, which correlated with successful student behavior. Additionally, a preliminary study was conducted in a higher learning institute in the United States using the TTISI DISC and ABSITE (American Board of Surgery In-Training Examination) scores to predict academic performance of surgical training residents. Although further research is needed, researchers suggested behavioral styles of surgical trainees described by the 'D' style (Dominance) from the DISC can potentially be used to identify residents who might be at risk for below level performance and may require additional intervention.

to succeed (Yost et al., 2015). Another study attempted to map the behaviors, motivators and professional competencies of engineers at 31 universities in the United States (Pistrui, Layer, & Dietrich, 2013). Researchers quantified specific attributes, which can be identified and enhanced in the engineering undergraduate curriculum to support academic and future career success (Pistrui, Layer, & Dietrich, 2013).

Corporations commonly use psychological behavior assessments to assist with hiring decisions and task assignment. Likewise, a variety of academic organizations in the United States that wish to attract individuals with the demeanor, and academic skills deemed necessary to successfully contribute toward exceptional organizational performance incorporate behavioral assessments in their application process (Deviney et al., 2010). While studies are beginning to emerge focused on the relationship between student disposition as determined by the DISC and academic performance, a gap in the research exists examining the relationship between educator disposition as determined by the DISC and school performance related to innovative behavior. Because TTISI continues to strive for excellence within behavioral assessment measures, the company used data norming, Cronbach's alpha, structured equation modeling, sampling and rigorous data analysis to guarantee the results businesses demand (Gehrig, 2017). The education business demands the same standards of integrity and validity. Thus, the selection of the TTISI DISC is an appropriate choice for this study.

Educator innovative work behavior. Educator's innovative work behavior (IWB) and innovative climate (IC) were studied by Sagnak (2012) to determine the relationship between the two variables and leadership style. Using 710 elementary teachers as the sample, a quantitative analysis revealed leadership style was a significant

predictor or both educators' innovative behavior and innovative climate. In fact, an IC mediated the relationship between educator IWB and empowerment leadership style. Still, Sagnak (2012) and others (Janssen, 2003) admitted individual factors were ignored in this study and warrant further examination.

Combining organizational and individual factors, Balkar's (2015) study was based on the premise that educators' performance and innovativeness are prerequisites for effective schools. Results indicated that organizational climate (OC) affected educator performance and engagement in innovative work behavior. In addition, educators' IWB had an effect on overall performance of educators. Balkar (2015) suggested a climate flexible and supportive of generating and implementing new ideas is needed to improve educator performance. Again, individual factors were not considered and must be examined related to innovative work behavior.

Pioneering the investigations of individual factors related to innovative work behavior, Messmann and Mulder (2015) explored whether vocational educators who reflected upon work tasks, and their own performance were more engaged in generating, promoting, and implementing innovative ideas in the highest level of schools in Germany. Researchers quantitatively analyzed descriptive statistics and correlations for innovative work behavior data and reflective practice data. Results indicated that reflection is a dimension of innovative work behavior in educators.

Authors replaced idea realization with reflection as the fourth dimension because it was also discovered idea realization was closely associated with idea generation and promotion. In addition, educator intrinsic motivation was significantly related to IWB. This prompted authors to suggest other specific behaviors or dispositions may also

correlate with engagement in IWB such as susceptibility and need for change (Messmann & Mulder, 2015). While this study certainly adds to the literature, a need for further research exists with regard to other individual level factors intrinsic to educators such as disposition and the predictive power of innovative work behavior. Expanding upon this study, using the IWBS and the DISC could expose certain dispositions of educators who exhibit work related reflective practice and gravitate toward exploring, generating, promoting, and implementing new ideas.

Interested in examining individual level factors of educators that drive change in schools and addressing Messmann and Mulder's (2015) call for further research in the area of individual level characteristics that influence innovative work behavior in educators, Kaur and Gupta (2016) measured IWB as it related to work engagement, locus of control, and affect utilizing Messmann and Mulder's (2012) instrument. With a sample of 120 K-12 Indian educators, authors quantitatively analyzed and revealed positive affect was the strongest predictor followed by internal locus of control. Kaur and Gupta, (2016) also pointed out the gap in the research for future studies of educator innovative work behavior to be conducted in other types of schools. As such, this study addressed the existing gap by way of investigating dispositional style and IWB of educators in a K-12 high performing charter school in Colorado.

Innovation in education. Organizations in the 21st century need a workforce capable of independent initiative, autonomous judgment and decision-making capacity, as well as an analytical and innovative approach to tasks and problems (Hall & McGinity, 2015). Many policy makers see innovation as the vehicle for change in public education. There is wide interest in the educator as innovator (Thurlings et al., 2015). Smith and

Peterson (2011) maintained innovation happens in the public sector “when visionary people try to do things differently, despite being surrounded by people doing things the way they always have” (p. 1). Smith and Peterson (2011) argued that voters and policy makers should recruit educational stakeholders who support risk taking in the interest of student achievement versus those who favor continued mediocrity. This sentiment underscores a sense of urgency when calling for education innovators to change the system to accomplish better results.

John Bailey, a member of the U.S. Department of Education's Commission on the Future of Higher Education, testified “it isn't that there is a shortage of ideas or entrepreneurs in the education sector, it is that the tangled web of regulations, entrenched bureaucracies, and outdated policies [makes] it difficult for any of these innovations to be adopted by traditional schools stuck in their traditional system” (p.64). Çoklar & Özbek (2017) claimed education is not a hospitable place for entrepreneurs and too few enterprising, talented people choose to go into education. However, experts in education submit educational innovation is a significant factor in student achievement (Hattie, 2009; Çoklar & Özbek, 2017).

The inception of charter schools created an environment intended for out of the box initiatives without the same hindrances of traditional schools (Berends, 2015). Angrist, Pathak, & Walters, (2013) reasoned that charter schools should be more innovative due to decreased bureaucracy i.e. waivers from some policies, the absence of a teacher union, flexibility in curricular adoption and implementation, and autonomous hiring and firing practices. In the last five years, evidence of the benefits of the increased efficacy of certain charter schools demonstrated that combinations of specific practices

such as innovation and improved human capital can significantly increase the academic achievement of students (Fryer, 2014).

Innovation in charter education. Charter schools have become a significant part of the American urban education landscape. Charter schools are public schools granted increased autonomy in exchange for meeting specific conditions outlined in a charter agreement. With this autonomy and reduced bureaucratic regulatory authority, charter schools are expected to unleash the innovative potential of educators to meet the diverse needs of students within their community (Donaldson, 2013).

The intention of charter schools is to be innovative, self-run schools positioned to experiment with innovative ideas to potentially transfer and be used by traditional public schools. Lubienski (2017) analyzed charter school legislation enacted across thirty-nine states and found that “Innovation was specified as a policy goal in approximately three-quarters of the laws...no other goal including academic achievement and the diversification of programmatic options was mentioned more frequently” (p.399). A growing body of evidence suggests high performing charter schools implement longer instructional days, strict behavior expectations, traditional reading and math instruction, deliberate educator hiring process, and educator evaluation, which has been shown to increase student achievement (Dobbie & Fryer, 2015; Fryer, 2014).

In 1991, the state of Minnesota passed the first charter law in an effort to infuse choice, innovation, and improvement, to address parental dissatisfaction with traditional public schools (Marsh & Wohlstetter, 2013). In 42 states, more than two million students are attending more than 6,000 charter schools throughout the United States (Aud, et al., 2012). In Colorado, over 42% of individual charter schools identified innovations in

teaching and learning as a defining part of their mission statements (Gawlik, 2016). Educators often seek employment at charter schools anticipating more freedom to try innovative methods aligned with their educational philosophy (Weiner & Torres, 2016).

The charter school movement began with the intention of innovation and success for its students and has three essential components, choice, accountability and deregulation. First, *choice* is given to parents to select the best school for their child based on the specific needs of the student, which provides opportunity for schools to specialize. Second, charter schools are held accountable to achieve the goals outlined in the specific charter agreement (Gawlik, 2016). Third, deregulation permits charter school leaders to choose the strategies with which to meet the charter agreement.

Generally, charter schools create goals to increase student achievement in an innovative way. However, some evidence exists that over the past two decades charter schools have struggled to deliver on its promise and convince stakeholders that innovation has a positive effect (Berends, 2015). Critics lament the typical charter school is no more effective at increasing test scores than the typical traditional public school (Gawlik, 2016). Yet, an emerging body of research suggests that high-performing charter schools can significantly increase the achievement of all students as compared to other traditional schools (Berends, 2015; Fryer, 2014; Wake & Bunn, 2016).

While researchers have conducted many studies of student achievement in charter schools over the past 20 years, the research is of varying quality (Berends, 2015;). As the studies increase, mixed results continue to make it difficult to identify factors that explain the main distinction in school performance (Ziebarth, 2016). According to Ziebarth (2016), since 2006, the most prevalent topics addressed in charter school performance

research were student outcomes (N=49 studies) and laws (N=44). While a majority studied elementary schools, 13% were of a single charter school, 48% examined a single state, 22% looked at multiple states, and 17% included a national sample. Slightly more studies used quantitative (46%) than qualitative (43%) research methods, with 11% using mixed-methods research designs (Ziebarth, 2016). Although more quality studies with positive results are beginning to exist (Fryer, 2014), the dearth of in-depth investigations related to educator individual differences in high performing charter schools highlights the need for studies that examine individual and contextual factors to help explain why some charter schools succeed and others do not. To further education reform efforts, charter schools are poised as a vehicle for change; understanding where charters have a positive impact, under what conditions and along which dimensions, is crucial in shaping effective public policy that ensures increased student achievement for all students.

Innovation in a high performing charter school. The Program for International Student Assessment (PISA) was administered by the Organization for Economic Cooperation and Development (OECD) to a small sample of five charter schools in 2014. Those that participated in this testing scored higher than the national average with one K-12 charter school in Colorado scoring higher than students in Shanghai, China, which had the highest global scores (Spring, 2015). The OECD identified the characteristics of these high-scoring schools, which included charter schools in Colorado, Texas, Massachusetts, and Hawaii. Characteristics included student body of less than 150 students per grade level, school data driven decision-making, and documented strategy for continual improvement, which were observed at all of these public charter schools.

According to Spring (2015), each school had been in operation for at least 14 years and included in their mission statement a focus on creating a school environment that is safe and supportive. In addition to these common traits, efforts to create and sustain a culture of student first approaches tailored to meet individual needs of each student coupled with a mission and vision for excellence in scholarship and character were recognized (Spring, 2015). In a 2015 ranking and scorecard of Charter School Laws across the United States, published by the Center for Education Reform all states were ranked and given a grade based on the charter law's flexibility and support of charter schools. Colorado ranked number 5 in the nation.

The school setting for which this study is proposed is a nationally recognized K-12 charter school. It is one of only twenty three percent of schools in the United States to receive a school grade of A. This rating is based on the percentage of students in a school who qualify as proficient on state math and reading exams comparing how the school's students are doing relative to their peers across the country. According to Great Schools (2017), an online school rating system, this school received a score of 10/10 based on test scores and college readiness. The high performing school's ACT scores have surpassed both district and state averages since 2005. Other organizational achievements include Performance/Excellence accreditation through the Colorado Department of Education (2003-present), College Preparatory Accreditation from North Central Association (2004-present), and John Irwin School of Excellence (2003-until the final year of award in 2013).

The high performing k-12 public charter school in this proposed investigation serves 1445 students in a north-eastern Colorado school district. In 2016, this charter

school ranked better than 90.8% of elementary schools and 85.4% of middle schools and 86.5% of high schools in Colorado. In 2016, 147 students received AP Scholar Designations, 4 students were National Merit Scholars, and 37 students were inducted into the National Honor Society. In the 2017 US News and World Report, this charter ranked 12th in the nation and 1st in Colorado. Thus, given this ranking and the aforementioned accolades, it is reasonable for this researcher to expect innovations and innovative work behavior to be prevalent within this charter school.

The results of the review presented above provides evidence for the significance of innovation in schools. Further, while organizational level analysis has elucidated common factors thought to be responsible for school success, individual level characteristics have not been adequately studied (Thurlings et al., 2015). A review of personality and individual differences provided context for the construct of the influence disposition has on behavior. Since the individual initiates innovation, and innovation has been declared a non-negotiable for organizational success, examining disposition and innovative work behavior of educators in a K-12 high performing charter school is an opportunity to extend the existing knowledge of this topic and continue to identify scalable factors commonly represented in high performing charter schools.

Methodology used in related studies. Multiple studies focused on high performing corporate organizations and innovation have been conducted. Specifically, studies examining innovation and its similar construct, innovative work behavior, as it related to organizational success is present in the current literature and has been conducted in a variety of contexts including the academic setting. Still, there is a continued need to examine the correlation of disposition and innovative work behavior of

educators with improved methodologies and within a variety of educational settings to promote greater understanding. Studies of individual level factors, such as self-efficacy and intrinsic motivation and innovative work behavior have been investigated with qualitative methods as well as mixed methods and designs (Emo, 2015; Messmann & Mulder, 2012, 2014, 2105). According to Thurlings et al., (2015) in equal measure, quantitative methods and measures have been used to extend knowledge as is appropriate when relationships between variables are examined (Lee & Kemple, 2014; Pistrui, Layer, & Dietrich, 2013; Sagnak, 2012).

Lee and Kemple (2014) quantitatively examined the relationships among educators' ($N=302$) personality traits and creative teaching practices. Attempting to determine if personality and intelligence are related to professional performance of higher education educators, Ionesco (2012) conducted a quantitative study. Broad personality characteristics were found, but still lacked the identification of specific and unique behavior styles, dispositions, related to superior performance outcomes. Pistrui, Layer, & Dietrich, (2013) also used quantitative measures by way of the TTISI DISC to identify specific attributes in engineering undergraduate students ($N=1710$) related to academic and future career success.

In addition, educator's innovative work behavior (IWB) and innovative climate (IC) were studied by Sagnak (2012) aimed to quantitatively determined the relationship between IWB, climate, and leadership style. Using 710 elementary teachers as the sample, a quantitative analysis revealed leadership style was a significant predictor or both educators' innovative behavior and innovative climate. Using qualitative methodology, Emo (2015) interviewed 30 teachers in an American elementary school to

learn motivators of innovative work behavior. Results indicated educators innovate out of a desire to be effective, choice of professional development, and because of external variables such as change in state standards. Another qualitative study was conducted to explore teacher behaviors associated with implementation of innovation (Nadelson & Seifert, 2016). Knowledge seeking, embracing change, exploring opportunity, and acting on a sense of responsibility were identified as behaviors significant to engagement in IWB.

Finally, Messmann and Mulder (2015) explored whether educators ($N= 67$) who reflected upon work tasks, and their own performance, were more engaged in generating, promoting, and implementing innovative ideas. Researchers used a mixed method design to quantitatively and qualitatively analyze descriptive statistics and correlations of innovative work behavior data and reflective practice data to determine a significant relationship. Conclusions drawn indicate work place reflection is critical to the innovation process.

The review of the literature revealed that both qualitative and quantitative studies contributed valuable knowledge of disposition and innovative work behavior. Aligned to the current research, variables in the proposed study were quantitatively studied to determine if and to what extent a relationship exists between disposition and IWB of educators in a K-12 high performing charter school. While qualitative methods extract rich descriptive data about a phenomenon, when examining relationships between numerical variables, quantitative methodology is appropriate. Quantitative research emphasizes the collection of numerical data to generalize results across groups of people and/or explain a particular phenomenon. To align with previous studies, the decision to

utilize quantitative measures to examine the relationship between educator disposition and innovative work behaviors is most warranted.

Instrumentation used in related studies. Two validated instruments were used to collect individual level data regarding educator dispositional style and innovative work behavior. All participants completed the TTISI DISC instrument (Bonnstetter & Suiter, 2013) and the Innovative Work Behavior Scale (IWBS) (Messmann & Mulder, 2012). TTISI DISC is a comprehensive, self-scoring, and self-interpreting instrument consisting of 24 questions that provides in-depth knowledge about an individual's behavioral characteristics and preferences (Bonnstetter & Suiter, 2013). The TTISI DISC does not indicate intelligence levels, motivators, or values.

Used by over 30 million people, the TTISI DISC is one of the most extensively researched, reliable, and popular self-assessment instruments for learning about personal disposition across four primary dimensions: Dominance (D), Influence (I), Steadiness (S), and Compliance (C) (Bonnstetter & Suiter, 2013). Participants rank 24 frames with 4 items corresponding to the four DISC scales. Each frame is ranked 1-4 with 1 being most likely and 4 being least likely to be a chosen behavior in the work environment. When scoring the instrument, two graphs of the 4 dimensions of disposition are created. Graph One uses the rankings 1 and 2 producing the individual's adapted behavior profile. The adapted profile illustrates the way the respondent behaves in order to survive or do the job effectively. *Adapted* style is conscious choice of *behavior* with consideration of how it impacts others, possibly resulting in some adjustments. Graph Two uses the rankings 3 and 4 producing the individual's natural profile. The natural behavior profile illustrates the way the respondent 'sees' themselves – the real person and tends to be fixed and less

subject to change. In other words, the *natural* style is how one behaves instinctively when not thinking about *behavior*.

The raw scores of the 8 scales (two graphs of 4 dimensions) are transformed into a normed score using a norm population specific to the language of the participants. Norm scores are created using a unique formula, which TTISI has kept a trade secret. However, according to TTISI, the norm scores are not percentile based, but based on sten scores (TTISI Report, 2017). The outcome of the assessment includes a numerical score with a whole value between 0 and 100 for each style (Prochaska, Sampayo, & Carter, 2015). For the purposes of this proposed study, the style (D, I, S, C) with the highest score identified the dispositional style of the educator (Bonnstetter & Suiter, 2013; Marston, 1928).

Organizational behavior researchers have investigated the construct of innovative work behavior, defined as the initiation and intentional introduction of new and useful ideas, processes, products or procedures (de Jong & den Hartog, 2010). Innovative individuals recognize problems and generate ideas, champion their ideas to other stakeholders and implement models for further assessment and adoption (Jong, Parker, Wennekers, & Wu, 2015). Innovative behavior is a complex set of behaviors consisting of activities initiating from recognizing problems to the implementation of new ideas, products, and processes. The IWBS chosen for this study is based on the premise that innovative behaviors are not necessarily linear but acknowledges the iterative *process* of innovation rather than the outcome (Jong et al., 2015; Janssen, 2003; Montag, Maertz, & Baer, 2012; Scott & Bruce, 1994).

The innovative process includes a creative stage (recognition and generation of ideas) and an implementation stage (championing and application of ideas). Previously used in quantitative research, the Innovative Work Behavior Scale (IWBS) measures the extent to which educators engage in innovative work behavior during their academic day (Shin, Yuan, & Zhou, 2017). The IWBS questionnaire to be used in this study was created and adapted for the education setting by Messmann and Mulder (2012) and consists of 20 items measuring the four dimensions in which employees engage: Opportunity Exploration, Idea Generation, Idea Promotion, and Reflection.

The 20 item self-report questionnaire was used to measure engagement in Innovative Work Behavior (IWB) within the scope of educator employment. The items were rated on a 6-point Likert scale ranging from 1(does not apply) to 6 (fully applies). Respondents were instructed to state to what degree each statement applies to their actual behavior/experience in the workplace. Rankings for the tasks within each dimension were added together and then averaged separately. For example, if an educator scores a total of 15 (i.e. 4+5+2+4) for the four Idea Generation items on the IWBS, 15 would be divided by 4 (number of questions) with a resulting average score of 3.75 for the dimension of Idea Generation. Ultimately, each respondent had four scores, one for each dimension of IWBS.

Summary

Dispositional style is revealed through consistent and observable behavior (Bonnstetter, 2006, McCrae, 2015). Innovative work behavior is demonstrated by a broad set of behaviors identified as Opportunity Exploration, Idea Generation, Idea Promotion, and Reflection that demonstrate the iterative process of creativity and innovation initiated

and carried out by individuals, teams, and organizations (De Jong & Den Hartog, 2010, Messmann & Mulder, 2014). Modern scholars view innovation as a main determinate of organizational success (Messmann & Mulder, 2012). Innovative individuals recognize problems and generate ideas, champion their ideas to other stakeholders and implement models for further assessment and adoption (Jong, Parker, Wennekers, & Wu, 2015).

There is a growing need for research in the educational setting to shed further light on the innovative work behaviors of educators (Thurlings et al., 2015). Long accepted is the premise that the educator is the most significant influencer of student achievement (Darling-Hammond, 2015). Innovation is widely acknowledged as the difference maker for organizational success (Messmann & Mulder, 2012). Therefore, increased understanding of educator disposition as it relates to innovative work behavior in a K-12 high performing charter school is warranted. A greater understanding of the relationship between the dispositional style and innovative work behavior of educators may lead to the identification of common behavioral styles assisting administrators to attract, hire and develop innovative individuals for every classroom and continue to identify scalable factors commonly represented in high performing schools.

The purpose of this quantitative correlational study is to examine if and to what extent a relationship exists between dispositional style and the four dimensions of innovative work behavior of educators in a K-12 high performing charter school in Colorado. Educators who work in a K-12 high performing charter school, identified by state and national criteria in Colorado were invited to participate. Because modern scholars indicated innovation is characteristic of organizational success, it is reasonable

to assume high performing schools exhibit innovation (Berends, 2015; Cannata & Engel, 2012; Cannata & Penalosa, 2012; Cravens et al., 2012; Goff et al., 2012).

To extend current research, this study increased understanding related to individual dispositional styles of educators that may influence engagement in innovative work behaviors. The primary research question was addressed through an examination of dispositional style and the four dimensions of innovative work behavior of educators in a K-12 high performing charter school in Colorado. Dispositional style data were collected through the TTISI DISC instrument and the innovative work behavior data were collected through the IWBS. TTISI DISC is a comprehensive, self-scoring, and self-interpreting profile that provides an in-depth knowledge about an individual's behavioral characteristics and preferences (Bonnstetter & Suiter, 2013). Previously used in the education setting for quantitative research, the Innovative Work Behavior Scale (IWBS) measures the extent to which educators engage in innovative work behavior within their academic day (Kaur & Gupta, 2016; Shin, Yuan, & Zhou, 2017).

