

IMPROVING SCHOOL PERFORMANCE: LEADER AUTONOMY
AND ENTREPRENEURIAL ORIENTATION

by

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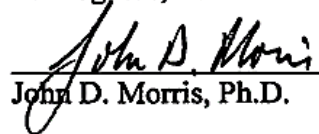
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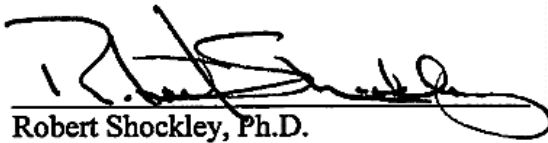
This dissertation was prepared under the direction of the candidate's dissertation advisor, Dr. John R. Pisapia, Department of Educational Leadership and Research Methodology, and has been approved by the members of his supervisory committee. It was submitted to the faculty of the College of Education and was accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

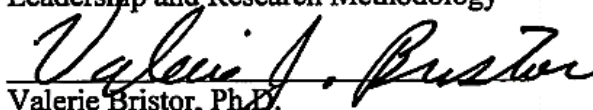
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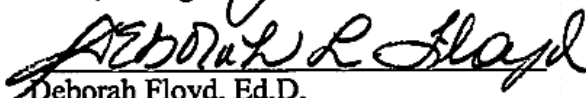

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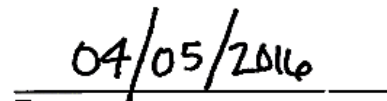

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To my cohort, a special group of people, who have been there every step of the way, I cannot thank you all enough. Patti, Tracey, Mary, and Ginger...your time will be here soon, and I will continue to be proud to always call you colleagues and dear friends.

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Finally, Grandpa Fred, although he is no longer with us, his spirit lives on in everything I accomplish. He has always been the greatest source of inspiration and the whole reason for my love of education. From a young age, he impressed upon me the importance of education, constantly quoting Benjamin Franklin, “Empty thy purse into thine head, for no thief can steal knowledge.” His wisdom has guided me always, and his presence can be felt in every word of this work.

ABSTRACT

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In a growingly complex and ambiguous world it is thought that flexible, change-oriented leadership that encourages a culture that is risk taking, innovative, and proactive is necessary to survive and prosper. The extant literature offers entrepreneurial leadership as having a positive impact in such environments in business settings. Schools, which are not exempt from complex and ambiguous environments, might also benefit from this new type of leadership. Hence, this study expands the study of entrepreneurial leadership to the education profession, examining the relationship between principal autonomy, a principal's entrepreneurial orientation, school culture, and school performance.

This study, supported by findings of numerous educational leadership studies, posits that a significant positive indirect relationship exists between a principal's entrepreneurial orientation and school performance, with school culture as a mediating variable. It is proposed that a greater disposition to proactive and risky behaviors in pursuit of innovation will correlate with greater cultural innovativeness, leading to higher

levels of school performance.

The contribution this study makes is both theoretical and practical. Theoretically, it adds a new dimension to the educational leadership literature by investigating the potential effectiveness of entrepreneurial leadership in improving teaching and learning in American schools, and the impact of risk taking, innovativeness, and proactiveness as individual distinct determinants of school performance. Practically, the study could identify new dispositions valuable to principals in efforts to improve their school's performance. The study uses a nonexperimental, quantitative research design to explore these relationships, using correlational and regression analyses.

DEDICATION

This study is dedicated to Grandpa Fred, who to this day is the greatest man I have ever met. A Renaissance man who could write a novel just as brilliantly as he could play baseball, Grandpa Fred has always been an inspiration and someone I admire and respect. Whether telling jokes, reciting historical events, or debating the issues of the day, in my mind he always stood head and shoulders above all. While I can never expect to fill his shoes, his spirit continues to inspire and encourage me, and propels me to continue to work to do all I can to improve education.

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CHAPTER 1: INTRODUCTION

Introduction to the Problem

“The most valuable 100 people to bring into a deteriorating society would not be economists, or politicians, or engineers, but rather 100 entrepreneurs” (Abraham Maslow as cited in Naz, Munir, Khalid, & Ahmed, 2011, p. 279).

Today’s postmodern world is complex, marked by ambiguity, complexity, change, and uncertainty (Kotter, 1996; Pisapia, 2009; Quinn, 1996; Thompson, 2004). It is an environment in which innovation-based competition is the driving force (Tarabishy, Solomon, Fernald, & Sashkin, 2005) and requires the skills of an entrepreneur (Fernald, Solomon, & Tarabishy, 2005; Lumpkin & Dess, 1996; Thompson, 2004). It requires bold actions and innovative strategies (Santora, Seaton, & Sarros, 1999), which are inherently risky (Kotter, 1996), sense of opportunity, capacity for accomplishment, effort, and passion (Kuratko, 2007), stimulating creativity and innovation (Naz et al., 2011). During these dynamic and complex times, it is thought that a new breed of leader is required for organizational survival and growth (Cohen, 2004; Kotter, 1996; Pisapia, 2009; Quinn, 1996; Santora et al., 1999; Senge, 1992; Van Knippenberg, & Sitkin, 2013).

