Spring 3-2015

A Mixed Methods Analysis on Creative Leadership and Missouri School Administrators

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Recommended Citation

Jarvis, Tiffany Lynn, "A Mixed Methods Analysis on Creative Leadership and Missouri School Administrators" (2015). *Dissertations*. 323.
https://digitalcommons.lindenwood.edu/dissertations/323

A Mixed Methods Analysis on Creative Leadership

and Missouri School Administrators

by

Tiffany Lynn Jarvis

A Dissertation submitted to the Education Faculty of Lindenwood University

in partial fulfillment of the requirements for the

degree of

Doctor of Education

School of Education

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and Missouri School Administrators

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This dissertation has been approved in partial fulfillment of the requirements for the

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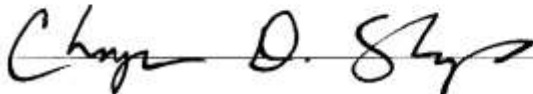
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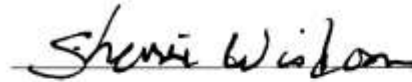
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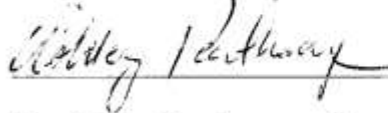
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Dr. Sherrie Wisdom, Committee Member   Date

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Dr. Ashley Deatherage, Committee Member   Date

Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work here at Lindenwood University and that I have not submitted it for any other college or university course or degree here or elsewhere.

Full Legal Name: Tiffany Lynn Jarvis

Signature: _____ Date: 3/26/15

Acknowledgements

I have dreamed of completing my doctorate since I was a little girl. The day I sat in Dr. Leavitt's office for the first time, she agreed to be my doctoral chairperson and suggested I read Robinson's (2011) *Out of Our Minds*. I was so excited that I bought it as soon as I left. Later that night I read Robinson's words: "The impossible yesterday is routine today. Wait until tomorrow" (p. 34). Today is finally here, and I cannot wait to see what tomorrow brings. Thank you, Dr. Leavitt, for holding me to high expectations and guiding me to reach them; I would never have become so interested in the topic of creative leadership without you. Thank you, Dr. Wisdom, for your clarity, patience, and enthusiasm; it was so much fun to "geek out" with you over statistics! Thank you to Dr. Sharp and Dr. Deatherage for graciously sharing your time, wisdom, and expertise. As a group of mentors, I could not have asked for better. You have helped me to complete this process, but you have also inspired me in so many ways.

I would like to thank my study participants and Lindenwood University's School of Education for allowing me the privilege of conducting this research. Thank you to Dr. Isaksen, Dr. Puccio, and Dr. Kumar for allowing me to use your research as the basis for my own. Thanks go to Kathryn Howell and Annie Coleman, my research assistants/ huntresses, who scoured the globe for every piece of literature I needed, but could not find on my own. Finally, to my husband, Steven, and my children, Samuel, Jack, Amelia, and Beatrix: I can never thank you enough for your enthusiasm, dedication, flexibility, and understanding. This was such an important journey for me, and not only did you allow me to take it, but you went along with me. I am so grateful for you, every day and always.

Abstract

In this mixed methods study, the researcher investigated whether or not Missouri school administrators were prepared to meet the creative leadership demands of the 21st century by measuring their creative capacity, creative styles, and their current creative leadership practices. A convenience sample of Missouri K-12 public school administrators and teachers completed the Abbreviated Torrance Test for Adults, the Creativity Styles Questionnaire – Revisited and an original Organizational Creativity Survey; two homogenous small focus groups discussed their experiences regarding creativity and creative leadership within school organizations.

Whereas teachers were statistically significantly more creative than the normed adult population, administrators did not stand out from the normed adult population in this study; the weak sample size and mortality effect suggested that they may have even been less creative than the data suggested. The researcher noted administrator trends toward low risk propensity, high conformity, and a deficit of creative leadership. Findings further suggested that demographic factors and career attributes such as age, gender, school level, job level, job embeddedness, and work experience were not significantly related to creative capacity. Researchers should expand upon these findings with longitudinal mixed-methods studies of larger random samples of administrators. Teachers were a wealthy source of creative performance and leadership while school administrators tended to daily managerial tasks and the political constraints of their positions. The researcher recommends that schools further investigate the creative leadership potential of teacher leaders.

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Chapter One: Introduction

Educational leaders during the 21st century faced increasingly complex problems due to the changing expectations within U.S. schools. As Ausburn, Ellis, and Washburn (2011) noted, "for several years, education—like the society it serve[d]—has stood on the strategic edge of change that [was] massive, increasing, and relentless . . . and the pace continue[d] to accelerate" (p. 21). Given this notable change in public education, school administrators were obligated to approach their leadership practices from new perspectives to remain relevant and successful (Ausburn et al., 2011; Balyer, 2012; Chirichello, 1999; Csikszentmihalyi & Wolfe, 2001; Davis, 2006; Etheridge, 2009; Jazzar & Algozzine, 2006; Morford, 2002; Morris, 1999; Robinson, 2011; Senge, Cambron-McCabe, Lucas, Smith, & Dutton, 2012). This study focused on Missouri school administrators' leadership practices and their compatibility with the expectations and needs of society in the 21st century. This chapter details the background, context, and rationale for the study, introduces the research questions and hypotheses, discusses limitations of the study, and defines the terminology used within the text.

Background of the Study/Problem

As society has evolved, so has its requirements of the education system. In a 2010 IBM survey of 1,500 CEOs, researchers identified creativity as the single-most important leadership competency. IBM's researchers concluded "more than rigor, management discipline, integrity or even vision—successfully navigating an increasing[ly] complex world will require creativity" (Tomasco, 2010, para. 1). As Jazzar and Algozzine (2006) declared, "schools of the twenty-first century will generally be one of two types: those that innovate and create and enjoy increased enrollment, and those that attempt to remain

the same. The latter will fall behind as society continues to change" (p. 175). One of the

critical issues noted in educational leadership became the need for creativity and

innovation in schools (Jazzar & Algozzine, 2006; Robinson, 2011; Senge et al., 2012).

Thus, the responsibilities of school administrators changed to meet the demands of the

21st century, which required the use of ever-stronger problem solving, change-making,

and transformational leadership skills (Lewis, Goodman, & Fandt, 1998). In short, an

increasingly complex society demanded creative leadership from its educational leaders.

Statement of Issue/Problem

To meet the needs of 21st century learners, schools required that administrators

were creative leaders (Puccio, Mance, & Murdock, 2011) who employed

transformational leadership practices (Chirichello, 1999; Sagnak, 2010; Sternberg, 2005)

and creative problem solving skills (Mumford, Zaccaro, Harding, Jacobs, & Fleishman,

2000) to establish learning organizations (Robinson, 2011; Senge et al., 2012). Goertz

(2000) asserted that "complex issues confronting school leaders today require[d]

leadership marked by high levels of creativity" (para. 2). Davis (2006) described how

"increasingly pluralistic communities, persistent achievement gaps, paper-thin fiscal

resources, grumpy labor unions and mounting pressures to leave no child behind ha[d]

principals and superintendents scrambling for cover" (p. 9). Indeed, as Davis further

claimed, school leaders were in a period of difficult transition and extended

responsibility.

Even as public school administrators encountered new challenges and

increasingly needed levels of creativity and creative leadership to remain successful,

researchers documented their lack of creative capacity and creative performance (Davis,

2006; Smith, Maehr, & Midgley, 1992; Sternberg, 2005; Walker & Quong, 1998).

Creative individuals were described as multifariously risk-taking, rule-breaking

nonconformists (Bierly, Kolodinsky, & Charette, 2009; Cropley, Kauffman, & Cropley,

2008; Gino, & Ariely, 2011; Kusa, 2006; Lyman, Ashby, & Tripses, 2005; Martinsen &

Diseth, 2011; McLaren, 1993; Pech, 2001; Walczyk, Runco, Tripp, & Smith, 2008;

Wells, Donnell, Thomas, Mills, & Miller, 2006), yet school administrators served in

positions that encouraged rule enforcement, conformity, and low risk propensity (Brown,

1970; Davis, 2006; Miskel & Wilson, 1976; Morford, 2002; Robinson, 2011; Schmidt,

Kosmoski, & Pollack, 1998; Smith et al., 1992; Staples, 2005; Sternberg, 2005; Walker

& Quong, 1998). As Goertz (2000) said, "with the rapidly changing and increasingly

complex educational challenges of today, it [was] time to find out if effective leaders

[shared] creative traits and use[d] them to accomplish their tasks" (para. 2).

Rationale/Need for Study

The topics of transformational leadership in schools (Anderson, 2008; Balyer,

2012; Chirichello, 1999; Sagnak, 2010) and creative leadership in business (Amabile,

Conti, Coon, & Lazenby, 1996; Knowles, 1990; Puccio et al., 2011) were found

throughout the literature. While many researchers recognized the importance of creative

leadership in schools, very few examined this topic within the context of school

administration. Goertz (2000) observed that "much has been written about creativity and

the creative person, as well as about leadership and the principal, but studies that

explain[ed] a relationship between creativity and leadership [were] limited" (para. 2). The

researcher was unable to find studies that measured school administrators' overall

creative capacity. The purpose of this study was to measure both administrators' creative

capacity and their creative leadership practices, as well as educators' perceptions of creative leadership, to investigate whether or not Missouri public school administrators were prepared to meet the creative leadership demands of the 21st century.

Additionally, researchers debated the impact of several key demographic factors and career attributes on individual creative performance: gender (Lyman et al., 2005; Vincent, 2009), age (Binnewies, Ohly, & Niessen, 2008; Finkelstein, Burke, & Raju, 1995; McEvoy & Cascio, 1989; Rothermund & Brandstadter, 2003; Waldman & Avolio, 1986), job level (Probst, Stewart, Gruys, & Tierney, 2007; Sternberg, 2005; Vincent, 2009), job embeddedness (Binnewies et al., 2008; Ng & Feldman, 2010), and work experience (Amabile et al, 1996; Binnewies et al., 2008; Ohly, Sonnentag, & Pluntke, 2006; Smith et al., 1992; Sternberg, 2005; Weisberg, 1999). None of the studies examined specifically at the impact of these demographics on school administrators or educational leaders. Furthermore, the few studies that looked specifically at school administrators and the effects of job level and job-embeddedness were either tangentially related or conflicted with other works (Greenfield, 1985; Morford, 2002; Schmidt et al., 1998; Smith et al., 1992; Staples, 2005). The literature lacked studies on the potential difference in administrators' creative performance based on their school's level, elementary, middle, or secondary. The researcher sought to clarify whether any of the aforementioned demographic factors and career attributes affected creative potential or creative performance among Missouri public school administrators.

Purpose of the Dissertation

The purpose of this study was to investigate whether Missouri public school administrators were prepared to meet the creative leadership demands of the 21st century.

To determine the extent to which Missouri school administrators were performing as

creative leaders, the researcher measured administrators' creative capacity using the

Abbreviated Torrance Test for Adults (ATTA) (Kim, 2006), administrators' self-

perceptions of their creativity using the Creativity Styles Questionnaire-Revised (CSQ-R)

(Kumar, Kemmler, & Holman, 1997), and administrators' self-perceptions of their

creative performance and organizational climate as evidence of their creative leadership

behaviors using a creative climate survey (CCS) based on Ekvall's (1996) climate

dimensions and the Situational Outlook Questionnaire™ (SOQ) (Isaksen, Lauer, Ekvall,

& Britz, 2000). The researcher included questions regarding rule-breaking and risk-taking

to address Lyman et al.'s (2005) assertions of creative insubordination to ascertain

Missouri public school administrators' risk propensity. Additionally, the researcher

sought to clarify which, if any, demographic factors and career attributes (age, gender,

school level, job level, job embeddedness, and work experience) affected creative

leadership performance by comparing participants' mean ATTA, CSQ-R, and CCS

scores. Finally, the researcher conducted two small focus groups (one of teachers and one

of administrators) to obtain additional information about participants' perceptions of

creativity and creative climate within their organizations. Using mixed-methods analysis,

the researcher's goal was to provide an accurate picture of the state of Missouri public

schools and their administrators' preparedness to meet the creative leadership demands of

the 21st century.

Context

The researcher focused on the state of Missouri, and specifically administrators of

public K-12 schools. According to the National Assessment of Educational Progress

(NAEP), the state of Missouri scored within 10 points of the United States' average on

every scale score in Grade 4 and Grade 8 for the years 2002, 2007, 2009, and 2011 (State

education data profiles, 2014). Missouri's average placement by NAEP indicated that

Missouri schools may be an accurate reflection of the rest of the country. The educators

surveyed in this study represented elementary and secondary urban, suburban, and rural

schools, as defined by the NCES (National Center for Education Statistics [NCES],

2006).

Research Hypotheses

Hypothesis 1: There will be a difference between the creative capacity of

educators and the normed population, measured by the ATTA.

Hypothesis 2: There will be a difference between the creative capacity of teachers

and the normed population, measured by the ATTA.

Hypothesis 3: There will be a difference between the creative capacity of school

administrators and the normed population, measured by the ATTA.

Hypothesis 4: There will be a difference between the creative capacity of school

administrators and teachers in this study, measured by the ATTA.

Hypothesis 5: There will be a relationship between participants' creativity index

scores on the ATTA and their creative capacity scores as measured by the CSQ-R.

Hypothesis 6: There will be a relationship between participants' creativity index

scores on the ATTA and their perceptions of risk-taking in their organizations as

measured by the CCS.

Hypothesis 7: There will be a relationship between participants' creativity index scores on the ATTA and their perceptions of rule-breaking in their organizations as measured by the CCS.

Hypothesis 8: There will be a relationship between participants' creative capacity scores on the CSQ-R and their perceptions of risk-taking in their organizations as measured by the CCS.

Hypothesis 9: There will be a relationship between participants' creative capacity scores on the CSQ-R and their perceptions of rule-breaking in their organizations as measured by the CCS.

Hypothesis 10: There will be a relationship between school administrators' creativity index scores on the ATTA and age.

Hypothesis 11: There will be a relationship between school administrators' creativity index scores on the ATTA and gender.

Hypothesis 12: There will be a relationship between school administrators' creativity index scores on the ATTA and levels of education.

Hypothesis 13: There will be a relationship between school administrators' creativity index scores on the ATTA and school levels (elementary, middle, secondary).

Hypothesis 14: There will be a relationship between school administrators' creativity index scores on the ATTA and years of work experience as educators.

Hypothesis 15: There will be a relationship between school administrators' creativity index scores on the ATTA and years of service within the current district of employment.

Hypothesis 16: There will be a relationship between school administrators' creativity index scores on the ATTA and years of work experience as administrators.

Hypothesis 17: There will be a relationship between school administrators' CSQ-R subscale scores (belief in unconscious processes, use of techniques, use of other people, superstition, environmental control, and the use of senses) and their demographic information (age, gender, level of education) or career attributes (school level, years of work experience as educators, years of work experience as administrators, years of service within the current district of employment).

Research Questions

RQ 1: What, if any, patterns emerge when comparing responses regarding teachers' and administrators' perceptions of educator creativity and creative leadership?

RQ 2: Do educators perceive a change in their creative performance over time? If so, how? To what do they attribute this potential change?

RQ 3: What are administrators' attitudes toward multifarious nonconformity, risk-taking, and rule-breaking?

Limitations

The researcher identified a number of limitations within this study; several of which were due to a lack of participation. The study involved 41 total participants: 17 school administrators and 24 teachers. However, for experimental and causal-comparative studies, Fraenkel, Wallen, and Hyun (2011) "recommend[ed] a minimum of 30 individuals per group . . . studies using only 15 subjects per group should probably be replicated, however, before too much [was] made of any findings" (p. 103). They also called for four to eight participants in small focus groups; the researcher interviewed a

group of three and a group of four. Small sample sizes were less likely to provide a generalizable picture of an entire population.

Another limitation concerned the use of a convenience sample when mortality rendered the researcher's attempt at a stratified random sample untenable. The participants in the study were volunteers, 10 of whom were acquainted with the researcher. This change in the study's design may have created a potential bias among the researcher and/or some of the participants. To mitigate this bias, the researcher assigned an identification number at random for each participant and coded their responses accordingly. However, the participants' potential bias was not addressed, nor was the use of volunteer participants, which may have caused an unintentional limitation to the generalizability of the results. One of the disadvantages of a convenience sample was "because the total population [was] composed of both volunteers and non-volunteers, the results of the study based solely on volunteers [were] not likely generalizable to the entire population" (Gay, Mills, & Airasian, 2009, p. 134). Fraenkel et al. (2011) suggested that when convenience samples were used, "generalization [was] made more plausible if data [were] presented to show that the sample [was] representative of the intended population on at least some relevant variables" (p. 104). Several relevant variables fit this description: gender, age, experience. However the racial homogeneity of the group was problematic. Despite several reminders and contact attempts, 33 individual participants did not complete all three of the instruments. Their results were omitted from the group findings. This had the additional adverse effect of limiting the study's diversity; while the researcher originally had volunteers from every ethnic category, only one race

(Caucasian) was represented by the final analysis. Thus, the study has limited

generalization capabilities.

Another series of limitations of this study involved the instrumentation. The

researcher used the composite creativity index scores from the ATTA. Torrance

cautioned that using the composite score was misleading because the subscale scores for

fluency, flexibility, originality, and elaboration were all independently important (Kim,

Crammond, & Bandalos, 2006; Torrance, 1993). As this was not how the tests were

generally interpreted (Baer, 2011), and because this study examined overall creative

capacity, the researcher elected to use the creativity index scores in lieu of the subscale

scores. Moreover, participants took the ATTA in an unregulated environment. They

received their test booklet in the mail, along with written instructions for self-

administration. They were entrusted to time their sessions and then returned their

booklets via mail to the researcher. Participants were asked to abide by assessment

protocol: do not read the prompt ahead of time, stop at the end of the time limit, test in a

quiet area, do not stop in the middle of the test and come back. There was no way of

knowing whether participants actually followed instructions. This limited strength of

study results, because the researcher had no way of normalizing the environment or the

assessment. Goff and Torrance (2002) allowed for self-administration of the TTCT, but

they cautioned "it [was] possible to self-administer; however, the three-minute limit per

activity must be strictly followed in order to utilize the normative-based interpretations

(p. 1). As results were completely confidential and participants were offered a copy of

their personal results upon the study's completion, the researcher assumed most

participants would be honest and responsible stewards of the assessment, based on

Knowles' (1990) assumptions of the adult learner.

Definition of Terms

Abbreviated Torrance Test for Adults (ATTA): A brief version of the

Torrance Test for Creativity for adult testers (Goff & Torrance, 2002).

Creative Leadership: Puccio et al. (2011) defined creative leadership as

purposely using imagination to create a new goal and guide a group towards that goal.

"As a consequence of bringing about this creative change, a creative leader has a

profoundly positive influence on his or her context . . . the individuals in that situation,

and the environment in which they collaborate" (p. xviii). While the researcher

acknowledges other definitions of creativity, for the purposes of this study the researcher

focused on the application of creativity to the fields of education and leadership.

Creative Insubordination: Lyman et al., (2005) defined creative insubordination

as a "counter-bureaucratic approach to decision making that bends and/or ignores rules

and otherwise subverts the authority of the chain of command when such subversion is

justified by the greater authority of personal values, service to students, and common

sense" (p. 63).

Creativity: The production of original ideas, solutions, or products that are

valuable to the present situation (Amabile et al., 1996). "Creativity includes finding

innovative ways of solving problems, making novel associations between existing ideas,

and producing original contributions of music, art, or literature, among other things"

(Byron & Khazanchi, 2012, p. 810). Creativity manifests as contributions to a particular

domain that are recognized and accepted by other members of the same field

(Csikszentmihalyi, 1997).

Creativity Styles Questionnaire – Revised (CSQ-R): A questionnaire

instrument revised by Kumaret et al., (1997) that measured "beliefs about and strategies

for going about being creative" (p. 51).

Educators: For the purpose of this study educators are defined as certified

individuals currently working in a public school system in the United States, including

teachers, librarians, counselors, reading specialists, assistant principals, and principals.

Faculty: For the purpose of this study faculty is defined as Missouri certified

educators (teachers, librarians, counselors, reading specialists, and assistant principals),

whose daily operations are supervised by the Missouri School Administrator (building-

level principal).

General Population: For the purpose of this study general population refers to

Goff and Torrance's (2002) accumulated scores based on 249 adults, ranging in age from

19 to 89 and representing a variety of career fields and life stages, who completed the test

before 2000.

Innovation: "The successful implementation of creative ideas within an

organization" (Amabile et al., 1996, p. 1154). For the purposes of educational research,

"innovation is, therefore, the introduction of new and improved ways of doing things in a

school" (Audet, 2012, p. 5).

Job embeddedness: refers to a "person-organization fit, links with colleagues

and work activities, and sacrifices associated with potential employment changes" (Ng &

Feldman, 2010, p. 1067). An employee with high job embeddedness fits well within his

or her organization, has a strong working relationship with colleagues, remains highly engaged in his or her work, and sacrifices higher salary or other positive benefits in order to remain with their current organization (Ng & Feldman, 2010).

Job Level: refers to one's position relative to his or her superiors and direct reports; it is his or her place in the hierarchy or organizational chart of an organization (Binnewies et al., 2008; Ng & Feldman, 2010). For the purpose of this study, the two job levels in question are 'school administrator' and 'faculty member.'

Learning Organization: a system "that has an enhanced capacity to learn, adapt, and change . . . in which learning processes are analyzed, monitored, developed, managed, and aligned with improvement and innovation goals" (Gephart, Marsick, Van Buren, & Spiro, 1996, p. 36)

Missouri School Administrator: For the purpose of this study, the term 'Missouri School Administrator' refers to a certified building-level principal of a public school within the state of Missouri.

Multifarious Nonconformity: Intentionally disregarding social expectations and rejecting typical behaviors of one's peers in order to solve problems or express oneself (Runco, 2014) in a manner that has "both positive and negative moral aspects" (Walczyk et al., 2008, p. 337).

Organizational Climate: Organizational climate is an aggregation of individuals' perceptions about the "recurring patterns of behavior, attitudes, and feelings that characterize life in [an] organization" (Isaksen et al., 2000, p. 172). Additionally, Runco (2014) cited Ekvall and Ryhammer's (1999) definition of organizational climate as "the

interplay of institutional policies, goals, strategies, tasks, workload, resources, technology, and . . . staff" (p. 156).

Problem Solving: "in its broadest sense . . . [is] what exists when there is a gap between what you have and what you want" (Puccio et al., 2011, p. 43). Problems can be clearly-defined or ambiguous, simple or complex, recurring or entirely novel. Problem solving is the implementation of a plan to close the gap. "Solving implies finding answers or resolutions to situations, but it also encompasses everything involved in looking for or refining those answers" (Puccio et al., 2011, p. 44).