The outcome of this study sought to identify if and to what extent a relationship exists between dispositional style and the four dimensions of innovative work behavior of educators in a K-12 high performing charter school in Colorado, which could shed light on dispositions more likely to create, propose, and adopt educational innovations beneficial to students. With innovative educators in demand who proactively engage in certain behaviors indicative of a high propensity toward new and improved practices, it is important to introduce research that measures the unique individual level characteristics that support innovation and change. Secondly, results of this study may identify scalable factors commonly represented in high performing schools, which may contrast schools

that are effective and those that are not. In summary, sufficient evidence supports organizational level factors such as climate and leadership are significantly related to innovation and success (Balkar, 2015; Choudhary, 2014). However, a gap exists with regard to investigations of individual level characteristics related to IWB of educators and school performance (Messmann & Mulder, 2012).

Along with other researchers, Thurlings et al., (2015) concluded a gap exists concerning more descriptive assessment of individual level characteristics such as disposition and/or intrinsic propensities of educators associated with their inclination to engage in IWB (Patterson & Zibarras, 2017). Generally, examinations of educator characteristics and innovative behaviors investigated pre-service educators indicating a need for studies with practicing educators. Revealing another gap in the research, a majority of research examined IWB as an overall score, revealing the need to examine the dimensions of IWB separately (Binnewies & Gromer, 2012). While a few studies have investigated the dispositions of educators in a variety of school settings, no researcher has investigated this topic in a K-12 high performing charter school (Kaur & Gupta, 2016; Messmann & Mulder, 2014). To address the gap, this study examined if and to what extent a relationship exists between dispositional style and the four dimensions of innovative work behavior of educators in a K-12 high performing charter school in Colorado.

Chapter 3: Methodology

Introduction

Because modern scholars indicated innovation is critical to organizational success, it is reasonable to assume high performing schools exhibit innovation (Berends, 2015; Cannata & Engel, 2012; Cannata & Penalosa, 2012; Cravens et al., 2012; Goff et al., 2012). In both private and public organizations, employees are expected to be innovative; to initiate and implement new ideas and strategies to improve products and procedures. Previous research validated the influence of individual characteristics such as experience, leadership styles, beliefs, and personality on innovative work behaviors (Berends, 2015; Cannata & Engel, 2012; Cannata & Penalosa, 2012; Cravens et al., 2012; Goff et al., 2012; Kramer, et al., 2014; Messmann & Mulder, 2015; Shin, Yuan, & Zhou, 2017). However, limited research had been conducted exploring educator dispositions, the behavioral dimension of personality, related to innovative work behavior specifically in high performing charter schools (Kaur & Gupta, 2016; Messmann & Mulder, 2015; Thurlings et al., 2015). The purpose of this quantitative correlational study was to assess the relationship between the four dimensions of dispositional style Dominance (D), Influence (I), Steadiness (S), and Compliance (C) and the four dimensions of innovative work behavior: Opportunity Exploration, Idea Generation, Idea Promotion, and Reflection among educators in a high performing K-12 charter school in Colorado.

To extend understanding, this study contributed to the research related to individual dispositional styles of educators that may influence the engagement in innovative work behavior (Messmann & Mulder, 2012; Konermann, 2012). From a theoretical standpoint, this study advanced the knowledge about educator's individual

dispositional style that promotes innovative work behavior by using a behavior model conceptualization and measurement of dispositional style. From a practical standpoint, the researcher worked with a sample of educators from an established high performing charter school, expanding the criteria with which to identify characteristics of successful schools by way of innovative educators.

Investigating dispositional style of educators in a high performing K-12 charter school made the proposed research unique and valuable to gain understanding about the potential influence of educator characteristics on innovative work behavior at various stages of the innovation process. At a time when educators are expected and depended upon to continually and significantly increase student achievement, the results of this study sought to provide insight into common dispositions directly or indirectly related to engagement in innovative work behavior. The researcher examined if and to what extent a relationship existed between dispositional style and the four dimension of innovative work behavior of educators in a K-12 high performing charter school in Colorado.

After elucidating the problem motivating this study, chapter 3 provides a comprehensive analysis of the methodology components that were fundamental to this study. In addition, the rationale for choosing the research methodology and design is explained throughout this chapter. Discussions of the methodology and research design will be followed by a description of the sample population, instrumentation procedures, data collection and the analysis used to evaluate the data. Concluding this chapter will be the ethical considerations and limitations of the study considered related to current research.

Statement of the Problem

It was not known if and to what extent a relationship exists between dispositional style and the four dimensions of innovative work behavior of educators in a K-12 high performing charter school in Colorado. While multiple variables exist influencing school performance, long established is the notion that the educator is the number one influence on student achievement (Darling-Hammond, 2015). Studies showed effective educators possess specific characteristics and knowledge of subject matter, classroom management, instructional skill, and many other diverse behaviors, which are attributed to high student achievement (Kraft & Duckworth, 2014). Additionally, educators' beliefs and work-related perceptions correlated with student achievement (Collie, Shapka, Perry, & Martin, 2016). Questions still remain, however, related to the specific dispositions of educators that yield high performance (Thurlings et al., 2015). Rode, Arthaud-Day, Mooney, Near, and Baldwin (2008) pointed out that students see multiple educators during their school years. If only a few educators are exceptional, by way of innovative behavior, all learners will not experience the most beneficial opportunities for growth and improvement.

Innovation is necessary in education and ensures practices and processes remain current in response to a rapidly changing society (Sagnak, 2012; Serdyukov, 2107). Schools as organizations have the opportunity to model and instill skills of innovative behavior in future citizens safeguarding society's competitive stance (Van der Merwe & Malan, 2013). In other words, educator's innovative work behavior is critical for the continued advancement of a knowledge society. Therefore, innovative work behavior should be central to the practice of educators in high performing schools. Moreover, to enhance educator innovative behavior, it is important to know which factors affect

innovative work behavior in schools (Sagnak, 2012; Serdyukov, 2107). Benefits to a current understanding of the link between educators' dispositional style and innovative work behavior occurred as a result of theorizing, measuring and identifying common dispositions, at the individual level to compliment research at the organizational level (Gardner & Quigley, 2015). To address an investigation of factors related to high performance in charter schools, this study sought to identify a relationship between dispositional style and the four dimensions of innovative work behavior of educators in a K-12 charter school to illuminate scalable identifiers of successful charter schools.

Research Questions and Hypotheses

Innovation is necessary for the present and future of education. While culture and climate variables have been determined to have an effect on innovation, a gap in the research remained with regard to identifying individual-level variables responsible for the effective performance of schools identified as high performing (Berends, 2015; Cannata & Engel, 2012; Cannata & Penaloza, 2012; Cravens et al., 2012; Goff et al., 2012). It was not known to what extent a relationship exists between dispositional style and the four dimensions of innovative work behavior of educators in a K-12 high performing charter school.

The correlational analysis provided insight into direction and magnitude of the relationships between dispositional style (measured using highest score via TTISI DISC instrument) and innovative work behavior (four sub-scales/dimensions measured as scores via IWBS) of educators. All measures for these variables were continuous. The dispositional style variable was measured using TTISI DISC instrument, which captures four dimensions: Dominance (D), Influence (I), Steadiness (S), and Compliance (C)

(Bonnstetter & Suiter, 2013). Through the TTISI DISC self-report survey, individuals received a score for each dispositional style. For the purpose of this study, the dispositional style with the highest score was the dispositional style of the individual. The second variable, innovative work behavior was measured using the Innovative Work Behavior Scale, also a self-report survey, created and adapted for use in the school setting (Messmann & Mulder, 2012). The dimensions of IWBS are Opportunity Exploration, Idea Generation, Idea Promotion, and Reflection. Educators received a score for each dimension. Correlational analysis determined if and to what extent an educator's dispositional style was related to each of the four dimensions of innovative work behavior.

The research questions and associated hypotheses below guided this examination to determine if and to what extent a relationship exists between dispositional style and the four dimensions of innovative work behavior of educators in a K-12 high performing charter school in Colorado.

RQ1: To what extent, if any is 'Dominance' as measured by the TTISI DISC related to the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado?

H₀₁: There is no significant relationship between 'Dominance' as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.

H_{1a}: There is a significant relationship between 'Dominance' as measured by the TTISI DISC and the four dimensions of innovative work behavior measured

by the IWBS among educators in a K-12 high performing charter school in Colorado.

RQ2: To what extent, if any is ‘Influence’ as measured by the TTISI DISC related to the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado?

H₀₂: There is no significant relationship between ‘Influence’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.

H_{2a}: There is a significant relationship between ‘Influence’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.

RQ3: To what extent, if any is ‘Steadiness’ as measured by the TTISI DISC related to the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado?

H₀₃: There is no significant relationship between ‘Steadiness’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.

H_{3a}: There is a significant relationship between ‘Steadiness’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured

by the IWBS among educators in a K-12 high performing charter school in Colorado.

RQ4: To what extent, if any is ‘Compliance’ as measured by the TTISI DISC related to the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado?

H₀₄: There is no significant relationship between ‘Compliance’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.

H_{4a}: There is a significant relationship between ‘Compliance’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.

Research Methodology

The focus of this study was to assess the relationship between the four dimensions of dispositional style: Dominance (D), Influence (I), Steadiness (S), and Compliance (C) and the four dimensions of innovative work behavior Opportunity Exploration, Idea Generation, Idea Promotion, and Reflection among educators in a high performing K-12 charter school in Colorado. To examine the relationship between educators’ dispositional style and innovative work behavior, the researcher conducted a quantitative study.

Quantitative research attempts to create statistical models and constructs suitable for ascertaining relationships and generalizing across groups of people (Antwi & Hamza,

2015). The relationship between dispositional style and the four dimensions of innovative work behavior of educators was not yet defined (Thurlings et al., 2015). Through quantitative methodology, the researcher stated and tested hypotheses with empirical data to examine the relationship between the two continuous variables (Antwi & Hamza, 2015). Through a meta-analysis, Thurlings et al. (2015), determined an equal number of qualitative and quantitative methodologies had been used in studies of IWB of educators. To continue the identification of individual variables that correlate or influence innovative work behavior, a quantitative method was most appropriate because both variables were numerical.

Quantitative inquiry increases relevance to social research when utilizing analytic practices from quantitative methods to study people in context (Stage & Wells, 2014). One advantage of quantitative methodology is the ability to use smaller groups of people to make inferences about larger groups that would be prohibitively expensive to study (Verba, 2015). The access to valid and reliable instruments to measure dispositional style and innovative work behavior made it feasible to conduct a quantitative study.

Quantitative studies require numerical variables that can be measured and compared (Punch, 2013). In this study, the researcher used the TTISI DISC instrument that provided a score for individual dispositional style: Dominance (D), Influence (I), Steadiness (S), and Compliance (C). The dispositional style with the highest score was the individual's dispositional style, one of the variables for the current study. To quantify innovative work behaviors, the researcher used the Innovative Work Behavior Scale based on Scott and Bruce's (1994) and Janssen's (2003) studies and adapted and validated by Messmann and Mulder (2012) for the educational context. This scale

consists of four dimensions of innovative behavior: Opportunity Exploration, Idea Generation, Idea Promotion, and Reflection. Participants received a score for each dimension. Data for both variables were collected from educators working in a K-12 high performing charter school in Colorado.

A qualitative study may provide greater insight related to specific innovative behaviors and tangible outcomes. However, quantitative methodology was more appropriate to determine the relationship dispositional style has with innovative behavior as opposed to a qualitative approach, which is effective in understanding inquiry through textual or visual data (Punch, 2013). Based on prior research, individuals with certain individual level traits are more or less likely to engage in innovative behavior (Messmann & Mulder, 2012). Understanding descriptive dispositional styles identifying behaviors that reject the status quo and demonstrate an inclination to question current practice may assist educational leaders in hiring innovative people who will lead the way to improved student achievement.

A quantitative approach was chosen because of an available valid and reliable measurement instrument. Because the focus of the study was not to derive descriptions of phenomenon related to the variables or present a narrative, a qualitative methodology was not appropriate and would not address the research questions guiding this study (Punch, 2013). Also, gaining approval for conducting qualitative or experimental studies in schools is extremely difficult due to issues of confidentiality, participant consent, and time considerations. Therefore, the use of a quantitative method utilizing surveys to collect data was an appropriate procedure for research in this context. The use of a quantitative methodology using self-report surveys facilitated the process of gaining

authorization from the school to conduct research and increase access to participants increasing the likelihood that the surveys would be completed. The time it took to collect the data was relatively short resulting in minimum disruption for employees and efficiency for the researcher to conduct the study and draw subsequent conclusions. All survey data were numerically expressed enabling the researcher to use statistical procedures to test the hypothesis.

Research Design

The research design for this study was correlational because the purpose of this study was to examine the relationship between two quantitative variables. When the relationship between two variables is studied a correlational design is appropriate (Morgan et al., 2012). However, it is important to remember that correlation does not prove causation. In order to prove causation an experimental or causal-comparative design must be implemented (Boslaugh, 2013). In experimental studies, experimental treatment is applied to the variables (Boslaugh, 2013). Attaining permission for schools to manipulate variables connected to humans is difficult and time consuming. Since no intent exists to prove a cause-effect relationship between the two variables, an experimental design was not appropriate.

A causal-comparative design was considered because cause and effect can be used for comparing groups defined by one or more categorical variables (Lund & Lund, 2013). Because this study mainly focused on a one group of educators and did not aim to identify cause-effect relationships or examine differences between groups, causal-comparative was rejected. Likewise, no treatment or intervention was involved, which would hold ethical risks related to site approval; thus, experimental design was also

rejected. The questions posed for this study asked if and to what extent a relationship exists between dispositional style and the four dimensions of innovative work behavior of educators in a K-12 high performing charter school. No intent to investigate the cause of any possible relationship was required to find the answers to the research questions; therefore, the researcher rejected both a causal-comparative design and an experimental design.

The measures for variables dispositional style and innovative work behavior were continuous. The variable, dispositional style was measured by TTISI DISC instrument, which resulted in one primary dispositional style (D, I, S, or C) identified by the highest score on the instrument. The second variable, innovative work behavior was measured by the IWBS, which resulted in four values, one for each dimension of innovation. Both variables were measured at the individual level. Thus, the unit of analysis was the educator. A correlational design used numeric data collected through surveys to test the hypothesis offered in the study. The purpose of this study was to examine relationship between two variables by using statistical analysis. The result of the analysis showed the strength and direction of the relationship between each variable of interest (Babbie, 2015).

Innovative work behavior data and TTISI DISC data were collected at the same time using an online survey. Collecting data through survey method is a minimal disruptive intrusion. Since educators at this school are accustomed to receiving and providing information via survey format, the researcher combined communication about the purpose, voluntary participation, confidentiality, and instructions for each survey in digital/online format. Online surveys with associated information, supported the

obtaining of rapid compiling of responses in a format ready to be downloaded for statistical analysis as well as accounted for possible absences on the day of email delivery (Babbie, 2015).

Population and Sample Selection

Innovation in education is paramount for the success of students. The general population for this study was educators at all charter schools in Colorado numbering approximately 115,600 in 2012. The target population was 123 educators who teach in a K-12 high performing charter school in Colorado. The school selected for the data collection is the highest ranked charter school in Colorado and 34th in the nation according to the 2017 U.S. News and World Report rankings. Schools are ranked based on their performance on state-required tests and how well they prepare students for college. The selected school serves 1,114 K-12 students with a 100% graduation rate.

The participants in this study were 33 elementary school educators, 35 middle school educators, and 38 high school educators. In addition, 12 administrators and 5 counselors from the same K-12 charter school were included in the sample. The sample was recruited from the target population through a convenience sampling strategy. A convenience sample is a type of nonprobability sample with limited generalizability because participants are not randomly selected from the general population (Boslaugh, 2013). The researcher estimated the minimum sample size using the G*Power software. Considering the fact that the variables of interest were measured on continuous scales, the researcher selected the parametric Pearson's correlation analysis. The input included: two tails, an expected medium effect size of .3, the standard level of statistical significance alpha = .05, and minimum statistical power .8 (Pallant, 2013). The result was a minimum

of 84 participants (Appendix F). Narrowing the target population to educators from the same school for data collection purposes minimized the potential variation on the outcome by way of organizational climate and internal systems. In case of assumption violations for the parametric Pearson's correlation analysis, the backup plan was to use nonparametric correlations. For Spearman's rho correlations, the minimum sample size had to be 15% larger than the sample for Pearson's correlations, which means a minimum sample size of 97 (Lund & Lund, 2013). In case the sample was smaller than 84 for Pearson's correlations or smaller than 97 for Spearman's correlations, the alternative nonparametric analysis available was Kendall's tau-b correlations (Laerd Statistics, 2017). The total sample recruited was 96 educators. However, only 88 completed surveys were collected. The researcher started by checking the assumptions for parametric Pearson's correlations. Due to assumption violations for Pearson's correlations, and a sample size too small for non-parametric Spearman's correlations, the analysis was performed using Kendall's tau-b correlations.

The target population for recruitment was comprised of educators from the same school where the researcher teaches. This provided a sample that was convenient as well as relevant to the research question. All eligible educators considered for the study were teachers, administrators or counselors who work in a K-12 high performing charter school. Often non-probability methods are used during preliminary quantitative research efforts to gain insight and direction for future study of the phenomena without incurring the cost or time required to select a random sample. Site approval was granted by the Executive Director at the school (see Appendix A). The research study proposal was submitted and approved by Grand Canyon University Institutional Board Review (IRB)

prior to any data collection. Recruitment efforts were supported through administrative provision for time to explain the study, participant protection, and the purpose of the data along with time to complete the survey during a professional development session. All data for this study were collected by administering the instruments online through a data portal created by Target Training Institute (TTI). Opportunity was given to participants who wished to ask questions before completing the survey via email. All required information, including the informed consent, confidentiality measures, requirements to participate in this voluntary study, and a link to the online survey was included in a recruitment email (Appendix G) sent to each educator at the charter school by the school administrative assistant, which was normal protocol for the school. It was estimated that the time to complete both surveys was 30-40 minutes. Attrition was accounted for to address participant absence or refusal by way of alternative analysis and expanding target population through recruitment of educators from other schools. The deadline for completed surveys was within 2 weeks of the initial administration. Data collection was conducted through emailed survey link created by TTI, collected by TTI's data portal, downloaded to a password protected personal computer, and transferred into SPSS for analysis.

Instrumentation

Two instruments were used to collect information about educator dispositional style and innovative work behavior. The researcher used reliable and validated instruments to collect data; the TTISI DISC instrument to collect dispositional style data and the IWBS to collect innovative work behavior data. The study findings regarding the relationship among the variables of interest in this study provided new knowledge that

may inform educational leaders interested in promoting innovation through educator selection processes as well as illuminate scalable variables which may contrast high performing schools and those that are not.

TTISI DISC. Target Training International Success Insights DISC is a comprehensive, self-scoring, and self-interpreting profile consisting of 24 questions that provides in-depth knowledge about an individual's behavioral style and preferences (Bonnstetter & Suiter, 2013). All participants who voluntarily agreed to participate in the study completed the TTISI DISC (Bonnstetter & Suiter, 2013). The TTISI DISC (Bonnstetter & Suiter, 2013) identified dispositional style. Using values 1- 4 (1-most like me; 4-least like me), respondents ranked 24 sets of descriptive phrases resulting in a numeric value for each of the four behavior styles (Dominance, Influence, Steadiness, and Compliance). On a scale of 100, the midline (50) is considered the 'energy line' which is the foundation of the intensity levels for each of the four dispositional styles. The score furthest above the energy line indicated the educator's dispositional style.

When scoring the instrument, two graphs of the 4 dimensions of disposition are created. Graph 1 uses the rankings 1 and 2 producing the individual's adapted behavior profile. The adapted profile illustrates the way the respondent behaves in order to survive or do the job effectively. *Adapted* style is conscious choice of behavior with consideration of how it impacts others, possibly resulting in some adjustments. Graph 2 uses the rankings 3 and 4 producing the individual's natural profile. The natural behavior profile illustrates the way the respondent 'sees' himself or herself, the real person, and tends to be fixed and less subject to change. In other words, the *natural* style is how one behaves instinctively when not thinking about behavior.

The raw scores of the 8 scales (two graphs of 4 dimensions) were transformed into a normed score using a norm population specific to the language of the participants. Norm scores were created using a unique formula, which TTISI has kept as a trade secret. However, according to TTISI, the norm scores are not percentile based, but based on sten scores (TTISI Report, 2017). The outcome of the assessment included a numerical score ranging between 0 and 100 for each style (Prochaska, Sampayo, & Carter, 2015). The style with the highest score identifies the dispositional style (D, I, S, or C) of each educator (Bonnstetter & Suiter, 2013; Marston, 1928).

Used by over 30 million people, the TTISI DISC is one of the most extensively researched, reliable, and popular self-assessment instruments for learning about personal disposition across four primary dispositional styles: Dominance, Influence, Steadiness, and Compliance (Bonnstetter & Suiter, 2013). The TTISI DISC can be used to rank order the four behavioral styles for an individual in terms of ipsative scaling-specific type of measure in which respondents compare and rate most and least desirable options by preference. Studies have shown that ipsative judgements correspond to the way people view themselves (Salgado, Anderson, & Tauriz, 2015). Consequently, the TTISI DISC scores can be used with confidence to make within-person assessments for mutual group understanding and characterization.

Innovative work behavior scale (IWBS). Organizational behavior researchers have investigated the construct of innovative work behavior, defined as the initiation and intentional introduction of new and useful ideas, processes, products or procedures (de Jong & den Hartog, 2010). Innovative individuals recognize problems and generate ideas, champion their ideas to other stakeholders, and implement models for further assessment

and adoption (Jong, Parker, Wennekers, & Wu, 2015). Innovative *behavior* is a complex set of behaviors consisting of activities initiating from recognizing problems to the implementation of new ideas, products, and processes.