At its core, leadership revolves around several key components: (a) establishing direction (e.g. creating a vision, clarifying the big picture; and setting strategies); aligning people and structures by communicating goals, seeking commitment, building teams and coalitions; and focusing on results (Pisapia, 2009). Scholars have developed adjectives, principles, and theories to distinguish how different leaders accomplish those tasks. For

example, a servant leader accomplishes them by focusing on their desire to serve others to help them achieve and improve (Greenleaf, 1977). Transformational leaders accomplish them by focusing on idealized influence, intellectual stimulation, inspirational motivation, and individualized consideration (Bass, 1985). Authentic leaders accomplish them by focusing on working in concert with one's true self, balanced processing, relational transparency, and self-transcendent values (Avolio & Gardner, 2005). Strategic leaders accomplish them by focusing on agility, artistry, anticipating, articulating, aligning, and assuring (Pisapia, 2009). The list could go on, but the point is made that all leaders have common tasks while attempting to achieve them in different ways. Thus, how do entrepreneurial leaders accomplish the basic tasks of leadership?

An entrepreneur is someone who possesses an entrepreneurial mindset (Taulbert, 2013) that leads to innovation and involves risk (Covin & Slevin, 1988; Lumpkin & Dess, 1996; Miller, 1983; Schumpeter, 1934). They discover, evaluate, and exploit opportunities for creating new products and services (Shane & Venkataraman, 2000) and, as the decision maker, decide what, how, and how much of a good or service will be produced (BusinessDictionary.com, 2016). The approaches associated with entrepreneurs are risk taking, innovation, and proactiveness.

As used in this study, an entrepreneur refers to “a person who habitually creates and innovates to build something of recognized value around perceived opportunities” (Bolton & Thompson, 2000, p. 5). An entrepreneur is a person whose risk taking and innovative prowess lead to creating an innovative culture which leads to positive performance. Entrepreneurial leadership refers to entrepreneurs who work in ambiguous and uncertain environments within a formalized organizational structure, but they use the

skills and approaches normally expected of an entrepreneur which include (a) identifying opportunities, (b) assuming calculated risks, (c) proactively seeking out and recognizing opportunities, and (d) creatively pursuing innovations which create value (Tarabishy et al., 2005). Scholars have asserted that these skills are at the center of organizations that have an entrepreneurial culture, which they call entrepreneurial orientation (EO), to gain advantage and provide clarity for those around them which leads to organizational profitability (Covin & Slevin, 1989; Lumpkin, & Dess, 1996; Miller, 1983).

While much of the extant literature about entrepreneurship is found in the business management literature, ambiguous, complex, and dynamic environments are not foreign to schools and calls for a new type of leadership. As Harris (2012) noted, principals will increasingly be working in a “climate of uncertainty and unpredictable change” (p. 15). Other researchers have offered similar thoughts. Hargreaves (2007) contended that the information age spurs the development of knowledge societies, in which “wealth, prosperity, and economic development depend on people’s capacity to out-incent and outwit their competitors” (p. 223). He further claimed that both individuals and organizations must have “the capacity to share, create, and apply new knowledge continuously over time in cultures of mutual learning and continuous innovation” (p. 223). To achieve the educational needs of the present and future societies, schools will have to move away from traditional practices (Hargreaves, 2007; Harris, 2012) and encourage educators to “develop dispositions of taking risks and welcoming change rather than staying with proven procedures and comfortable routines” (Hargreaves, 2007, p. 224). Heifetz (2004) agreed, acknowledging that schools will need to accept the need to adopt new norms of experimentation in efforts to ensure that all students are gaining

the skills necessary for success in the 21st century.

Background

After a *Nation at Risk* in 1983, less than a decade produced over 20,000 reports calling for reform of the nation's schools (Peck, 1991). Educational leadership research has confirmed that school leadership, and specifically principals, have a significant impact on the success of a school's educational program and its overall performance and play a critical role in school improvement (Andrews & Soder, 1987; Hallinger & Heck, 1998; Leithwood, 1994; Leithwood, Harris, & Hopkins, 2008; Sashkin, 1988).