Risk Propensity: refers to an individual's likelihood to take or avoid risk. (Sitkin & Weingart, 1995).

Risk-Taking: requires "tolerance of uncertainty and ambiguity in the workplace" and frequently involves taking initiative "even when the outcomes are unknown" (Isaksen et al., 2000, p. 175).

Rule-Breaking: Pushing or violating boundaries established within an organization or system, though not necessarily for nefarious or unethical purposes (Baucus, Norton, Baucus, & Human, 2008; Bierly et al., 2009; Lyman et al., 2005; Mumford et al., 2010).

School Level: Public schools in the United States are divided by the grade levels they serve; "primary schools are called *elementary schools*, intermediate (upper primary or lower secondary) schools are called *middle schools*, and secondary schools are called *high schools*" (International Affairs Office, 2008, para. 4). For the purpose of this study the researcher chose to divide teachers into early childhood (pre-K), elementary (K-5), middle (6-8), and high school (9-12).

Torrance Tests of Creative Thinking (TTCT): A series of standardized psychometric evaluations that measure individuals' creative capacity (Goff & Torrance, 2002; Runco, 2014). They can be administered to individuals or groups from kindergarten through adulthood (Kim, 2006).

Transformational Leadership: A method of leadership that creates lasting improvement within an organization, transformational leadership focuses on establishing a collaborative climate wherein members are challenged, empowered, and inspired to increase their performance, motivation, and engagement in order to effect substantive change (Balyer, 2012; Bass, Avolio, & Atwater, 1996; Chirichello, 1999).

Summary

Educational leaders in the 21st century have faced complex problems due to the increased demand of high expectations for all schools; a trend that will continue. In order to succeed, school administrators became creative leaders (Puccio et al., 2011), who practiced transformational leadership (Chirichello, 1999; Sagnak, 2010; Sternberg, 2005) and creative problem solving (Mumford et al., 2000) to establish and maintain learning organizations (Robinson, 2011; Senge et al., 2012). Researchers reported that school administrators lacked the risk propensity, creative capacity, and creative performance (Davis, 2006; Smith et al., 1992; Sternberg, 2005; Walker & Quong, 1998) necessary for creative leadership, yet the researcher was unable to find studies that measured school administrators' overall creative capacity.

The researcher sought to clarify this disparity by focusing on public school administrators in Missouri, a state whose schools reflected the national average according to the National Assessment of Educational Progress (State education data profiles, 2014).

The purpose of this study was to use mixed methods to measure both administrators'

creative capacity and their current creative leadership practices, as well as any

demographic factor or career attribute (age, gender, school level, job level, job

embeddedness, or work experience) patterns, to investigate whether or not Missouri

public school administrators were prepared to meet the creative leadership demands of

the 21st century. This chapter detailed the background, context, and rationale for the

study, introduced the research questions and hypotheses, discussed the study's

limitations, and defined the terminology used within the text. The next chapter reviews

the existing literature on the topics of creativity, creative leadership, effective school

leadership in the 21st century, and administrators' obstacles to achieving effective

creative school leadership.

Chapter Two: The Literature Review

Educators, policy makers, and business leaders noted throughout the literature the need for schools to adapt and develop learners equipped with the skills and strategies necessary to succeed in the 21st century. Anson (1992) found that societal expectations and assumptions were changing rapidly worldwide, which increased pressure and the demands for change to the education system. These findings were replicated in nearly every study the researcher located; the vast consensus was that the public school system was in dire need of broad, sustained reforms on every level (Audet, 2012; Ausburn et al., 2011; Balyer, 2012; Bowen, Ware, Rose, & Powers, 2007; Cash, 1997; Chirichello, 1999; Csikszentmihalyi & Wolfe, 2001; Davis, 2006; Goertz, 2000; Jazzar & Algozzine, 2006; Landis, 2009; Lyman et al., 2005; Morris, 1999; Robinson, 2011; Sabah & Orthner, 2007; Senge et al., 2012; Sternberg, 2005; Walker & Quong, 1998). Anson (1992) further noted that school reform was primarily the responsibility of education leaders, who would "have the opportunity to truly shape the education system of the future" (p. 303).

School administrators, particularly building principals, were described as profoundly important to school reform. "School effectiveness literature consistently highlight[ed] the importance of the principal in providing effective leadership and supportive management . . . effective schools apparently have effective leaders" (Smith et al., 1992, p. 111). Smith et al.'s (1992) work described the impact an effective principal could make, but also how poorly schools functioned without an effective principal. The key to effective school reform leadership, what made the most effective principals successful, was their creativity—more specifically, their creative leadership (Jazzar &

Algozzine, 2006; Puccio et al., 2011; Senge et al., 2012; Sternberg, 2005). In order to better understand how schools could meet the needs of 21st century learners, this chapter details the literature review, focused on creative leadership as the key to effective school reform. The researcher examined literature, current at the time of writing, on the nature of creativity, the components of creative leadership, the practices of effective 21st century school administrators, and school administrators' obstacles to practicing creative leadership.

The Nature of Creativity

The idea of creativity has fascinated people for thousands of years. Even in modern times, much of what people believed about creativity was firmly entrenched in mythology and magical thinking (Sternberg & Lubart, 1999). Researchers, attempting to demystify the process of creativity, determined that creativity was the production of original ideas, solutions, or products valuable to the present situation (Amabile et al., 1996). "Creativity include[d] finding innovative ways of solving problems, making novel associations between existing ideas, and producing original contributions of music, art, or literature, among other things" (Byron & Khazanchi, 2012, p. 810). The nature of creative performance was not linear; According to Runco (2014), "almost everything about creativity involve[d] an optimum of some sort. There [were] many influences on creativity, such as divergent thinking, but only so much actually contribute[d]" (p. 8). This theme was ubiquitous in the literature: creativity could be described as improved, increased, and enhanced, but only to a certain point, after which levels decreased (Amabile, 1988; Csikszentmihalyi, 1997; Puccio et al., 2011; Runco, 2014; Sternberg & Lubart, 1999).

The Creative Process. Many scholars argued that the foundation of creativity was divergent thinking, the process of gathering information and patterns from a variety of sources and connecting them in novel or unusual ways (Probst et al., 2007) to solve open-ended, ill-defined problems (Benedek, Konen, & Neubauer, 2012). While divergent thinking was a complex process that involved flexibility, originality, fluency, and critical thinking, it could not be considered synonymous with creativity (Runco, 2008). Creativity was referenced in the literature as more than just idea generation or divergent thinking, because it manifested as contributions to particular domains recognized and accepted by other members of the same field (Csikszentmihalyi, 1997). Runco (2008) insisted that divergent thinking was only one type of creative cognition, like insight or hypothesis generation, and that the process that linked divergent thinking to creativity was evaluation, wherein the individual decided whether an original idea was actually an effective one. Runco (2008) further explained that "originality [was] not sufficient for creativity. Creative things of all sorts, be they ideas, solutions, products, inventions, whatever, are both original and effective" (p. 93). Others argued that self-evaluation was not enough to establish creativity, and that truly creative ideas were particularly dependent upon a relationship with an audience (Figure 1) because creativity "cannot be recognized except as it operates within a system of cultural rules, and it cannot bring forth anything new unless it can enlist the support of experts" (Csikszentmihalyi & Wolfe, 2001, p. 91). Ultimately, the relationship between divergent thinking and creativity was close and interdependent, but not synonymous (Runco, 2014).
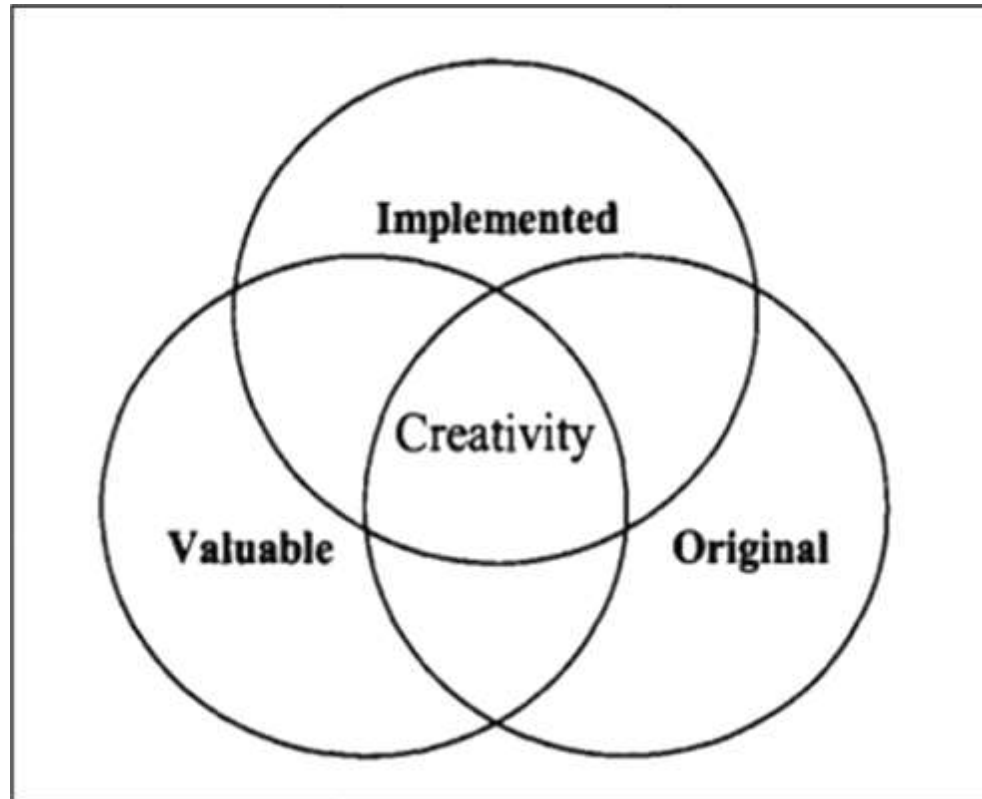
Figure 1. General model of creativity. Csikszentmihalyi and Wolfe's
General Model of Creativity illustrated how original ideas must be
valuable and implemented before being considered creative. Originally
published in International Handbook of Giftedness and Talent,
Csikszentmihalyi and Wolfe, p. 81. © Elsevier (2001). Used with
permission (Appendix A).

The notion of problem solving as an extension of creativity was noted throughout

the literature. Torrance (1993), as cited in Zhang and Sternberg (2011) described

creativity as an internal, problem-solving process. Torrance's (1993) linear process model

was similar to the scientific method: identifying a problem, formulating hypotheses about

the problem, evaluating and testing those hypotheses, revising as needed, and

communicating the results. Similarly, Csikszentmihalyi's (1997) creative process model

also focused on problem-solving and included a non-linear set of stages through which

individuals moved back and forth as necessary (Mainemelis, 2010). Csikszentmihalyi's

(1997) creative process model stages were: preparation (finding oneself immersed in an

intriguing problem), incubation (information is processed consciously and/or sub-

consciously), insight (new insights emerge and ideas form), evaluation (deciding whether

or not the insight is valuable or worthwhile), and elaboration (implementing and refining

the insight as needed). Runco (2014) described the scholarly debate about creativity and

problem solving: whether creativity was a form of problem solving, problem solving was

a form of creativity, or if the two were only occasionally dependent upon one another. He

concluded "with a necessary ambiguity: creativity is sometimes a form of problem

solving, but sometimes not" (p. 16).

Some problems, particularly novel, complex, or open-ended problems, required

creativity to solve (Mumford et al., 2000). Runco (2014) maintained that some creative

acts were expressions without problems, but Csikszentmihalyi's (2007) argument was

based on a slightly different definition of the word 'problem'; he viewed art, for example,

as the 'problem' of self-expression. Nevertheless, the relationship between creativity and

problem-solving, and the necessity of both skills in organizational leaders, was widely

acknowledged throughout the literature (Amabile, 1988; Benedek et. al, 2012; Mumford

et al., 2000; Robinson, 2011; Runco, 2014; Senge et al., 2012). The literature review

focused on creativity within the context of creative leadership and school reform. The

model most applicable for understanding the nature of creativity and creative leadership

was Puccio et al.'s (2011) Creative Change Model (Figure 2), which considered the role

of leadership on the creative process.
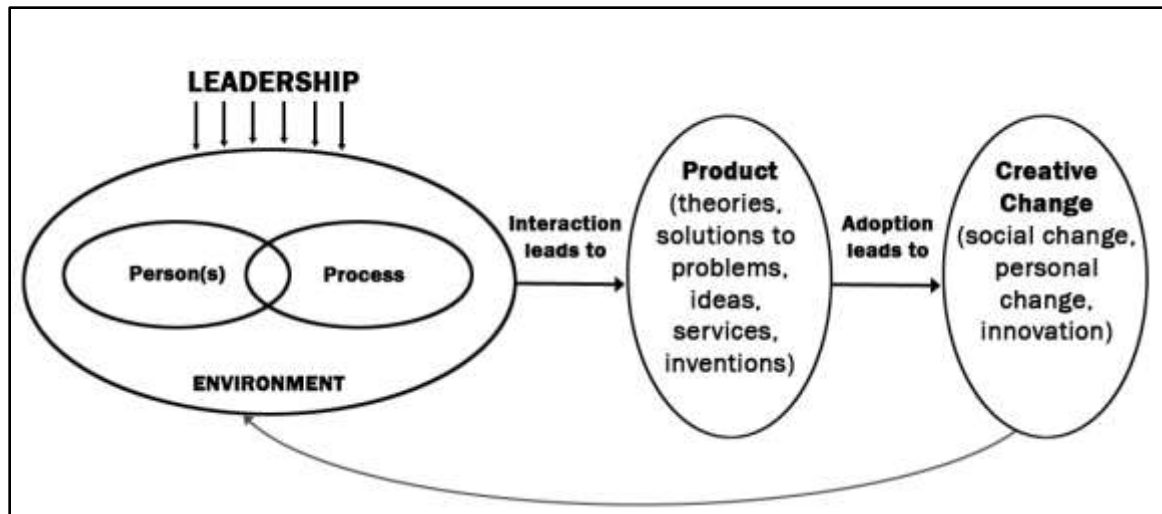
Figure 2. Creative change model. The Creative Change Model demonstrated how leadership affects creative change within an organization. © Puccio et al. (2011). Source: Creative Leadership: Skills that Drive Change (2nd ed.). Thousand Oaks, CA: Sage. Adapted with permission (Appendix A).

Puccio et al.'s (2011) Creative Change Model (Figure 2) was a systems model comprised of four distinct facets: person(s), process, environment, and product. The first facet in this system was person(s), who employed individual skills, personality, knowledge, experience, and motivation (Puccio et al., 2011). The second facet, process, referred to the actual thoughts and ideas generated by the person(s). "The quality of the process often, as also [was] the case for the person(s) facet, [had] a direct impact on the quality of the product produced" (p. 25). The third facet, the environment, encompassed the settings, cultures, climates, and surroundings that influenced the person(s) and process, either stimulating or inhibiting them. In Puccio et al.'s model, leadership impacted the first three components. It was "the lubricant that [allowed] the other elements to effectively interact or, in some cases, not" (p. 27). Finally, the product was an idea, action, solution, thought, invention, or creation that was the direct result of the person(s), process, and environment (Puccio et al., 2011). When the culmination of that system's efforts was both successfully implemented and recognized as innovative by an

audience of peers or experts in the same field, the results were then considered creative

change (Puccio et al., 2011). As leadership was the essential component in the Creative

Change Model, the researcher investigated the nature of creative individuals as well.

The Creative Individual. Researchers observed a number of personal

characteristics frequently associated with high creative performance. In general, the

creative personality was described as 'a constellation and complex,' complicated and

frequently paradoxical (Runco, 2014). For example, one of the most oft-considered

characteristics of creative individuals was the stereotype of the "mad creative genius"

who was at least "eccentric and weird," and at most "insane" (Runco, 2014, p. 173).

Researchers noted among creative individuals a significantly higher occurrence of mood

and affective disorders, depression, psychosis, anxiety, schizophrenia, and substance

abuse (Gino & Ariely, 2011; Lehrer, 2012; Lin, Hsu, Chen, & Wang, 2012; Mainemelis,

2010; Runco, 2014; Sternberg & Lubart, 1999; Wells et al., 2006). Whether creativity

was a byproduct, impetus, or colleague of mental illness, a degree of emotional instability

was frequently noted. Paradoxically, many researchers also observed ways in which

creativity could be advantageous to mental health (Gino & Ariely, 2011; Mainemelis,

2010; Pennebaker & Seagal, 1999; Runco, 2014). One way in which creativity improved

individuals' mental health was by providing the ability to adapt to new circumstances and

express one's emotions (Runco, 2014). Additionally, Pennebaker and Seagal (1999)

reported a decrease in illness associated with creative activity. As with much of the

literature, the researcher found studies on relationships between creativity and mental

health presented ambiguity and complexity.

The concept of optimum influence on creativity was abundant in the literature about creative individuals' personalities (Kim, 2006; Runco, 2014). Intelligence, for example, was described as a key component of creativity; according to Runco (2014), "No one who [was] creative [was] dumb" (p. 93). Yet at extreme levels of intelligence, creativity levels decreased significantly; Kim (2006) cited the threshold theory, which explained that creativity and intelligence were most closely related at lower levels. Kim (2006) and Runco (2014) both found that creativity had an optimum intelligence, after which additional intelligence was no longer effective in increasing creative performance.

Nonconformity and Risk Propensity. Though creativity partially depended upon intellect, researchers determined "an individual with the intellectual skills for creativity but without the other personal attributes [was] unlikely to do creative work" (Sternberg, 2005, p. 252). Deviance, for example, was an inherently necessary trait of creative people, since creativity required a break from the status quo (Mainemelis, 2010). Runco (2014) described creativity as "inherently original and as such require[d] some kind of unconventional behavior" (p. 261). Perhaps the two most commonly cited characteristics of creative people were multifarious nonconformity and high risk propensity (Cropley et al., 2008; Kusa, 2006; McLaren, 1993; Pech, 2001; Runco, 2014; Walczyk et al., 2008; Wells et al., 2006). Similarly, creative people were frequently described as risk-takers and rule-breakers (Bierly et al., 2009; Gino, & Ariely, 2011; Lyman et al., 2005; Martinsen & Diseth, 2011), two main components of multifarious deviancy (Mainemelis, 2010). Runco (2014) suggested that creative individuals' nonconformist behavior was "why creative individuals are not always universally admired" (p. 274). Creativity was inherently a risk-taking venture, because when new ideas were introduced, they were

often perceived as abnormal, risky, unnecessary, or implausible, then summarily rejected (Mainemelis, 2010; Sternberg, 2005).

Scholars frequently debated whether these deviant characteristics were inherited or learned. Sternberg's (2005) research indicated that creativity was equal parts of ability and attitude. He noted "creativity [was] often obvious in young children, but it [was] harder to find in older children and adults because their creative potential has been suppressed by a society that encourages intellectual conformity" (p. 229). Thus, conformity was considered the antithesis of creativity. Nonconformity and risk propensity, whether innate or learned, were both considered by researchers to be necessary to creative performance (Bierly et al., 2008; Cropley et al., 2008; Kusa, 2006; Lyman et al., 2005; Mumford et al., 2000; Pech, 2001; Walczyk et al., 2008; Wells et al., 2006).

While nonconformity was widely accepted as a necessary trait of creative individuals (Runco, 2014), the researcher found scholarly debate about the relationship between several key individual factors (both demographic and career-related) and individual creative performance. These included gender (Lyman et al., 2005; Stoltzfus, Nibbelink, Vredenburg, & Thyrum, 2011; Vincent, 2009), age (Binnewies et al., 2008; Finkelstein et al., 1995; McEvoy & Cascio, 1989; Rothermund & Brandstadter, 2003; Waldman & Avolio, 1986), job level (Probst et al., 2007; Sternberg, 2005; Vincent, 2009), job-embeddedness (Binnewies et al., 2008; Ng & Feldman, 2010), and work experience (Amabile, 1988; Ford & Gioia, 2000; Gilson & Shalley, 2004; Weisberg, 1999; Woodman, Sawyer, & Griffin, 1993). The researcher was unable to find any literature documenting a relationship between school level (elementary or secondary) and

creative capacity. Of the researchers listed in this paragraph, none investigated the relationship between these individual factors and individual creative performance with a specific focus on school administrators or educational leaders. The few studies that examined specifically school administrators and career attributes were either tangentially related or conflicted with other works (Morford, 2002; Schmidt et al., 1998; Smith et al., 1992; Staples, 2005). The researcher was unable to find substantial consensus among these studies.

    Gender. The relationship between gender and creativity was found to be inconclusive. Kinai (2013) cited Tucker's (1996) findings that women had a higher average creative aptitude than men, but female students were less likely to be identified as creative. Kinai's own results refuted these findings and indicated there was no relationship between creativity and gender. Kinai's results were supported by Vincent's (2009), which found no statistically significant relationship between gender and creative styles. Yet Vincent's results were contradicted in a Taiwanese study of gender and creativity, in which women performed better at divergent thinking measures, while men were better at problem solving measures (Lin et al., 2012). Stoltzfus et al. (2011) suggested the discrepancies might have been due to potential cultural implications, as these studies took place in different countries. In their study of undergraduate students, Stoltzfus et al. found that androgynous individuals and individuals with nonconforming gender roles (such as transgendered people) were more creative than students with conforming (cis-gender) gender roles. That result supported research on multifarious nonconformity; people who were nonconforming tended to exhibit more creative behaviors.

The possible relationship between creativity and gender remained unclear, yet the researcher found evidence that female administrators may have exhibited more creative behaviors than their male counterparts. In a qualitative study of leaders and change, Lyman et al. (2005) noted that women were perhaps more likely to be uncomfortable with bureaucratic structures, and so more likely to exhibit creative behaviors to circumnavigate bureaucracy, a behavior they described as "creative insubordination" (p. 75). Their study also indicated that successful female school administrators had a higher risk propensity than their male counterparts, which aligned with researchers who asserted that risk propensity was necessary to creative performance (Cropley et al., 2008; Kusa, 2006; McLaren, 1993; Pech, 2001; Walczyk et al., 2008; Wells et al., 2006). Still, Lyman et al.'s findings regarding differences in male and female administrators did not address overall creative performance. Overall, the relationship between gender and creativity remained inconclusive and this pattern continued for every demographic the researcher studied.