The IWBS instrument is based on the premise that innovative behaviors are not necessarily linear but acknowledges the iterative *process* of innovation rather than the outcome (Jong et al., 2015; Janssen, 2003; Montag, Maertz, & Baer, 2012; Scott & Bruce, 1994). Previously used in quantitative research, the IWBS measures the extent to which employees engage in innovative behaviors during their workday (Jong et al., 2015; Janssen, 2003; Messmann & Mulder, 2012; Montag, Maertz, & Baer, 2012; Scott & Bruce, 1994; Shin, Yuan, & Zhou, 2017). Most studies on IWB are focused on employees in corporate companies while the educational domains remained neglected (Janssen, 2003, Messmann & Mulder 2012). Innovation is particularly important in the education setting due to the critical need to be responsive to continuous change in the world influencing the creation of jobs, competencies needed, and the capacity of lifelong learning to include creativity and innovation.

The IWBS questionnaire used in this study was created and validated by Messmann and Mulder (2012), which was based on three widely used and extensively validated IWB assessment tools by Janssen (2003) and Scott & Bruce (1994). All three tools are used to assess employee potential for engagement in IWB in various work settings around the globe (Messmann & Mulder, 2012; Anderson, Potočnik, & Zhou, 2014). Additionally, scales were originally written in English, translated into German, and then back into English to ensure adequacy of translation.

Messmann and Mulder (2012) validated their adapted version of the IWBS intended to measure dimensions of IWB and met five criteria based on theoretical arguments and methodological requirements. First, IWB is measured at the task level based on work activities (Kleyesen & Street, 2001). Second, IWB measurement must be grounded on experience appropriate for the work context, imagined or realized. Third, the measure must include the aspect of reflection, based on past experience of self or others. Fourth, the social aspect must be considered, relations between actors (i.e. collaboration, participation). Finally, the measure must fulfill several aspects of validity: results must be based on conceptualization and operationalization of IWB, dimensions must be empirically identified, comparable results from at least two domains must be realized, and results must be comparable to previous studies.

The education version of the IWBS instrument was used in three studies investigating innovative work behavior of educators in various settings in Germany (Messmann & Mulder 2012, 2014, 2015). In the initial validation study, Messmann and Mulder (2012) conducted 2 studies. One study sample was automotive employees, the other vocational educators. In the first sample of 154 automotive workers, Messmann and Mulder (2012) reported initial Cronbach's alpha values for the four dimensions of innovative work behavior: Opportunity Exploration (.76), Idea Generation (.85), Idea Promotion (.83), Idea Realization (.78) and Reflection (.86) indicating good internal consistency and reliability. In the second study with 265 vocational teachers at 15 German vocational colleges, reflection was added as a hypothesized fifth dimension of IWB based on research indicating that reflection on ideas, strategies, and outcomes contributes to the process of innovation development (Müller, Herbig, & Petrovic, 2009).

Researchers did note that idea realization values were lower in the second study.

Messmann and Mulder (2012) reported for the second study Cronbach's alpha values of .76 for Opportunity Exploration, .83 for Idea Generation, .87 for Idea Promotion, .76 for Reflection, which indicated that the instrument had a high level of internal consistency, and was a valid and reliable measure of the innovative behavior construct.

In 2014, Messmann and Mulder conducted another study using their IWBS with 239 German vocational teachers from 16 schools to determine the role target specificity has in the facilitation of innovative work behaviors with both a (CS) cross-sectional sample and a (LS) longitudinal sample. Results indicated intrinsic motivation for innovation is a critical antecedent for engagement in innovative behaviors regardless of perception of impact or social support (Messmann & Mulder, 2014). Based on previous analysis outcomes, instead of separating idea realization, researchers included that dimension in the idea generation/promotion questions and added questions related to reflection as a new dimension of IWB. The new Cronbach's alpha values were the following: .72/.81 (cs/ls) for Opportunity Exploration; .82/.87 (cs/ls) for Idea Generation; .88/.86 (cs/ls) for Idea Promotion; and .75/.81 (cs/ls) for Reflection, indicating appropriate internal consistency and reliability.

In a third study (2015) Messmann and Mulder investigated reflection as a facilitator of educators' innovative work behavior with 67 secondary educators, returning to the original four-dimension model of IWB (Messmann & Mulder, 2015). A relationship between reflective practice of educators and the four dimensions of IWB was examined. Results indicated all dimensions of IWB were influenced by educators' work-related reflection (Messmann & Mulder, 2015). Cronbach's alpha for Opportunity

Exploration was .75; Idea Generation .84; Idea Promotion .87; and Idea Realization .75, indicating appropriate internal consistency.

Messmann and Mulder's (2012) version of the IWBS was appropriate for this study because it was based on consistently validated and reliable instruments by Scott and Bruce's (1994) and Janssen's (2003). All instruments are written in the English language to include Messmann and Mulder's tool. Additionally, the instrument was used and consistently validated in the educational context and has been published in multiple peer reviewed articles (Messmann & Mulder, 2012).

The instrument consists of 20 items measuring the extent to which employees engage in Opportunity Exploration, Idea Generation, Idea Promotion, and Reflection. Questions one through four measured Opportunity Exploration behavior (Messmann & Mulder, 2012). Questions five through ten measured Idea Generation behavior (Messmann & Mulder, 2012). Questions eleven through seventeen measured Idea Promotion behavior (Messmann & Mulder, 2012). Questions eighteen though twenty measured Reflection behavior (Messmann & Mulder, 2012). Participants rated each statement using a 6-point Likert scale ranging from 1(does not apply at all) to 6 (fully applies). Using the assigned values (1-6) of each question, a mean score for each dimension for each respondent was calculated to use in the correlational analysis with educators' disposition. Respondents were instructed to indicate the extent to which each statement applies to their actual and typical behavior in the academic workplace. A measure for each dimension for every educator resulted.

Validity

TTISI DISC assessment. Since 1984, TTISI has always used outside, independent statisticians to validate all questionnaires. Revalidation takes place every few years. The intent is to provide a verifiable pattern of evidence that establishes the TTISI DISC as a sound, reliable, valid, and usable instrument for a variety of purposes in personal and organizational development in a number of venues. The research and statistics have been written and conducted to the specifications published in Standards for Educational and Psychological Testing (1999) cooperatively by the American Educational Research Association, American Psychological Association and the National Council on Measurement in Education (Gehrig, 2017). TTI's version of the DISC is unique in that their statistical validation work includes current scores from the 21st century based in the language/cultural groups using the instrument. Modern application allows for increased reliability and validity of the report by comparing scores against a large, well-defined, contemporary, culturally relevant database. TTISI DISC instrument has been refined through the factor analysis processes to confirm the overall validity of the instrument to include content validity, concurrent validity, and predictive validity (Aldisert, 2013; Gehrig, 2017).

Innovative work behavior scale. Messmann and Mulder (2012), in their work to study educators' innovative work behavior, developed a valid and reliable instrument that can be administered to educators and other individuals in the school setting. Validity refers to the appropriate application of the instrument to the intended variable to be measured. Based on prior research (Scott & Bruce, 1994; Janssen, 2003; Messmann & Mulder, 2012), the variables of innovative work behavior included Opportunity

Exploration, Idea Generation, Idea Promotion, and Reflection and recently, reflection.

After conducting multiple factor analysis, Messmann and Mulder (2012) established construct validity demonstrating each of the five dimensions correlated with the other.

Mean item correlations (.30) and discriminatory power (.30) and significant correlations between corresponding items (.27-.74) were found.

Initial evidence for construct validity was provided by two studies reported in Messmann and Mulder (2012). In both of these studies, exploratory factor analysis (EFA; principal axis, promax rotation) was used as a heuristic for developing a measurement model of IWB in conjunction with theoretical considerations. In addition, confirmatory factor analysis (CFA) was used in the second study to test this measurement model against competing models. Furthermore, CFA showed that a multidimensional model with four factors was more appropriate than a 5-factor model or a 1-factor model. Based on these results, in the current study, idea realization is not represented by a separate factor, but integrated into the scales measuring idea generation and idea promotion. In addition, the results supported the contention that IWB encompasses a set of distinct, yet correlated dimensions, which contribute to an overall construct of IWB (Messmann & Mulder, 2014, p. 90).

In their 2014 study, researchers determined one of the dimensions, idea realization, was closely associated with idea promotion and idea generation. Thus, the four-factor IWBS construct used in their 2014 study included only Opportunity Exploration, Idea Generation, Idea Promotion, and Reflection. Further data analysis was conducted to determine and confirm content validity in 2015 with teachers in secondary education investigating how reflective behavior related to innovative work behavior.

Again, descriptive statistics and correlations indicated contextual validity. In multiple studies, the IWBS instrument is found to be consistently valid to be used in professional domains to investigate innovative work behavior of educators in the school setting.

Reliability

Reliability is the extent to which an experiment, test, or any measuring procedure is replicable and yields the same result with repeated trials (McCrae, 2015). An instrument that measures a variable with consistency, given the instrument is used with the same subjects and conditions is considered reliable (Yilmaz, 2013). If an instrument has a determined high level of reliability, researchers can assume the instrument will yield dependable scores, consistent scores, and generalizable results (Hagan, 2014). Cronbach's α is considered the most appropriate statistical test for calculating reliability. Reliability for both instruments used in this study has been demonstrated.

TTISI DISC assessment. For over 30 years, TTISI has conducted analysis for reliability through Cronbach's alpha correlations. In the 2017 report, Cronbach's Alpha values for the four dispositions are Dominance (.855), Influencing (.850), Steadiness (.856), and Compliance (.826) (Gehrig, 2017). Since the DISC relies on self-report, the reliability of the results is based on the extent to which a person's characteristics may alter over time. If a respondent answers based on a specific situation, such as a work or home environment results could be influenced. The TTI survey accounts for this by discriminating a person's natural versus adapted style (Bonnstetter, Bonnstetter & Marston, 2012). Multiple studies over the last three decades have demonstrated the TTISI DISC to be reliable (Aldisert, 2013; Yost, et al., 2015).

Innovative work behavior scale. Messmann and Mulder (2012) adapted the IWBS for the education setting based on Scott and Bruce (1994) and Janssen (2003) valid and reliable instrument. Using Cronbach's alpha coefficients, Messmann and Mulder (2014) conducted two studies [cross-sectional sample (cs) and a longitudinal sample (ls)] using the IWBS with 239 educators. Verified reliability was determined through Cronbach's alpha values of .72 (cs)/.81(ls) for the idea opportunity dimension, .82 (cs)/.87 (ls) for the idea generation dimension, .88 (cs)/.87(ls) for the idea promotion dimension, and .75 (cl)/.81(ls) for the idea realization dimension of innovative work behavior. Cronbach's alpha was used to determine all of the reliability coefficients related to the TTISI DISC as well as the IWBS. Based on this alpha level, the TTISI DISC and the IWBS subscales possess adequate reliability.

Data Collection and Management

Educators who teach in K-12 high performing charter schools served as the target population. The sample was 117 educators who work at a K-12 high performing charter school in Colorado. The educators who served as the sample for this study were 33 elementary school educators, 35 middle school educators, and 38 high school educators from one K-12 Charter School. In addition, 12 administrators and 5 counselors from the same school were included in the sample. A convenience sampling strategy was used. A convenience sample is a type of nonprobability sample with limited generalizability because participants are not randomly selected from the general population (Boslaugh, 2013).

Data collection included completion of an online survey. According to Wright (2005), online survey research is cost effective and time efficient. In comparison to

personal interviews, self-administered surveys provide advantage by way of low cost, quick timeframe, reduction of interviewer bias, and increase autonomy and privacy for respondents (Babbie, 2015). For this study, TTI survey link embedded in an email was used to present the survey instruments and collect responses (Appendix G). TTI's data portal is reliable and secure and as a certified TRUSTe website, Target Training Institute adheres to ethical practices for collecting and storing private data. Once the participants clicked on the link to the DISC and IWBS, they were directed to an informed consent that the participants had to agree or disagree to, before the actual surveys were displayed. When surveys were completed, the data stored in TTI data portal were delivered to the researcher and downloaded to a personal password protected computer. After matching the DISC and the IWBS through identification numbers assigned to each participant, the data were uploaded into SPSS for analysis. Upon completion of the Kendall Tau-b correlation analysis, the data analysis phase began.

The TTISI DISC data and the IWBS data used in this study were limited to only teachers, administrators, and counselors, excluding paraprofessional and support staff of the school. Site authorization from the Executive Director at the charter school is included in Appendix A of this document. All required information, including the informed consent, confidentiality measures, requirements to participate in this voluntary study, and a link to the online survey were included in a recruitment email sent to each educator at the charter school (Appendix G). It was estimated that the time to complete both surveys would be 30-40 minutes. Efforts were made to protect the rights and welfare of the participants to include keeping the data non-identifying and confidential. No demographic information that may identify them was collected other than the level in

which they teach (i.e., elementary, middle, and high school; position of job: teacher, administrator, counselor); and gender.

All data collected for this study were self-reported by educators at one high performing K-12 charter school in Colorado. The name of the school and the educators participating are and will be kept confidential. Data were collected for a span of two weeks and will be stored electronically for 3 years on a password protected personal computer hard drive. At the end of 3 years all data will be erased.

Data Analysis Procedures

It was not known if and to what extent a relationship exists between dispositional style and the four dimensions of innovative work behavior of educators in a K-12 high performing charter school in Colorado. To address an investigation of factors related to high performance in charter schools, identifying a relationship between educators' dispositional style and innovative work behavior may inform educational leaders interested in promoting innovation through educator selection processes as well as illuminate scalable variables which may contrast high performing schools and those that are not. The research questions and associated hypotheses below guided an attempt to identify a relationship between dispositional style and the four dimensions of innovative work behavior of educators in a K-12 high performing charter school in Colorado.

RQ1: To what extent, if any is 'Dominance' as measured by the TTISI DISC related to the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado?

H₀₁: There is no significant relationship between 'Dominance' as measured by the TTISI DISC and the four dimensions of innovative work behavior measured

by the IWBS among educators in a K-12 high performing charter school in Colorado.

H_{1a}: There is a significant relationship between ‘Dominance’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.

RQ2: To what extent, if any is ‘Influence’ as measured by the TTISI DISC related to the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado?

H₀₂: There is no significant relationship between ‘Influence’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.

H_{2a}: There is a significant relationship between ‘Influence’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.

RQ3: To what extent, if any is ‘Steadiness’ as measured by the TTISI DISC related to the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado?

H₀₃: There is no significant relationship between ‘Steadiness’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured

by the IWBS among educators in a K-12 high performing charter school in Colorado.

H_{3a}: There is a significant relationship between ‘Steadiness’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.

RQ4: To what extent, if any is ‘Compliance’ as measured by the TTISI DISC related to the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado?

H₀₄: There is no significant relationship between ‘Compliance’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.

H_{4a}: There is a significant relationship between ‘Compliance’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.

This research involved data collection using two valid and reliable assessment instruments. The study also involved analysis of the collected data to either accept or reject the null hypotheses and to specifically answer the research questions. The first instrument contained 24 questions required to assess the dispositional style of educators through the TTISI DISC developed by Target Training Institute. The 24 questions

assessed the degree to which an educator exhibits Dominance (D), Influence (I), Steadiness (S), and Compliance (C) dispositional styles. Participants ranked 24 frames with 4 items corresponding to the four DISC scales. Each frame was ranked 1-4 with 1 being most likely and 4 being least likely to be a behavior in the work environment. When scoring the instrument, two graphs of the 4 dimensions of disposition were created. One graph using the 1 and 2 rankings, created the individual's natural behavior profile, the second graph using the rankings 3 and 4 was the adapted profile.

The raw scores of the 8 scales (two graphs of 4 dimensions) were transformed into a normed score using a norm population specific to the language of the participants. Norm scores were created using a unique formula, which TTISI has kept as a trade secret. However, the norm scores were not percentile based but based on sten scores (TTISI Report, 2017). The outcome of the assessment included a numerical score between 0 and 100 for each style (Prochaska, Sampayo, & Carter, 2015).

The second instrument, the Innovative Work Behavior Scale survey developed by Messmann and Mulder (2012), gathered data regarding innovative work behavior of the educators. Participants rated each statement using a 6-point Likert scale ranging from 1 (does not apply at all) to 6 (fully applies). Respondents were instructed to indicate the extent to which each statement applies to their actual and typical behavior in the academic workplace. The 20 questions of the Innovative Work Behavior Scale survey (Messmann & Mulder, 2012) resulted in a score for each of the four dimensions of innovative work behavior: Idea Opportunity, Idea Generation, Idea Implementation, and Reflection. Scores for each dimension were calculated by averaging the values of the respondents' ranks for each item for each dimension.

Descriptive statistics which include means and standard deviations of scores for both quantitative variables, dispositional style and innovative work behavior, were collected via an online survey by TTI. Only fully completed surveys were included in the data analyzed. The educator information was collected and coded by the researcher to ensure confidentiality. Then, the researcher upload the data to SPSS and performed the prescribed statistical tests.

Determining the appropriate statistical test for analysis depends on the level of measurement for each variable and the relationships among the variables, which influence the nature of the research questions posed. This study examined the direction and magnitude of the relationships between the four dimensions of educators' dispositional style and the four dimensions of innovative work behavior. All measures for these variables were continuous.

Correlational statistics measure how an occurrence in a variable affects an occurrence in another variable resulting in a linear relationship between the variables (Pregot, 2016). Results of correlation analysis could indicate a positive, a negative or no relationship. Regarding this study, the correlation statistic measured the relationship between educator dispositional style and the four dimensions of innovative work behavior. To answer the research questions and associated hypotheses the data were analyzed using Kendall's Tau-b correlation coefficient with the rationale to examine the association/relationship between the variables in the relatively small sample size due to a small target population (Green & Salkind, 2011).

Kendall's Tau-b is a non-parametric measure of relationships between sets of ranked data. The Kendall Tau-b correlation coefficient returns a value of 0 to 1; 0

indicates no relationship, 1 indicates a perfect relationship. Kendall Tau-b can accept ordinal level data and provides indication of how well variables are associated with one another (Laerd Statistics, 2017). Kendall's Tau-b rank correlation provided a measure of the strength of dependence between the two variables. As an appropriate statistical analysis, the first assumption for the use of Kendall Tau-b is the two variables can be measured in rank order (Laerd Statistics, 2017). Examples of an ordinal scale include Likert scales. Innovative work behavior and dispositional style were measured using Likert scales that were converted to scores.

The second assumption, although not as strict, is the data should appear to follow a monotonic relationship. A monotonic relationship means one variable increases as the other increases or, one variable decreases as the other decreases (Laerd Statistics, 2017). This assumption was not met by the collected data in this study. The goal of this study was to examine if and to what extent a relationship exists between the two variables: dispositional style and innovative work behavior. Two advantages of using the Kendall Tau-b are (a) the distribution has better statistical properties and (b) the interpretation of Kendall's Tau-b in terms of the probabilities of observing the relationship of the variables is very direct (Laerd Statistics, 2017). For this study, a *p*-value less than 0.05 was considered significant.

Based on a G*Power analysis conducted (Appendix E) a minimum sample of 84 participants was required for two-tailed Pearson's correlations to be able to capture a medium effect size of .3, at the standard level of statistical significance .05, with minimum statistical power of .8. To use a nonparametric Spearman correlational analysis, the sample had to be 84 plus 15%, which is 97 (Lehmann, 2006). Given the assumption

violations for the parametric Pearson's correlations and the actual sample size of 88 cases with complete data retained for the analysis (too small for the nonparametric Spearman's correlations), the researcher analyzed the data using the nonparametric Kendall's tau-b correlation analysis, which yields valid results with smaller samples (Laerd Statistics, 2017).

Ethical Considerations

Consideration for the ethical ramifications of research is critical to guarding against any ethical problems or negative psychological or physical effects to participants in this study. According to the Belmont Report of 1979, which guides the ethical principles and guidelines for research involving human subjects, researchers must be mindful of three general principles. These three basic principles are respect for persons, beneficence, and justice.

In most cases of research involving human subjects, respect for persons demands that subjects enter into the research voluntarily and with adequate information. One way this is accomplished is ensuring individuals are treated as autonomous agents. Participants in this study had the option to refuse participation and remain anonymous through the electronic surveys. Other than a physical presentation by the researcher to cover explanations of the purpose, protections, and procedures, no direct contact between the researcher and the participants occurred. Consent was gained via the first question of the online survey along with written instructions.

In addition to providing adequate information related to the study and ensuring complete comprehension, the second principle to be considered is beneficence. Simply stated, a researcher must respect participants' decisions and protect them from harm. The

second principle, beneficence, states researchers are obligated to anticipate the “maximization of benefits and the reduction of risk that might occur from the research investigation” (United States Department of Health, Education, and Welfare, 1979).

Participants in this study were well informed with ample opportunity to clarify and comprehend the almost negligent opportunity for risk as a result of participating.

Participants remained anonymous and the data collected will continue to be kept confidential through a password protected website and computer hard drive.

Justice, the third principle explained in the Belmont Report, deals with the concepts of fair and equal. In the case of this study, participants were gathered through a convenience sample; and the participants were directly associated with the focus of the study. Educators in a high performing charter school was the target population.

Participants chosen through convenience sampling strategy were educators in one high performing charter school in Colorado. Equal and fair representation was ensured, as all educators in the chosen school had the same opportunity to participate or not.

Before sending the surveys and collecting data, the researcher applied and gained approval from the Institutional Review Board and school site administrator. Data were collected using an online survey hosted by TTI. Through the creation of the survey by TTI, the researcher had the option to identify or not identify survey participants.