Age. Other than anecdotal evidence, the researcher was unable to find enough literature to support a relationship between age and creativity. Many scholars assumed that older employees had been working longer, and were therefore more set in their routines, yet in a meta-analysis of creative research, Binnewies et al. (2008) examined widely varying findings regarding a potential relationship between length of employment, age, and creativity. Within that meta-analysis, only two studies, McEvoy and Cascio (1989) and Waldman and Avolio (1986), noted "even a slightly significant (negative) relationship" (p. 439). Similarly Kinai (2013) found no statistically significant relationship between creativity and age in a study of Kenyan educators, possibly due in

part to the complex nature of creativity. The researcher concluded that "creativity [was] not a single factor but rather a collection of different abilities, every one of which [could] be possessed in different degrees by each individual" (p. 303). Binnewies et al. (2008) also suggested there were other factors involved in the relationship between age and creativity. For example, they identified a positive relationship between age and idea creativity when employees had high job control, and a negative relationship when older employees had low job control or low support for creativity; job control and support did not affect younger employees in their study. In other words, the more advanced their age, the more sensitive employees' creative output became to environmental factors.

In a similar study, Lindauer, Orwoll, and Kelley (1997) examined the relationship between age and creative perception. They surveyed graphic artists in their 60s, 70s, and 80s and discovered among them a pattern of optimism and ongoing creative improvement. The artists reported continual efforts toward self-improvement, lifelong learning, and an increasingly positive self-perception of their work (Lindauer et al., 1997). At the end of their report they observed, "the same benefits may be found among aging artists working in other media . . . as well as to scientists, scholars, and others who continue to work on creative projects through their lives" (p. 151). While these results showed a relationship between age and perception of creativity, Lindauer et al., did not examine the relationship between age and creative performance. Overall, the inconclusive findings of these studies regarding the relationship between age and creativity suggested, to the researcher, that the relationship may potentially have depended upon additional factors, which merited further research.

Experience and Job Level. Individuals' positions within their organizations may have influenced their creative performance. Sternberg (2005) reported experts were more susceptible than novices to be set in their thinking and unable to perform creatively. "When a person believe[d] that he or she [knew] everything there [was] to know, he or she [was] unlikely to ever show truly meaningful creativity again" (p. 231). Robinson (2011) confirmed this concept, "Some people never [did] make the transition and remain[ed] resident in the old world view: their ideological comfort zone" (p. 106). According to Runco (2014), expertise had a maximum benefit to creativity, after which it hindered further insight. He concluded "specific experiences and information can either help or hinder insightful thinking . . . there [was] an optimal level of information that [helped] us think creatively, but beyond that, our thinking [became] less insightful" (p. 28). Runco's (2014) findings could explain the ambiguity of the literature regarding the possible relationship between creativity and experience.

In addition to a relationship between creativity and experience, the researcher located two studies that explored a possible relationship between creativity and job level. Vincent (2009) found evidence that "those employees with the greatest ability to model and influence behavior—those with high tenure and job level—[were] least likely to display creativity" (p. 7). These results suggested that lower job levels and less secure positions would have indicated a higher creative output. However, Probst et al., (2007) found that job insecurity was significantly related to lower creativity scores, but higher productivity. The researcher was unable to find more data to support these findings.

Job Embeddedness. Job embeddedness research was equally inconclusive. Previous studies suggested that employees who wanted to stay with an organization also

wanted to maintain the status quo (Warr, 1994; Wiersma & Bantel, 1992). However, Ng

and Feldman (2010) discovered the opposite in their longitudinal study of job

embeddedness and innovation, in which they found a significant positive relationship

between job embeddedness and innovation-related behaviors. Like Binnewies et al.

(2008), who observed a complex relationship between career attributes and creativity, Ng

and Feldman (2010) noted that "whether job embeddedness would be associated with

strengthened efforts to innovate depended on two important factors, namely, the type of

innovative behavior and the employee's career stage" (p. 1083). Due to a lack of

literature related to job embeddedness and creativity, the researcher concluded further

study was necessary.

Work Experience. Binnewies et al. (2008) discovered a similarly ambiguous

relationship between work experience and creativity. Many scholars assumed that

extensive work experience prohibited creativity because it established routines, habits,

and conventional problem solving (Anderson, De Dreu, C. K., & Nijstad, 2004; Cardinal,

2001; De Jong & Kemp, 2003; Ford & Gioia, 2000; West, 2002). Smith et al. (1992)

found that an increased number of years of experience in principals predicted an increase

in management functions and a decrease in leadership functions. They concluded that the

issue was not generational, as age did not have the same relationship. However, these

behaviors were only tangentially related to creativity.

Ohly et al. (2006) found that few researchers adequately tested their assumption

that routinization was detrimental to creative performance and that "when taking into

account that routinization spares time and cognitive resources, the negative view of

routinization for individual creativity [could] be challenged" (p. 257). Other scholars

argued that experience and domain-related skills were necessary for creative performance (Amabile, 1988; Weisberg, 1999). Ohly et al. found that routines enhanced creativity in older employees because routinization allowed employees to conserve mental resources for creative problem solving. Sternberg (2005) noted the same ambiguity of findings regarding creativity, age, and work experience. Having less experience, and therefore less knowledge, could be a double-edged sword. In some cases, expertise led to fixed viewpoints and narrow mindsets; in others, expertise led to more complicated understanding and extended knowledge about which ideas had come before (Sternberg, 2005).

Despite clear evidence and without a larger body of research to support these findings it remained unclear to the researcher whether there was a statistically significant relationship, noted within the available literature, between creativity and demographic factors like gender and age and career attributes like job level, job embeddedness, and work experience. Most importantly, "the development and display of [creativity was] a decision over which one ha[d] substantial control, not merely some kind of innate set of predispositions" (Sternberg, 2005, p. 191). As Robinson (2011) said of the choice to think differently, "Our ideas can enslave or liberate us" (p. 106). Throughout the current literature, the researcher concluded, creativity appeared to be partially a choice individuals made.

Assessing Creativity. The challenge of assessing creativity was that creativity was considered a complex series of processes and procedures, which led to a product or event that was then judged to have value; as such, creativity was difficult to standardly measure (Runco, 2014). Benedek et al. (2012) determined that the majority of

psychometric creativity tests, including the Torrance Tests of Creative Thinking (TTCT) were basically tests of divergent thinking. Some researchers proposed that "divergent thinking is the most promising candidate for the foundation of creative ability" (Silvia et al., 2008, p. 68). That proposal was supported by empirical evidence; in a longitudinal study of creativity, the TTCT, and a variety of creative activities. Researchers discovered that divergent thinking was a statistically significant predictor of a variety of creative activities (Runco, Millar, Acar, & Cramond, 2010). Runco (2008) described divergent thinking tests as estimates of potential, rather than "guaranteed creative behavior, [which was] very different from that which equate[d] divergent thinking and actual creativity" (p. 93). Other scholars debated the use of the TTCT as an accurate measure of creativity in any fashion. According to Baer (2011), the TTCT were at best a narrow assessment of divergent thinking that many people were incorrectly interpreting. Baer added, "the ways the Torrance Tests [were] being used cause[d] false research outcomes and unreliable and invalid decisions" (p. 312). Kim (2006) noted the multidimensional nature of creativity and proposed using multiple assessments, rather than just one.

Some researchers proposed that self-ratings were accurate measures of creative performance and behavior. Matthew (2005) asserted that "creative people have a sense that they are creative" (p. 24). In a study of creativity and self-perception, Ng and Feldman (2012) found that employees were "more likely to be aware of the subtleties of their suggestions that make their ideas creative" and that they were also "better able than supervisors and peers to judge the extent to which new ideas are fundamentally or incrementally creative within the work context" (pp. 1022-1023). They further noted that employees were in the best position to assess the frequency of their creative behaviors,

because those behaviors were sometimes intentionally hidden from others. Runco (2008) disputed the validity of self-ratings for creativity, arguing that "people are rarely if ever good judges of their own ideas. Several investigations have most people identifying at most 30% to 40% of their original ideas correctly" (p. 94). Kim's (2006) multiple methods approach proposed combining self-ratings with standardized measures, like the TTCT, to yield more accurate results.

Creative Leadership

The field of creative leadership was relatively new. The two largest bodies of research on creative leadership came from Sternberg (2005) and Puccio et al. (2011). The latter defined creative leadership as being able to guide a group to a new goal, whose idea and direction were novel and of one's creation. "As a consequence of bringing about this creative change, a creative leader ha[d] a profoundly positive influence on his or her context . . . the individuals in that situation, and the environment in which they collaborate[d]" (Puccio et al., 2011, p. xviii).

As 21st century schools required leaders capable of bringing about creative change, it followed that 21st century schools required creative leaders. Robinson (2011) asserted "the principles of creative leadership apply in education at every level" (p. 249). Still, the concept of creative leadership in schools was something of a paradox. Mumford et al. (2000) linked creativity and leadership through divergent thinking skills, which were positively correlated with effective leadership performance. Sternberg (2005) added that creative leaders must be willing to take risks, despite the fact that most of them advanced to positions of leadership by avoiding risk and described them as courageous risk-takers who were comfortable defying the crowd until they sold their ideas. Creative

leaders tolerated ambiguity well, took sensible risks, and were willing to delay

gratification while they waited for their ideas to take hold (Lyman et al., 2005; Puccio et

al., 2011; Sternberg, 2005). Sternberg (2005) argued "there [was] a transition in the life

of every great leader. He or she need[ed] to start taking risks. It [was] important,

therefore, to select people who [were] willing to risk" (pp. 232-233). The current

literature did not address the means by which school organizations could identify

administrators who already had a high risk propensity, but leaders could increase their

risk propensity by giving themselves permission to fail and managed their emotions in

the face of failure (Puccio et al., 2011).

In addition to having high-risk propensity, creative leaders must be creative

problem-solvers who redefined problems and questioned underlying assumptions.

Educational leaders encountered many unique problems that did not fit easily into past

experiences, and "the more flexible the individual [was] in redefining these situations so

that they make sense to him or her, the more likely the individual [was] to succeed.

Flexible definition and redefinition of problems, thus, [were] essential to creativity"

(Sternberg, 2005, p. 230). Flexibility was a key component of divergent thinking, a

fundamental skill of creative problem solving (Amabile, 1988; Baucus et al., 2008;

Davis, 2006; Gino & Ariely, 2011; Runco, 2014; Torrance, 1993). Mumford et al. (2000)

insisted that effective leadership required flexibility in problem solving.

Not only did Sternberg (2005) describe creative leaders as problem-solvers and

risk-takers, he also described them as lifelong learners who recognized that the purpose

of knowledge was to improve, rather than to stagnate. Sternberg further described

creative leaders as intrinsically motivated by their passion and belief in their work and

wrote that "leaders who truly excel[led] creatively in a pursuit . . . almost always genuinely love[d] what they d[id]" (p. 234). Puccio et al. (2011) substantiated this description when they noted "creative acts [were] more likely to come about when people [were] highly motivated, particularly when they [were] passionate about their ideas or [had] great internal drive" (p. 12). Runco (2014) suggested that this motivation and passion likely allowed individuals to have "the courage to be creative" (p. 141).

According to Sternberg's (2005) research and further work by Makel and Plucker (2008), there were three types of creative educational leaders: leaders who accepted current paradigms, leaders who rejected current paradigms, and leaders who synthesized current paradigms. Leaders who accepted current paradigms were noted as minimally creative. They either replicated (did what has always been done), redefined (did what has always been done, but called it something different), participated in forward incrementing (continued the progress that was already started), or advance forward incrementing (continued the progress that was started, but moved beyond where the organization was ready for it to go) (Makel & Plucker, 2008). According to Sternberg's research, most educational leaders employed forward incrementing; they took up the reigns of those before them, without considering a new direction. The second type of creative leaders were those who rejected current paradigms and were considered the most creative group. These leaders either redirected (moved the organization in a new direction, sometimes unpredictably), reconstructed (moved the organization back to where it was, then forward in a new direction), or reinitiated (started all over again and then moved in a completely new direction) (Sternberg, 2005). The third type of creative leaders were synthesizers, who integrated multiple ideas previously unrelated, or even oppositional. Sternberg

explained that "many educational leaders [were] synthesizers, [and tried] to combine the best of the ideas currently available" (p. 240). Robinson (2011) noted similarly that "reforms almost always focus on 'improving' the existing system" (p. 50) as opposed to effecting radical change, as leaders who reject current paradigms would do (Makel & Plucker, 2008).

Organizational Climate. One of a creative leader's most important tasks was the oversight and maintenance of the organizational climate, which was the aggregate perceptions of individuals within the organization about the "recurring patterns of behavior, attitudes, and feelings that characterize[d] life in [an] organization" (Isaksen et al., 2000, p. 172). Climate included "the interplay of institutional policies, goals, strategies, tasks, workload, resources, technology, and . . . staff" (Runco, 2014, p. 156). Good leaders created an organizational climate of trust by rewarding people for taking risks, innovating, and debating, while also tolerating failure (Cash, 1997). Organizational climates that prioritized conformity naturally had lower incidences of creative performance than climates with tolerance for deviance (Mainemelis, 2010). Ekvall's 30 years of research on creativity and climate supported these findings; he developed a model of 10 climate dimensions that impact organizational change (as cited in Isaksen et al., 2000). The climate dimensions were: challenge, freedom, idea support, trust/openness, dynamism/liveliness, playfulness/humor, debate, risk-taking, idea time, and conflict (Ekvall, 1996). Each dimension contributed to employees' involvement in the complex nature of organizational change. Challenge and freedom empowered employees to invest energy and make decisions on behalf of the organization, while idea support and trust/openness allowed employees to feel safe and supported in their

participation. Dynamism/liveliness and playfulness/humor contributed to feelings of excitement and positive engagement within the organization. Debate and idea time established a culture of action and possibility, wherein employees' new ideas were integrated without hesitation, and high debate and low conflict created a diverse environment and free exchange of differing ideas without the presence of tension (Puccio et al., 2011).

The establishment of a creative organizational climate was at the heart of school reform, and school administrators played a crucial role in establishing a safe environment in which teachers felt free to take reasonable risks. Ekvall (1996) argued that "climate to a fairly large extent [was] in the hands of the manager" (p. 122). Danielson (2007) insisted that solving educational issues required a safe environment, in which teachers felt confident and safe to express ideas that might seem unusual. Creative leaders established a climate in which everyone was safe to innovate, thus maximizing the creative potential not just of themselves, but also of their faculties (Danielson, 2007; Ekvall, 1996; Puccio et al., 2011).

Effective 21st Century School Administrators

Effective school administrators within 21st century schools exhibited different characteristics than their 20th century counterparts. According to Davis (2006) schools were complex organizations that must either advance or fall behind. "There [was] no such thing as status quo anymore, because as soon as an organization [thought] it [had] a lock on success, some other organization [came] along and [did] things better" (p. 8). Yet, building principals already had a demanding list of roles and expectations: visionary, cheerleader, facilities manager, financial officer, instructional leader, coach, legal

advisor, marketing executive, and public relations specialist (Danielson, 2007). "Under such pressure from a range of sources, many administrators simply cannot devote enough time and energy to school improvement" (Danielson, 2007, pp. 15-16). Despite this extensive list of requirements, many researchers maintained that effective school leadership was possible (Goertz, 2000; Jazzar & Algozzine, 2006; Morris, 1999; Mumford et al., 2000; Sternberg, 2005). Researchers in multiple disciplines, including sociology, education, and business, called for school administrators to become creative leaders in order to orchestrate transformational leadership practices (Anderson, 2008; Balyer, 2012; Chirichello, 1999), problem solving skills (Mumford et al., 2000), and the establishment of learning organizations (Senge et al., 2012). Thus, creative leadership was potentially the key to effectively led school reform (Jazzar & Algozzine, 2006; Puccio et al., 2011; Sternberg, 2005).

Transformational Leadership Practices. Transformational Leadership was a leadership style focused on effecting change within an organization (Bass, 1990). Transformational leaders created lasting improvements by establishing a collaborative climate wherein members were challenged, empowered, and inspired to increase their performance, motivation, and engagement, in order to effect substantive change (Balyer, 2012; Bass et al., 1996). Transformational leaders were characterized as charismatic, inspirational, intellectually stimulating, and giving of individual consideration (Bass, 1990). Bass (1990) described them as "tough bosses" who were highly successful because "they frequently raise[d] standards, [took] calculated risks, and [got] others to join them in their vision of the future. Rather than work within the organizational culture, they challenge[d] and change[d] that culture" (p. 23).

As change agents, transformational leaders were "more likely to pursue any options that reject[ed] current paradigms. They [were] crowd-defiers . . . [who] revolutionize[d] ways of thinking. They change[d] the systems in which they work[ed], whether they [were] classrooms, schools, or entire school systems" (Sternberg, 2005, p. 198). Additionally, transformational leaders rewarded followers "when they appl[ied] rules in creative ways or if they br[oke] them when the overall mission of the organization [was] best served" (Bass & Avolio, 1993, p. 113). These descriptions matched many of the characteristics of creative people (nonconformity, deviance, high risk propensity), problem-solving, and divergent thinking. Puccio et al. (2011) agreed that "the qualities and behaviors associated with transformational leadership [were] rife with connections to creativity . . . this relationship position[ed] creativity as a core leadership competency" (p. 15).

Transformational leadership was considered paramount to successful school reform (Chirichello, 1999; Sagnak, 2010), so effective 21st century school administrators displayed the skills necessary to be transformational leaders. According to Bowen et al., (2007), "nothing less than a fundamental redesign of the educational system will begin to address the hurdles faced by students in succeeding at school" (p. 199). Chirichello (1999) noted that the transformational leaders involved in school reform were forces of unification in their schools and established risk-free, reduced-stress climates, inspired their faculties to adopt a common vision and a new paradigm, and supported their employees through meaningful change by acting as coaches who "inspire[d], influence[d], support[ed], create[d], problem solve[d], trust[ed], and listen[ed]" (p. 9). Bass and Avolio's (1993) research supported the idea of transformational leaders as

problem-solvers; they noted that transformational leaders sought "to foster organizational cultures that [were] hospitable and conducive to creativity, problem solving, risk taking, and experimentation" (p. 115). Since the process of change can be regarded as a problem, transformational school administrators were required, above all, to be problem solvers (Chirichello, 1999). Thus, problem solving skills were the second requirement for effective 21st century school administrators.

   Problem Solving Skills. Effective school leadership required complex problem-solving skills during times of organizational change (Matthew, 2005). Problem solving skills, according to Puccio et al., (2011), were the strategies and abilities that made up a person's ability to resolve situations. As Robinson (2011) said in an interview regarding educational leadership and creativity, "the challenges we [faced were] without precedent . . . This [was] really new, and we [were] going to need every ounce of ingenuity, imagination, and creativity to confront these problems" (as cited in Azzam, 2009, para. 10-11). The researcher believed the problems Robinson described necessitated organizational change which, in turn, required school leaders to become complex problem solvers. Since leaders often confronted novel and ill-defined problems, those problems could not "be solved simply through routine applications of extant knowledge. Instead, relevant knowledge, particularly representations derived from prior experience and knowledge of one's job, must be reshaped and reformed to generate new solutions" (Mumford et al., 2000, p. 17). Effective leaders relied on creativity to solve problems, particularly divergent thinking skills (Benedek et al., 2012; Runco, 2014; Sternberg & Lubart, 1999).

Even without the potential presence of massive school reform, Morris (1999) found that "the principal's primary role [was] to help staff members determine needs, identify problems, and find and implement solutions" (para. 11). Problem solving skills were paramount to effective school administrators even without the existence of organizational reform because "effective leadership behavior fundamentally depend[ed] upon the leader's ability to solve the kinds of complex social problems that arise in organizations" (Mumford et al., 2000, p. 11). In a study of leadership and creative problem solving, Mumford et al. (2000) determined that solving organizational leadership problems required the ability to: identify novel and complex problems that were often rapidly unfolding, understand those problems even in situations of high ambiguity, and generate feasible solutions in a time-sensitive and demanding climate while remaining sensitive to the complicated dynamics of the organization. They further noted that creative problem solving was most crucial when leaders were confronted with novel problems, because they had to adapt to the situation and create a new response. In addition, "when groups [had to] deal with novel problem scenarios, leadership [was] likely to have its greatest impact on organizational performance" (p. 14). Whether an organization was in the process of massive transformation or operating within the status quo, the literature widely acknowledged the necessity of creative problem solving skills in organizational leaders (Amabile, 1988; Benedek et. al, 2012; Mumford et al., 2000; Robinson, 2011; Runco, 2014; Senge et al., 2012).

Schools as Learning Organizations. According to Senge et al. (2012), learning organizations were best understood as an orchestration of five key learning disciplines: personal mastery, shared vision, mental models, team learning, and the overarching

discipline of systems thinking. These five disciplines allowed teachers and administrators

to "focus on individual behaviors and practices in an organization" (Park, 2008, p. 271)

and learn as a team, which resulted in better problem solving and sustained reforms in

their schools (Senge et al., 2012). Bowen et al., (2007) argued "understanding schools as

learning organizations offer[ed] the potential to unlock the creative and dynamic

processes that schools require[d] to undergo fundamental and significant change

initiatives" (p. 200). Those learning organizations affected sustainable change, both as a

strategy of school reform and as a professional development philosophy (Park, 2008).

School administrators who wanted their schools to succeed in the 21st century had to

create learning organizations that "continually learn[ed] to adjust to the evolving needs of

their students" (Sabah & Orthner, 2007, p. 243). But those efforts required more than a

student-centered approach; "it require[d] that school employees work together in new and

different ways . . . that promote and reinforce inclusiveness, collaboration, innovation,

and support for one another" (Bowen et al., 2007, p. 206). Additionally, Senge et al.

(2012) noted "schools can be made sustainably vital and creative, not by fiat or command

or by regulation or forced rankings, but by adopting a learning orientation" (p. 5).

School administrators had an obligation to create environments in which they led

learning, change, and growth. Robinson (2011) explained "the task of a creative leader

[was] to facilitate a resilient relationship between the external and internal cultures" (p.

224). Walker and Quong (1998) confirmed that school leaders majorly impacted the

organizational climate and teachers' professional development. "Principals play[ed] a

critical role in establishing norms and expectations for professional growth, developing

and maintaining organizational structures that can stimulate and support it, and brokering

the diverse opportunities for professional motivation and learning" (p. 93). Sabah and

Orthner (2007) called upon school administrators to "promote cultures and structures

within their organizations that encourage[d] the safe questioning of current practices and

the ongoing engagement of new issues that [were] not always easy to resolve" (p. 246).

These safe learning environments often extended past the school doors and into the

community. Senge et al. (2012) described schools that were learning organizations as

places where

> people who traditionally may have been suspicious of one another—parents and
>
> teachers, educators and local businesspeople, administrators and union
>
> members… students and adults—recognize[d] their common stake in each other's
>
> future and the future of their community. (p. 5)

Senge et al. (2012) maintained that one of the basic organizational elements

required for establishing a deep learning cycle was innovations in infrastructure that led

to better learning, an element which required creative educational administration. This

claim was substantiated by Goertz (2000), Puccio et al. (2011), and Robinson (2011).