Choosing the non-identifying version of data collection preserved confidentiality of participants in this study. Informed consent was obtained from participants through a preliminary page in which participants indicated their voluntary consent by way of moving forward with the survey. If at any time the participant decided to opt out of the study, which 7 individuals did, incomplete surveys were removed from the data.

Information was obtained without any reference to specific individuals. While a conflict of interest may be expected as the researcher works in the school where the sample population is located, the participants were explicitly aware of the choice to participate and were in no way obligated or under authority of the researcher. Further, within the introductory email, educators were informed of the option to opt out of the study at any time (Appendix G). Data will be stored electronically for 3 years on a password protected personal computer and hard drive. At the end of 3 years all data will be erased.

The researcher shared results with the leaders of the school while maintaining anonymity of the participants. The purpose of this study was to examine variables found in a K-12 high performing school, which may inform educational leaders interested in promoting innovation through educator selection processes as well as illuminate scalable variables which may contrast high performing schools and those that are not. This researcher has no preconceived notions regarding the outcome of this study. The Belmont Report (United States Department of Health, Education, and Welfare, 1979) principles of respect, beneficence, and justice were adhered to by way of the ethical considerations mentioned above.

Limitations and Delimitations

Limitations are shortcomings, conditions or influences out of the researchers control that place restrictions on methodology and outcomes. Delimitations define the parameters of the investigation. Delimitations are boundary choices made by the researcher, which define the investigation's scope.

Limitations. This study had the following limitations:

1. Generalization of the study could only be made within high performing charter schools. Ideally, this study would have included more than one charter school, and/or one identified, and one not identified as high performing. However, to minimize the potential of increased variation by way of organizational climate and internal systems, the sample population was narrowed to include only educators from one school.
2. Only dispositional style was considered in the attempt to establish a relationship between individual level characteristics and innovative work behavior. The addition of motivators and soft skills to the equation would deepen the richness of the conclusions.
3. The scope of this study was limited by the scope of the validated instruments used for data collection. Using other instruments to collect data for the same variables may have yielded different results.
4. Data collection involved self-reporting. To minimize subjectivity, the researcher used a quantitative method and validated survey instruments. However, the researcher acknowledges the risk of desirability bias.
5. The convenience sample of volunteer respondents may not be representative of the target population.

Delimitations. This study had the following delimitations:

1. The survey of K-12 educators was delimited to only one high performing charter school in Colorado, which may not be representative for all high performing charter schools in Colorado. Including other schools would have increased the generalizability to a larger population.
2. The researcher used correlational analysis to identify statistically significant correlations between the two variables of interest. The results of correlation analysis could not show cause-effect relationships. The results of this study sought to identify possible dispositional influences among educators in high performing schools, which remain worthy of examination with future qualitative research methodology or with other quantitative research designs such as causal-comparative design.
3. The researcher delimited the study to only two variables. Adding an organizational level variable such as perception of innovative climate as it relates to dispositional style and innovative work behavior would have increased the richness of the study.

Strategies to minimize and/or mitigate the negative consequences of limitations

and delimitations are mentioned above and include awareness and statement of the

possibilities of bias. A lack of generalizability is present due to the narrow scope and convenience nature of the sample at one high performing charter school. In addition, areas for future research are built in as a result of both limitations and delimitations of this study.

Summary

Innovation originates from innovative employees. Employees predisposed to innovative behaviors are a critical asset of an organization's competitive advantage (Anderson, Potočnik, & Zhou, 2014). While multiple variables exist influencing the performance of charter schools, questions still remain related to the specific dispositions of educators that yield or contribute to high performance (Thurlings et al., 2015). It was not known if and to what extent a relationship exists between dispositional style and the four dimensions of innovative work behavior of educators in a K-12 high performing charter school in Colorado. Using a quantitative methodology with a correlational design, the purpose of this research was to test the hypothesis that individuals predisposed to innovative behaviors is one of the influential variables of high performing schools. Educators in one high performing K-12 charter school made up the sample population. The possibility existed that a sufficient sample size determined through G*Power analysis plus 15% of 97 would not be achieved for Spearman's correlational analysis, due to a small sample population. In this case, with a small sample size of 88, Kendall Tau-b statistical analysis was appropriately performed. Nevertheless, one advantage of quantitative methodology is the ability to use smaller groups of people to make inferences about larger groups that would be prohibitively expensive to study (Verba, 2015).

Two valid and reliable instruments were used to analyze the variables dispositional style and innovative work behavior. Dispositional style data were collected using TTISI DISC instrument with the highest score assigned as the dispositional style: Dominance, Influence, Steadiness, Compliance. Innovative work behavior (Idea Exploration, Idea Generation, Idea Promotion, and Reflection) data were collected through the IWBS resulting in a score for each of the four dimensions for each participant. Data were analyzed using Kendall tau-b correlational analysis.

Ethical considerations remained priority throughout the study. Ethics are the norms or standards for conduct that distinguish between right and wrong. They help to determine the difference between acceptable and unacceptable behaviors. Thinking through the ethical issues prior to conducting research is critical and can greatly impact the integrity of the study. It is the responsibility of the researcher to consider whether any type of harm could occur during research and as a precautionary measure ensure that procedures are established to prevent it. Considerations and precautions related to voluntary participation, informed consent, confidentiality, the potential for harm, and communicating the results were in place.

Chapter 4: Data Analysis and Results

Introduction

While multiple variables exist influencing the performance of a high performing charter school, the number one influence on student achievement is the educator (Darling-Hammond, 2015). Researchers have examined aspects of educator personality related to innovative work behavior in the K- 12 school setting using the MBTI (Meyers-Briggs Type Indicator) and the IWBS (Messmann & Mulder, 2015; Kaur & Gupta, 2016), however, no studies have examined the relationship between individual dispositional styles using the TTISI DISC and innovative work behavior using the IWBS. Thus, further research on this topic in diverse school settings such as high performing charter schools could fill this gap (Berends, 2015; Kaur & Gupta, 2016; Thurlings et al., 2015). Identifying specific dispositional styles of innovative educators within successful charter schools could provide criteria for purposeful recruitment of top performing educators (Dobbie & Fryer, 2015; Fryer, 2014). The purpose of this study was to examine if and to what extent a relationship exists between dispositional styles and innovative work behavior of educators. The results of this study may provide future educational leaders with an effective educator profile and provide a framework for intentionally hiring exceptional instructors with specific dispositions to cultivate innovative behavior and improve classroom experiences for all students.

This study utilized a convenience sampling strategy to collect data from educators in one K-12 high performing charter school in Colorado. The researcher defined educator as teacher, administrator, and/or counselor. From a population of 117 qualified

participants, 88 completed surveys were obtained. Thus, participant response rate was 76%.

The method of investigation in this study was quantitative with a correlational design. The pertinent data were collected using two validated survey instruments accessed by participants through an electronic link administered by Target Training Institute (TTI) via email. Dispositional data were collected through the TTISI DISC instrument (Bonnstetter & Suiter, 2013) and the innovative work behavior data were collected through the IWBS instrument (Messmann & Mulder, 2015). The link to the surveys was sent in an email to all participants by the researcher. The link originated from TTI Success Insights headquarters in Scottsdale, Arizona. All survey data were captured by TTI via a company created portal.

The TTISI DISC instrument presented 24 frames with 4 descriptive choices to be ranked resulting in a score for each dispositional style for each participant. Data were automatically populated and analyzed by TTI with a trademark algorithm unknown to the researcher. Educator's dispositional style was defined as the highest numeric score among the 4 styles; Dominance, Influence, Steadiness, and Compliance. The researcher received the raw survey data in numeric scores for each style and identified the dispositional style (highest score) for each individual.

The innovative work behavior scale (IWBS) included twenty items measuring perception of innovative work behaviors. Respondents ranked statements on a 6-point Likert scale matching the extent to which the statement applied to the participant. Scores for each question for each participant were received by the researcher via TTI. Rankings for the tasks within each dimension were added together and then averaged. For example,

if an educator scored a total of 15 (i.e., 4+5+2+4) being responses to each question for a particular dimension on the Likert scale for each. For the four Idea Generation items on the IWBS, 15 was divided by 4 (number of questions) with a resulting average score of 3.75 for the dimension of Idea Generation. Each participant received a mean numeric score for each dimension of IWBS indicating the extent of application of each behavior. Identification numbers were assigned to each participant by the online survey program, which was used by the researcher to match the TTISI DISC and IWBS data.

The analysis performed to address the research questions was a correlation analysis. The four research questions and corresponding hypotheses that guided this investigation addressed the bivariate relationships between each participant's four dimensions of dispositional style and the four dimensions of innovative work behavior. The null hypotheses for each research question states no relationship exists between each dimension of dispositional style and the four dimensions of innovative work behavior of educators. The following research questions and hypotheses guided this study:

RQ1: To what extent, if any is 'Dominance' as measured by the TTISI DISC related to the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado?

H_{01} : There is no significant relationship between 'Dominance' as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.

H_{1a} : There is a significant relationship between 'Dominance' as measured by the TTISI DISC and the four dimensions of innovative work behavior measured

by the IWBS among educators in a K-12 high performing charter school in Colorado.

RQ2: To what extent, if any is ‘Influence’ as measured by the TTISI DISC related to the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado?

H₀₂: There is no significant relationship between ‘Influence’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.

H_{2a}: There is a significant relationship between ‘Influence’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.

RQ3: To what extent, if any is ‘Steadiness’ as measured by the TTISI DISC related to the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado?

H₀₃: There is no significant relationship between ‘Steadiness’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.

H_{3a}: There is a significant relationship between ‘Steadiness’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured

by the IWBS among educators in a K-12 high performing charter school in Colorado.

RQ4: To what extent, if any is ‘Compliance’ as measured by the TTISI DISC related to the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado?

H₀₄: There is no significant relationship between ‘Compliance’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.

H_{4a}: There is a significant relationship between ‘Compliance’ as measured by the TTISI DISC and the four dimensions of innovative work behavior measured by the IWBS among educators in a K-12 high performing charter school in Colorado.

This chapter provides descriptive information about the study sample of participants and the variables of interest followed by an explanation of the data analysis procedures. Next, the researcher presents the results of the statistical analysis related to the research questions and hypotheses. Lastly, the chapter closes with a summary of findings.

Descriptive Findings

The target population for this study included the total population of 123 educators (teachers, administrators, and counselors) in one K-12 high performing charter school in Colorado. The a priori analysis determined that a minimum sample of 84 participants was

required for the parametric Pearson's correlation analysis, two tails, under the expectation of a medium effect size of .3, at alpha level .05, for minimum statistical power of .8 (Pallant, 2013). Of the 123 educators (target population) in the school, 88 successfully completed the informed consent and both surveys satisfying the minimum sample size requirement of 84 participants. The response rate was 76%.

The participating educators were from one K-12 high performing charter school in Colorado. The target population consisted of 123 teachers, administrators, and counselors in one high performing K-12 charter school in Colorado. Participants were recruited through their email address. The recruitment email was sent to each educator at the charter school by the school administrative assistant, which is normal protocol for the school. Provided in the email was an explanation of the study, voluntary choice to participate, and instructions to complete the two surveys (Appendix G). Also, a link provided to the researcher by Target Training Institute was included in the email through which participants could access the portal containing both surveys.

The first survey consisted of 24 questions from the TTISI DISC instrument (Appendix E) and 20 additional questions from the IWBS instrument (Appendix D) for a total of 44 questions. Demographic data including gender, level of school (elementary, middle, high, K-12) and position (teacher, administrator, counselor) were requested at the beginning of the survey (Table 1). Typical of the education profession, of the 88 educators, 71 were female while 17 were male. The distribution of the participants by grade level was as follows: 28 at the elementary level, 22 at the middle level, 25 at the high level, and 13 participants served as K-12 educators. A majority of educators who participated in this study were teachers (71). Twelve administrators and five counselors

also participated. Data were collected through a research portal created by TTI, captured by TTI, downloaded to a password protected personal computer, and transferred into SPSS for analysis.

Table 1

Sample Demographics

Variable	Frequency (n)	Percentage (%)
Gender		
Female	71	78.4
Male	17	21.6
Level of School		
Elementary	28	30.7
Middle	22	23.9
High	25	28.4
K-12	13	17.0
Position		
Teacher	71	80.7
	12	13.6
Administrator		
Counselor	5	5.7

Note. N=88

Descriptive statistics for the variables of interest in the study. The instrument used to collect dispositional style data was the TTISI DISC (Bonnstetter & Suiter, 2013). Participants ranked 24 frames with 4 items corresponding to the four DISC scales. Each frame was ranked 1-4 with 1 being most likely and 4 being least likely to describe their behavior in the work environment. When scoring the instrument, two graphs of the four dimensions of disposition were created. One graph using the 1 and 2 rankings, created the individual's natural behavior profile, the second graph used the rankings 3 and 4 to create the adapted profile. For this study, the adapted profile was used as these are behaviors actually demonstrated in the work setting (Aldisert, 2013). The raw scores of the 8 scales (two graphs of 4 dimensions) were transformed into a normed score using a norm population specific to the language of the participants. Data were captured through a

company portal and computed by TTISI. Norm scores were created using a unique formula, which TTISI has kept as a trade secret (TTISI Report, 2017).

The second instrument, IWBS (Messmann & Mulder, 2014), was used to collect innovative work behavior data from the educators. Participants rated each statement using a 6-point Likert scale ranging from 1 (does not apply at all) to 6 (fully applies). Scores for each dimension were calculated by averaging the values of the respondents' ranks for each item for each dimension. Respondents were instructed within the survey to indicate the extent to which each statement applies to their actual and typical behavior in the academic workplace.

All eligible participants received an informative email with one link to both surveys. Eligible participants were educators (teachers, administrators, counselors) who worked in the K-12 high performing school in Colorado. A total of 96 educators agreed to voluntarily participant as indicated through the attached informed consent, which prefaced the surveys. The informed consent indicated the participation in the study was completely voluntary and the data would be kept confidential. Once data were collected through the TTI portal link, the data from the DISC and IWBS were matched by the researcher using an identification number assigned by the survey program to each participant. Through this process, the researcher was made aware of the 88 completed and matched data points out of 96 participants due to 8 individuals failing to complete the second survey (IWBS).

Reliability coefficients. Cronbach's Alpha was computed to check for reliability for the four IWBS dimensions. An alpha of 0.70 is desired to indicate an acceptable level of reliability (Laerd Statistics, 2017). Internal consistency of the composite score for each

of the 20 questions was measured. Cronbach's Alpha for the IWBS instrument was .935 for the 20 items on the survey well above the acceptable level of 0.70.

Table 2

Reliability of IWBS Survey Instrument

Instrument	Obtained Cronbach's Alpha	Typical Cronbach's Alpha	N of items
IWBS	.935	.936	20

The researcher compared the reliability coefficients of this study with the published Cronbach's Alpha reported by the authors (Messmann & Mulder, 2014) of the IWBS scale (Table 3). While the overall reliability coefficients completed was identical to the author's, the reliability coefficients for the IWBS in the current study were slightly lower for Opportunity Exploration and Idea Generation and slightly higher for Idea Promotion and Reflection.

Table 3

Comparative Reliability Coefficient for the IWBS Instrument

IWBS	Messmann & Mulder Cronbach's Alpha	Current Study Cronbach's Alpha	Number of Items
Opportunity Exploration	.81	.77	4
Idea Generation	.87	.82	6
Idea Promotion	.86	.90	7
Reflection	.81	.92	3

Note: N=88

Frequencies computed for the variables of interest. The 88 participating educators completed the TTISI DISC (Bonnstetter & Suiter, 2013). The TTISI DISC (Bonnstetter & Suiter, 2013) identifies dispositional styles. Using values 1- 4 (1-most like me; 4-least like me), respondents ranked 24 sets of descriptive phrases resulting in a

numeric value for each of the four dispositional styles (Dominance, Influence, Steadiness, and Compliance). On a scale of 100, the midline (50) is considered the ‘energy line’ which is the foundation of the intensity levels for each of the four dispositional styles. The score furthest above the energy line indicates the educator’s dispositional style. Of the 88 participating educators, only 4 percent were identified with a Dominance dispositional style, while an equal representation was revealed for the Influence and Steadiness dispositional styles.

Table 4

Distributions of the Participating Educators by Dispositional Style

Dispositional Style	N	Percentage	Mean Variance
Dominance	4	.04	34.50
Influence	32	36	52.29
Steadiness	32	36	64.27
Compliance	20	25	53.13

Note: N=88

The innovative work behavior data were collected using the IWBS instrument authored by Messmann and Mulder (2014). The instrument consists of 20 items measuring the extent to which employees engage in Opportunity Exploration, Idea Generation, Idea Promotion, and Reflection. Questions one through four measured Opportunity Exploration behavior (Messmann & Mulder, 2012). Questions five through ten measured Idea Generation behavior (Messmann & Mulder, 2012). Questions eleven through seventeen measured Idea Promotion behavior (Messmann & Mulder, 2012). Questions eighteen through twenty measured Reflection behavior (Messmann & Mulder, 2012). Participants rated each statement using a 6-point Likert scale ranging from 1 (does not apply at all) to 6 (fully applies). Using the assigned values (1-6) of each question, a

mean score for each dimension for each respondent was calculated. Overall, the average score for Opportunity Exploration was 4.54; Idea Generation 4.74; Idea Promotion 4.76; and Reflection 4.47. The resulting average scores of the current study were relatively similar to previous studies with vocational teachers with 4.84, 4.71, 4.54, and 4.31 respectively (Messmann & Mulder, 2014).

The descriptive statistics for the IWBS data include the mean, standard deviation, minimum and maximum values, as well as the skewness and kurtosis to measure the normality of variable distributions. Values less than -1 or greater than 1 are considered highly skewed, values between 0.5 and 1 or -0.5 and -1 are considered moderately skewed and values between 0 and .5 and 0 and -0.5 are relatively symmetric (Laerd Statistics, 2017).

Table 5

Descriptive Statistics for the Variables of Interest

Variable	Min.	Max.	Mean	SD	Skewness	Kurtosis
Dominance	2.00	92.00	34.50	21.14	.763	.382
Influence	2.00	95.00	56.29	28.21	-.398	-1.05
Steadiness	2.00	94.00	64.27	23.02	-.927	.330
Compliance	4.00	96.00	53.13	26.43	-.195	-.986
Opportunity Exploration	1.75	6.00	4.54	.943	-.752	.208
Idea Generation	1.83	6.00	4.73	.917	-.851	.974
Idea Promotion	1.00	6.00	4.75	1.07	-.946	.793
Reflection	1.00	6.00	4.45	1.34	-.811	.094

Note. N=88

Skewness and kurtosis statistics were computed for the IWBS raw data to provide indication of normality distribution. Values indicate a negatively skewed distribution. Examination of histograms confirm variables were non-normally distributed; negative left skewness.

Data Analysis Procedures

The purpose of this study was to evaluate the bivariate relationships between the four TTISI DISC dispositional styles and the four dimensions of Innovative work behavior of educators in one high performing K-12 charter school in Colorado. Participants in the study included teachers, administrators and counselors from the one school who completed both surveys including the informed consent. All data were aggregated at the individual level. The unit of analysis was the educator. Because the intent of this study was to determine relationships between two variables, a correlational design was chosen. The instruments used for data collection were validated to collect data from educators. Given the sample size of 88, Pearson's correlation coefficient was attempted.

Test of assumptions. Pearson's correlations were contingent on the dataset meeting the following assumptions: (a) two continuous variables measured at the interval or ratio level (b) a linear relationship between the variables; (c) no significant outliers; (d) data were normally distributed (Laerd Statistics, 2017). The first assumption regarding continuous variables was met. Both variables are continuous (ratio). The second assumption regarding a linear relationship between variables was not met as only some variables indicated linearity while other variables did not (Appendix I). The third assumption was not met because significant outliers did exist (Appendix I). Lastly, the normality assumption was not met as all p values were less than .5 indicating the variables were not normally distributed (Appendix J). Considering these assumption violations, the researcher changed the analysis from the planned parametric Pearson's correlations to nonparametric correlations. As shown in Chapter 3 Population and

Sample, the minimum sample size for Spearman's rho correlations had to be 15% larger than for the corresponding parametric procedure (Lehmann, 2006), that is, 97 participants. The final sample of 88 cases with complete data being smaller, the researcher selected the nonparametric Kendall's tau-b correlations, a procedure that yields valid results with smaller samples (Laerd Statistics, 2017).

The researcher tested the assumptions for the nonparametric correlations. The first assumption to be met for Kendall's Tau-b analysis is that the variables are ordinal or continuous. Both the instruments, TTISI DISC and IWBS, measured the variables on an ordinal scale which could be converted to scores (0 -100). Thus, the first assumption was met as both variables are continuous (ratio). The second assumption to use Kendall's tau-b is that a monotonic relationship exists meaning the two variables increase simultaneously or as one value increases the other value decreases (Laerd Statistics, 2017). According to scatterplots of the data, numerous bivariate relationships were not monotonic (Appendix I). While this assumption is strictly held for Spearman's rho, for Kendall's tau-b it is not (Laerd Statistics, 2017). Kendall's tau-b can still be used when the second assumption fails. Kendall's tau-b is also often used with smaller sample sizes (Laerd Statistics, 2017). Thus, the data were analyzed using Kendall's Tau-b correlational analysis.

To answer the research questions and associated hypotheses the DISC and IWBS data were analyzed using Kendall's tau-b correlation coefficient to examine the association/relationship between the variables. The data collected represented a small sample (Green & Salkind, 2011). The sample was selected from the target population through a convenience sampling strategy. A convenience sample is a type of

nonprobability sample with limited generalizability because participants are not randomly selected from the general population (Boslaugh, 2013). The G*Power analysis determined that a minimum sample of 84 participants was required for a medium effect size of 0.3, alpha probability of 0.05, and statistical power of 0.8 to be large enough to decrease sampling bias (Pallant, 2013). A post hoc power analysis was conducted using G*Power software to calculate the medium effect size that was captured. With the actual sample size of 88, a medium effect size captured was .29, which is extremely close to the .30 standard medium effect size (Appendix F).