Sabah and Orthner (2007) described the implementation and methodical improvement of

a new model through reflection, a process dependent upon creativity. However, the

researcher believed there were many obstacles inherent in the role of school administrator

and in the culture of schools that may have prevented such creativity and innovation.

School Administrators' Obstacles to Creative Leadership

School administrators may have faced some obstacles to creative leadership

unique to their positions as educational leaders in K-12 public schools. Few organizations

were under such scrutiny and rigorous public debate as public education (Staples, 2005).

A review of existing literature revealed several aspects of public education administration that may have inhibited creative leadership performance: a culture of conformity, a low risk propensity, high levels of bureaucracy and standardization of schools, time and budgetary constraints, political pressures, social hierarchies, and low standards in principal certification programs.

Conformity. Pressures to conform directly affected creative performance (Runco, 2014). Sternberg's (2005) creative leadership paradox, that leaders advanced because they were conformists, had particular relevance in the context of school administrators. Sternberg noted that schools emphasized the answer over the question and indicated that a good student was one who furnished the correct answers; therefore an expert in a field was thereby an extension of a good student, who memorized and regurgitated a lot of information after hearing the appropriate questions. Runco (2014) confirmed that schools harbored a "discrepancy between the creative personality and that "ideal student'" (p. 173). To secure creative leadership in schools, Sternberg suggested "institutions perhaps do not wish to identify as educational leaders those who merely [were] experts in spitting back what others [had] previously said" (pp. 230-231).

Walker and Quong (1998) supported Sternberg's (2005) suggestion. They noted that conformity undermined the establishment of learning organizations, because "manifestations of sameness often conflict[ed] with calls for new ways of leading, learning, and working in schools" (p. 84). In some ways, schools were like echo chambers in which the same old ideas reverberated, uninterrupted. Senge et al. (2012) suggested the way to avoid such conformist pressures involved seeing a school as a complicated web of processes and practices interconnected to classrooms, individual

students, and the surrounding community, and "fostering open dialogue and public

engagement of the sort that [made] the perspectives and underlying assumptions of

various factions clear" (Senge et al., 2012, p. 15). Senge et al.'s description of open

dialogue and public engagement required school administrators who were not afraid to

take risks.

Low Risk Propensity. High-risk propensity was an important factor in effective

school leadership. Yet despite the compelling case for creativity and high-risk propensity

in educational leadership, a study of risk propensity in business and education found that

public school administrators were significantly less likely to take risks than business

administrators (Brown, 1970). Other researchers have also suggested that educators, and

by extension school administrators, may have been uncomfortable with the risk-taking

frequently associated with creativity and creative leadership (Davis, 2006; Goertz, 2000;

Morford, 2002; Runco, 2014; Walker & Quong, 1998). Miskel and Wilson (1976)

reviewed literature that suggested educators had the highest need for security and the

lowest risk propensity among participating occupations. They concluded that "the

willingness to expose oneself to possible failure in pursuit of a goal [became]

increasingly important for the future effectiveness and survival of educational

institutions" (p. 3).

Ekvall's (1996) findings later supported this assertion; he determined high risk-

taking was the largest single difference between innovative and stagnated organizations.

To further complicate matters, Miskel and Wilson (1976) cited findings that supported

the less likely an organizational climate was to support risk, the more important

individual risk propensity was in effecting change and that educators were both less

likely to take risks and in greater need of high risk propensity in order to mitigate

organizational climate. If school administrators were naturally less likely to take risks, the

literature suggested they would have difficulty behaving as creative leaders. Yet Goertz

(2000) determined that effective school administrators perceived themselves as creative.

The researcher was unable to locate studies of risk propensity and career choice more

recent than those included in the literature review. However, the more recent literature

about school leadership suggested that risk-taking was still a concern (Davis, 2006;

Morford, 2002; Sternberg, 2005).

      Bureaucracy and Routinization. Researchers also found evidence that working

as a school administrator decreased one's creative leadership behaviors over time. Smith

et al.'s (1992) preliminary study suggested that as administrators gained experience on

the job, their general leadership behaviors decreased and their management functions

increased. An increase in management functions might have indicated a decrease in

creative leadership; Ekvall (1996) found "quite low correlations between task/structure

leadership orientation and most of the climate dimensions [due to the] complicated

relations between bureaucracy, structure, and control on the one side, and creativity and

innovation on the other" (p. 119). Davis (2006) explained that administrators with more

experience had "a repertoire of heuristic solutions to problems that ha[d] yet to arise.

Moreover, problems often arrive[d] at such a furious and unpredictable pace that in order

to keep up, administrators [became] solution-focused rather than problem-focused" (p. 9).

Teachers experienced the same disintegration of their creative behaviors. In his book, *Out

of Our Minds*, Robinson (2011) referred to teaching as a creative profession that suffered

because of disengagement. According to Robinson, "there [were] many good teachers

whose creative instincts [were] curbed by standardized education and whose effectiveness [were] diminished as a result" (p. 267). A review of existing literature provided the researcher with clues as to why administrators' creative leadership behaviors decreased over time.

Senge et al. (2012) described a causal loop system that effectively eliminated any chance of lasting reform while simultaneously decreasing administrator effectiveness. They observed "public reaction [led] administrators to quit or be fired, leading to an increase in turnover. This change[d] administrator effectiveness (often for the worse but always in a perceptible way)" (p. 138). Another study found that "beginning school administrators experienced detrimental personality and leadership style changes" within the first three years on the job (Schmidt et al., 1998, p. 2). Morford's (2002) study of novice administrators in rural school districts found similar results. Within the first year, new building principals had reoriented from focusing on instructional leadership to maintaining the existing organizational structure. Each of the participants identified "individuals and groups in the school community influencing the decisions [administrators] made about when to conform and when to challenge existing norms" (p. 12).

Furthermore, Senge et al. (2012) confirmed "a perceived crisis in performance may [have occurred] after a new administrator [was] already in place. That may [have led] to public disappointment, months before the new administrator's practices [had] time to show any effect" (p. 139). According to Davis (2006) "entrepreneurial thinking and risk-taking in pursuit of educational innovations [were] often overshadowed by an understandable preoccupation with regulatory compliance, political tranquility, and

career survival" (p. 9) because "public conceptions of good schooling [were] notoriously conservative and rooted in the practices of the past" (p. 10). Sternberg (2005) noted that the proposal of creative ideas often elicited negative feedback including suspicion, derision, disdain, mistrust, and rejection: "This [was] one of many reasons that it [was] so hard to change schools and school systems: People [were] often suspicious of, rather than welcome[ing], change" (p. 228).

Those findings were supported by Walker and Quong (1998), who reported "parents, teachers, policymakers, and students all [knew] what schools should look like and [were] surprisingly sensitive to departures from the norm. Schools operate[d] within ordered systems that act[ed] to maintain this common vision of school intact" (p. 84). They further noted that school leaders were consistently pressured to conform, even as they were pressured to reform schools. Yet the high levels of bureaucracy in a school system detracted from creative performance, according to Ekvall (1996), "when a creative climate is aimed at, centralization and formalization should consequently be minimized" (p. 123). Bowen et al. (2007) confirmed "the highly bureaucratic nature of public schools stifle[d] creative problem solving and block[ed] receptivity to large-scale and transformative system reform" (p. 199).

The majority of school administrators ultimately chose to conform to the existing organizational structure; Walker and Quong (1998) found that school leaders faced with such bureaucracy retreated, "often unconsciously, into the comfort of sameness" (p. 82). One detrimental side effect to increasing conformity was that "a learning organization require[d] a sustained effort to continually uncover the current and emerging issues that, if left alone [hampered] the effectiveness of the school in achieving its objectives for

students" (Sabah & Orthner, 2007, p. 246). To address this problem, Senge et al. (2012)

encouraged the development of administrators' leadership skills and open communication

with stakeholders as a way to mitigate the effects of such conformist feedback loops. If,

as this literature review suggested, educators were already likely to have a low risk

propensity, and the most conformist among them were the ones elevated to positions of

leadership, the researcher concluded this situation posed a serious obstacle to school

administrators becoming creative leaders.

Stressors and Constraints. Moreover, researchers found that the presence of

accountability measures, such as high-stakes testing, decreased instructional leadership

performance among elementary school administrators (Staples, 2005). Walker and Quong

(1998) noted that accountability, while necessary, fostered conformity by encouraging

predictability and low risk propensity. Furthermore, accountability "create[d] an

environment in which administrators focus[ed] effort on what the system want[ed] to

hear. In such a context, honesty [was not] conducive to harmonious relationships" (p. 87).

Many other scholars also noted the relationship between increasingly rigid accountability

measures and decreasing educator creativity (Lyman et al., 2005; Puccio et al., 2001;

Robinson, 2011; Senge et al., 2012). Runco (2014) explained that creativity was

unpredictable and posed "a huge problem for educators. With the current emphasis on

accountability, educators simply [did] not have the time to invest in curriculum that may

not pay off . . . [It was] a matter of investment in students' potentials" (p. 172). Runco

(2014) further concluded that accountability measures in education contributed to the

establishment of a culture that discouraged creativity on every level. Walker and Quong

(1998) noted that administrators' tendency to maintain the status quo was a nearly

automatic reaction, and the only way for administrators to overcome this instinct, and to effect sustainable organizational change, was with additional supports to confront and remedy the tension between conformity and creativity.

Mumford et al. (2000) described constraints to school administrator problem solving, including restricted time and resources, conflicting goals, systemic pressures, and internal and external forces that placed undue pressure on leaders. These constraints frequently inhibited creativity and required leaders to begin problem solving by evaluating the potential significance of the problem and the outcomes of solutions due to the "potential negative consequences of a solution with respect to other ongoing problem-solving efforts and broader system goals, . . . solutions inconsistent with broader goals and policies, or solutions associated with negative downstream consequences [had to] be rejected as unworkable" (p. 15). In a study of creativity and productivity, researchers found that "stress impair[ed] performance on novel tasks, but not routine ones due to the increased cognitive requirements for the novel tasks" (Probst et al., 2007, p. 492). Yet creative inhibition was not necessarily the outcome of stress; as Robinson (2011) explained, "creativity [was] not about a lack of constraints; often it [was] about working within them and overcoming them" (p. 266). Research supported the notion that stress did not necessarily inhibit creativity in all cases. In some cases, as Robinson (2011) suggested, stress was the impetus of creativity (Byron, Khazanchi, & Nazarian, 2010). Runco (2014) agreed; he observed that inhibitors to creativity were only potentially inhibitive and that some creative persons were immune to, or even thrived under such stressors. He further noted "many creative persons are challenged by things that would debilitate or inhibit most other persons" (p. 264). Runco (2014) concluded that the

relationship between stress and creative performance was complex and depended upon a variety of factors, including the person's general creative capacity and the environment in which they operated. Overall, the role stress played in school administrators' creative leadership performance remained unclear throughout the literature.

Creative Insubordination. Some school administrators managed to be creative leaders in spite of—or because of—low levels of organizational support. Lyman et al. (2005) described this behavior as "creative insubordination," a decision-making approach that bended or ignored rules, subverted authority, and bypassed bureaucracy "when such subversion [was] justified by the greater authority of personal values, service to students, and common sense" (p. 63). Lyman et al. highlighted three practices of risk-taking and rule-breaking that creatively insubordinate administrators frequently practiced: appealing to the community for support to circumvent bureaucracy, using loopholes to circumvent protocol, and networking and using personal relationships to circumvent bureaucracy (p. 67). They asserted that women and other minority groups were more likely to be creatively insubordinate due to differences in leadership style, discomfort with bureaucracy, marginalized status, and student centeredness (p. 75).

Lyman et al.'s (2005) findings were supported by several other studies. Morford (2002), who studied the relationship between gender and leadership in education, determined that gender was sometimes problematic for new principals. Her findings suggested that female administrators came up against the problem of faculty, parents, and community members who expected principals to be older, white males; new principals who differed from those expectations perceived a lack of support from their constituencies. In the study, Morford interviewed five female administrators who all

mentioned that gender was an obstacle in their leadership, the precise situation that

Lyman et al. claimed required creative insubordination to succeed. Additionally,

Mainemelis (2010) observed that employees were more likely to attain legitimate goals

by illegitimate means when they had internalized the goals' values, particularly when

they lacked the ability to attain their goals legitimately. These findings further supported

the research of Lyman et al.; school administrators who were creatively insubordinate did

so because they believed in the value of their work. Because these female administrators

did not fit expectations about what a principal 'should be,' they found it difficult to attain

legitimate goals through legitimate means and resulted to creative means to navigate the

system (Lyman et al., 2005; Mainemelis, 2010; Morford, 2002). These studies supported

Robinson's (2011) assertion that creativity was about overcoming constraints, rather than

not having any.

    Other Trends. Runco (2014) described schools as an environment in which

"creativity [was] less admired than more conventional tendencies, such as courtesy and

punctuality" (p. 274). Westby and Dawson (1995) studied teachers' attitudes toward

creativity and found that, while teachers often claimed to value creativity, their

descriptions of ideal students listed traits contraindicative to creativity. According to their

research, teachers preferred students who were "responsible . . . reliable, dependable . . .

good-natured, moderate, steady, practical, and logical . . . Research has suggested that

traits associated with creativity may not only [have been] neglected, but actively

punished." (p. 2). Runco (2014) suggested this disparity may have been due to the nature

of public education; he supposed that "educators do usually deal with large groups, so no

wonder they prefer[red] children who were easy to instruct and direct" (p. 274).

The most provocative study the researcher located, a dissertation by Landis (2009), called principals' problem solving skills in to question. Based on a review of existing literature, he asserted that principals, as a group, were not well-suited to the task of problem solving because "principal certification programs d[id] not draw the most intelligent or academically astute candidates" (p. 8). That conclusion was based on low standards in principal certification programs and significantly lower Graduate Record Exam scores among principals, compared to candidates in other education graduate programs. However, Landis went on to suggest that administrator candidates be given formal problem solving training. If problem solving can be taught, as Landis and more prominent researchers have suggested (Mumford et al., 2000; Puccio et al., 2011; Runco, 2014), then a candidate's academic performance and intelligence seemed unlikely to significantly affect problem solving abilities. The researcher was unable to find other studies to substantiate Landis's work and remained uncertain whether problem solving was an obstacle to school administrator creativity, or not.

Summary

In the rapidly changing global community, schools can no longer afford to be mired in the ways of the past (Davis, 2006; Goertz, 2000). Educational leaders—particularly building principals—will be at the forefront of any sustainable reform (Anson, 1992). Throughout the 21st century, school administrators were expected to be creative leaders (Jazzar & Algozzine, 2006; Puccio et al., 2011; Sternberg, 2005) who were problem solvers (Mumford et al., 2000) and transformational leaders (Anderson, 2008; Balyer, 2012; Chirichello, 1999) of learning organizations (Senge et al., 2012). Some scholars argued that school administrators were not well-suited for this task, either

by virtue of innate characteristics (Brown, 1970; Miskel & Wilson, 1976) or the culture in which they were formed as leaders (Bowen et al., 2007; Davis, 2006; Morford, 2002; Smith et al., 1992; Sternberg, 2005; Walker & Quong, 1998).

This chapter detailed the literature, current at the time of writing, on the nature of creativity, the components of creative leadership, the practices of effective 21st century school administrators, and school administrators' obstacles to practicing creative leadership. The researcher's review of existing literature led to several areas of inquiry. The ambiguous findings regarding the potential relationship between several demographic factors (including age, gender, school level, level of education) and educators' creative capacity led the researcher to conclude that further study was necessary. Furthermore, the researcher concluded that undefined relationship between several career attributes (job level, job-embeddedness, and work experience) and educators' creative capacity also merited further research. Additionally, studies regarding the creative capacity of school administrators' compared to other educators and the normed population needed to be updated. Furthermore, the researcher sought clarification and additional information regarding school administrators' and other educators' self-perceptions regarding their own creativity and creative leadership, school administrators' and other educators' self-perceptions of organizational climate, and school administrators' and other educators' perceptions of administrators' risk-taking and rule-breaking behaviors. The next chapter will discuss the researcher's design and methodology for a mixed methods study of administrator creativity, risk propensity, and creative leadership in schools.

Chapter Three: Methodology

The purpose of this study was to use mixed methods to measure both administrators' creative capacity and their current creative leadership practices, as well as any demographic factor or career attribute patterns, to investigate whether or not Missouri public school administrators were prepared to meet the creative leadership demands of the 21st century.

The public school system was in need of broad, sustained reforms on every level to meet the needs of students in the 21st century (Audet, 2012; Ausburn et al., 2011; Balyer, 2012; Bowen et al., 2007; Cash, 1997; Chirichello, 1999; Csikszentmihalyi & Wolfe, 2001; Davis, 2006; Goertz, 2000; Jazzar & Algozzine, 2006; Landis, 2009; Lyman et al., 2005; Morris, 1999; Robinson, 2011; Sabah & Orthner, 2007; Senge et al., 2012; Sternberg, 2005; Walker & Quong, 1998). These reforms were primarily the responsibility of education leaders (Anson, 1992); school administrators were described as profoundly important to reforms (Smith et al., 1992). An increasingly complex society demanded creative leadership from its educational leaders (Goertz, 2000; Jazzar & Algozzine, 2006; Puccio et al., 2011; Senge et al., 2012; Sternberg, 2005), who experienced an extended period of difficult transition, additional responsibility, limited resources, and mounting pressures (Davis, 2006). The role of school administrators rapidly changed to meet the new demands of the 21st century (Lewis et al., 1998), which required the use of ever-stronger transformational leadership practices (Chirichello, 1999; Sagnak, 2010; Sternberg, 2005) and creative problem solving skills (Mumford et al. 2000) to establish learning organizations (Robinson, 2011; Senge et al., 2012).

Concurrently, researchers noted a lack of creative capacity and creative performance among school administrators (Davis, 2006; Smith et al., 1992; Sternberg, 2005; Walker & Quong, 1998). The creativity deficits in school administration were attributed to high levels of conformity, rule-enforcement, and low risk propensity (Brown, 1970; Davis, 2006; Miskel & Wilson, 1976; Morford, 2002; Robinson, 2011; Schmidt et al., 1998; Smith et al., 1992; Staples, 2005; Sternberg, 2005; Walker & Quong, 1998). Goertz (2000) insisted that the increased complexity of educational challenges necessitated the investigation of school administrators' creative capacity and creative leadership.

While many researchers addressed the topic of transformational leadership in schools (Anderson, 2008; Balyer, 2012; Chirichello, 1999; Sagnak, 2010) and creative leadership in business (Amabile et al., 1996; Knowles, 1990; Puccio et al., 2011), "studies that explain[ed] a relationship between creativity and leadership [were] limited" (Goertz, 2000, para. 2). The researcher was unable to find studies that measured school administrators' overall creative capacity. Additionally, researchers debated the impact of several key demographic factors and career attributes on individual creative performance: gender (Lyman et al., 2005; Vincent, 2009), age (Binnewies et al., 2008; Finkelstein et al., 1995; McEvoy & Cascio, 1989; Rothermund & Brandstadter, 2003; Waldman & Avolio, 1986), job level (Probst et al., 2007; Sternberg, 2005; Vincent, 2009), job embeddedness (Binnewies et al., 2008; Ng & Feldman, 2010), and work experience (Amabile et al., 1996; Binnewies et al., 2008; Ohly et al., 2006; Smith et al., 1992; Sternberg, 2005; Weisberg, 1999), but none of these studies investigated within the context of schools or educational leadership. The researcher found only a few incomplete

references to the effects of job level or job-embeddedness on school administrator

creativity (Greenfield, 2002; Morford, 2002; Schmidt et al., 1998; Smith et al., 1992;

Staples, 2005) and no studies regarding the potential relationship between administrators'

creative performance and their schools' levels (elementary, middle, secondary). The

researcher sought to contribute to the literature regarding administrators' creative

capacity and creative leadership practices, educators' perceptions of creative leadership,

and the relationship between the aforementioned demographic factors and career

attributes and creative performance, to investigate whether, at the time of this research,

Missouri public school administrators were prepared to meet the creative leadership

demands of the 21st century. This chapter describes the researcher's methodology,

procedure, and other pertinent information about the study's participants, instruments,

and analysis.

Purpose of Study/Methods

The purpose of this study was to investigate whether Missouri public schools

were prepared to meet the creative leadership demands of the 21st century. To determine

the extent to which Missouri school administrators were performing as creative leaders,

the researcher measured administrators' creative capacity, using the Abbreviated

Torrance Test for Adults (ATTA) (Kim, 2006), administrators' self-perceptions of their

creativity, using the Creativity Styles Questionnaire-Revised (CSQ-R) (Kumar et al.,

1997), and administrators' self-perceptions of their creative performance and

organizational climate, as evidence of their creative leadership behaviors, using a creative

climate survey (CCS) based on Ekvall's (1996) climate dimensions and the Situational

Outlook Questionnaire™ (SOQ) (Isaksen et al., 2000). The ATTA scoring guide included

nationally normed creativity data to allow the researcher to compare individual results to the normed population. The researcher collaborated with SOQ author, Isaksen, to write and include questions about risk-taking and rule-breaking to the CCS, incorporating the creative insubordination work of Lyman et al. (2005), to ascertain Missouri public school administrators' risk propensity. Additionally, the researcher sought to clarify which, if any, demographic factors (age, gender, level of education) and career attributes (school level, years of work experience as educators, years of work experience as an administrator, years of service within the current district of employment) affected creative leadership performance by comparing participants' mean ATTA, CSQ-R, and CCS scores. Finally, the researcher conducted two small focus groups (one of teachers and one of administrators) to obtain additional information about participants' perceptions of creativity and creative climate within their organizations. Using mixed-methods analysis, the researcher's goal was to provide an accurate picture of the state of Missouri public schools and their administrators' preparedness to meet the creative leadership demands of the 21st century.

Research Context

The researcher focused on administrators of public K-12 schools in the state of Missouri. According to the National Assessment of Educational Progress (NAEP), the state of Missouri scored within 10 points of the United States average on every scale score in Grade 4 and Grade 8 for assessments administered in 2002, 2007, 2009, and 2011 (State education data profiles, 2014). Missouri's average placement by NAEP indicated that Missouri schools may have reflected the rest of the country. The educators surveyed in this study represented urban, suburban, and rural schools, as defined by the

NCES (2006) at the early childhood (pre-K), elementary (K-5), middle (6-8), and high

school (9-12) grade levels.

Research Null Hypotheses

      Null Hypothesis 1; H_0: There will be no difference between the creative capacity

of educators and the normed population, measured by the ATTA.

      Null Hypothesis 2; H_0: There will be no difference between the creative capacity

of teachers and the normed population, measured by the ATTA.

      Null Hypothesis 3; H_0: There will be no difference between the creative capacity

of school administrators and the normed population, measured by the ATTA.

      Null Hypothesis 4; H_0: There will be no difference between the creative capacity

of school administrators and teachers in this study, measured by the ATTA.

      Null Hypothesis 5; H_0: There will be no relationship between participants'

creativity index scores on the ATTA and their creative capacity scores as measured by

the CSQ-R.

      Null Hypothesis 6; H_0: There will be no relationship between participants'

creativity index scores on the ATTA and their perceptions of risk-taking in their

organizations as measured by the CCS.

      Null Hypothesis 7; H_0: There will be no relationship between participants'

creativity index scores on the ATTA and their perceptions of rule-breaking in their

organizations as measured by the CCS.

      Null Hypothesis 8; H_0: There will be no relationship between participants'

creative capacity scores on the CSQ-R and their perceptions of risk-taking in their

organizations as measured by the CCS.

Null Hypothesis 9; H_0: There will be no relationship between participants' creative capacity scores on the CSQ-R and their perceptions of rule-breaking in their organizations as measured by the CCS.

Null Hypothesis 10; H_0: There will be no relationship between school administrators' creativity index scores on the ATTA and age.

Null Hypothesis 11; H_0: There will be no relationship between school administrators' creativity index scores on the ATTA and gender.

Null Hypothesis 12; H_0: There will be no relationship between school administrators' creativity index scores on the ATTA and levels of education.

Null Hypothesis 13; H_0: There will be no relationship between school administrators' creativity index scores on the ATTA and school levels (elementary, middle, secondary).

Null Hypothesis 14; H_0: There will be no relationship between school administrators' creativity index scores on the ATTA and years of work experience as educators.

Null Hypothesis 15; H_0: There will be no relationship between school administrators' creativity index scores on the ATTA and years of service within the current district of employment.

Null Hypothesis 16; H_0: There will be no relationship between school administrators' creativity index scores on the ATTA and years of work experience as an administrator.

Null Hypothesis 17; H_0: There will be no relationship between school administrators' CSQ-R subscale scores (belief in unconscious processes, use of

techniques, use of other people, superstition, environmental control, and the use of

senses) and their demographic information (age, gender, level of education) or career

attributes (school level, years of work experience as educators, years of work experience

as administrators, years of service within the current district of employment).

Research Questions

RQ 1: What, if any, patterns emerge when comparing responses regarding

teachers' and administrators' perceptions of educator creativity and creative leadership?

RQ 2: How do educators perceive their creative performance over time? If so,

how? To what do they attribute this potential change?

RQ 3: What are administrators' attitudes toward multifarious non-conformity,

risk-taking, and rule-breaking?

Original Methodology

Originally, the researcher's design called for a random sample of Missouri school

administrators, stratified by urban-centric locale. This design was unsuccessful, as the

researcher was unable to recruit enough participants to fill the three strata adequately for

statistical analysis. However, as the researcher received approval for the original study

and gathered the data, the original methodology is included in this chapter to demonstrate

the researcher's intentions and the necessary revisions.

The researcher attempted to determine the extent to which Missouri school

administrators were capable of creativity by gathering a random sample of 150

administrators from Missouri K-12 public schools, stratified by urban-centric locale

(rural, suburban, rural) as defined by the NCES (2006). Originally, the researcher

randomly selected 50 schools from each of the three urban-centric locale strata, received

each district's superintendent's permission, and then contacted the districts' building

principals and faculties to participate in the study. The participating administrators were

then measured for their individual 'capacity for creativity' (Kim, 2006) using the

Abbreviated Torrance Test for Adults (ATTA) and their self-perceptions of their

creativity using the Creativity Styles Questionnaire-Revised (CSQ-R).

The next step of the original study was to determine the extent to which Missouri

school administrators performed as creative leaders by administering the Situational

Outlook Questionnaire ™ (SOQ) to the faculty members who worked under the

leadership of each participating administrator. One of the possible outcomes of the

original study was data analysis results to provide possible contribution to the

improvement of instructional leadership; the researcher focused SOQ measurement on

faculty only, excluding other school employees, such as custodians and para-

professionals. Additionally, the researcher collaborated with SOQ author, Isaksen, to add

items to address risk-taking and rule-breaking behaviors within the tested organizations,

based on the study of creative insubordination by Lyman et al. (2005).

Finally, the researcher sought to determine potential relationships between the

administrators' demographic information or career attributes and their ATTA, CSQ-R,

and SOQ results. Comparing responses about rule-breaking and risk-taking behaviors to

overall organizational climate, Missouri school administrators' self-report of creativity

(CSQ-R), and their creative capacity (ATTA), the researcher sought to determine the

extent to which those Missouri school administrators were creative leaders, as was

necessary to meet the needs of 21st century learners. The study was accepted by 36

superintendents throughout the state of Missouri, however only eight school

administrators fully completed the study as outlined. The researcher, in consultation with

her chair and committee, deemed the sample size was inadequate for statistical analysis

and modified the design and collected new data. The original procedure is listed below

for possible future replications.

Original Procedure

The researcher obtained an excel spreadsheet of every public K-12 school district

in the state of Missouri as published by the NCES (2006). This spreadsheet contained an

urban-centric locale for each district, classifying it as rural, suburban, or urban. From this

list, the researcher randomly selected a sample of 50 suburban school districts and 50

rural school districts. All 13 urban school districts were contacted, as they comprised the

total population of the strata. These school districts were cross-referenced with a

published list of district superintendents from the Missouri Department of Elementary

and Secondary Education (MODESE, 2013).

From the list of superintendents, the researcher contacted the 113 district

superintendents by email and requested permission to invite their districts' building

principals and faculties to participate in the study. This request included information

about the ATTA, CSQ-R, and SOQ measures. The researcher compiled a list of 36

approved school districts' buildings and contacted the building principals via email to

invite their participation. The email included information about the research being

conducted, a sample of the ATTA, CSQ-R, and SOQ reports as incentive, as well as an

offer to disclose their personal results after the study was concluded.

Each principal received an email including the URL web address to the CSQ-R

online survey. Upon completion, the researcher e-mailed the principals directions to share

with faculty members to allow access to the SOQ online. The researcher also sent each

participating building principal a packet with directions and an ATTA test booklet. They

were to take the ATTA test and mail it back to the researcher, consent forms from faculty

members included.

SOQ data was compiled and interpreted by The Creative Problem Solving Group,

Inc., then sent to the researcher as both individual and overall reports. Had this procedure

for study continued, raw TTCT data would have been compiled and interpreted by

Scholastic Testing Service, Inc., then sent to the researcher as both individual and overall

reports. CSQ-R responses would have been personally compiled by the researcher, using

the scoring key provided by the publisher. Though there were not enough participants to

perform statistical analysis, the researcher had planned to apply z-tests for difference in

means and Pearson Product-Moment Correlation Coefficients (PPMCC) to check for

potential relationships. The researcher would then have disclosed individual results to

participating building principals, along with information about improving organizations,

based on the researcher's literature review.

Revised Methodology

Due to a lack of response by building principals, the researcher, in consultation

with the dissertation committee, changed the design of the study. Many building

administrators reported they could not participate in the study, because they did not want

their faculty to have to take a survey. Part of the revision process was realigning the study

measures to remove the SOQ and replace it with a survey to be taken by the participant.

Additionally, because the first sample size was smaller than anticipated, the researcher

elected to employ a convenience sample instead of a random sample. The researcher also

revised the study to include teachers. Finally, the researcher added a small monetary

compensation to promote an increase in the number of participants who completed the

entire study. These amendments were submitted to the University Institutional Review

Board and approved accordingly.

Revised Procedure

The first step of the revised study was to recruit a convenience sample of

participants, including school administrators from Missouri public K-12 schools and

teachers from neighboring states. The researcher obtained permission (Appendix A) to

recruit individuals from Lindenwood University's (LU) School of Education graduate

program; students did not receive extra credit for participation, nor were they required to

participate in the study. The researcher contacted administrators who had participated in

the original study to invite them to participate in the revised study; six of the original

eight renewed their participation agreement. The researcher's remaining participants were

recruited via email or were members of the University graduate students, recruited at the

beginning of a class session during the summer 2014 session.

Participants signed a consent form and took two online surveys (the CSQ-R and

the CCS), the links to which were provided in an email. They independently self-

administered the ATTA in paper/pencil format and sent it back to the researcher. Of the

143 people who originally expressed interest in the study, 17 administrators and 24

teachers completed all three instruments, for a response rate of 28.67%. Partial

submissions were excluded from the results. Once participants completed all three

instruments, the researcher sent each participant a thank-you note with a $5 gift card and

informed them that their results would be emailed to them at the end of the study. The

researcher randomly selected a group of eight administrators and eight teachers from the

participant pool and invited them to participate in two small focus groups. The researcher

interviewed focus group participants using scripted questions and recorded the

conversation for later transcription. The ATTA response booklets were scored by the

staff of Scholastic Testing Services. The CSQ-R and CCS were auto-scored using

Microsoft Excel. The results of all measures were combined, personal information

removed, and analyzed using mixed methods.

Sample Selection

The study sample began as a random stratified sample, but became a convenience

sample in order to gain adequate participation for quantitative analysis. While

convenience sampling was less than ideal, the lack of participation created a situation "in

which convenience sampling [was] the only feasible way to proceed—for example, in

attempting to learn about a group that [was] very difficult to gain access to" (Maxwell,

2013, p. 97). Fraenkel et al. (2011) suggested that when convenience samples are used,

"generalization [was] made more plausible if data [were] presented to show that the

sample [was] representative of the intended population on at least some relevant

variables" (p. 104). Gender, age, and work experience were all variables by which the

data was rendered more plausible.

Six of the 17 administrator participants were randomly sampled from public

schools around the state of Missouri; these participants were transfers from the original

study, recruited with original sampling procedures. Of the 24 administrators who initially

responded favorably, 13 began the measures, and only eight completed all three measures

(ATTA, CSQ-R, and SOQ). Six of those eight later agreed to participate in the

redesigned study after receiving the updated recruitment letter via e-mail, with a brief

note explaining the study's modification. Of the remaining 11 administrators, six

received a standardized recruitment letter via e-mail. The final five administrators were

University graduate students presented with the study in person, given the same

recruitment letter. Of the 24 teachers in the convenience sample, 10 were acquaintances

of the researcher and the remaining 14 teacher participants were University graduate

students. The administrator focus group was comprised of one administrator from the

original random selection and two acquaintances of the researcher; the teacher focus

group was two University graduate students and two acquaintances of the researcher.

Data Gathering Instruments

The researcher's goal was to use mixed-methods analysis to provide an accurate

picture of the state of Missouri public schools and their administrators' preparedness to

meet the creative leadership demands of the 21st century. Several researchers noted the

importance of using multiple instruments when measuring creativity (Cropley, 2000;

Feldhusen & Goh, 2005; Kim, 2006). In this study, the researcher relied on four discrete

instruments: the ATTA (Goff & Torrance, 2002; Torrance, 1993), the CSQ-R (Kumar et

al., 1997; Zhang, Sternberg & Rayner, 2011), the CCS (Isaksen et al., 2000; Lyman et al,

2005; Mathisen & Einarsen, 2004), and small focus groups.

The researcher first sought to measure administrators' creative capacity and their

creative behaviors using the Abbreviated Torrance Test for Adults (ATTA) (Goff &

Torrance, 2002; Kim, 2006) and the CSQ-R (Zhang et al., 2011; Kumar et al., 1997). The

ATTA was considered an alternate form of the Torrance Tests of Creative Thinking

(TTCT), since "all scoring and analyses of the creative abilities assessed [were]

consistent with the original TTCT" (Goff & Torrance, 2002, p. 1). Kim (2006) cited the

many positive reasons to use the TTCT, including: short administration time, ease of

administration, the large number of analyses and research studies of its application, fewer

limitations, little to no bias in terms of gender, race, or socioeconomic status, and "one of

the largest normative samples, with valuable longitudinal validations and high predictive

validity over a very wide age range" (p. 8). According to Goff and Torrance (2002), the

ATTA had a reliability coefficient of 0.90 and a standard error of measurement of 4.76;

"interrater reliabilities range[d] from 0.95 to 0.99" (p. 34).

The CSQ-R also measured creative capacity, but from a self-perception rather

than a performance assessment. The CSQ-R "measure[d] beliefs about and strategies for

going about being creative" as well as a self-report "to assess the extent to which

[respondents] perceived themselves to be creative" using Likert scale ratings (Kumar et

al., 1997, p. 51). Kumar et al. (1997) reported a median reliability of 0.74 for the subscale

measures. The subscales addressed: creative capacity, belief in unconscious processes,

use of techniques, use of other people, superstition, environmental control, and the use of

senses with alpha coefficients from 0.45 to 0.83 (Cropley, 2000). According to Zhang et

al., (2011) "the CSQ-R has been used occasionally by other researchers, suggesting that

the instrument [was] "catching on'" (p. 204). The researcher selected a well-established

creative measure in concert with an up-and-coming measure to expand the

instrumentation in a way that would more diversely describe the creative capacity and

creative behaviors of participants.

In addition to creative capacity, the researcher sought to measure creative

performance and creative climate among educators. To this end, the researcher created a

Creative Climate Survey (CCS) to measure the self-perceptions of participants' creative

performance and organizational climate, as evidence of their creative leadership

behaviors. The CCS employed a Likert-scale design and was based partially on questions

developed through collaboration with the authors of the Situational Outlook

Questionnaire (Isaksen et al., 2000). Some of the CCS questions were in direct reference

to Ekvall's (1996) climate dimensions. Additionally, the researcher collaborated with

SOQ author, Isaksen, to include questions about risk-taking and rule-breaking,

incorporating the creative insubordination work of Lyman et al. (2005). The remaining

questions gathered information related to demographic factors and career attributes (age,

gender, school level, job level, job embeddedness, and work experience).

Finally, the researcher assembled small focus groups to focus on specific

qualitative questions regarding the creative process over time and the creative climate of

Missouri public schools.

Data Collection and Analysis Procedures

Study results relied primarily on quantitative measures (ATTA, CSQ-R, and CCS)

and statistical analysis (*t*-test for difference in means and PPMCC for potential

relationships), because the researcher sought "to establish a relationship between

variables" (Fraenkel et al., 2011, p. 10). The researcher supplemented the quantitative

measures with qualitative data gathered through operation of two small focus groups with

homogeneous samples (one group of administrators, one group of teachers) in order to

better understand the process by which creative climate influenced educator creativity

and how those educators "[made] sense of their lives . . . [specifically what] they

[thought] and why they [thought] what they do" (Fraenkel et al., 2011, p. 427). Maxwell

(2013) agreed that qualitative research added the ability to "see the world in terms of

people, situations, events, and the processes that connect[ed] these" (p. 29). Furthermore,

the purpose of this study was to "establish generalizations that transcend[ed] the

immediate situation or particular setting" (Fraenkel et al., 2011, p. 11), ultimately through

triangulating multiple methods of research that yielded a secure understanding and

generalizability of results to the population of Missouri school administrators (Maxwell,

2013).

Data was collected between January 2014 and July 2014. Participants mailed their

completed ATTA answer booklet to the researcher, who organized them by group

(teachers or administrators), anonymized and coded the identifying information, and sent

them to Scholastic Testing Services (STS) for scoring. STS scored each participant's

creativity index (CI), a number from 0 to 85+. The CI scores were then distributed into

seven Creativity Levels (CLs), ranging from 1 (1-50: Minimally Creative) to 7 (85+:

Substantially Creative); the average CL (4) correlated to a CI of 68 to 73 and included

26% of the normed population on a normatively distributed bell curve (Goff & Torrance,

2002, pp. 32-33). Both the CSQ-R and the CCS were gathered via online survey using

Google Forms and Survey Monkey, respectively. Answers to demographic questions

were numerically coded by category; the instruments were auto-scored using Microsoft

Excel, after which the results were anonymized and analyzed. Once all data was recorded

and anonymized, the researcher randomly sorted using Microsoft Excel, to remove

potential bias on the part of the researcher. The researcher conducted quantitative

analysis, specifically the *t*-test for difference in means and PPMCC to investigate

differences and relationships, respectively. Finally, the researcher took notes and audio

recorded the small focus group interviews. Responses were coded and tallied by the

researcher and verified by an independent evaluator. The researcher compared coded

responses to the quantitative analysis results to examine overall trends.

Participants

Participants (N = 41) were 17 school administrators (n = 17) and 24 classroom

teachers (n = 24), who were recruited as part of a convenience sample. All of the school

administrators worked for public K-12 schools in the state of Missouri. Teachers also

worked predominantly in the state of Missouri, however four were from the state of

Illinois. Several participants were excluded from this study, due to their lack of

completion of all three data instruments (nine administrators and 12 teachers). Within the

recruitment process, all participants were informed of the voluntary and confidential

nature of the study; the researcher offered to provide a copy of individual results and a $5

gift card as compensation for completion of all three phases.

The participants were racially homogenous; all described themselves as White.

Originally, the study included volunteers from other racial backgrounds who ultimately

did not complete all of the measures, so their data was excluded. Of the participants, 34%

were male, yet males made up 47% of administrators in the study. Participants

represented every school level: six principals and five teachers worked in elementary

level education (grades K-5); six principals and 13 teachers worked in middle level

education (grades 6-8); five principals and six teachers worked in secondary level

education (grades 9-12). The teachers' ages and levels of education were both normally

distributed; their mean age group was 30 to 39 years, and their mean level of education

was Master's Degree (M.Ed. or similar). The administrators' group was similarly

normally distributed; administrators' mean age was 40 –to 49 years, while their mean

level of education was Educational Specialist (Ed.S. or similar). See Table 1 for a

complete breakdown of demographic information related to participants.

Table 1.

Demographic Characteristics of Participants

Demographic		Admin. (n = 17)	% of Total	Teachers (n = 24)	% of Total
Age	29 or younger	0	0%	6	25%
	30-39	6	35.3%	13	54.2%
	40-49	7	41.2%	4	16.6%
	50-59	4	23.5%	1	4.2%
Gender	Male	8	47%	6	25%
	Female	9	53%	18	75%
Level of Education	Bachelor's	0	0%	4	16.6%
	Master's	6	35.3%	18	75%
	Specialist	7	41.2%	1	4.2%
	Doctorate	4	23.5%	1	4.2%
Years of Ed. Experience	1-5 years	0	0%	6	25%
	6-10 years	1	5.9%	11	45.8%
	11-15 years	5	29.4	4	16.7%
	16-20 years	7	41.2%	1	4.2%
	21+ years	4	23.5%	2	8.3

Internal Validity

Gay et al. (2009) defined internal validity as "the degree to which observed

differences on the dependent variable [were] a direct result of manipulation of the

independent variable, not some other variable" (p. 242). One threat to the internal validity

of this study was the mortality, or attrition, of participants during the study. Fraenkel et al. (2011) described mortality as the loss of subjects as a study progressed that limited the study's generalizability and might have introduced bias "*if* those subjects who [were] lost would have responded differently from those from whom data were obtained" (pp. 167-168). Since the results of this study were highly personal to the administrators participating, the researcher considered mortality to be a significant threat to the validity of the study; administrators who feared they would be described as uncreative or ineffectual at establishing a creative climate might have declined to participate.

Location was a much less significant threat to the internal validity of the study. Participants took their surveys and ATTA in the setting of their choosing; some may have chosen work, while others may have completed the instruments at home. The researcher had no control over the location in which participants completed their instruments; however, all participants were encouraged to find a quiet environment in which they would not be distracted. Another difference of location concerned the two small focus groups. The group of three administrators met at a different location than the group of four teachers. Location can threaten validity because it may affect responses, but this effect can be minimized if the researcher ensured "that different locations [did] not systematically favor or jeopardize the hypothesis" (Fraenkel et al., 2011, p. 169). In this study, the differences in location represented a small threat to internal experimental validity.

Summary

The researcher employed a mixed-methods design that relied on interviews, surveys, and a performance event to better understand creative capacity and creative

leadership among educators. The ATTA and CSQ-R measured participants' creative

capacity and their self-perception of their creative capacity and creative behavior. The

CCS and small focus groups measured participants' self-perceptions of their creative

performances, risk propensity, and organizational climate as evidence of creative

leadership. The researcher also investigated demographic factors and career attributes

(age, gender, school level, job level, job embeddedness, and work experience) that may

have affected creative leadership performance by comparing participants' mean ATTA,

CSQ-R, and CCS scores. The researcher noted threats to internal validity, including

mortality and location concerns. Using the *t*-test for difference in means and the PPMCC,

the researcher triangulated data "in such a way that the strength of one compensate[d] for

the weakness of another" (Gay et al., 2009, p. 377). The next chapter outlines the

qualitative and quantitative results of mixed methods analysis the researcher completed to

study administrators' creative capacity and then-current creative leadership practices,

educators' perceptions of creative leadership, and the relationship between demographic

factors and career attributes and creative performance. The researcher sought, after

revising the initial research design, to investigate whether Missouri public school

administrators and teachers were prepared to meet the creative leadership demands of the

21st century.

Chapter Four: Results

This chapter details the results of both quantitative and qualitative analysis for data collected within the study of creative leadership exhibited by public K-12 administrators. Analysis includes a discussion of focus group interview responses, the correlations of pertinent data points, and an explanation of the differences in means between the results of the Abbreviated Torrance Test for Adults (ATTA), the Creativity Styles Questionnaire – Revised (CSQ-R), and the Creative Climate Survey (CCS).

Educator Creativity and Creative Leadership

RQ 1: What, if any, patterns emerge when comparing responses regarding teachers' and administrators' perceptions of educator creativity and creative leadership?

To address this question, the researcher analyzed the CCS responses and conducted two homogenous small focus groups, one with teachers and one with administrators. The panel discussion responses were consistent with the CCS data, and several patterns emerged. The most noticeable pattern found within the data was that both groups believed that successful teachers were creative. In the panel discussions, both teachers and administrators perceived that the majority of teachers were creative by virtue of the work they did. Several teachers brought up the idea of multiple facets of creativity and gave examples of various ways in which teachers could be considered creative, including lesson plans and presentation techniques. Administrators referred to creativity as a 'life skill' and 'how schools function.' However, both groups also perceived creativity was not evenly distributed among all teachers and that some teachers were uncreative for a variety of reasons, including low capacity, poor work ethic, and lack of interest in their work. These comments were consistent with the CCS mean Likert rating

of 3.9 (on a scale of 1 'almost never' to 5 'almost always') for the item 'Teachers

produce original lesson plans, works of art, methods, processes, or procedures that are

valuable to our school' (Table 2).

Table 2.