Results

The purpose of this quantitative correlational study was to assess the relationship between the four dimensions of dispositional style: Dominance (D), Influence (I), Steadiness (S), and Compliance (C) and the four dimensions of innovative work behavior Opportunity Exploration, Idea Generation, Idea Promotion, and Reflection among educators in a high performing K-12 charter school in Colorado. The four research questions and corresponding hypothesis that drove this study focused on the bivariate relationships between dispositional style and the four dimensions of IWBS for each educator. To answer the research questions, the researcher used bivariate correlation analysis.

The data were collected using online surveys and analysis was performed on primary data from a convenience sample of 88 educators using two validated instruments: TTISI DISC (Bonnstetter & Suiter, 2013) and the IWBS (Messmann & Mulder, 2014). Given the violation of assumption for parametric Pearson's correlation and nonparametric Spearman's rho correlations (no linear relationship or monotonic relationship, and the

small sample size (one school), the researcher analyzed data using Kendall's Tau-b correlation analysis. Per the analysis, the Dominance dispositional style showed a perfect correlation with OE and IP. However, no *p*-value was computed indicating a false positive. No statistically significant correlations were indicated for relationship between Influence, Steadiness, and Compliance as dispositional styles and each dimension of IWBS (OE, IG, IP, and R). The results are presented in Table 6.

Table 6

Results of Kendall's Tau-b Correlation Analysis

Variable		Opportunity Exploration	Idea Generation	Idea Promotion	Reflection
Dominance	τ_b	0.050	0.073	0.024	0.060
	<i>p</i> -value	0.513	0.334	0.753	0.436
Influence	τ_b	0.022	-0.086	0.002	-0.082
	<i>p</i> -value	0.771	0.253	0.983	0.282
Steadiness	τ_b	0.023	-0.018	-0.016	-0.029
	<i>p</i> -value	0.760	0.808	0.834	0.702
Compliance	τ_b	0.038	0.055	0.006	0.030
	<i>p</i> -value	0.619	0.467	0.937	0.692

Note: *N* = 88 **Correlation is significant at the 0.01 level (2 tailed). *Correlation is significant at the 0.05 level (2-tailed).

Research question 1. The first question asked: Is there a statistically significant relationship between 'Dominance' as the dispositional style measured using TTISI DISC survey and the four dimensions of innovative work behavior measured using IWBS instrument of educators in a K-12 high performing charter school in Colorado? The results of the Kendall's Tau-b correlation analysis indicated no statistically significant relationship between Dominance and the four dimensions of IWBS: (OE $\tau_b = -.050$, *p* = .513; IG $\tau_b = -.273$, *p* = .334; IP $\tau_b = .024$, *p* = .753 R $\tau_b = .060$, *p* = .436). Based on these findings, the researcher accepted the null hypothesis which is there is no statistically significant relationship between the Dominance as the dispositional style and the four dimensions of IWBS of educators in a high performing K-12 charter school in Colorado.

Research question 2. The second research question asked: To what extent, if any, does a relationship exist between ‘Influence’ as the dispositional style measured using TTISI DISC survey and the four dimensions of innovative work behavior measured using IWBS instrument, of educators in a K-12 high performing charter school in Colorado? The results of the Kendall’s Tau-b correlation analysis (Table 6), indicated no statistically significant relationship between Influence and the four dimensions of IWBS OE $\tau_b = -.022, p = .771$; IG $\tau_b = -.086, p = .253$; IP $\tau_b = .002, p = .983$; R $\tau_b = -.082, p = .282$. Based on these findings, the researcher accepted the null hypothesis which is there is no statistically significant relationship between the Influence as the dispositional style and the four dimensions of IWBS of educators in a high performing K-12 charter school in Colorado.

Research question 3. The third research question asked: To what extent, if any, does a relationship exist between ‘Steadiness’ as the dispositional style measured using TTISI DISC survey and the four dimensions of innovative work behavior measured using IWBS instrument, of educators in a K-12 high performing charter school in Colorado? The results of the Kendall’s Tau-b correlation analysis (Table 6), indicated no statistically significant relationship between Steadiness and the four dimensions of IWBS OE $\tau_b = .023, p = .760$; IG $\tau_b = -.018, p = .808$; IP $\tau_b = -.016, p = .834$; R $\tau_b = -.029, p = .702$. Based on these findings, the researcher accepted the null hypothesis, which is there is no statistically significant relationship between the Steadiness as the dispositional style and the four dimensions of IWBS of educators in a high performing K-12 charter school.

Research question 4. The fourth research question asked: To what extent, if any, does a relationship exist between ‘Compliance’ as the dispositional style measured using

TTISI DISC survey and the four dimensions of innovative work behavior measured using IWBS instrument, of educators in a K-12 high performing charter school in Colorado? The results of the Kendall's Tau-b correlation analysis (Table 6), indicated no statistically significant relationship between Compliance and the four dimensions of IWBS OE $\tau_b = .038, p = .619$; IG $\tau_b = .055, p = .467$; IP $\tau_b = .006, p = .937$; R $\tau_b = .030, p = .692$. Based on these findings, the researcher accepted the null hypothesis which is there is no statistically significant relationship between the Compliance as the dispositional style and the four dimensions of IWBS of educators in a high performing K-12 charter school in Colorado.

Summary

The purpose of this quantitative correlational study was to assess the relationship between the four dimensions of dispositional style Dominance (D), Influence (I), Steadiness (S), and Compliance (C) and the four dimensions of innovative work behavior Opportunity Exploration, Idea Generation, Idea Promotion, and Reflection among educators in a high performing K-12 charter school in Colorado. The four research questions and corresponding hypothesis that drove this study focused on the bivariate relationships between the four dispositions and the four dimensions of IWBS for each educator. The unit of analysis was the educator.

To answer the research questions, the researcher used bivariate correlation analysis. The data collection was performed via on-line surveys and analysis was performed on primary data from a convenience sample of 88 educators using two validated instruments: TTISI DISC (Bonnstetter & Suiter, 2013) and the IWBS (Messmann & Mulder, 2014). The two instruments collected ordinal data that were

converted to scores. Although the data violated the second assumption by failing to meet the monotonic relationship assumption, Kendall's Tau-b correlational analysis was used (Laerd Statistics, 2017).

The variables in the first research question were Dominance as the dispositional style and the four dimensions of IWBS. The results showed that there were no statistically significant relationships between Dominance as the dispositional style and the four dimensions of IWBS: (OE $\tau_b = -.050, p = .513$; IG $\tau_b = -.273, p = .334$; IP $\tau_b = .024, p = .753$ R $\tau_b = .060, p = .436$).

The variables in the second research question were Influence as the dispositional style and the four dimensions of IWBS. The Kendall's Tau-b correlation result indicated no statistically significant relationship between the variables. The researcher accepted the null hypothesis: There is no statistically significant relationship between Influence as the dispositional style and the four IWBS dimensions: OE $\tau_b = -.022, p = .771$; IG $\tau_b = -.086, p = .253$; IP $\tau_b = .002, p = .983$; R $\tau_b = -.082, p = .282$.

The variables in the third research question were Steadiness as the dispositional style and the four dimensions of IWBS. The Kendall's Tau-b correlation result indicated no statistically significant relationship between the variables. The researcher accepted the null hypothesis: There is no statistically significant relationship between the Steadiness dispositional style and the IWBS dimensions: OE $\tau_b = .023, p = .760$; IG $\tau_b = -.018, p = .808$; IP $\tau_b = -.016, p = .834$; R $\tau_b = -.029, p = .702$.

The variables in the fourth research question were Compliance as the dispositional style and the four dimensions of IWBS. The Kendall's Tau-b correlation result indicated no statistically significant relationship between the variables. The

researcher accepted the null hypothesis: There is no statistically significant relationship between the Compliance dispositional style and the IWBS dimensions: OE $\tau_b = .038, p = .619$; IG $\tau_b = .055, p = .467$; IP $\tau_b = .006, p = .937$; R $\tau_b = .030, p = .692$.

In conclusion, the analysis performed using the Kendall's Tau-b correlation revealed no statistically significant relationships. The researcher accepted the null hypotheses for all the research questions as a result of no significant relationships found between the Dominance, Influence, Steadiness, and Compliance as the dispositional styles and the four dimensions of IWBS. The convenience nature of the sample diminishes the generalizability of the results. As a result, the results of this study are inconclusive. In chapter 5, the researcher will summarize the study and its results, compare findings with previous studies, discuss strengths and weaknesses, draw conclusions and make recommendations for future research related to this study.

Chapter 5: Summary, Conclusions, and Recommendations

Introduction and Summary of Study

Charter schools have become an integral part of the American education system.

Founded on the opportunity of choice, increased autonomy, and deregulation in favor of improved academic performance, more than two million students attend more than 6000 charter schools throughout the United States (Gawlik, 2016). The two overarching goals of the charter school movement were student achievement and customer satisfaction.

Researchers continue to examine to what extent charter schools have achieved these goals (Cookson, 2018). The current body of research indicates findings are mixed (Berends, 2015). Proponents view charter schools as an opportunity for innovation coupled with a clear expectation to deliver results. In the end, some charters are demonstrating increased student achievement while others are not doing any better than the status quo (Gawlik, 2016).

Researchers interested in charter school performance have discovered innovations at the organizational, administrative, and structural levels. For example, longer school days, elimination of homework, teacher leadership and collaborative decision-making (Berends, Springer, & Walberg, 2017). However, innovations at the classroom level, at the educator level are scarce and undefined (Thurlings et al., 2015). Part of the reason for the dearth is the lack of investigation at the individual level related to educator innovative behavior. Is there an association with innovation at the classroom level and high performing charter schools? “Understanding the characteristics and conditions under which charter schools are effective will help policy makers and scholars push policy

debates forward and assess the strengths and weakness of the charter movement” (Gawlik, 2016, p. 61).

Schools as organizations have the opportunity and in the case of charter schools an expectation to model and instill skills of innovative behavior in future citizens safeguarding society’s competitive stance (Van der Merwe & Malan, 2013). Attracting, hiring, and developing educators with a disposition to innovate is essential to improving education (Messmann & Mulder, 2015; Van der Merwe & Malan, 2013). Hess echoed this sentiment when he wrote:

The greatest educational risk we confront today lies not in nurturing the nascent entrepreneurial sector, but in continuing to cling to an inadequate and anachronistic status quo. Risk is the price of progress. Failed ideas, providers, and schools are indeed a high price to pay when compared to the alternative, to the stagnation and the ceaseless, pointless tinkering that have for so long been the face of school reform (Hess, 2006, p. 260).

Innovation originates with innovative people. Clearly, without innovative educators, it would be difficult to expect the next generation to be so. To better understand charter school success, many researchers advocated for examining characteristics of high performing schools as well as educator characteristics and qualifications to gather detailed information about organizational conditions and individual factors that promote achievement (Cannata & Penaloza, 2012; Choudhary, 2014; Cravens, et al., 2012; Goff, et al., 2012). Smith and Peterson (2011) contended public sector innovation happens “when visionary people try to do things differently, despite being surrounded by people doing things the way they always have” (p. 1).

Empirical studies support the idea that a positive relationship exists between innovative orientation and organizational performance (Kanter, 1988; Patterson & Zibarras, 2017; Serdyukov, 2017). Charter schools have been promoted as sites of ‘disruptive innovation’, which is defined as new or significantly improved product or process and/or a creative approach to educational instruction, school structure, and management (Bosetti, Butterfield, 2016, p. 109). Since innovation has been determined a critical component of success, studying educators in a high performing charter schools contributed to the identification of dispositional styles related to innovative individuals.

Prior to this study, it was not known if and to what extent dispositional style was related to innovative work behavior of educators in a K-12 high performing charter schools. The purpose of this quantitative correlational study was to examine if and to what extent a relationship exists between dispositional style and the four dimensions of innovative work behavior of educators in a high performing K-12 charter school in Colorado. Miranda (2012) indicated that the most important attribute of an outstanding educator is disposition. Educator dispositional style, in addition to skill set, may be the greatest contributing factor to the degree of success in high performing schools (Smith, 2015). Fryer (2014) indicated further research is required to ascertain additional unique and specific individual level characteristics of ‘better human capital’ within successful schools that may further explain exemplary results in high performing charter schools (Berends, 2015; Furgeson et al., 2012).

Identifying specific dispositional styles of educators within both traditional and charter high performing schools provide criteria for successful recruitment of stellar educators (Previts & Bauer, 2013). Although researchers have examined aspects of

educator personality related to innovative work behavior in the school setting using the MBTI (Meyers-Briggs Type Indicator) and the FFM (Five Factor Model), prior to this investigation, there were no studies that explored individual dispositional styles and innovative work behavior of educators in a K-12 high performing charter school.

Extending the investigation of high performing schools, examining individual behavior types of educators, specifically dispositional styles, could lead to a better understanding as to why some schools succeed while others struggle.

In 2015, Messmann and Mulder found reflection to be a significant facilitator of innovative work behaviors. Extending Messmann and Mulder's (2014) work, Kaur and Gupta (2016) examined the impact of individual level characteristics such as motivators on IWB of K-12 educators in India using Messmann and Mulder's (2012) IWBS instrument. Investigating at the individual level, positive affect and internal locus of control were the strongest predictors of IWB of educators in the sample. Also, Kaur and Gupta (2016) echoed Messmann and Mulder's (2012) call for other relevant factors such as individual behaviors, other motivators, and values to be examined related to innovative work behavior in other types of schools. To address the need for further research on this topic in diverse school settings, this study examined innovative work behavior of educators in a high performing K-12 charter school (Berends, 2015; Kaur & Gupta, 2016; Thurlings et al., 2015).

In this quantitative study, the researcher examined the relationship between two variables. The TTISI DISC instrument was used to measure dispositional style, which resulted in a score (0-100) for each style: Dominance (D), Influence (I), Steadiness (S), and Compliance (C) indicating the degree to which the individual displays certain

patterns of behaviors at work. While an individual demonstrates parts of each dimension, the style with the highest score was considered the dispositional style for each educator. To quantify the second variable, innovative work behavior, the researcher used the Innovative Work Behavior Scale based on Scott and Bruce's (1994) and Janssen's (2003) studies and adapted by Messmann and Mulder (2012) for the education context. This instrument consists of four dimensions of innovative work behavior which includes; Opportunity Exploration, Idea Generation, Idea Promotion, and Reflection. Scores for each dimension were obtained for each educator. Because the purpose of this study was to examine relationship between quantitative variables without the burden of identifying the cause, the most appropriate design was correlational (Morgan et al., 2012).

Considering the research purpose and the variables of interest, the researcher stated four research questions as a guide for this study. All questions regarded the bivariate relationship between each of the educators' dispositional styles and each of the IWBS dimensions. To address each question, the researcher collected primary data through electronic surveys from a convenience sample of 88 educators recruited from one high performing K-12 charter school in Colorado. The participating educators completed the TTISI DISC survey (Bonnstetter & Suiter, 2013) and the IWBS survey (Messmann & Mulder, 2014). The proceeding chapter summarizes the study and its findings, states study limitations, conclusions and implications. Finally, the researcher offers recommendations for future research and practice.

Summary of Findings and Conclusion

The purpose of this quantitative correlational study was to assess the relationship between the four dimensions of dispositional style: Dominance (D), Influence (I),

Steadiness (S), and Compliance (C) and the four dimensions of innovative work behavior Opportunity Exploration, Idea Generation, Idea Promotion, and Reflection among educators in a high performing K-12 charter school in Colorado. Four research questions were stated relating the four dispositional styles and the four dimensions of IWBS. The raw scores collected through the TTISI DISC were transformed into a normed score using a norm population specific to the language of the participants. Norm scores were created using a unique formula, which TTISI has kept as a trade secret (TTISI Report, 2017). Innovative work behavior data were collected through the IWBS. Participants rated each statement using a 6-point Likert scale ranging from 1(does not apply at all) to 6 (fully applies). Using the assigned values (1-6) of each question, a mean score for each dimension for each respondent was calculated. Scores for each dimension were calculated by averaging the values of the respondents' ranks for each item for each dimension. Both the TTISI DISC and the IWBS measured the variables on an ordinal scale which were converted to scores. Although one assumption test was violated in that no monotonic relationship existed in the data, the researcher used the nonparametric Kendall's Tau-b correlation analysis to address the four research questions.

Research question 1. Is there a statistically significant relationship between 'Dominance' as the dispositional style measured using TTISI DISC survey and the four dimensions of innovative work behavior measured using IWBS instrument of educators in a K-12 high performing charter school in Colorado? The variables in the first research question were Dominance as the dispositional style and the four dimensions of IWBS. The results showed that there were no statistically significant relationships between Dominance as the dispositional style and the four dimensions of IWBS: OE $\tau_b = -.050$, p

= .513; IG τ_b = .073, p = .334; IP τ_b = .024, p = .753 R τ_b = .060, p = .436 (Table 6).

The results of this study do not align with previous research (Aldisert, 2013; Pistrui, Layer & Dietrich, 2013).

Educator disposition research as it relates to innovative work behavior stopped short of identifying *specific* behaviors that correlate with the capacity and inclination to innovate (Messmann & Mulder, 2014, 2015; Thurlings et al., 2015). Innovation is defined as creating more effective and/or efficient processes and services as a result of paying attention to opportunity, generating ideas, implementing ideas and the iterative practice of reflection. Opportunity Exploration, noticing a need/opportunity for change is coupled with the willingness to implement changes to existing methods or techniques in order to produce improvement (Messmann & Mulder, 2012). Idea Promotion is winning the support of peers and supervisors, keeping stakeholders informed and negotiating with key players about resources needed (Messmann & Mulder, 2012). These behavioral characteristics describe the behavior of the person with a Dominance dispositional style also identified as having entrepreneurial tendencies (Bonnstetter & Suiter, 2013).

Within the innovation research, the study of entrepreneurialism intersects. According to De Vries, Bekkers, and Tummers, (2016), innovation is further defined and demonstrated by entrepreneurial activities. Thus, entrepreneurship is also demonstrated by way of innovation; putting novel ideas or concepts into practical use with the collaboration of resources both material and human. The most common characteristics of entrepreneurs are imagination and creativity, aspiration beyond current capability, leadership, team-work, the acceptance of risk and failure, aspirations beyond current capability, the ability to think into the future, tolerance of ambiguity, goal oriented,

proactiveness, and persuasion (Pistrui, Layer & Dietrich, 2013). Entrepreneurs are typically associated with new ideas and innovative technologies. “Entrepreneurship thrives on technological advances, organizational change and revolution,” stated Pistrui et al. (p. 39, 2013).

Innovation occurs through people who are willing to invest in creative ventures, foster new ideas and break away from status quo thinking to execute professional responsibilities. At a 95% confidence level, using the TTI TriMetrix ®DNA instrument, which includes the DISC, Pistrui et al., (2013) empirically examined the behaviors, motivators, and professional competencies of entrepreneurial minded engineers (EME's). In the sample, those who scored significantly higher in the ‘D’ (Dominance) dispositional style and lower in the ‘S’ (Steadiness) dispositional style also scored significantly higher in the skill areas of creativity and innovation. While further research is needed, researchers demonstrated it is possible to distinguish innovative dispositional styles between groups of professionals using behavior profiles (DISC), combined with motivators and professional skills (Bonnstetter & Suiter, 2013).

In another study, Aldisert (2013) examined 13 qualified entrepreneurs using the TTI TriMetrix®DNA instrument, which includes the TTISI DISC. Out of the recruited and vetted sample of entrepreneurs, the dispositional styles were high ‘D’ Dominance and high ‘I’ Influencing. This research suggested, examining DISC behavior with motivators and professional skill set revealed a more accurate profile of an individual rather than the highest DISC score alone (Aldisert, 2013; Gosselin, Cooper, Bonnstetter, & Bonnstetter, 2013). Additionally, the top two dispositional styles as measured by the DISC called the ‘blended dispositional style’ is a more accurate identification of an

individual's adapted behavior style (Gosselin, et al., 2013). However, related to this study, TTI's research indicates 60% accuracy when only considering dispositional style to identify entrepreneurs and/or predict entrepreneurial behavior (TTI Technical Report, 2013). In alignment with the entrepreneur profile defined in current research, the "High D" dispositional style appears to be related to innovative work behaviors by way of the need to direct others, embraces challenge, has a desire to win, opportunistic, flexible in thinking, goal orientation, persuasion, and tolerance for ambiguity (Aldisert, 2013; Gosselin, et al., 2013). Still, the size (n=4) and the convenience nature of the sample makes the results of the analysis non-conclusive and interpretation should be made with caution.

Research question 2. To what extent, if any, does a relationship exist between 'Influence' as the dispositional style measured using TTISI DISC survey and the four dimensions of innovative work behavior measured using IWBS instrument, of educators in a K-12 high performing charter school in Colorado? The Kendall's Tau-b correlation results indicated no statistically significant relationship between the variables: OE $\tau_b = -.022, p = .771$; IG $\tau_b = -.086, p = .253$; IP $\tau_b = .002, p = .983$; R $\tau_b = -.082, p = .282$.

The influencing dispositional style comprises of behavior described as optimism, enthusiasm, and persuasiveness, which are closely aligned with the Opportunity Exploration and Idea Promotion dimensions of IWB (Messmann & Mulder, 2014). Demonstrated in Aldisert's study (2013), entrepreneurial minded individuals with a blend of high D and high I tended to express a high level of self-awareness about the direct and competitive nature of their disposition. However, the same individuals recognized their directness as a necessary strength for innovative leaders. Given the previous research

mentioned above (Aldisert, 2013), correlating educators with a blend of high 'I' influence and high 'D' Dominance dispositional style may result in a statistically significant correlation with certain dimensions of IWBS.