Perceptions of Teacher Creativity - Creative Climate Survey

CCS Item	Mean Score
Teachers produce original lesson plans, works of art, methods, processes, or procedures that are valuable to our school.	3.9
Teachers adapt and improve procedures in our school.	3.6
Teachers find new ways of solving problems for our school.	3.7
Teachers initiate new programs to increase student achievement.	3.5
Teachers produce original ideas that are valuable to our school.	3.7

In general, teachers believed that most creative leadership came from teacher leaders

rather than administrators. The teacher panel described administrators as uncreative,

'lock-step', and having too many regulations to afford creative risk. On the CCS, the

mean Likert rating for 'Administrators adapt and improve procedures in our school' was

3.9, just slightly below 'Frequently' (Table 3). However, administrators within that group

assigned a mean response of 4.29 for that item, while teachers' mean response was 3.5.

The teacher panel discussion participants felt that department chairs were typically the

most creative leaders in their schools. While one of the administrators self-identified as

creative, the others felt that creative leadership was a goal not yet achieved.

Table 3.

Perceptions of Administrator Creativity - Creative Climate Survey

CCS Item	Mean Score
Administrators produce original programs, methods, processes, or procedures that are valuable to our school.	3.4
Administrators adapt and improve procedures in our school.	3.9
Administrators find new ways of solving problems for our school.	3.6
Administrators initiate new programs to increase student achievement.	3.7
Administrators produce original ideas that are valuable to our school.	3.5

All participants took the ATTA, which measured their individual creative capacity. Scholastic Testing Services (STS) scored each participant's ATTA and measured overall creative capacity in the form of a creativity index (CI), a number from 0 to 85+. STS had previously normed CI scores into 7 Creativity Levels (CLs), ranging from 1 (1-50: Minimally Creative) to 7 (85+: Substantially Creative) (Goff & Torrance, 2002, p. 32). The researcher created grouped frequency tables for each set of data provided by STS to determine normality by observing how closely each data set matched the bell curve.

All participants. The data set for all participants' CLs was negatively skewed or left-skewed (Bluman, 2010) (Appendix B). Moreover, both homogenous CI data sets, one of administrators and the other of teachers, were also negatively skewed or left-skewed (Appendix B). To determine whether these skews were significant, the researcher applied Pearson's Index of Skewness. The CL data set for all participants was not determined to

be statistically significantly skewed using this measure (PI = -0.97). However, the CL

data set for all participants did include one outlier, a teacher whose CL level was 1 (CI =

49).

   Disaggregated data. The homogenous administrator CI data set was determined

to be statistically skewed using this measure (PI = -1.06), though it did not include

outliers. The significant skewness led the researcher to conclude that the Administrator

CI data set was not approximately normally distributed, an unsurprising finding given the

small sample size. The homogenous teacher CI data set was not determined to be

statistically skewed using this measure (PI = -0.84). The Teacher CI data set included two

outliers, whose CI scores were 49 and 53. The outliers combined with the skewness of

the data led the researcher to conclude that the Teacher CI data set was not approximately

normally distributed, possibly due to a small sample size. Thus, the researcher concluded

that the creative capacity scores in this study were not approximately normally distributed

and were statistically skewed, but within expectation for a small sample size.

   Null Hypothesis 1; H_0: There will be no difference between the creative capacity

of educators and the normed population, measured by the ATTA.

   The researcher used a *t*-test for difference in means to determine if the mean

participant CI was different than the mean CI of the normed population. At a confidence

level of 95% ($\alpha = 0.05$) the *t*-test value of 4.25 was within the critical value range,

between ±2.021 (Table 4). This *t*-test value provided evidence to reject the null

hypothesis that there was no difference between the creative capacity of educators and

the normed population. The evidence supported the alternate hypothesis; educators in this

study had a significantly higher creative capacity than the normed population.

Table 4.

t-Test for Difference in Means: Participants' Creativity Index

	Norm	Participants
Mean	69.43	78.54
t Stat		4.25
t Critical two-tail		±2.021

Null Hypothesis 2; H_0: There will be no difference between the creative capacity of teachers and the normed population, measured by the ATTA.

The researcher used a *t*-test for difference in means to determine if the mean participant CI was different than the mean CI of the normed population. At a confidence level of 95% ($\alpha = 0.05$) the *t*-test value of 3.98 was within the critical value range, between ±2.069 (Table 5). This *t*-test value provided evidence to reject the null hypothesis that there was no difference between the creative capacity of teachers and the normed population. The evidence supported the alternate hypothesis; teachers in this study had a significantly higher creative capacity than the normed population.

Table 5.

t-Test for Difference in Means: Teachers' Creativity Index

	Norm	Teachers
Mean	69.43	78.54
t Stat		3.98
t Critical two-tail		±2.069

Null Hypothesis 3; H_0: There will be no difference between the creative capacity of school administrators and the normed population, measured by the ATTA.

The researcher used a *t*-test for difference in means to determine if the mean administrator CI was different than the mean CI of the normed population. At a confidence level of 95% ($\alpha = 0.05$) the *t*-test value of 1.962 was outside of the critical

value range, between ±2.120 (Table 6). This *t*-test value did not provide evidence to

reject the null hypothesis that there was no difference between the creative capacity of

school administrators and the normed population; the evidence did not support the

alternate hypothesis. School administrators in this study did not measure significantly

more or less creative than the normed population.

Table 6.

t-Test for Difference in Means: Administrators' Creativity Index

	Norm	Administrators
Mean	69.43	76.64
t Stat		1.96
t Critical two-tail		±2.120

Null Hypothesis 4; H$_0$: There will be no difference between the creative capacity

of school administrators and teachers in this study, measured by the ATTA.

The researcher used a *t*-test for difference in means to determine the difference in

means between administrator CI and teacher CI. At a confidence level of 95% ($\alpha = 0.05$)

the *t*-test value of 0.72 was outside of the critical value range, between ±2.120 (Table 7).

This *t*-test value did not provide evidence to reject the null hypothesis that there was no

difference between the ATTA scores of school administrators in this study and teachers

in this study; the evidence did not support the alternate hypothesis. School administrators

in this study did not significantly more or less creative than teachers in this study.

Table 7.

t-Test for Difference in Means: Administrator and Teacher Creativity Indices

	Teachers	Administrators
Mean	79.87	76.64
t Stat		0.72
t Critical two-tail		2.12

Null Hypothesis 5; H₀: There will be no relationship between participants' creativity index scores on the ATTA and their Creative Capacity scores as measured by the CSQ-R.

While the ATTA measured creative capacity through performance events (Goff & Torrance, 2002), the CSQ-R measured participants' self-perceptions of creative capacity and creative styles. The researcher used a Pearson Product-Moment Correlation Coefficient analysis (PPMCC) to measure "the strength and direction of a linear relationship between two variables" (Bluman, 2010, p. 533) and used qualitative descriptors for r values (weak, moderate, and strong) as defined by Cohen's (1988) descriptions of correlational magnitude for behavioral and educational research (Witte & Witte, 2010). The researcher sought to determine the relationship between creative capacity, as measured by the ATTA (CI), and the self-perception of creative capacity, as measured by the CSQ-R (CC). The researcher noted an observable, non-significant weak, negative relationship between ATTA CI and CSQ-R CC ($r = -0.27$; critical value = ± 0.482). This r value did not provide evidence to reject the null hypothesis that there was no relationship between participants' scores on the ATTA and their Creative Capacity scores as measured by the CSQ-R; the evidence did not support the alternate hypothesis. In this study, there was no significant relationship between ATTA scores and Creative Capacity scores.

Educators' Creative Performance over Time

RQ 2: Do educators perceive a change in their creative performance over time? If so, how? To what do they attribute this potential change?

Teacher panel participants fell into two camps with regard to change in creative performance: those who felt stifled or oppressed by their school systems and those who felt empowered by their experiences. Of the former, one teacher described 'behind the scenes rules' that detracted from teachers' creative ideas. The other teacher participants felt that their creativity had increased with wisdom, experience, and trust, though they acknowledged that was not the case for all teachers. One participant said, "The longer I've been around, the more creative I am. Some teachers, they get set in the way it's always been done and they get too comfortable. But as I age, I'm only getting better."

Administrators echoed those two points of view. The ambiguity of the relationship between experience and creativity continued: one administrator described experience as a detractor to her performance, because she felt her previous experiences allowed her to avoid original thought. Those who felt their creativity had decreased over time cited bureaucratic obligations and 'the business of school' as the largest obstacle to their creative performance. Yet the third administrator perceived that he was more creative because he had greater confidence, experience, and community support.

Nonconformity and Risk Propensity among Administrators

RQ 3: What are administrators' attitudes toward multifarious non-conformity, risk-taking, and rule-breaking?

As a group, teachers and administrators perceived administrators as most commonly conforming and having a low risk propensity (Table 8). The researcher asked the administrator panel if they would describe themselves as non-conforming, risk-taking, and/or rule-breaking.

Table 8.

Perceptions of Administrator Nonconformity and Risk Propensity

CCS Item	Mean Score
Administrators bend or break rules to get things done for our school.	2.4
Administrators rely on personal relationships and connections to accomplish difficult tasks for our school.	3.9
Administrators rely on parental support over central office support to solve problems for our school.	3.0
Administrators disregard standard policy when necessary to solve problems for our school.	1.9

None of the administrators identified as non-conformists. One of the administrators explained "in this line of work, nonconformists get weeded out pretty quickly," However, another administrator added a caveat to his conformity. He said "When doing what's best for students means not conforming to some rule that doesn't make sense, I'll non-conform."

The administrators were more comfortable identifying as risk-takers than rule-breakers, but they all emphasized that their risks were 'smart' or 'calculated.' Rule-breaking received the opposite response; one of the administrators even said "no one wants to say they're a rule-breaker." Another felt that, while she was not a rule-breaker, she was a 'rule-bender' when necessary. When the researcher inquired specifically about the unspoken rules in school districts, in reference to the work of Lyman et al. (2005), none of the administrators reported feeling pressure to conform to any such rule sets.

The researcher sought to determine whether risk propensity, as measured by the rule-breaking and risk-taking behaviors described by Lyman et al.'s (2005) work on

creative insubordination, had a relationship to creativity among the participating

educators. Additionally, the researcher sought to observe the general trends associated

with risk propensity among Missouri public school administrators, as a means of better

understanding the creative climate in which they work in response to the assertions that

educators had the lowest risk propensity of documented occupations (Miskel & Wilson,

1976). On a Likert scale (1 - almost never; 3 - unsure; 5 - almost always), the mean

administrator response to questions about risk-taking was 3.37; the mean response to

questions about rule-breaking was 2.93, which reflected the focus group findings that

administrators were more comfortable as risk-takers than rule-breakers, but not

exceptionally comfortable with either activity. Among teachers, the findings were

observably higher; teachers' mean response about risk-taking was 3.96 and the mean

response about rule-breaking was 3.70. Among the group as a whole, no participants

described their school environment as 'almost always' conducive to risk-taking or rule-

breaking.

Null Hypothesis 6; H$_0$: There will be no relationship between participants'

creativity index scores on the ATTA and their perceptions of risk-taking in their

organizations as measured by the CCS.

To determine if there was a relationship between participants' CI scores (n = 41)

on the ATTA and their perceptions of risk-taking in their organizations on the CCS, the

researcher used the PPMCC. At an alpha level of 0.05 and a critical value of 0.325, the

data suggested an observable weak, negative relationship between participants' CI and

risk-taking (r = -0.26, critical value = ±0.325). Since this r value did not reach the critical

value, there was no evidence to reject the null hypothesis; the evidence did not support

the alternate hypothesis. There was no relationship between participants' creativity (as

measured in CI) and their perceptions of risk-taking in their organizations as measured by

the CCS (Table 9); in this study, the evidence indicated no relationship between

participants' creative capacity and their perceptions of the educators' risk-taking

behaviors in their schools.

Table 9.

PMCC: Creativity and Risk Propensity

	Creativity Index (CI)	Kumar and Holman's Global Measure of Creative Capacity
Risk-Taking	-0.26	-0.18
Rule-Breaking	-0.12	-0.36

Null Hypothesis 7; H₀: There will be no relationship between participants'

creativity index scores on the ATTA and their perceptions of rule-breaking in their

organizations as measured by the CCS.

To determine if there was a relationship between participants' CI scores on the

ATTA and their perceptions of rule-breaking in their organizations, as measured by the

CCS, the researcher used the PPMCC. At an alpha level of 0.05 and a critical value of

0.325, the data suggested an observable and very weak, negative relationship between

participants' CI and their perceptions of rule-breaking in their school environments ($r = -$

0.12, critical value $= \pm0.325$). Since this r value did not reach the critical value, there was

no evidence to reject the null hypothesis; the evidence did not support the alternate

hypothesis. There was no relationship between participants' creativity (as measured in

CI) and their perceptions of rule-breaking in their organizations as measured by the CCS

(Table 9); in this study, the evidence indicated no significant relationship between

participants' creative capacity and their perception of educators' rule-breaking behaviors in their schools.

Null Hypothesis 8; H$_0$: There will be no relationship between participants' creative capacity scores on the CSQ-R and their perceptions of risk-taking in their organizations as measured by the CCS.

To determine if there was a relationship between participants' CC scores on the CSQ-R and their perceptions of risk-taking in their organizations, as measured by the CCS, the researcher used the PPMCC. At an alpha level of 0.05 and a critical value of 0.325, the data suggested an observable, weak, negative relationship between participants' CC and their perceptions of risk-taking in their organizations ($r = -0.18$, critical value $= \pm 0.325$). Since this r value did not reach the critical value, there was no evidence to reject the null hypothesis; the evidence did not support the alternate hypothesis. There was no relationship between participants' creativity (as measured in CC) and their perceptions of risk-taking in their organizations, as measured by the CCS (Table 9); in this study, the evidence indicated no significant relationship between participants' creative capacity and their perceptions of educators' risk-taking behaviors in their schools.

Null Hypothesis 9; H$_0$: There will be no relationship between participants' creative capacity scores on the CSQ-R and their perceptions of rule-breaking in their organizations as measured by the CCS.

To determine if there was a relationship between participants' CC scores on the CSQ-R and their perceptions of rule-breaking in their organizations, as measured by the CCS, the researcher used the PPMCC. At an alpha level of 0.05 and a critical value of

0.325, the data suggested a moderate, negative relationship between participants' CC and their perceptions of rule-breaking in their organizations ($r = -0.36$, critical value = ±0.325). Since this r value was greater than the critical value, there was evidence to reject the null hypothesis; the evidence supported the alternate hypothesis. There was a statistically significant and moderate, negative relationship between participants' creativity (as measured in CC) and their perceptions of rule-breaking in their organization as measured by the CCS (Table 9).

Creativity, Demographic Information, and Career Attributes

The researcher sought to clarify which, if any, demographic factors and career attributes (age, gender, school level, job level, job embeddedness, and work experience) affected creativity and creative leadership performance by comparing participants' mean ATTA, CSQ-R, and CCS scores with the demographic information and career attributes provided during the CCS.

Null Hypothesis 10; H$_0$: There will be no relationship between school administrators' creativity index scores on the ATTA and age.

To determine if there was a relationship between school administrators' CI scores (n = 17) and age, the researcher used the PPMCC. At an alpha level of 0.05 and a critical value of 0.482, the data suggested an observable weak, negative relationship between school administrators' CI scores and age ($r = -0.20$, critical value = ±0.482). Since this r value did not reach the critical value, there was no evidence to reject the null hypothesis; the evidence did not support the alternate hypothesis. There was no relationship between school administrators' CI scores and their ages (Table 10); in this study, the evidence did not suggest a significant relationship between school administrators' CI scores and age.

Table 10.

Relationship between Administrator Creativity and Demographics/Career Attributes

	Creativity Index (CI)
Age	-0.20
Gender	-0.20
Level of education	0.02
Total experience	0.14
Years at district	-0.16
School level	-0.06
Years as administrator	-0.08

Null Hypothesis 11; H_0: There will be no relationship between school

administrators' creativity index scores on the ATTA and gender.

To determine if there was a relationship between school administrators' CI scores

and their gender, the researcher used the PPMCC. At an alpha level of 0.05 and a critical

value of 0.482, the data suggested an observable, weak relationship between school

administrators' CI scores and gender (r = -0.20, critical value = ±0.482). Since this r

value did not reach the critical value, there was no evidence to reject the null hypothesis;

the evidence did not support the alternate hypothesis. There was no relationship between

school administrators' CI scores and gender (Table 10). In this study, the evidence did

not suggest a significant relationship between school administrators' CI scores and

gender.

Null Hypothesis 12; H_0: There will be no relationship between school

administrators' creativity index scores on the ATTA and levels of education.

To determine if there was a relationship between school administrators' CI scores

and level of education, the researcher used the PPMCC. At an alpha level of 0.05 and a

critical value of 0.482, the data suggested no relationship between school administrators'

CI scores and level of education (r = 0.02, critical value = ±0.482). Since this r value did

not reach the critical value, there was no evidence to reject the null hypothesis; the

evidence did not support the alternate hypothesis. There was no relationship between

school administrators' CI scores and their level of education (Table 10); in this study, the

evidence did not suggest a significant relationship between school administrators' CI

scores in this study and level of education.

Null Hypothesis 13; H_0: There will be no relationship between school

administrators' creativity index scores on the ATTA and their school levels (elementary,

middle, secondary).

To determine if there was a relationship between school administrators' CI scores

and their school level (elementary, middle, secondary), the researcher used the PPMCC.

At an alpha level of 0.05 and a critical value of 0.482, the data suggested no relationship

between school administrators' CI scores and school level ($r = -0.06$, critical value =

± 0.482). Since this r value did not reach the critical value, there was no evidence to reject

the null hypothesis; the evidence did not support the alternate hypothesis. There was no

relationship between school administrators' CI scores and school level (Table 10); in this

study, the evidence did not suggest a significant relationship between school

administrators' CI scores and school level.

Null Hypothesis 14; H_0: There will be no relationship between school

administrators' creativity index scores on the ATTA and years of work experience as

educators.

To determine if there was a relationship between school administrators' CI scores

and their years of work experience as educators, the researcher used the PPMCC. At an

alpha level of 0.05 and a critical value of 0.482, the data suggested an observable, weak,

positive relationship between school administrators' CI scores and their number of years worked as an educator ($r = 0.14$, critical value = ± 0.482). Since this r value did not reach the critical value, there was no evidence to reject the null hypothesis; the evidence did not support the alternate hypothesis. There was no relationship between school administrators' CI scores and their years of work experience as educators (Table 10); in this study, the evidence did not suggest a significant relationship between school administrators' CI scores and years of work experience as educators.

Null Hypothesis 15; H_0: There will be no relationship between school administrators' creativity index scores on the ATTA and years of service within the current district of employment.

To determine if there was a relationship between school administrators' CI scores and years of service within the current district, the researcher used the PPMCC. At an alpha level of 0.05 and a critical value of 0.482, the data suggested an observable, weak, negative relationship between school administrators' CI scores and their years of service within the current district ($r = -0.16$, critical value = ± 0.482). Since this r value did not reach the critical value, there was no evidence to reject the null hypothesis; the evidence did not support the alternate hypothesis. There was no relationship between school administrators' CI scores and their years of service within the current district (Table 10); in this study, the evidence did not suggest a significant relationship between school administrators' CI scores and years of service within the current district.

Null Hypothesis 16; H_0: There will be no relationship between school administrators' creativity index scores on the ATTA and years of work experience as administrators.

To determine if there was a relationship between school administrators' CI scores and their years of work experience as administrators, the researcher used the PPMCC. At an alpha level of 0.05 and a critical value of 0.482, the data suggested an extremely weak, negative relationship between school administrators' CI scores and their school level ($r =$ -0.08, critical value = ± 0.482). Since this r value did not reach the critical value, there was no evidence to reject the null hypothesis; the evidence did not support the alternate hypothesis. There was no relationship between school administrators' CI scores and their years of work experience as administrators (Table 10); in this study, the evidence did not suggest a significant relationship between school administrators' CI scores and their years of work experience as administrators.

Among participants in this study representing Missouri school administrators, age, gender, level of education, years of experience, years within a district, school level, and years as an administrator had no significant statistical effect on individual creative capacity as measured by the ATTA.

Null Hypothesis 17; H₀: There will be no relationship between school administrators' CSQ-R subscale scores (belief in unconscious processes, use of techniques, use of other people, superstition, environmental control, and the use of senses) and their demographic information (age, gender, level of education) or career attributes (school level, years of work experience as educators, years of work experience as administrators, years of service within the current district of employment).

The researcher used a PPMC to determine the relationship between administrator's creative styles and their demographic information and career attributes. The researcher found no significance and observable weak relationship coefficients

(-0.29 ≤ r ≤ 0.29) for 43 of the 56 relationship pairs between CSQ-R creative styles and administrators' demographic information and career attributes. These r values were all less than the absolute critical value of 0.482 and thus, were not statistically significant. These 43 r values (all less than 0.29) did not provide evidence to reject the null hypothesis that there was no relationship between administrators' creative styles (as measured by the CSQ-R) and administrators' demographic information or career attributes; the alternate hypothesis for these relationships was not supported. Age was not significantly related to creative capacity, nor to any of the creative style indicators. This finding was consistent with the previous PMCC analysis of ATTA scores and age. The researcher found the same for years of experience; that career attribute was not significantly related to creative capacity, nor to any of the creative style indicators.

Evidence suggested an observable, non-significant moderate, positive relationship (0.29 ≤ r ≤ 0.49) between three discrete pairs (Table 11), with one exception that was significant. School level was moderately positively correlated, yet not statistically significant, to creative capacity ($r = 0.34$), belief in unconscious processes ($r = 0.45$), and use of the senses ($r = 0.32$). Level of education was moderately positively correlated to superstition ($r = 0.49$), which was a significant relationship, and use of the senses ($r = 0.45$), which was not. Finally, years as an administrator was moderately positively correlated to use of the senses ($r = 0.33$), yet not statistically significant. With the exception of the relationship between the level of education and superstition, these r values did not provide evidence to reject the null hypothesis that there was no relationship between administrators' creative styles, as measured by the CSQ-R, and administrators' demographic information or career attributes; the alternate hypothesis for

these relationships was not supported. The exception, the relationship between administrators' level of education and belief in creative superstition, was statistically significant, because the r value ($r = 0.49$) was greater than the absolute critical value of 0.482. This r value provided evidence to reject the null hypothesis that there was no relationship between administrators' level of education and administrators' belief in creative superstition; the alternate hypothesis, that there was a relationship between administrators' level of education and administrators' belief in creative superstition, was supported. The researcher determined that the only significant demographic relationship to creative behavior among this set was the relationship between administrators' level of education and administrators' belief in creative superstition. The higher the level of education a participant had achieved, the more likely he or she was to believe in superstitions related to creativity.