Research question 3. To what extent, if any, does a relationship exist between 'Steadiness' as the dispositional style measured using TTISI DISC survey and the four dimensions of innovative work behavior measured using IWBS instrument, of educators in a K-12 high performing charter school in Colorado? The Kendall's Tau-b correlation result indicated no statistically significant relationship between the variables. The researcher accepted the null hypothesis: There is no statistically significant relationship between the Steadiness dispositional style and the IWBS dimensions: OE $\tau_b = .023, p = .760$; IG $\tau_b = -.018, p = .808$; IP $\tau_b = -.016, p = .834$; R $\tau_b = -.029, p = .702$. These findings do align with current research.

Individuals with high 'S' steadiness dispositional style typically demonstrate behaviors associated with a need for consistency, stability, and low tolerance for change. Research indicated innovation requires a comfort level with ambiguity and a willingness to step out of the norm, so it is reasonable to accept the null hypotheses indicating there is no statistically significant relationship between the steadiness dispositional style and the four dimensions of IWBS of educators in a high performing K-12 charter school. High 'S' individuals add value to an organization through loyalty and an easy-going demeanor. Additionally, individuals with a high steadiness dispositional style tend to engage in a methodical approach to tasks, which is conducive to a consistent way of business and a predictable work environment not typically associated with the temperament of an innovator (Aldisert, 2013). However, when convinced of the merit, this individual can

lead teams to great heights even when going through their own personal challenges due to a predisposition to ‘mask their emotions’ (Bonnstetter & Suiter, 2013). More research is needed in this area using a larger sample size.

Research question 4. To what extent, if any, does a relationship exist between ‘Compliance’ as the dispositional style measured using TTISI DISC survey and the four dimensions of innovative work behavior measured using IWBS instrument, of educators in a K-12 high performing charter school in Colorado? The Kendall’s Tau-b correlation results indicated no statistically significant relationship between the variables. The researcher accepted the null hypothesis: There is no statistically significant relationship between the Compliance dispositional style and the IWBS dimensions: OE $\tau_b = .038, p = .619$; IG $\tau_b = .055, p = .467$; IP $\tau_b = .006, p = .937$; R $\tau_b = .030, p = .692$.

An individual with a high ‘C’ compliance dispositional style is best known as the analyst and perfectionist. Generally, individuals with a high ‘C’ compliance dispositional style enjoy competition, but mainly with themselves (Bonnstetter & Suiter, 2013). They are always looking for a way to make things better as long as the risk is low. High ‘C’ individuals err on the side of caution and add value to an organization by way of precision and accuracy, concern for quality, and attention to detail.(Bonnstetter & Suiter, 2013). Within the sample of this study, twenty-one educators had a “C” dispositional style with no statistically significant relationship to IWBS. Through the innovation process lens, a high Compliance individual would not likely initiate implementation of innovation, but perhaps provide assets in the analysis of the innovation effectiveness and performance. More research is needed in this area using a larger sample size.

In conclusion, the debate is not that tremendous creative and innovative practices are or are not being demonstrated across the globe by a diverse array of educators. However, the continued conversation related to the need for ‘something different’ to improve school performance indicates innovation remains “on the peripheries rather than common practice, despite collective efforts to develop educators with different mindsets, behaviors and relevant toolkits” (Gawlik, 2016). It is clear some schools are achieving improvement while others are still in need of change. Since the educator is the number one influence on student achievement (Darling-Hammond, 2015), identification of educator dispositional styles related to innovative work behavior found within successful charter schools may begin to uncover individual level factors responsible for the inconsistent results found in charter schools.

The results of Kendall’s Tau-b correlation analysis showed no statistically significant relationship between the Dominance, Influence, Steadiness, and Compliance dispositional styles and the four dimensions of IWBS: Opportunity Exploration, Idea Generation, Idea Promotion, Reflection. The size and convenience nature of the sample were the main limitations of this study which diminishes the external validity of the findings. As a result, the findings cannot be considered conclusive or generalizable. Considering the above discussed results, the researcher will offer implications of the findings in the proceeding section.

Implications

While multiple variables influence the performance of charter schools, questions remain related to the specific (Thurlings et al., 2015). This quantitative study used a correlational design to examine the relationship between dispositional style and the four

dimensions of innovative work behavior of educators in a high performing K-12 charter school in Colorado. To better understand charter school success, this study examined individual level characteristics of a high performing school by way of educator characteristics to gather detailed information about individual factors that promote achievement.

Theoretical implications. The theoretical frame work for this study was Personality Theory, specifically the behavioral aspect of personality called disposition (Allport, 1966; Jung, 1922; Skinner, 1974). Disposition represents a dimension of personality that is relatively stable and enduring and identifies a pattern or adherence of behavior a person demonstrates in accordance with that characteristic in a given situation (Cervone & Pervin, 2015). Personality dimensions are important to review as they begin to illuminate motives, behavior, values, and temperaments such as entrepreneurialism and innovativeness (Van der Merwe & Malan, 2013). Depending on the theory, personality influences behavior and/or behavior explains personality.

For the purposes of this study, a focus on the behavioral aspect of personality, disposition, was primary. The findings of this study advance the knowledge and theory related to effectively distinguishing between groups of professionals using dispositional style measured by a behavioral assessment such as the TTISI DISC. The results of this study do not suggest educators with any one of the four dispositional styles tend to engage in innovative work behaviors. However, in theory and in practice, research has shown if an organization wants to increase innovation and entrepreneurialism, attracting, hiring and developing employees with a measurable and demonstrated proclivity towards

those behaviors, attitudes, and mindsets, is part of the equation (Aldisert, 2013; Pistrui, Layer & Dietrich, 2013).

For this study, innovative work behavior (IWB) was another framework used for considering and examining innovation at the individual level (Janssen, 2003; Scott & Bruce, 1994). The theory and application of IWB draws on the idea that any innovative venture and outcome results from the activity of creative individuals who propose new ideas and engage in collaborative efforts toward implementation and evaluation (Kanter, 1988). Based on this theory and application, the IWBS instrument authored by Messmann and Mulder (2014) was further validated through this study. The Cronbach's Alpha score of .935 for the 20 items on the survey was well above the acceptable level of 0.70. Extending the research of Messmann and Mulder (2015) as well as Kaur and Gupta, 2015, evidenced through this study, the IWBS instrument is reliable to measure educator's overall innovative work behavior to include the four dimensions separately in the United States charter school education setting.

Practical implications. This study provided foundational knowledge about educators' dispositional style as it relates to innovative work behavior in a high performing K-12 charter school in Colorado. The study did not find a statistical significance in the relationships between any of the four dispositional styles and the four dimensions of IWBS. While achieving more than the minimum sample size (88) required for medium effect, the sample size for each DISC dimension was small ($D=4$, $I=32$, $S=32$, $C=20$). Thus, the results of this study are not conclusive and should be interpreted with caution.

According to OECD (2014), the United States was in 24th place in educational innovativeness in the world. Individual innovative behavior in the workplace is a central pillar of high performing organizations (Berends, 2015). Employees, such as educators, play a pivotal role in developing and using innovation to address needed change for revitalizing the education system (Serdyukov, 2017). Teachers and administrators are generally cautious about threatening change and have a low tolerance for uncertainty (Smith, 2015). Uncertainty is a prerequisite and motivator of innovation. Organizational success whether in the classroom or the boardroom depends on individuals and communities of individuals able to create innovative professional cultures (Gil, Rodrigo-Moya, & Morcillo-Bellido, 2018). In spite of the results of this study, according to research, purposeful recruitment of individuals with a Dominance and/or Influence dispositional style would increase innovation within the organization (Aldisert, 2013; Pistrui, Layer & Dietrich, 2013).

Considering the findings of this study, it is unclear if leaders in education desperate for improved student achievement can translate successful innovative business practices into the education realm through the use of dispositional data. Still, the TTISI DISC has been used to identify dispositional styles to assist organizations with predicting performance, job profiling, employee development, and team building to increase success in many business settings for over 30 years. Only recently, has the education profession used such instruments to guide hiring, professional development, and student-teacher matching (Indigo, 2017). Pockets of innovation are apparent, but major support for innovations across our education landscape will be needed to make a significant difference (Sotiriou, Riviou, Cherouvis, Chelioti, & Bogner, 2016).

Future implications. This study has several implications for future research in spite of the inconclusive results. More research is needed to determine if innovative work behavior exists in schools and is counted a characteristic of high performing K-12 charter schools. Based on prior research, individuals with certain individual level traits are more or less likely to engage in innovative work behavior (Messmann & Mulder, 2012). It is important also to examine the different dimensions (processes) of innovative work behavior as separate outcomes related to individual factors as one dispositional style may influence one dimension of IWB and not the other. With this knowledge, administrators can orchestrate task groups, team leads, implement communication pathways and reward systems to increase innovation in a school. A measure of additional individual level variables such as motivators and professional skills with behavior styles as it relates to innovative work behaviors of educators within high performing charter schools would increase understanding of this relationship.

Research has suggested some charter schools are out performing others, while most are either performing as well or worse than traditional public schools (Berends, 2015). With a larger more diverse sample of educators, investigating individual level characteristics of educators to include behaviors, attitudes, and motivations in various high performing charter schools may provide a more complete profile and help determine which educator characteristics are related to successful schools. Conducting qualitative research on innovative work behavior of charter school educators will also shed light on the prevalence of innovation in charter schools by way of perception and tangible evidence of innovative behaviors connected to school performance (Messmann & Mulder, 2015).

Regarding the influence dispositional style and innovative work behavior have on school success, further research is required to replicate and add to the findings of this study. Additional quantitative complimented by qualitative study (observations, interviews, group discussions) is necessary to increase the depth of understanding about which and to what extent individual factors influence high performance in schools. Still, only a few studies have examined behavioral antecedents of IWB, such as reflection and personality by way of MBTI (Messmann & Mulder, 2015). Dispositions, motivators, and soft skills remain in need of investigation related to IWB. Identifying and cultivating innovative people with increased autonomy, self-efficacy, and ‘entrepreneurial mindsets, intelligent risk taking, collaboration and opportunity recognition’ in K-12 education is critical to create exemplary education systems across the world (Serdyukov, 2017).

Teacher quality is fundamental to improved organizational success and student academic achievement. Raising the expectations and status of teachers like those in the most advanced countries, Finland, Singapore, and Japan, enhances the quality of the educational workforce (Serdyukov, 2017). Identification of individuals demonstrating innovative characteristics and skill sets enable the best people to be recruited, developed, and retained by teacher preparation programs, school districts, university campuses supported by public and policy administrators. When the right people are in the right seat on the bus, the scale and rate of innovation-based transformations in the education system will be realized.

Strengths and weaknesses of the study. The purpose of this research was to examine if and to what extent a relationship exists between the dispositional style and the four dimensions of innovative work behavior of educators in a K-12 high

performing charter school in Colorado. This study was conducted using a convenience sample of 88 educators at one high performing K-12 charter school. Consequently, the results are local to the specific school and the educators within it negating any generalization to other populations. Replicating this study with multiple high performing charter schools is necessary to obtain generalizable and meaningful findings using the variables dispositional style and innovative work behavior.

Strengths of this study include the (1) methodology and design, (2) utilization of the IWBS to examine innovative work behavior in a variety of school types (Kaur & Gupta, 2016; Messmann & Mulder, 2015) (3) utilization of the TTISI DISC to examine individual level characteristics of educators, and (4) response to the call to examine individual level characteristics related to IWB. The methodology and design used to examine the relationship between dispositional style and innovative work behavior was established in the current research. In Thurlings et al., (2015) review of literature on innovative work behavior of educators, 17 of the 39 studies reviewed used quantitative methods, 16 used qualitative methodology and 3 used mixed-methods. Thurlings et al., (2015), also noted correlational design had been used to examine innovative work behavior and personality traits (Messmann & Mulder, 2015). Using quantitative methodology and a correlation design allowed the results of this study to be compared to previous findings.

The utilization of the IWBS is another positive aspect of this study because it had only been used to study vocational educators in German universities and in India with K-12 teachers. According to Cronbach's Alpha, the overall reliability coefficient of the

instrument was identical to the authors' coefficients in the previous studies Messmann & Mulder, 2015). Gathering data from charter school educators in the United States provided primary data from a new population.

Along those same lines, gathering educators' dispositional data through the TTISI DISC was unique as the majority of earlier studies used Meyers Briggs Temperament Instrument (MBTI) and the Five Factor Model (FFM), to measure individual level (personality) data (Jones & Hartley, 2013; Messmann & Mulder, 2014, 2015; Thurlings, Evers & Vermeulen, 2015; Wiens & Ruday, 2014). Dispositional styles are defined by observable behavior. This study used the adapted DISC output. The adapted DISC scores describe the adjusted behavior patterns, or the actual behavior demonstrated at work (Bonnstetter & Suiter, 2013). Because the interest of this study was in work place behaviors related to innovative work behaviors the adapted profile was most appropriate. Further, the TTISI DISC has been successfully used in the organizational setting for addressing professional development needs, person-organization fit, and personal awareness (Bonnstetter & Suiter, 2013). Collecting DISC data from educators in the charter school setting provided primary data from a new population.

Limitations of this study include the (1) sample size and the (2) sole use of dispositional style as the individual level variable correlated with IWBS, (3) limiting the examination of only two individual level variables, and (4) defining dispositional style with the individual's highest scored subscale. Because the population of interest was in one high performing school, the population was limited to 117. Even achieving a 75% participation rate with 88 completed data points (a strength), the sample size of the separate dispositional styles (DISC) resulted in significantly small groups especially the

High 'D' Dominance group (N=4). Even if 100% participation had been achieved, the high 'D' group would have been too small to measure statistical significance (out of the 7 incomplete surveys only 1 was a high 'D'). Including other identified high performing charter schools would have increased the population and likely the sample size of each dispositional group.

The choice to use dispositional style as the only personal variable gave way to next steps in the research of individual level characteristics of educators as it relates to innovative work behavior in high performing schools. Correlating only dispositional style and IWBS with a sample of 88 barely scratches the surface related to investigating characteristics of educators in high performing charter schools. Like Aldisert (2013), using the TriMetrix DNA, researchers can obtain rich profiles that embody behaviors, motivators, and professional competencies of an individual. Utilizing the TriMetrix DNA would have provided a more thorough and comprehensive report of pertinent and factors to correlate with IWBS and should be examined in the future.

This study examined the relationship between two educator level variables. Although educators predisposed to innovate is critical, previous research suggests the environment in which individuals are encouraged to be creative and take risks is important. Adding an organizational level variable such as perception of innovative climate as it relates to dispositional style and innovative work behavior with a larger sample would have increased the richness of the study (Berends, 2015; Thurlings et al., 2015).

Finally, this study defined 'dispositional style' with the individual's highest DISC score. While this ensured a 1:1 variable analysis, current research suggests the blend of

the top two DISC subscales provides more insight (Aldisert, 2013). Because the way a person acts is determined by the intensity of all four styles, combining the top two styles enriches the defining and understanding of the patterns of behavior an individual performs (Bonnstetter & Suiter, 2013). In Aldisert's study (2013), the researcher identified 7 out of the 13 entrepreneurial minded individuals with a blend of high 'D' and high 'I'. Coupling the assertive and challenge-orientation of the high 'D' with the outgoing and people-orientation of the high 'I' was highly correlated to success-oriented behaviors of Aldisert's sample. Using a blend of the top two highest scores may have positively impacted the groups' sizes of this study.

Recommendations

This study examined the relationship between predominant dispositional style and innovative work behaviors of educators in a high performing K-12 charter school in Colorado. The results indicated no significant correlation between the two variables. Further research is recommended to gain generalizable understanding about this potential correlation between individual level characteristics of educators in high performing charter schools that could translate into scalable strategies to include attracting, hiring, and developing people who have a predisposition to innovate.

Recommendations for future research. Modern scholars view innovation as a main determinate of organizational success (Messmann & Mulder, 2012). Innovative individuals recognize problems and generate ideas, champion their ideas to other stakeholders and implement models for further assessment and adoption (Jong, Parker, Wennekers, & Wu, 2015). There remains a growing need for research in the educational

setting to shed further light on the innovative work behaviors of educators (Thurlings et al., 2015). The following are recommendations for future research.

1. Future research replicating the methodology used in this study with a larger sample would enable comparisons of results and may reach actionable conclusions. Such knowledge would be critical and guide recruiting, developing, and retaining individuals most effective in terms of instructional practice, innovation, and academic performance. Teacher preparation programs, hiring teams, school districts, university campuses supported by informed educational leaders would benefit.
2. A next step for future research is to combine dispositional data with motivators and professional skills as a more comprehensive personal profile to further examine individual characteristics of educators in high performing charter schools. This knowledge would inform hiring practices, task assignments, and influence group thinking to enhance collaboration efforts within schools.
3. Quantitative study determines if and to what extent a relationship exists between numeric variables that can lead to qualitative design to further explore how and why a relationship exists. Likert scales do not allow for expression of individual perception. Future qualitative study could expand knowledge of innovative work behavior of educators in high performing schools. Qualitative study (observations, interviews, group discussions) is necessary to increase the depth of understanding about which and to what extent individual factors influence high performance in schools.
4. Using mixed methods to combine the quantitative patterns with the rich qualitative survey data to increase understanding of the impact educator characteristics have on school success is another option for future research. A triangular approach to include organizational factors such as culture and climate of innovation, person-job fit, and social networks could enrich understanding and should be studied to inform educational leaders who strive to improve educational outcomes.
5. Related to this study, a larger representative sample is needed for external validity. In order to generalize results at the national level, future research should include a variety of high performing charter schools from different states and grade ranges. With innovative educators in demand who proactively engage in certain behaviors indicative of a high propensity toward new and improved practices, it is important to introduce research that measures the unique individual level characteristics that support innovation and change.
6. Additionally, an examination of the relationship between dispositional style and position within the organization (teacher, administrator, counselor), supervisor

and peer perspectives, individual accomplishments, and leadership related to innovative work behavior could also be explored (Thurlings et al., 2015).

Recommendations for future practice. Attracting, hiring, and developing educators with the disposition toward innovation is critical to creating and sustaining high performing schools. Through increased understanding of the ‘individual’ responsible for high quality education, educational leaders can build the capacity of innovative minded staff to increase effective instruction and learning for all students (Berends, 2015; Thurlings et al., 2015). To raise the bar and close the gap, the right people must be identified and recruited into our schools. The following are recommendations for future practice.

1. Results of this exploratory research were not statistically significant and not conclusive. The findings cannot be used as a basis for recommendation for practice.
2. Exploring common educator dispositional styles existent in high performing schools as it relates to innovative work behavior through the Innovative Work Behavior Scale (Messmann & Mulder, 2012; Scott & Bruce, 1994) could further current understanding of educator characteristics to inform administrative decision making related to professional development to influence charter school performance.
3. Similarly, identifying specific dispositions of educators within both traditional and charter high performing schools may provide criteria for successful recruitment of stellar educators (Previts & Bauer, 2013).
4. Extending research on this topic in diverse school settings in a variety of communities may provide a framework for the creation of exceptional learning organizations nation wide.
5. Further, administrators equipped to identify innovative educators through measures such as the TTISI DISC instrument could recruit and develop a teaching staff perched to create new ways of addressing the education crisis and support superior student performance.
6. Besides, hiring decisions, application of the DISC has been modelled within other organizations. The information related to self-awareness is beneficial for

interacting with all stakeholders. Also, administrators can use the data to help support educators through differentiated professional development.

7. The IWBS data can be used at the organizational level to help pinpoint areas of growth and align with the whole school strategic plan. Additionally, looking at the dimensions of IWBS separately, leaders can strategically create groups with individuals who have complementary strengths and skill sets.

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Appendix A.

Site Authorization Letter

 **Peak to Peak Charter School**
 800 Merlin Drive
 Lafayette, CO 80026
 303.453.4600
 303.453.4613 Fax
www.peaktopeak.org
 Boulder Valley School District RE-2

11/15/17

Office of Academic Research
 Grand Canyon University
 College of Doctoral Studies
 3300 W. Camelback Road
 Phoenix, AZ 85017
 Phone: 602-639-7804

Dear IRB Members,

After reviewing the proposed study, "A Correlational Study of Educator Disposition and Innovative Work Behavior: Investigating the Success of an Elite K-12 Charter School" presented by Dana Reyes, I have granted authorization for Dana Reyes to conduct research at Peak to Peak Charter School.

I understand the purpose of the study is to determine if a relationship exists between the dispositions of educators as measured by the DISC and Innovative work behavior as measured by the Innovative Work Behavior Scale. Dana Reyes will conduct the following research activities: 1. collect DISC data through survey assessment and 2. collect IWBS data through survey assessment. It is understood that this project will end no later than June 1, 2018.

I have indicated to Dana Reyes that our school will allow the following research activities:

- provide time to explain the research and collect consent from employees
- onsite data collection ie. DISC and IWBS survey
- allow employees to use designated and protected work time to fill out surveys ie. K-12 Scheduled PD time

To ensure that the employees are protected, Dana Reyes has agreed to provide to me a copy of any Grand Canyon University IRB-approved, consent document before she recruits participants at Peak to Peak Charter School. Dana Reyes has agreed to provide a copy of the study results, in aggregate, to our school.

If the IRB has any concerns about the permission being granted by this letter, please contact me at the phone number listed above.

Sincerely,

Kelly Reeser
 Printed Name

Kelly Reeser
 Signature

12-1-2017
 Date

good scholarship
enlightens
 good character
shines

Appendix B.