Evidence suggested an observable, non-significant moderate, negative relationship ($-0.49 \leq r \leq -0.29$) between five discrete pairs (Table 11). Gender was moderately correlated to final product orientation ($r = -0.33$), environmental control/behavioral self-regulation ($r = -0.32$), and superstition ($r = -0.48$), indicating that men were more likely to be oriented toward final product orientation, environmental control/behavioral self-regulation, and superstition. Both years in the current district ($r = -0.38$) and school level ($r = -0.41$) were also moderately negatively correlated to final product orientation, yet not statistically significant.

These r values did not provide enough evidence to reject the null hypothesis that there was no relationship between administrators' creative styles, as measured by the CSQ-R, and administrators' demographic information or career attributes; the alternate

hypothesis for these relationships was not supported. There was no significant

relationship between gender and final product orientation, environmental

control/behavioral self-regulation, or superstition, nor was there a significant relationship

between final product orientation and either administrators' years in the current district or

school level.

Table 11.

Relationship between CSQ-R Subscores and Demographics/Career Attributes

	Gender	Level of Education	Years in Current District	School Level	Years as an Admin.
Creative Capacity (CC)				0.34	
Belief in Unconscious Processes				0.45	
Use of Techniques					0.61*
Use of Other People		-0.69*			
Final Product Orientation	-0.33		-0.38	-0.41	
Environmental Control/ Behavioral Self-Regulation	-0.32				
Superstition	-0.48	0.49*			
Use of the Senses		0.45		0.32	0.33

*denotes statistically significant value (CV = |0.482|)

Evidence suggested a significant strong, positive relationship ($0.49 \leq r \leq 1.0$)

between years as an administrator and use of techniques to aid creative processes. This *r*

value ($r = 0.61$) was greater than the absolute critical value of 0.482 and thus, was

statistically significant (Table 11). This *r* value provided enough evidence to reject the

null hypothesis that there was no relationship between administrators' use of techniques

and administrators' years of experience in administration; the alternate hypothesis, that

there was a relationship between administrators' use of techniques and administrators'

years of experience in administration, was supported. The researcher concluded that a

significant relationship existed, and experience as an administrator was positively

correlated to using strategies and techniques to achieve creative performance.

Additionally, evidence suggested a significant strong, negative relationship (-1.0

$\leq r < -0.49$) between level of education and use of other people to aid creative processes.

This r value ($r = -0.69$) was less than the absolute critical value of -0.482 and thus, was

statistically significant. This r value provided evidence to reject the null hypothesis that

there was no relationship between administrators' level of education and administrators'

use of other people to aid the creative process; the alternate hypothesis, that there was a

relationship between administrators' level of education and administrators' use of other

people to aid the creative process, was supported and a significant relationship was

found.

Summary

This chapter outlined the qualitative and quantitative results of mixed methods

analysis the researcher completed to study administrators' creative capacity and current

creative leadership practices, educators' perceptions of creative leadership, and the

relationship demographic factors and career attributes and creative performance, the

researcher sought to investigate whether Missouri public school administrators were

prepared to meet the creative leadership demands of the 21st century. Quantitative

analysis yielded evidence to suggest that school administrators were not more or less

creative than the normed population, nor were they significantly different from the

measures within a group of teachers. When addressing self-reported CC and creative

behaviors, evidence suggested that those with higher CI were slightly more likely to

describe themselves as less creative on the CSQ-R. This finding was puzzling,

considering the literature review found self-reports to be a reliable method of measuring creativity.

None of the demographic information or career attributes had any statistical significance when compared to CI scores from the ATTA. Two variables, age and years of experience, were also statistically not significant when compared to CC scores from the CSQ-R. The researcher did find moderate to strong statistical significance between several demographic categories, career attributes, and creative behaviors. The strongest observed correlations were a positive correlation between experience as an administrator and the use of techniques to improve creativity, and a negative correlation between participants' levels of education and reliance on others for help to perform creatively. In the next chapter, the researcher will triangulate the results, reflect on the findings, and provide recommendations for future research.

Chapter Five: Discussion and Reflection

This chapter discusses the results of analysis of data collected within the study. The researcher triangulated the results, reflected on the findings, and provided recommendations for future research. The purpose of this study was to use mixed methods to investigate whether Missouri public school administrators were prepared to meet the creative leadership demands of the 21st century.

First, to determine the extent to which Missouri school administrators were performing as creative leaders, the researcher measured administrators' creative capacity using the Abbreviated Torrance Test for Adults (ATTA) (Kim, 2006), administrators' self-perception of their creativity using the Creativity Styles Questionnaire-Revised (CSQ-R) (Kumar et al., 1997), and administrators' self-perceptions of their creative performance, risk propensity, and organizational climate, as evidence of their creative leadership behaviors, using a researcher-created Creative Climate Survey (CCS). In addition, the researcher also sought to clarify which demographic factors and career attributes (age, gender, school level, job level, job embeddedness, and work experience) may have related to creative leadership performance by comparing participants' mean ATTA, CSQ-R, and CCS scores. Finally, the researcher conducted two small homogenous focus groups, one of teachers and one of administrators, to obtain additional information about participants' perceptions of creativity and creative climate within their organizations. Several trends emerged from the research data analysis, including findings about educator creativity, creative leadership in schools, and the effects of organizational climate on creative performance over time. Hypotheses and research questions considered for this study were:

Research Hypotheses

Hypothesis 1: There will be a difference between the creative capacity of educators and the normed population, measured by the ATTA.

Hypothesis 2: There will be a difference between the creative capacity of teachers and the normed population, measured by the ATTA.

Hypothesis 3: There will be a difference between the creative capacity of school administrators and the normed population, measured by the ATTA.

Hypothesis 4: There will be a difference between the creative capacity of school administrators and teachers in this study, measured by the ATTA.

Hypothesis 5: There will be a relationship between participants' creativity index scores on the ATTA and their creative capacity scores as measured by the CSQ-R.

Hypothesis 6: There will be a relationship between participants' creativity index scores on the ATTA and their perceptions of risk-taking in their organizations as measured by the CCS.

Hypothesis 7: There will be a relationship between participants' creativity index scores on the ATTA and their perceptions of rule-breaking in their organizations as measured by the CCS.

Hypothesis 8: There will be a relationship between participants' creative Capacity scores on the CSQ-R and their perceptions of risk-taking in their organizations as measured by the CCS.

Hypothesis 9: There will be a relationship between participants' creative capacity scores on the CSQ-R and their perceptions of rule-breaking in their organizations as measured by the CCS.

Hypothesis 10: There will be a relationship between school administrators' creativity index scores on the ATTA and age.

Hypothesis 11: There will be a relationship between school administrators' creativity index scores on the ATTA and gender.

Hypothesis 12: There will be a relationship between school administrators' creativity index scores on the ATTA and levels of education.

Hypothesis 13: There will be a relationship between school administrators' creativity index scores on the ATTA and school levels (elementary, middle, secondary).

Hypothesis 14: There will be a relationship between school administrators' creativity index scores on the ATTA and years of work experience as educators.

Hypothesis 15: There will be a relationship between school administrators' creativity index scores on the ATTA and years of service within the current district of employment.

Hypothesis 16: There will be a relationship between school administrators' creativity index scores on the ATTA and years of work experience as administrators.

Hypothesis 17: There will be a relationship between school administrators' CSQ-R subscale scores (belief in unconscious processes, use of techniques, use of other people, superstition, environmental control, and the use of senses) and their demographic information (age, gender, level of education) or career attributes (school level, years of work experience as educators, years of work experience as administrators, years of service within the current district of employment).

Research Questions

RQ 1: What, if any, patterns emerge when comparing responses regarding teachers' and administrators' perceptions of educator creativity and creative leadership?

RQ 2: Do educators perceive a change in their creative performance over time? If so, how? To what do they attribute this potential change?

RQ 3: What are administrators' attitudes toward multifarious nonconformity, risk-taking, and rule-breaking?

Educator Creativity

To determine the extent to which educators were creative, the researcher measured creative capacity, self-perceptions of creative behaviors, self-perceptions of creative climate at work, and interviewed teachers and administrators about their experiences. Triangulation of the data revealed a strong trend: teachers were more creative than the normed population, evidenced by measures provided by the creators of the ATTA. Evidence supported the researcher's Alternate Hypothesis 1 that there was a difference between the creative capacity of educators (teachers and administrators as a heterogeneous group) and the normed population, as measured by the ATTA (Table 4). The study's combined group of teachers and administrators, as a whole was more creative than the normed population of adults. Evidence also supported Alternate Hypotheses 2, that there was a difference between the creative capacity of teachers and the normed population, as measured by the ATTA (Table 5). Teachers in this study were more creative than the normed population of adults. Discussion in both small focus groups supported this data; all participants described most teachers — and particularly 'successful' teachers — as creative individuals and believed their daily job activities were

proof of this creativity. Both teachers and administrators cited various ways in which

teachers could be considered creative including development of lesson plans and

presentation techniques. The small focus group feedback was substantiated by data from

the CCS, on which educators assigned a mean Likert rating of 3.9 for the item, 'Teachers

produce original lesson plans, works of art, methods, processes, or procedures that are

valuable to our school' (Table 2). These findings contradicted the literature, which

suggested that many educators were lacking in creative performance (Brown, 1970;

Robinson, 2011; Senge et al., 2012) and actively discouraged creativity on every level

(Runco, 2014; Westby & Dawson, 1995). These results made the disparity between

teacher creativity and administrator creativity noticeable.

A Deficit of Creative Leadership

Whereas teachers were statistically significantly more creative than the normed

adult population, administrators did not stand out from the normed adult population in

this study. Evidence did not support Alternate Hypothesis 3, that there was a difference

between the creative capacity of administrators and the normed population, as measured

by the ATTA (Table 6). To investigate Alternate Hypothesis 4, that there was a

difference between the creative capacity of teachers and administrators in the study, as

measured by the ATTA, the researcher conducted a *t*-test for difference in means. The

data revealed a small observable difference between teacher and administrator creativity

index scores, but did not provide evidence for a statistically significant difference in

creativity index scores between teachers and school administrators (Table 7). The

discrepancy between this and the first three hypotheses could possibly be explained by

the small sample sizes of the homogeneous groups. A larger sample may have indicated a

statistically significant difference between teachers' and administrators' creative

capacity; there was a perceived difference between the two samples measured, among the

focus group participants.

Both focus groups did not perceive administrators as the source of creative

leadership; the teacher group unanimously believed that most creative leadership came

from teacher leaders, rather than administrators. The teacher panel described

administrators as uncreative and 'lock-step.' Two of the three administrators in the

second small focus group agreed, stating that they did not feel they were creative leaders.

These qualitative findings were unsurprising, considering the number of researchers who

described typical school administrators as lacking in creative performance for a variety of

reasons (Brown, 1970; Landis, 2009; Mumford et al., 2000; Sternberg; 2005; Walker &

Quong, 1998). Based on the reviewed literature, the researcher anticipated data would

support a difference between the creative capacity of the normed population and the

school administrator sample, as measured by the ATTA. However, there was no such

statistically significant difference. The data appeared to support the literature that

described school administrators as not especially creative, though it did not support the

notion that they were especially 'uncreative.' However, considering the mortality effect

on this study, the researcher was uncertain whether a larger sample size would have

yielded the same results.

The current study included a mortality effect, which Fraenkel et al. (2011)

described as the loss of subjects as a study progressed that limits the study's

generalizability and may introduce bias "*if* those subjects who [were] lost would have

responded differently from those from whom data were obtained" (pp. 167-168). If

administrators who perceived themselves as less creative declined to participate, then it

was possible that the administrator data was not representative of Missouri

administrators. The data gathered in this study was significantly skewed, in fact; the

administrator creativity index (CI) data set, which excluded classroom teacher data, was

negatively skewed or left-skewed (Appendix B) to a statistically significant degree ($PI =$

-1.06). Thus, the administrator CI data set was not approximately normally distributed.

However, given the small sample size ($n=17$), it remained unclear whether that skewness

could be attributed to mortality or the low participation rate. It remained possible that the

majority of administrators who participated were also those who believed themselves to

be more creative. Even with this possible effect, data supported that administrators in the

study were not significantly more creative than the normed population. This led the

researcher to wonder: if the most creative administrators participated, and they were still

performing approximately relative to the normal bell curve, how would the least creative

administrators have scored?

When the researcher first began designing the original study, the research

committee was confident that a minimum of 150 administrators from around the state of

Missouri would be willing to participate in the study. The committee believed that

administrators would want to know how creative they were, what the climate of their

schools indicated in regards to their creative leadership performance, and most

importantly what, if anything, they could do to improve their creative leadership. This

was far from the case. The researcher reached out to every public school administrator

working in the 36 (of 113) school districts whose superintendents welcomed invitation

for participation in the study into their districts; only 24 administrators expressed interest

(7%). The mortality on the study was substantial; only 13 of those administrators (54%) consented to participation, and only 8 (33%) completed all 3 measures, including the faculty survey.

In an effort to better understand the study's lower than expected participation rate and large mortality rate, the researcher contacted several administrators to discuss their hesitation or concerns, as suggested by Gay et al. (2009). Administrators reported that they declined to participate because they either feared the response of their faculty or were intimidated by what they perceived as their own lack of creativity. Despite assurances of anonymity, and offers to refrain from sharing data with the individual administrators, fear of the study's findings kept at least five administrators from participating. The qualitative evidence seemed to suggest a real, or perceived, deficit of creative leadership among Missouri school administrators, though the small administrator sample prevented strong validity of the quantitative evidence providing support for these findings.

Creative Performance over Time

Other administrators who declined to participate in the original study design cited the busy nature of their jobs and their faculty's jobs. As the literature indicated, teachers and administrators were overworked, stressed, constrained, and burdened with a highly bureaucratic structure. It was little wonder, then, that many administrators could not find the time to participate, despite the marked importance of creative leadership in school effectiveness. The literature suggested that administrators' creative leadership performance frequently deteriorated over time, as the heavily bureaucratic nature of school organizations forced them to focus on managerial duties over leadership duties

(Davis, 2006; Ekvall, 1996; Smith et al., 1992). Morford (2002) noted that it took less than one year for these conditions to impact new building principals' leadership, shifting their focus from instructional leadership to maintaining the existing organizational structure. However other literature suggested that experience and years of service to an organization sometimes increased creative leadership, as individuals gained confidence and expertise. The researcher's findings supported this ambiguity. Data did not support Alternate Hypothesis 14; there will be a relationship between school administrators' creative index (CI) scores and years of work experience as educators. Similarly, the data did not support Alternate Hypothesis 15; there will be a relationship between school administrators' creative index (CI) scores and years of service within the current district of employment. Finally, the data did not support Alternate Hypothesis 16; there will be a relationship between school administrators' creative index (CI) scores on the ATTA and years of work experience as administrators. According to the researcher's findings, there was no statistically significant relationship, or contribution to deterioration of administrators' creative performance over time (Table 10).

To fully investigate the matter, the researcher sought to investigate educators' perceptions regarding how creative performance might change over time and how and why that process might occur. To determine participants' perspectives on the differences of creative performance over time, both focus groups were posed Research Question 2: Do educators [you] perceive a change in their [your own] creative performance over time? If so, how? To what do they [you] attribute this potential change? The literature's ambiguity on the relationship between experience and creativity was again reflected in the small focus group responses. Three of the seven participants, two teachers and one

administrator, believed that their creative performance increased as they grew wiser, more confident, more experienced, and became more embedded in their jobs. However even those participants acknowledged that their experiences with creative performance were not universal, and they perceived that some educators' creative performance seemed to deteriorate over time as they became 'set in the way it [was] always done.' Of the remaining four participants, two teachers and two administrators, who felt stifled or oppressed by their school systems, one teacher described 'behind the scenes rules' that detracted from teachers' creative ideas. The administrators who felt their creative performance had deteriorated cited bureaucratic obligations and 'the business of school' as the largest obstacles to their creative performance; experiences that supported the research of Davis (2006), who explained that administrators with more experience had "a repertoire of heuristic solutions to problems that ha[d] yet to arise. Moreover, problems often arrive[d] at such a furious and unpredictable pace that in order to keep up, administrators [became] solution-focused rather than problem-focused" (p. 9). One administrator described how gaining experience and job embeddedness allowed her to 'get lazy' and routinize her role. The ambiguity of these results substantiated Runco's (2014) description of creativity as an optimum, wherein variables like experience could increase creative performance, but only to a certain point after which they decreased creative performance.

When quantitatively investigating the possible change of creative performance over time, the researcher compared participants' demographic information (total experience, years at their current district, and years as an administrator) to their creative capacity as measured by the ATTA (CI) and CSQ-R (CC). Using the ATTA, the findings

were observably noted, but not statistically significant (Table 10). Among administrators, there was a non-significant weak direct relationship between CI and years of total experience ($r = 0.14$), and a non-significant weak indirect relationship between CI and years at their current district ($r = -0.16$). The relationships between school level and years as an administrator were also indirectly related to CI, but to an even weaker non-significant degree. These findings suggested that overall, experience increased creative capacity, but that administrators who stayed in the same district for too long, or who served as administrators for a longer period of time, experienced decreased creative capacity. Further investigation revealed a statistically significant and strong, positive relationship between years as an administrator and use of techniques to aid creative processes ($r = 0.61$). As administrators gained experience in that role, they increasingly relied on intentional strategies or techniques, such as daydreaming, brainstorming, or note-keeping (Kumar et al., 1997) to achieve creative outcomes. Whether this increase in use of techniques was in response to the decrease of CI remained unclear.

Other Trends

Much of the current literature suggested that school administrators lacked in creative performance because of their high conformity (Runco, 2014; Senge et al., 2012, Sternberg, 2005; Walker & Quong, 1998) and low risk propensity (Brown, 1970; Davis, 2006; Miskel & Wilson, 1976; Morford, 2002; Sternberg, 2005). The researcher sought to investigate these claims by asking the focus group participants Research Question 3: What are administrators' attitudes toward multifarious non-conformity, risk-taking, and rule-breaking? Administrators in the focus group referred to creativity as a 'life skill' and 'how schools function', yet none of them personally identified as nonconformist. One

administrator explained that nonconformists were quickly weeded out of school

administration, which supported Morford's (2002) and Walker and Quong's (1998)

findings that school leaders were consistently pressured to conform, even as they were

pressured to reform schools. A different administrator, who did not identify as a

nonconformist, later described his nonconformist activities on occasions when rules were

not serving students well. His experience was not shared by the other two administrators;

among all participants, the CCS item, 'Administrators disregard standard policy when

necessary to solve problems for our school', had a mean score of 1.9 (Table 3). As a

group, teachers and administrators perceived administrators as most commonly

conforming and having a low risk propensity (Table 3). Administrators' self-perceptions

aligned with Davis's (2006) claims that school administrators' "entrepreneurial thinking

and risk-taking in pursuit of educational innovations [were] often overshadowed by an

understandable preoccupation with regulatory compliance, political tranquility, and

career survival" (p. 9).

From there, the researcher sought to investigate the potential relationship between

an individual's creativity capacity and self-perception of risk-taking and rule-breaking

behaviors. Unfortunately, the researcher's measures did not achieve this goal. Rather, the

only quantitative risk-taking and rule-breaking data the researcher collected measured

individuals' perceptions of risk-taking and rule-breaking in their school environments,

not exclusively their own risk-taking and rule-breaking behaviors. Still, the findings of

Alternate Hypotheses 6 through 9 were interesting (Table 8). The researcher observed a

non-significant weak negative relationship between creative capacity, as measured by

ATTA and CSQ-R, and individuals' perceptions of risk-taking behavior in their schools;

the higher the individual's creative capacity, the more likely the individual was to

perceive their organization as one in which people did not take risks. The relationship

between creative capacity and individuals' perceptions of rule-breaking behavior in their

schools had a non-significant moderate negative relationship; the higher the individual's

creative capacity, the more likely the individual was to perceive their organization as one

in which people did not break rules.

The ambiguous nature of the literature regarding demographic information and

creativity led the researcher to investigate these possible relationships. None of the

participants' demographics, age, gender, nor level of education, had any statistical

significance when compared to CI scores from the ATTA. Therefore, the evidence did

not support Alternate Hypotheses 10, 11, and 12. These findings supported the works of

Goff and Torrance (2002) and Kim (2006), which claimed that the ATTA was without

significant bias based on demographic information. However, there were some

observable relationships within those tests and several statistically significant

relationships when the researcher compared individuals' self-perceptions of their creative

capacity (CC), as measured by the CSQ-R and demographics. Neither CI scores nor CC

scores were statistically significantly related to age. However, the researcher observed a

non-significant weak negative relationship between CI and age ($r = -0.20$), which

suggested that as participants aged, they may have scored lower on the ATTA to a

statistically insignificant degree. These findings replicated those of Binnewies et al.,

(2008) and Kinai (2013), who found no statistically significant relationship between

creativity and age; they did not support Lindauer et al.'s, (1997) results that demonstrated

a positive relationship between age and self-perception of creativity.

Similarly, there was no statistically significant relationship between gender and CI, a finding that supported the literature (Kinai, 2013; Vincent, 2009). The researcher observed a non-significant weak relationship between CI and gender; being male was weakly related to higher creative capacity on the ATTA, which contradicted much of the literature. This result might have been due to the mortality effect; 85% of the administrator participants who dropped out of the study were male. Additionally, the researcher observed a relationship between gender and three CSQ-R subscales: final product orientation, environmental control/behavioral self-regulation, and superstition were all slightly more likely among men. The last demographic category, level of education, was not correlated to creative capacity, but did significantly correlate to two creativity styles. The more education participants had completed, the less likely they were to rely on help from others to perform creatively. More education also related to a higher instance of belief in superstitions about creativity. For these two CSQ-R subscores, Alternate Hypothesis 17, that there was a relationship between subscores and demographics/career attributes, was supported by the evidence. These results seemed to suggest that level of education bred independence, but not necessarily a higher creative capacity. The researcher was unable to locate literature that investigated the possible relationship between school administrators' creativity and the school level, elementary, middle, or secondary, at which they worked. Some researchers suggested that additional constraints might decrease creativity; elementary and secondary differences. The evidence did not support Alternate Hypothesis 13; the evidence did not suggest a relationship between school administrators' CI scores on the ATTA and school levels (elementary, middle, secondary).

One final trend was unexpected: evidence from Hypothesis 5 suggested that individuals with higher CI on the ATTA were slightly more likely (but not statistically significantly) to describe themselves as less creative on the CSQ-R. This finding was puzzling, considering the literature review found self-reports to be a reliable method of measuring creativity. One possible explanation came from Kumar et al.'s (1997) work on the CSQ-R, in which they determined "more creative students were more prone to believe in a variety of unconscious processes that somehow help[ed] them in their creative endeavors" (p. 57). Perhaps more creative people sometimes perceived their creativity to originate outside of themselves, and described themselves accordingly.