IRB Approval Letter

GRAND CANYON UNIVERSITY®																									
<p>GCU D-50 IRB Approval to Conduct Research</p> <p>(IRB initiates form)</p> <p>Instructions: This form must be signed prior to initiating data collection.</p> <p>Learner Information</p> <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Learner Last Name</td> <td>Reyes</td> <td style="width: 50%;">Learner First Name</td> <td>v♦-♦♦S♦□□Z♦□♦♦;</td> </tr> <tr> <td colspan="2"></td> <td colspan="2">GCU E-mail</td> <td>DReyes21@my.gcu.edu</td> </tr> <tr> <td colspan="4">Title of Dissertation Proposal</td> <td>A Correlational Study of Predominant Dispositional Style and Innovative Work Behavior of Educators</td> </tr> </table> <p>IRB Approval to Conduct Research</p> <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Protocol #</td> <td>IRB-2018-128</td> </tr> <tr> <td>Office of Academic Research</td> <td>Dr. Cynthia Bainbridge</td> </tr> <tr> <td colspan="2" style="text-align: center;"> Signature  </td> </tr> <tr> <td colspan="2" style="text-align: right;"> DocuSigned by: Dr. Cynthia Bainbridge </td> </tr> <tr> <td colspan="2" style="text-align: right;"> Date: April 17, 2018 </td> </tr> </table>		Learner Last Name	Reyes	Learner First Name	v♦-♦♦S♦□□Z♦□♦♦;			GCU E-mail		DReyes21@my.gcu.edu	Title of Dissertation Proposal				A Correlational Study of Predominant Dispositional Style and Innovative Work Behavior of Educators	Protocol #	IRB-2018-128	Office of Academic Research	Dr. Cynthia Bainbridge	Signature 		DocuSigned by: Dr. Cynthia Bainbridge		Date: April 17, 2018	
Learner Last Name	Reyes	Learner First Name	v♦-♦♦S♦□□Z♦□♦♦;																						
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Signature 																									
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Date: April 17, 2018																									
Grand Canyon University - College of Doctoral Studies																									

Appendix C.

Informed Consent



Grand Canyon University
 College of Doctoral Studies
 3300 W. Camelback Road
 Phoenix, AZ 85017
 Phone: 602-639-7804
 Email: irb@gcu.edu

INFORMED CONSENT FORM

CONSENT FORM

**A Correlational Study of Educator Disposition and Innovative Work Behavior:
 Investigating the Success of an Elite K-12 Charter School**

INTRODUCTION

The purposes of this form are to provide details that may affect your choice to take part in this study and to record the consent should you agree to take part in the study.

RESEARCH

Dana Reyes, doctoral student, Grand Canyon University has invited you to take part in a research study to complete her doctoral degree.

STUDY PURPOSE

The overall purpose is to determine why some schools are high performers while others struggle. Much research has occurred investigating successful schools at the organizational level.

However, no research has been done to date related to individual differences of educators, such as behavior styles, which may influence school performance.

ELIGIBILITY

You may take part in this study if you are a:

1. Teacher at a K-12 charter school
2. Administrator at a K-12 charter school

You may not to take part in this study if you are:

1. non-instructional support staff

DESCRIPTION OF RESEARCH ACTIVITY

If you decide to engage, then you will be asked to:

1. Read and answer 26 DISC questions and 17 IWBS questions honestly to the best of your ability.
2. Complete the two surveys on a personal or work computer within the 10-day timeframe.
3. Approximate time to complete the surveys is 30 minutes.

One hundred subjects are needed to take part in this study.

RISKS

If you decide to take part in this study, then you may face some risks such as:

There are no known risks from taking part in this study, but in any study, there is a chance that you may be subject to risks that have not yet known.

To decrease the impact of these risks, you can choose not to participate.

BENEFITS

Direct benefits to subjects: There are no known direct benefits.

Indirect benefits to subjects: There are no known indirect benefits to you.

NEW INFORMATION

CONFIDENTIALITY

All data gathered in this study is strictly confidential unless disclosure is required by law. The results of this study may be used in reports, presentations, and publications, but the researcher will not identify you.

In order to maintain confidentiality of your records, Dana Reyes will not ask for any personal data other than the grade level you teach.

The people who will have access to your data are: Dana Reyes and her GCU committee

I will secure your data with these steps: I will secure the computer file with a confidential password on my personal computer.

All raw data will be stored for a period of 3 years following completion of this dissertation and then all electronic copies of the data and any hard copies will be shredded and/or deleted.

WITHDRAWAL PRIVILEGE

It is ok for you to say no to participate in this study. Even if you say yes now, you are free to say no later, and stop at any time, there will be no penalty to you.

If you decide to stop the surveys, you may do so by: ending the session in Survey Monkey. If you choose to stop, I will not use the data I gathered from you.

Your choice to withdraw will not affect your relationship with Peak to Peak Charter School or otherwise cause a loss of benefits. Participation is voluntary.

I may stop your participation, even if you did not ask me to, if: you show signs of distress

COSTS AND PAYMENTS

There is no financial cost or payment to you as a participant in this study.

COMPENSATION FOR ILLNESS AND INJURY

If you agree to engage in the study, then your consent does not waive any of your legal rights. However, no funds have been set aside to pay damages in the event of injury.

VOLUNTARY CONSENT

Any questions you have concerning the study or your engagement in the study, before or after your consent, will be answered by Dana Reyes at DReyes21@my.gcu.edu or 720-253-4109.

If you have questions about your rights as a subject in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the College of Doctoral Studies at IRB@gcu.edu; (602) 639-7804.

This form explains the nature, demands, benefits and any risks as a part of this study. By clicking "I Agree" you confirm that you are 18 years or older, understand the content of this form, and agree to participate in this study.

I agree

I do not agree

Your Results:

Your text: The purposes of this form are to provide details t ...([show all text](#))

Flesch Reading Ease score: **67.9** (text scale)
 Flesch Reading Ease scored your text: standard / average.
[\[f\]](#) [\[a\]](#) [\[r\]](#)

Gunning Fog: **10.8** (text scale)
 Gunning Fog scored your text: hard to read.
[\[f\]](#) [\[a\]](#) [\[r\]](#)

Flesch-Kincaid Grade Level: **8.3**
 Grade level: Eighth Grade.
[\[f\]](#) [\[a\]](#) [\[r\]](#)

The Coleman-Liau Index: **7**
 Grade level: Seventh Grade
[\[f\]](#) [\[a\]](#) [\[r\]](#)

The SMOG Index: **7.6**
 Grade level: Eighth grade
[\[f\]](#) [\[a\]](#) [\[r\]](#)

Automated Readability Index: **7.4**
 Grade level: 11-13 yrs. old (Sixth and Seventh graders)
[\[f\]](#) [\[a\]](#) [\[r\]](#)

Linsear Write Formula : **10.8**
 Grade level: Eleventh Grade.
[\[f\]](#) [\[a\]](#) [\[r\]](#)

Readability Consensus

Based on 8 readability formulas, we have scored your text:

Grade Level: **8**

Reading Level: standard / average.

Reader's Age: 12-14 yrs. old (Seventh and Eighth graders)

Appendix D.

Copy of Instruments and Permissions Letters to Use the IWBS

GM Gerhard Messmann <Gerhard.Messmann@paedagogik.uni-regensburg.de>
Wed 10/4, 1:53 AM

Messmann_Mulder_2... 137 KB

Download Save to OneDrive - Grand Canyon University

Dear Dana,

Thank you for your interest. You can certainly use our instrument. We published the instrument in an article in 2012 (see attachment). Everything you need to know should be in there. Please, don't hesitate if you have any further questions.

All the best,
Gerhard

UR - Uni Regensburg
Institut für Pädagogik, Lehrstuhl für Pädagogik II

Universitätsstraße 31
D-93053 Regensburg
Telefon +49 941 943-3826
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www.uni-regensburg.de/psychologie-paedagogik-sport/paedagogik/

IWBS SCALE- Messmann & Mulder, 2012

Table 2. Items, factor structure, and item characteristics of the measurement instrument of innovative work behaviour.

Item	Factor	Study 1			Study 2			
		λ	M	SD	Factor	λ	M	SD
(1) Keeping oneself informed about the <i>organisation's/school's</i> structures and processes.	–	–	4.44	1.33	OE	0.73	4.99	1.06
(2) Exchanging thoughts on recent developments with one's <i>clients/colleagues</i> .	OE	0.47	3.84	1.58	–	–	5.00	1.01
(3) Keeping oneself informed about the latest developments <i>within the company/at one's school</i> .	OE	0.68	4.17	1.37	OE	0.77	5.07	0.96
(4) Keeping oneself informed about new concepts/insights within one's professional field.	OE	0.70	4.70	1.13	OE	0.55	5.15	0.90
(5) Keeping oneself informed about new developments <i>in other organisations outside the company/at other schools or in companies</i> .	OE	0.65	3.31	1.62	OE	0.53	4.54	1.34
(6) Expressing personal evaluations of a problem.	IG	0.75	5.13	1.04	–	–	4.91	1.06
(7) Examining predominant beliefs critically.	–	–	4.86	1.11	IG	0.49	4.74	1.07
(8) Addressing the things that have to change directly.	IG	0.55	5.00	1.15	IG	0.59	4.92	1.07
(9) Expressing new ideas.	IG	0.84	5.04	1.07	–	–	5.01	1.01
(10) Asking critical questions.	IG	0.75	5.07	1.03	IG	0.62	4.87	0.98
(11) Suggesting improvements on expressed ideas.	IG	0.60	4.54	1.31	IG	0.57	4.88	1.03
(12) Addressing key persons who provide necessary permissions and resource allocation.	IP	0.63	4.73	1.38	IP	0.56	4.82	1.35
(13) Promoting new ideas to colleagues in order to gain their active support.	IP	0.51	4.73	1.22	IP	0.79	4.63	1.22
(14) Promoting new ideas to the supervisor in order to gain her/his active support.	IP	0.83	4.65	1.35	IP	0.57	4.55	1.41
(15) Promoting the application of the new solution within one's work context.	IP	0.61	4.80	1.11	IP	0.70	4.61	1.19
(16) Making plans how to put an idea into practice.	IP	0.65	4.75	1.19	–	–	4.95	0.96
(17) <i>Reporting regularly on the progress of the realization of ideas. /Keeping colleagues informed about the progress of the realization of ideas.</i>	–	–	4.37	1.33	IP	0.68	4.59	1.19
(18) <i>(-/Convincing others of the importance of a new idea or solution.</i>	–	–	–	–	IP	0.68	4.73	1.15

Table 2. (Continued).

Item	Factor	Study 1			Study 2			
		λ	M	SD	Factor	λ	M	SD
(19) Introducing colleagues to the application of a developed solution.	IR	0.45	4.88	1.12	IP	0.58	4.61	1.13
(20) Testing evolving solutions for shortcomings when putting ideas into practice.	IR	0.63	4.68	1.15	IG	0.63	4.51	1.20
(21) Analysing evolving solutions on unwanted effects when putting ideas into practice.	IR	0.80	4.90	1.07	IG	0.75	4.74	1.09
(22) Identifying possible triggers for change.	RE	0.54	4.35	1.27	—	—	4.51	1.10
(23) Assessing the progress while putting ideas into practice	RE	0.42	4.21	1.29	RE	0.44	4.41	1.17
(24) Defining criteria of success for the realization of the idea.	—	—	4.12	1.40	RE	0.68	4.30	1.27
(25) Systematically reflecting on recently made experiences.	RE	0.58	4.34	1.26	RE	0.63	4.46	1.20
(26) Naming newly acquired knowledge.	RE	0.74	4.23	1.33	—	—	4.44	1.13
(27) Evaluating one's behaviour on basis of one's attitudes.	RE	0.62	4.28	1.22	—	—	4.78	1.11
(28) Mentioning possible strategies of action for comparable future situations.	RE	0.53	4.05	1.45	—	—	4.49	1.18
(29) Expressing how one's skills have improved through experiences.	RE	0.80	3.87	1.33	—	—	4.12	1.23
(30) <i>Visualising ideas. / Visualising one's ideas graphically.</i>	—	—	4.45	1.30	RE	0.41	2.95	1.62

Note: A 6-point Likert scale (1 = 'does not apply at all', 6 = 'fully applies') was used. N = 154 (study 1); N = 265 (study 2). For both studies, results for the CIT are presented. OE, opportunity exploration; IG, idea generation; IP, idea promotion; IR, idea realization; RE, reflection. Italic printing indicates changes between study 1 and 2. As factors were correlated, factor loadings for the oblique rotation are displayed. Of the 37 constructed items, altogether seven items (six original items and one additional item from study 2) from each of the five dimensions were never associated with a factor and, therefore, are not part of the final instrument.

IWBS SCALE- Messmann & Mulder, 2012

Appendix: Measurement instrument for innovative work behaviour as a dynamic, context-bound construct

Introductory text

In modern work contexts, it is increasingly necessary to develop new ideas that lead to a significant change. These ideas are either newly created or derived from other contexts. Usually, several people are involved. The goal of this questionnaire is to find out what people do when they are an active part of such a process of change that is aiming at one of the following goals: Establishment of new routines, simplification of work processes, the use of new materials and tools, improvement in cooperation inside and outside the school, and creating new offers and services for students

Dimensions	Items
Opportunity exploration	Keeping oneself informed about the school's structures and processes Keeping oneself informed about the latest developments at one's school Keeping oneself informed about new concepts/insights within one's professional field Keeping oneself informed about new developments at other schools or in companies
Idea generation	Examining predominant beliefs critically Addressing the things that have to change directly Asking critical questions Suggesting improvements in expressed ideas Testing evolving solutions for shortcomings when putting ideas into practice* Analysing evolving solutions on unwanted effects when putting ideas into practice*
Idea promotion	Addressing key persons who provide necessary permissions and resource allocation Promoting new ideas to colleagues to gain their active support Promoting new ideas to the supervisor to gain her/his active support Promoting the application of the new solution within one's work context Keeping colleagues informed about the progress of the realization of ideas Convincing others of the importance of a new idea or solution Introducing colleagues to the application of a developed solution*
Reflection	Assessing the progress while putting ideas into practice Defining criteria of success for the realization of the idea Systematically reflecting on recently made experiences

Notes. *These items originally represented the dimension 'idea realization'. The response format for the items measuring innovative work behaviour is a 6-point Likert scale from 1 = 'does not apply' to 6 = 'fully applies'.

Appendix E.

Copy of Instruments and Permissions Letters to Use the IWBS



1 May 2017

To Whom It May Concern:

This letter is to grant permission for Dana Marie Knight to use the following copyrighted material for her research titled, "A Correlational Study of Educator Disposition and Innovative Work Behavior: Investigating the Success of an Elite Charter School."

Instrument: Style Insights Behavioral (DISC) Online Assessment
Authors: Target Training International, the parent company of TTI Success Insights, Inc.

Copyright: 2002 by Target Training International

This instrument may be reproduced for inclusion in a proposal, thesis, or dissertation.

Sincerely,

Ronald J Bonnstetter
Senior Vice President, TTI Success Insights, North America

Style Insights® TTISI DISC
(Permission granted per letter above.)

Style Insights*

Response Instructions

Rank the phrase MOST like you as number 1. Continue ranking until the phrase LEAST like you is ranked number 4. When all four phrases are in the correct order please move to the next set of phrases. Repeat the process until complete. While responding, keep your focus on the descriptions that apply to your behavior. Be ruthlessly honest with yourself! Go with your "gut" instinct—do not over-analyze! You should take no more than 15 minutes to respond to the assessment and it must be completed in one uninterrupted sitting.

Rank the items in each list. Number them from 1 to 4, with 1 as the MOST like you. Continue to rank until you have ordered all the phrases from MOST (1) to LEAST (4). Repeat the process until complete.

- | | |
|--|---|
| <p>1.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Enthusiastic <input type="checkbox"/> Contented, satisfied <input type="checkbox"/> Positive, confident <input type="checkbox"/> Peaceful, tranquil | <p>2.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Careful, calculating <input type="checkbox"/> Bold, daring <input type="checkbox"/> Supportive <input type="checkbox"/> Charming, delightful |
| <p>3.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Expressive <input type="checkbox"/> Daring, risk-taker <input type="checkbox"/> Diplomatic, tactful <input type="checkbox"/> Satisfied, content | <p>4.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Respectful, shows respect <input type="checkbox"/> Pioneering, exploring, enterprising <input type="checkbox"/> Optimistic <input type="checkbox"/> Accommodating, willing to please, ready to help |
| <p>5.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Willing, agreeable <input type="checkbox"/> Eager, impatient <input type="checkbox"/> Methodical <input type="checkbox"/> High-spirited, lively, enthusiastic | <p>6.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Logical <input type="checkbox"/> Obedient, will do as told, dutiful <input type="checkbox"/> Unconquerable, determined <input type="checkbox"/> Playful, frisky, full of fun |
| <p>7.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Adventurous, willing to take chances <input type="checkbox"/> Analytical <input type="checkbox"/> Cordial, warm, friendly <input type="checkbox"/> Moderate, avoids extremes | <p>8.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Good mixer, likes being with others <input type="checkbox"/> Structured <input type="checkbox"/> Vigorous, energetic <input type="checkbox"/> Lenient, tolerant of others' actions |
| <p>9.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Competitive, seeking to win <input type="checkbox"/> Considerate, caring, thoughtful <input type="checkbox"/> Outgoing, fun-loving, socially striving <input type="checkbox"/> Harmonious, agreeable | <p>10.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Aggressive, challenger, takes action <input type="checkbox"/> Life of the party, outgoing, entertaining <input type="checkbox"/> Easy mark, easily taken advantage of <input type="checkbox"/> Fearful, afraid |
| <p>11.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Stimulating <input type="checkbox"/> Sympathetic, compassionate, understanding <input type="checkbox"/> Tolerant <input type="checkbox"/> Aggressive | <p>12.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Talkative, chatty <input type="checkbox"/> Controlled, restrained <input type="checkbox"/> Conventional, doing it the usual way, customary <input type="checkbox"/> Decisive, certain, firm in making a decision |

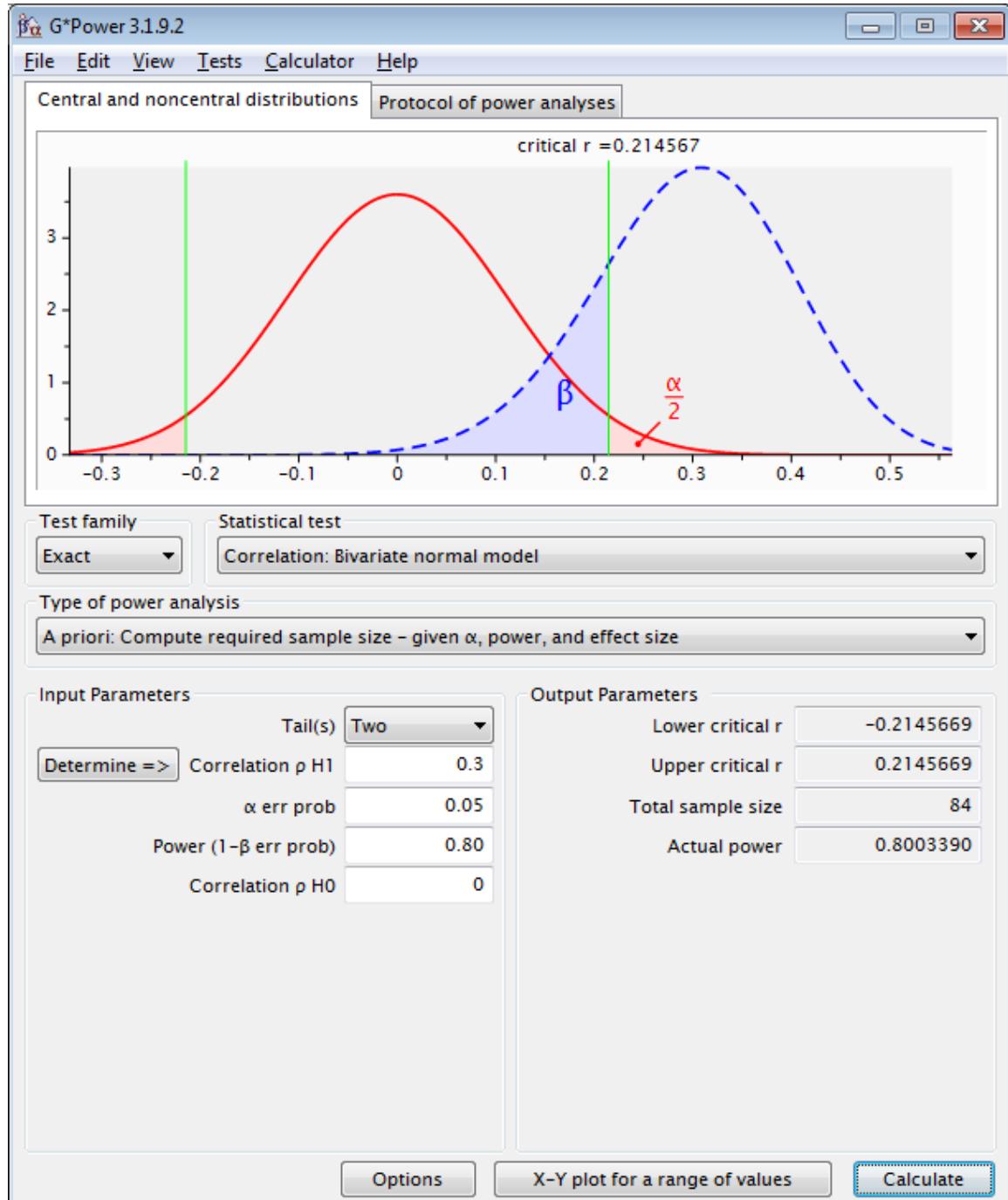
Rank the items in each list. Number them from 1 to 4, with 1 as the MOST like you. Continue to rank until you have ordered all the phrases from MOST (1) to LEAST (4). Repeat the process until complete.