Recommendations for Replication and Future Research

The researcher has several recommendations for those who may wish to replicate or enhance the current study. First, the small convenience sample may have impacted the outcome of the study. Because convenience samples are volunteer-only, this study was based only on volunteers' data. It remained possible that the results would not be generalizable to the entire population, since the total population includes non-volunteers (Gay et al., 2009). The researcher additionally recommends that replications involve a larger, random sample size to ensure adequate representation of all subgroups within the population. Such a study might be more successful if it were conducted at the beginning of school year, when educators have not yet become overwhelmed with their daily practice.

Second, the study's validity would be improved by removing as much of the mortality bias as possible. The substantial loss of subjects as the study progressed suggested the possibility of bias, since the subjects who were lost may have responded

differently (Fraenkel et al., 2011). Since the results of this study were highly personal to the administrators participating, the researcher considered mortality to be a threat to the validity of the study; administrators who feared they would be described as uncreative or ineffectual at establishing a creative climate might have declined to participate. To combat the mortality effects of the study, the researcher recommends a more direct interaction between researcher and subjects; the extended time frame and e-mail communication afforded subjects a distance which may have detracted from their motivation to complete the study. Another suggestion would be increasing the incentive for study completion.

Third, this study was limited by the use of the composite creativity index scores from the ATTA. Torrance (1993) cautioned against strictly using the composite score, explaining that subscale scores were all independently important and that a composite score could mislead the researcher (Baer, 2011). As the composite scores were used in the vast majority of studies in the literature, and because this study examined overall creative capacity, the researcher elected to use the creativity index scores. Future studies might isolate each of the subscale scores for analysis, to get a more accurate picture of administrator creativity.

Like much of the literature about creative leadership, this study has introduced more questions than it has attempted to answer. The researcher also has recommendations for future research. First, a longitudinal mixed-methods study of administrators' creative leadership would provide a more accurate understanding of schools' organizational cultures, constraints, and what happens to administrators' creative performance over time. Second, the researcher found that increasing administrator experience led to

increasing reliance on intentional strategies or techniques such as daydreaming, brainstorming, or note-keeping (Kumar et al., 1997) to achieve creative outcomes. Whether this was to combat the effects of a decreasing creative capacity, or whether this was simply an evolution of creative leadership based on experience remained unclear; future research could investigate how changes in creative performance over time affect creative styles. Third, the researcher had intended to measure the relationship between creative capacity and risk propensity. Future studies could investigate this relationship and how it relates to education as a whole. Fourth, focusing on the creative leadership of school administrators at the building principal level did not account for leadership decisions made at the central office level or beyond. While building principals play a vital role in school reform, much of the literature suggested that they were constrained by decisions made at the district, community, state, and national levels (Anderson, 2008; Azzam, 2009; Chirichello, 1999; Csikszentmihalyi & Wolfe, 2001, Goertz, 2000; Jazzar & Algozzine, 2006; Robinson, 2011; Staples, 2005; Sternberg, 2005; Senge et al., 2012). Future research should investigate the creative leadership of these entities, as they directly impacted the effectiveness of K-12 public schools. Finally, failure to support the alternate hypotheses regarding administrator creativity, creative performance over time, nonconformity and risk propensity among administrators, and the relationships between demographic information and career attributes and creative capacity warrants future research.

Recommendations for Practice and Policy

An increasingly complex society has demanded creative leadership from its educational leaders, but those leaders have been involved with a period of difficult

transition and extended responsibility. To meet the needs of 21st century learners, schools

required that administrators were creative leaders (Puccio et al., 2011) who were able to

employ transformational leadership practices (Chirichello, 1999; Sagnak, 2010;

Sternberg, 2005) and creative problem solving skills (Mumford et al., 2000) to establish

learning organizations (Robinson, 2011; Senge et al., 2012). Though educators were

statistically significantly more creative than average adults, school administrators were

not. The sample size and mortality effect suggested that they may have been less creative

than the data suggested. The bright spot in these findings was the potential for teacher

leadership to fill this void, as teachers were a wealthy source of creativity and creative

leadership. While school administrators were bogged down with the daily managerial

tasks and the political constraints of their positions, teacher leaders seemed empowered to

fulfill the need for creative leadership behind the scenes. The researcher recommends that

schools further investigate the creative leadership potential of teacher leaders, possibly

shifting the role of instructional leadership into the hands of one who does not have to

manage "increasingly pluralistic communities, persistent achievement gaps, paper-thin

fiscal resources, grumpy labor unions and mounting pressures to leave no child behind"

(Davis, 2006, p. 9). The only way teachers could avoid the same disintegration of their

creative behaviors, according to Robinson (2011) was to enforce educational policies that

do not curb creativity and instructional effectiveness through a standardized approach to

education.

Schools were the bedrock of society and required creative leadership to meet the

needs of 21st century learners; since teacher leaders invariably answered to school

administrators, those administrators also had the responsibility of becoming creative

organizational leaders. Several researchers offered training ideas to improve creative

behaviors and creative leadership, which might best have been taught in certification

programs and then supported over time through continuing education (Davis, 2006;

Landis, 2009; Puccio et al., 2011; Robinson, 2011; Senge et al., 2012). However, given

the frequency with which administrators encountered negative feedback or resistance

when they behaved creatively, such changes would have to be systemic and involve all

stakeholders in the school organization including parents, central office administrators,

and politicians. Senge et al. (2012) encouraged the development of administrators'

leadership skills and open communication with stakeholders as ways to mitigate the

effects of conformist feedback loops. Such a systemic change could only occur through

societal reform, which would require extremely creative, effective transformational

leaders to pioneer the way for others to follow in their wake.

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Best of luck,

Gerard

--

Gerard Puccio, Ph.D.| Chair & Professor - International Center for Studies in Creativity |

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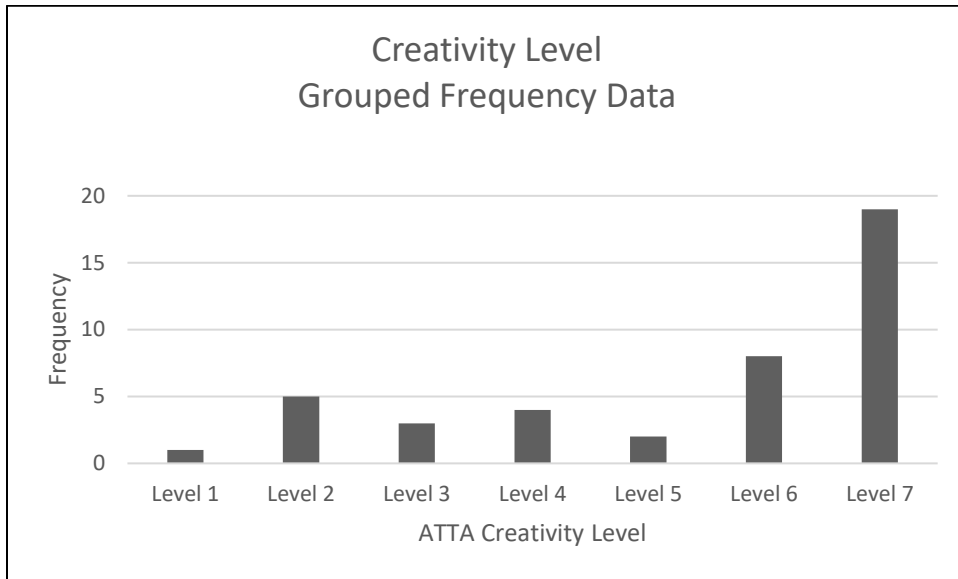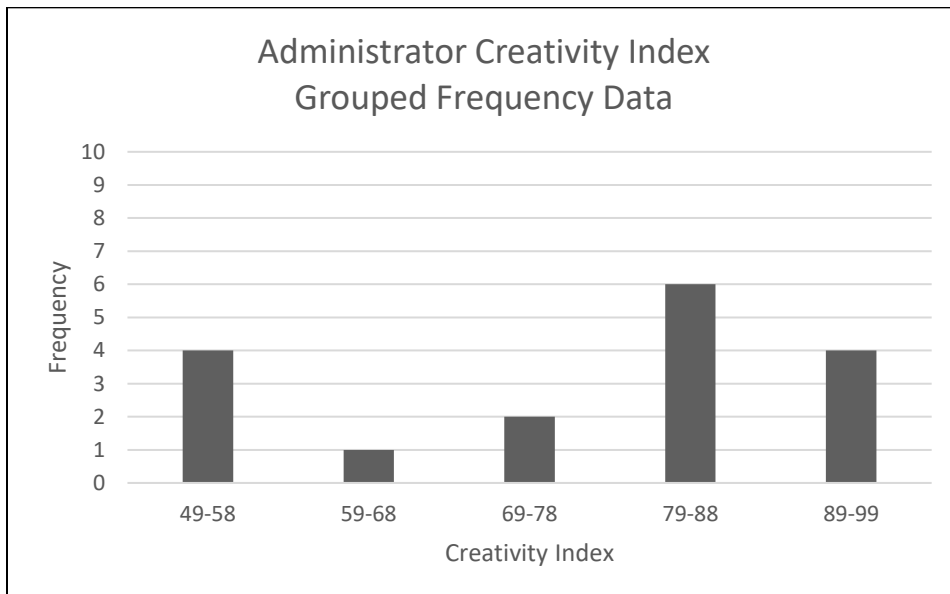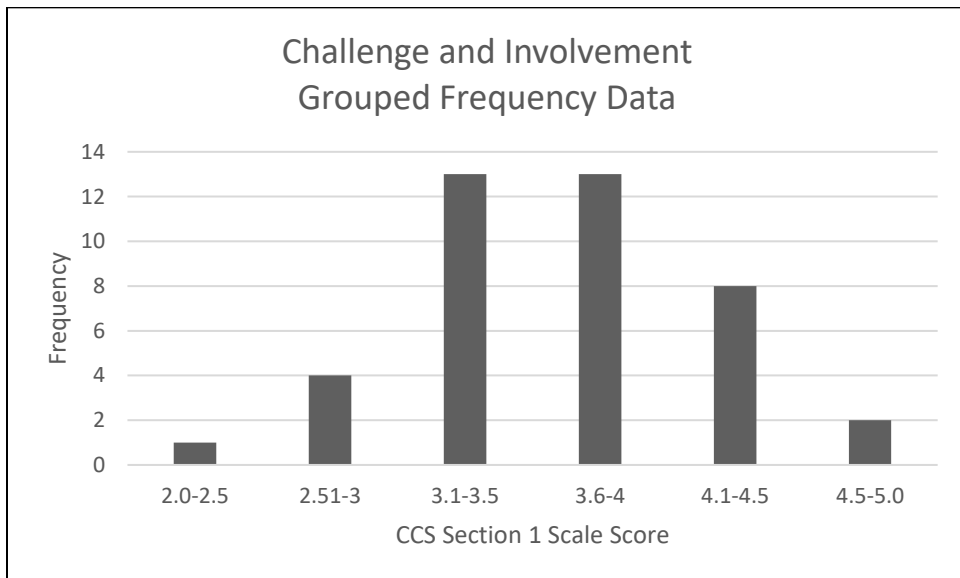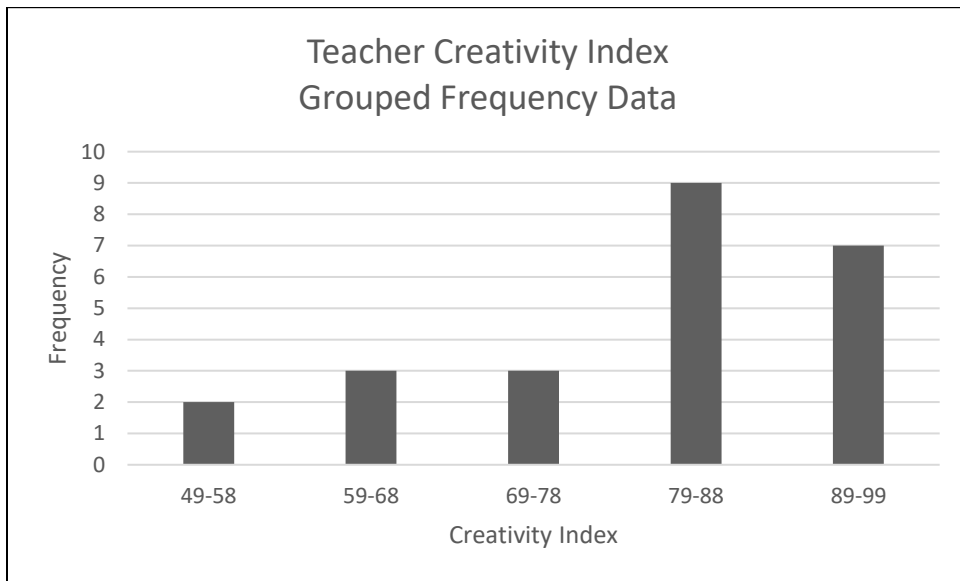|	
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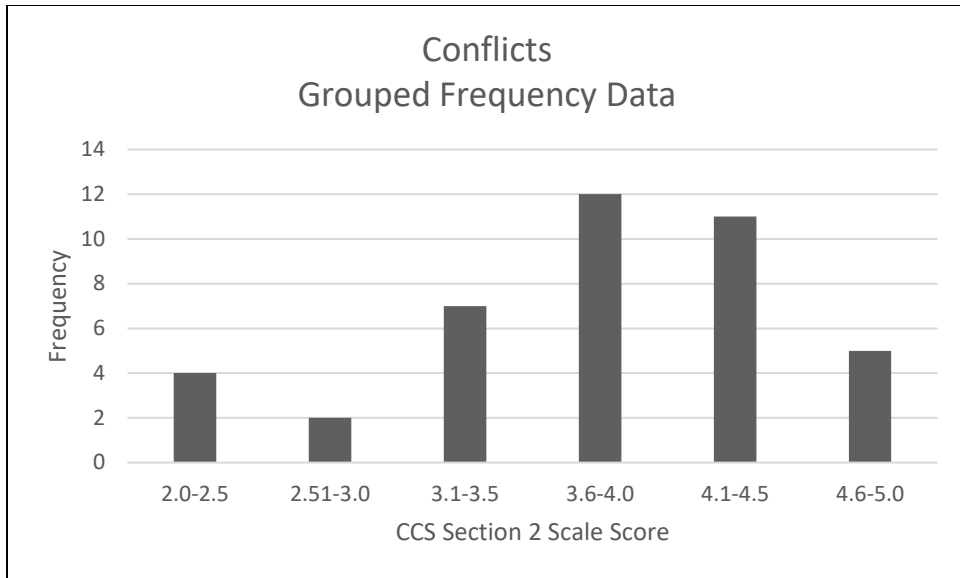
Normed/frequency vs. All participants

Creativity Level
Grouped Frequency Data

Frequency (y-axis): 0, 5, 10, 15, 20
ATTA Creativity Level (x-axis): Level 1, Level 2, Level 3, Level 4, Level 5, Level 6, Level 7

Administrators only

Administrator Creativity Index
Grouped Frequency Data

Frequency (y-axis): 0–10
Creativity Index (x-axis): 49-58, 59-68, 69-78, 79-88, 89-99

Teacher Only

Teacher Creativity Index Grouped Frequency Data

A bar chart titled "Teacher Creativity Index Grouped Frequency Data" with y-axis labeled "Frequency" (0–10) and x-axis labeled "Creativity Index." Bars: 49-58 = 2, 59-68 = 3, 69-78 = 3, 79-88 = 9, 89-99 = 7.

Challenge and Involvement Grouped Frequency Data

A bar chart titled "Challenge and Involvement Grouped Frequency Data" with y-axis labeled "Frequency" (0–14) and x-axis labeled "CCS Section 1 Scale Score." Bars: 2.0-2.5 = 1, 2.51-3 = 4, 3.1-3.5 = 13, 3.6-4 = 13, 4.1-4.5 = 8, 4.5-5.0 = 2.

**Conflicts
Grouped Frequency Data**

**Debate
Grouped Frequency Data**

Freedom
Grouped Frequency Data

Idea Support
Grouped Frequency Data

Idea Time
Grouped Frequency Data

Frequency vs CCS Section 6 Scale Score

CCS Section 6 Scale Score	Frequency
1.0-1.9	1
2.0-2.9	3
3.0-3.9	5
4.0-4.9	18
5.0-5.9	14

Playfulness/Humor
Grouped Frequency Data

Frequency vs CCS Section 7 Scale Score

CCS Section 7 Scale Score	Frequency
2.0-2.5	1
2.6-3.0	6
3.1-3.5	11
3.6-4.0	8
4.1-4.5	11
4.6-5.0	4

Risk-Taking
Grouped Frequency Data

Rule-Breaking
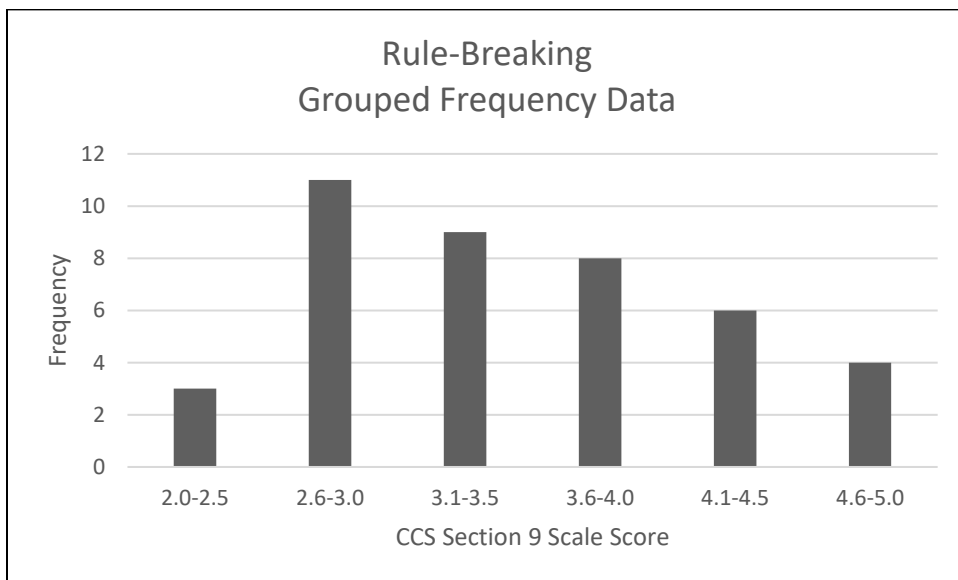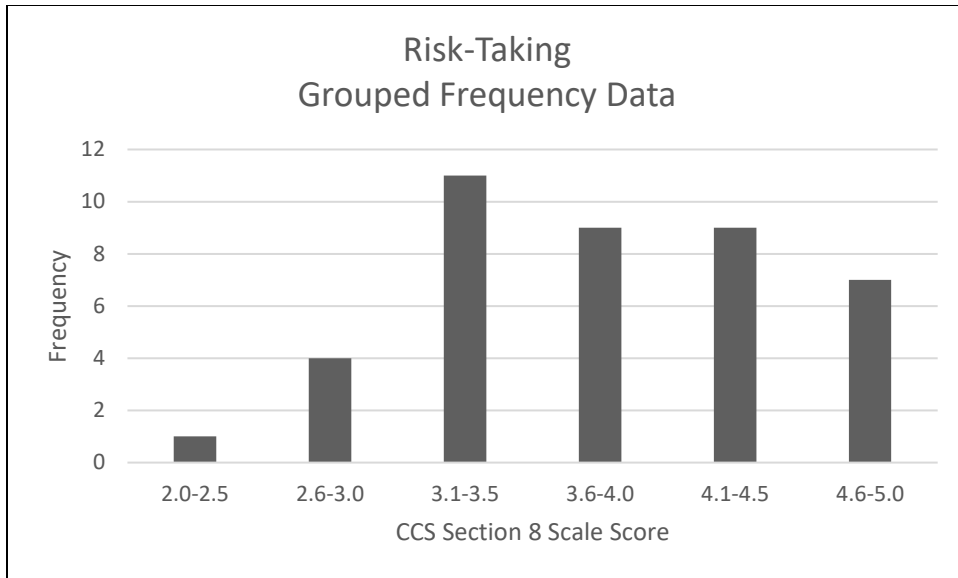Grouped Frequency Data
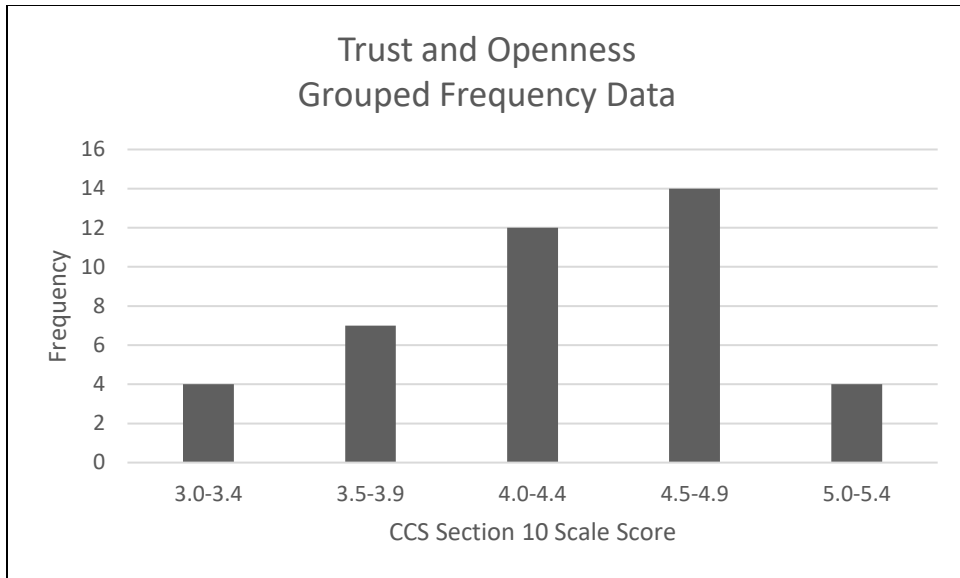
Trust and Openness
Grouped Frequency Data

Vitae

Tiffany Jarvis graduated from Webster University's School of Education in 2002 and taught middle level students French, Communication Arts, and Creative Writing for eleven years. During that time, she served as a teacher leader, department chair, student activities supervisor, and professional development presenter. She is certified to teach Elementary Education, French, and Communication Arts. Tiffany has also earned a Master's degree in Special Education (with an emphasis in Gifted Education) from the University of Missouri. Tiffany has designed and presented in-service workshops on teaching writing, technology in the classroom, character education, formative assessment, student engagement, and brain-based learning. In 2013, Tiffany left her position as a teacher leader in the Northwest R-1 School District to raise her twin daughters and focus on completing her doctorate in Educational Leadership (Andragogy emphasis). Upon completing her doctorate, she plans to return to the classroom while continuing to research Creative Leadership and Educational Leadership.