- | | | | |
|-----|---|-----|---|
| 13. | <input type="checkbox"/> Well-disciplined, self-controlled
<input type="checkbox"/> Generous, willing to share
<input type="checkbox"/> Animated, uses gestures for expression
<input type="checkbox"/> Persistent, unrelenting, refuses to quit | 14. | <input type="checkbox"/> Sociable, enjoys the company of others
<input type="checkbox"/> Patient, steady, deliberate
<input type="checkbox"/> Self-reliant, independent
<input type="checkbox"/> Soft-spoken, mild, reserved |
| 15. | <input type="checkbox"/> Gentle, kindly
<input type="checkbox"/> Persuasive, convincing
<input type="checkbox"/> Humble, reserved, modest
<input type="checkbox"/> Magnetic, attracts others | 16. | <input type="checkbox"/> Captivating
<input type="checkbox"/> Kind, willing to give or help
<input type="checkbox"/> Resigned, gives in
<input type="checkbox"/> Force of character, powerful |
| 17. | <input type="checkbox"/> Companionable, easy to be with
<input type="checkbox"/> Easygoing
<input type="checkbox"/> Outspoken, speaks freely and boldly
<input type="checkbox"/> Restrained, reserved, controlled | 18. | <input type="checkbox"/> Factual
<input type="checkbox"/> Obliging, helpful
<input type="checkbox"/> Willpower, strong-willed
<input type="checkbox"/> Cheerful, joyful |
| 19. | <input type="checkbox"/> Attractive, charming, attracts others
<input type="checkbox"/> Systematic
<input type="checkbox"/> Stubborn, unyielding
<input type="checkbox"/> Pleasing | 20. | <input type="checkbox"/> Restless, unable to rest or relax
<input type="checkbox"/> Neighborly, friendly
<input type="checkbox"/> Popular, liked by many or most people
<input type="checkbox"/> Orderly, neat |
| 21. | <input type="checkbox"/> Challenging, assertive
<input type="checkbox"/> Critical thinker
<input type="checkbox"/> Casual, laid-back
<input type="checkbox"/> Light-hearted, carefree | 22. | <input type="checkbox"/> Brave, unafraid, courageous
<input type="checkbox"/> Inspiring, motivating
<input type="checkbox"/> Avoid confrontation
<input type="checkbox"/> Quiet, composed |
| 23. | <input type="checkbox"/> Cautious, wary, careful
<input type="checkbox"/> Determined, decided, unwavering, stand firm
<input type="checkbox"/> Convincing, assuring
<input type="checkbox"/> Good-natured, pleasant | 24. | <input type="checkbox"/> Jovial, joking
<input type="checkbox"/> Organized
<input type="checkbox"/> Nervy, gutsy, brazen
<input type="checkbox"/> Even-tempered, calm, not easily excited |

**Ranks will be converted to normed scores for each dispositional style per the formula referred to as the ‘trade secret’ of Target Training International.

Appendix F.

G*Power Output: A priori Sample Size Calculation for Pearson's Correlations



Appendix G.

Recruitment Email

Request for 15 minutes of your time

May 2, 2018, 2:59 PM

Fellow Educators~

As some of you know, I have been on an exciting journey for the last 3 years in pursuit of my doctoral degree. I am at the point in this journey where my study has been approved by the International Review Board meaning I can collect my data. Yay!

My study is titled, "Dispositional Style and Innovative Work Behavior of Educators in a K-12 High Performing Charter School". It is a correlational study purposed to determine if and to what extent a relationship exists between disposition and behavior of educators. This study will inform educational leaders in the area of individual-level characteristics which contribute to school success. Organizational level characteristics such as climate, leadership, and culture have been extensively examined with a purpose to improve our education system. To date, only a few studies have investigated school success at the individual level and no study has examined disposition or innovation in high performing charter schools. Since research has consistently determined the significant impact the educator has on student success, it is essential to identify scalable characteristics of educators, innate and/or developed, present in successful schools.

At the bottom of this email is a link that will take you to a portal to indicate your willingness to voluntarily participate. The study requires two variables to be measured through the DISC and the IWBS (Innovative Work behavior Scale) instruments. Your participation is strictly voluntary and you may opt out at any time.

You will be asked for your name and email, level/organization (E, M, H, K-12), position (teacher, admin, counselor), and gender (for the personalized report). This data is only used to provide you a personalized analysis report for your reflection. Your personal data is confidential and will be removed before I receive the data.

Once you click on 'accept', you will be taken to the surveys. Completion of both surveys will take no more than 15 minutes. At the minimum, I need 100 participants to perform the appropriate analysis.

Once you click on 'accept', you will be taken to the surveys. Completion of both surveys will take no more than 15 minutes. At the minimum, I need 100 participants to perform the appropriate analysis. Thank you so much for your time and contribution to my study.

Survey due date: May 11

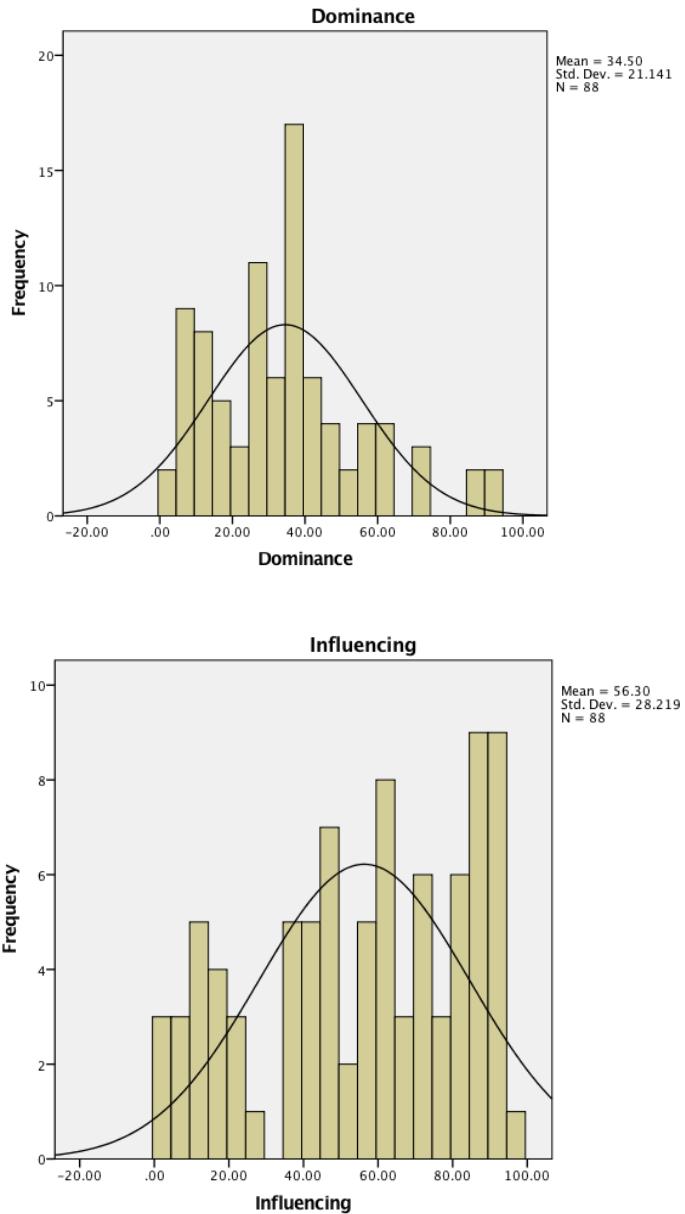
If you have any questions, please don't hesitate to ask via email or in person. Thank you again for your time!!

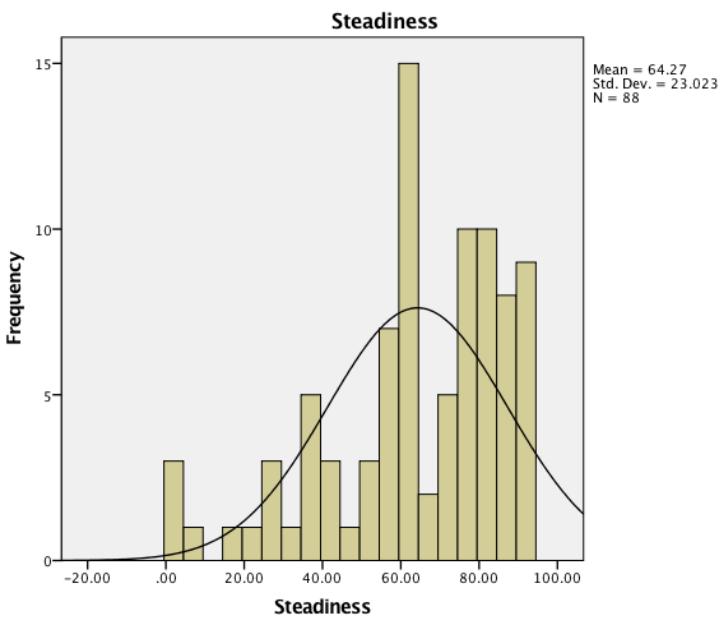
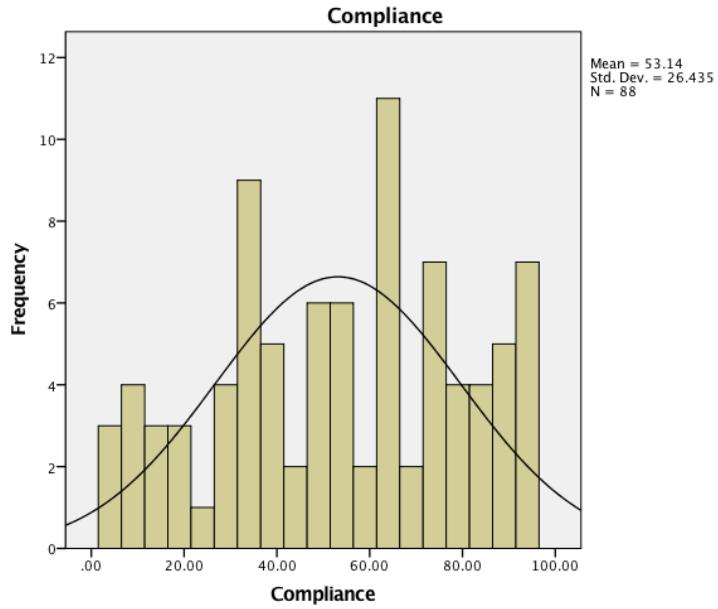
<https://www.tlsurvey.com/344579VFH>

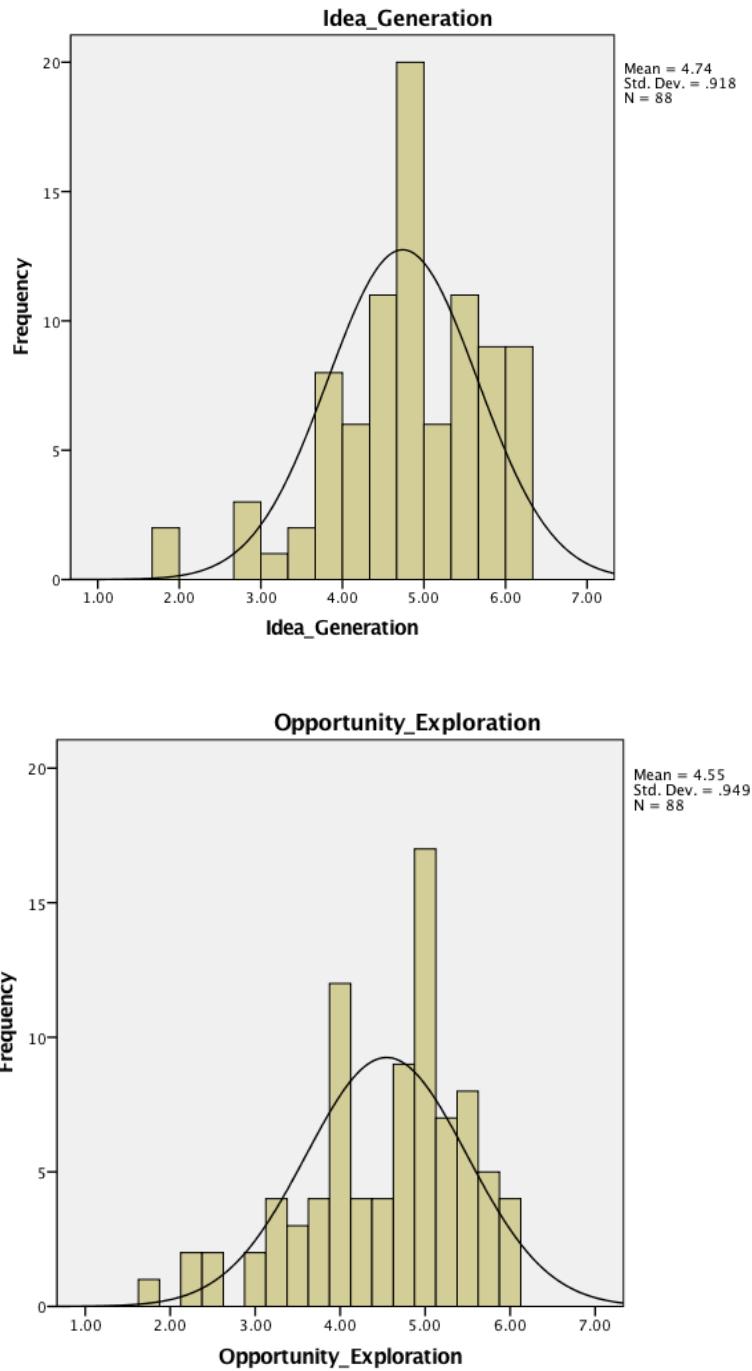
Much appreciation~

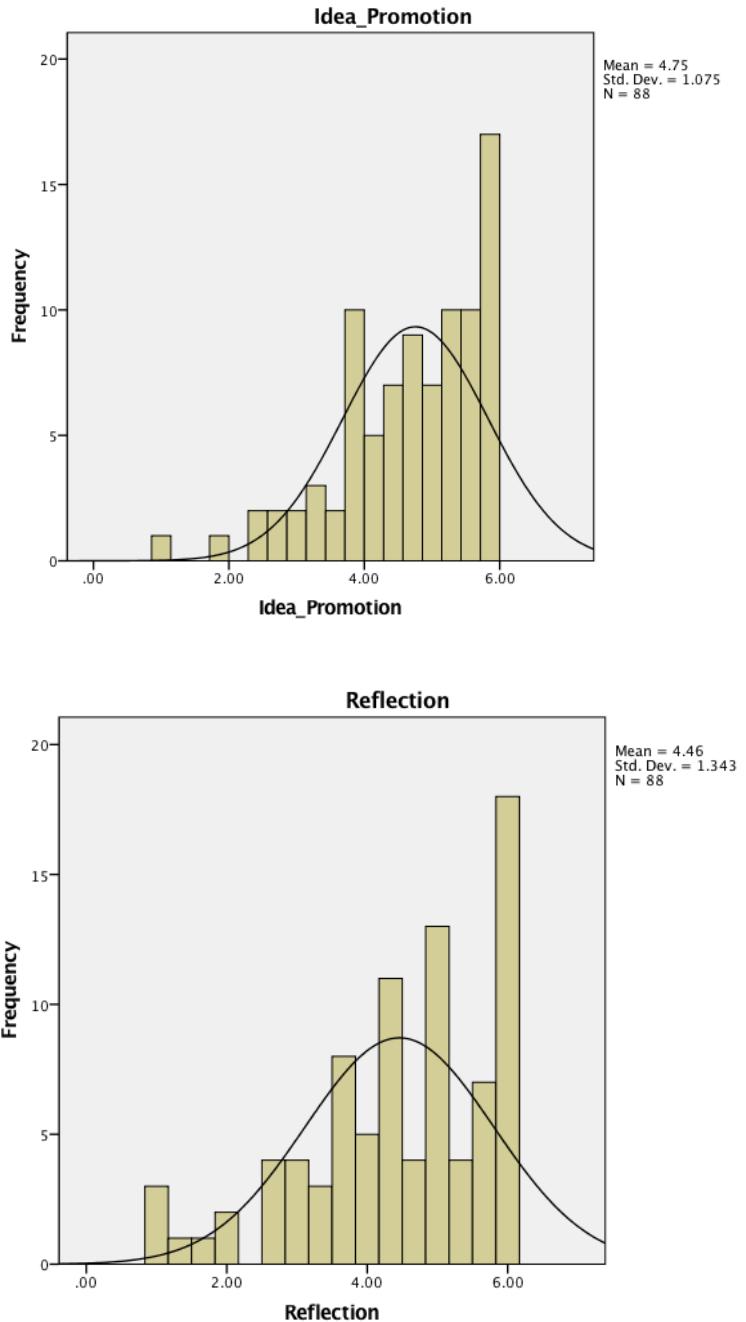
Appendix H.

Histogram: Distribution for All Variables



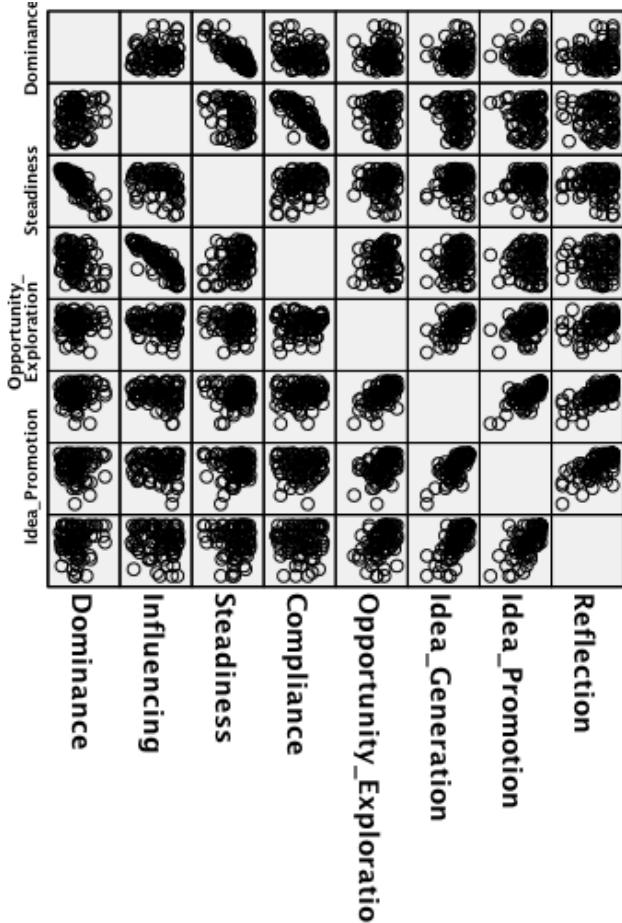




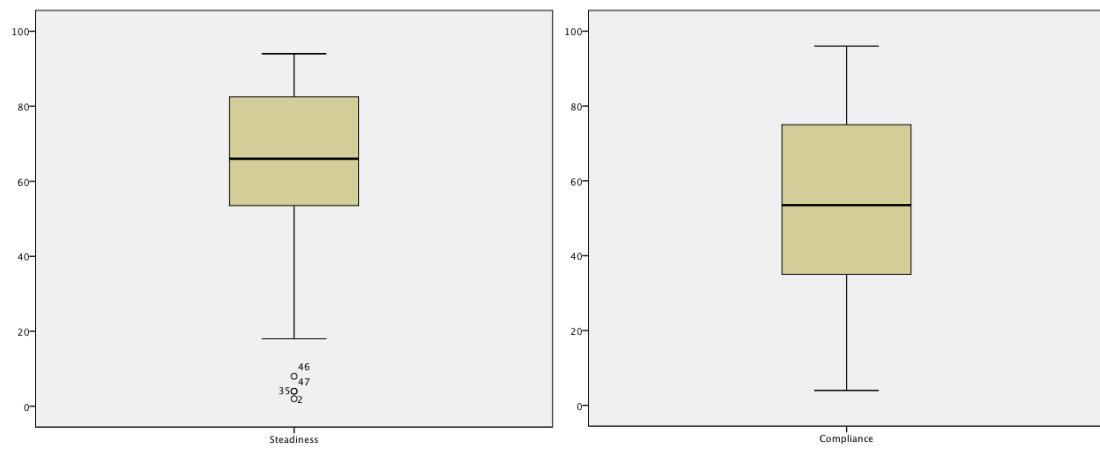
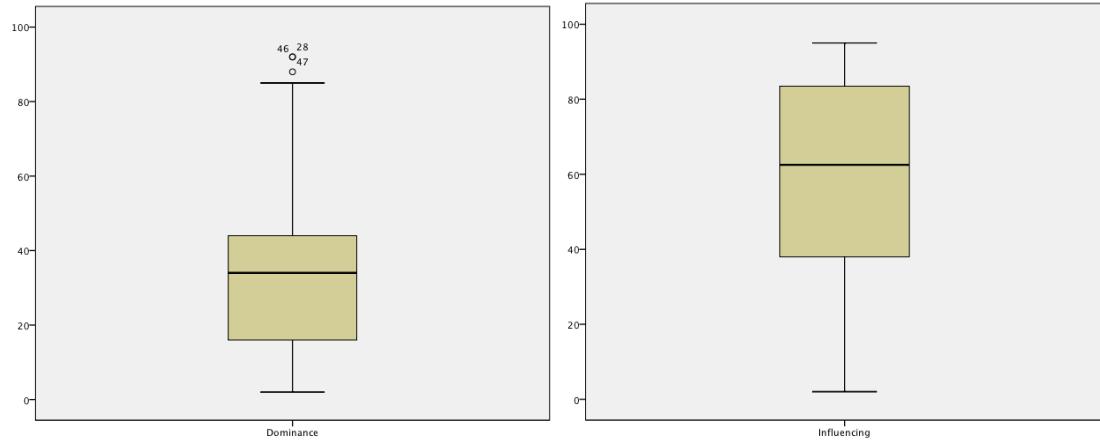


Appendix I.

Scatterplots for Linearity Assumption



Box Plots



Appendix J.

Test of Normality and Q-Q Plots

	Tests of Normality					
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Dominance	0.127	88	0.001	0.944	88	0.001
Influencing	0.103	88	0.022	0.927	88	0.000
Steadiness	0.131	88	0.001	0.917	88	0.000
Compliance	0.086	88	0.138	0.958	88	0.006
Opportunity Exploration	0.154	88	0.000	0.944	88	0.001
Idea Generation	0.094	88	0.054	0.939	88	0.000
Idea Promotion	0.123	88	0.002	0.919	88	0.000
Reflection	0.134	88	0.001	0.911	88	0.000

a. Lilliefors Significance Correction