The 1980s saw the rise of the principal as an instructional leader, and instructional leadership became the preferred leadership approach of policymakers (Hallinger, 1992). This approach, vertical in nature and effective in maintaining the status quo, is ill suited to move an organization forward in the constantly changing times of the postmodern condition (Pisapia, 2009). Hierarchical, top-down, one leader traditional approaches to leadership focused more on the processes of maintaining stability than on promoting change and lost favor as school improvement reforms gained steam in the 1990s. Principals who were once asked to be strictly instructional leaders were now being asked to shift from roles as transactional leaders to those of transformational leaders (Murphy & Hallinger, 1992). Rather than focusing on the efficiency of organizational practices, principals, as transformational leaders, were now tasked with improving school performance by inspiring greater production from teachers. According to Bass's (1985) transformational leadership theory, principals were asked to be more charismatic, developing organizations with horizontal leadership structures in which employees were empowered, and the self-actualization needs of teachers were pursued.

Schools have continued to transform with the economic, social, and political changes of the postmodern society. The industrial age was replaced with the information age, and knowledge was in large part replaced with skills as education systems attempted to remain relevant in regard to societal needs. Huber (2004) noted that

the school as an institution cannot any longer be regarded as simply imparting traditional knowledge within a fixed frame. Rather, it is becoming an organization which needs to renew itself continuously in order to take present and future needs into account (Dalin & Rolff, 1990). This imposes the necessity on school leadership to consider itself as a professional driving force and mediator for the development of the school towards a learning organization, an organization which develops its own reforming and changing powers and re-invents itself. (p. 671)

Harris (2002), in the National College for School Leadership study of effective school leadership in challenging contexts, noted that successful head teachers promoted risk taking among their teachers, encouraging and rewarding innovative thinking. Jenkins (1992) agreed on the importance of an innovative environment, finding that more change occurred in schools in which conditions made experimentation and innovation possible. When school leaders support creativity, provide flexibility and freedom to educators, offer continuous opportunities to learn and grow, encourage risk taking, and tolerate failure, then creative teaching thrives throughout the school (Chang, Chuang, & Bennington, 2011).

Entrepreneurial leadership is a form of leadership that encompasses many of the attributes of various leadership styles, specifically, flexibility, empowerment, and autonomy. These similarities can lead one, as Fernald et al. (2005) suggested, to question whether entrepreneurial leadership is actually a new approach to leadership. However, by emphasizing Miller's (1983) dimensions of EO, that of risk taking, innovativeness, and proactivity, entrepreneurial leadership lends itself to effectiveness in navigating the

minefield of change in present day society.

As referenced in Table 1, persons who demonstrate the characteristics of both the entrepreneur and the leader can be called entrepreneurial leaders (Tarabishy et al., 2005; Thompson, 2004). Although Shane and Venkataraman (2000) suggested that any empirical support for distinguishing attributes that separate entrepreneurs from other members of society are problematic “because these attributes confound the influence of opportunities and individuals” (p. 218), numerous studies have been conducted that have attempted to distinguish the attributes of entrepreneurs and leaders (Babb & Babb, 1992; Begley, 1995; Begley & Boyd, 1987; Brockhaus, 1980; Miller & Dröge, 1986; Palich & Bagby, 1995; Sexton & Bowman, 1986).

While much of the literature (Begley & Boyd, 1987; Miller & Dröge, 1986; Sexton & Bowman, 1986) found significant differences between entrepreneurs and nonentrepreneurial members of the population in respect to the attributes of (a) risk taking, (b) tolerance for ambiguity, (c) locus of control, and (d) need for achievement, other studies failed to differentiate between the two groups (Babb & Babb, 1992; Brockhaus, 1980).

Fernald et al. (2005) conducted a review of literature which led to the contention that entrepreneurs and leaders share some key attributes and have more in common than they have differences. These similarities include vision and long-term goals, problem-solving skills, timely decision making, willingness to accept risks, and good negotiating skills. Although ability to motivate, creativity, risk taking, achievement orientation, and visionary were each mentioned numerous times in studies describing both leaders and entrepreneurs, they were mentioned in differing quantities (Fernald et al., 2005).

Entrepreneurs were more frequently described as creative, risk takers, and achievement oriented, whereas leaders were more frequently labeled visionary and able to motivate (Fernald et al., 2005).

Table 1
Comparing Entrepreneurship to Leadership

Characteristic	Leader	Entrepreneur
Need for achievement	Fernald et al. (2005); McClelland (1961)	Cunningham & Lischeron (1991); Fernald et al. (2005); Gartner (1985); Hornaday & Aboud (1971); Johnson (1990); Lachman (1980); McClelland (1965); Miner (1997, 2000)
Intelligence	Mann (1959); Lord, De Vader, & Alliger (1986); Stogdill (1948)	
Cognitive ability	Fernald et al. (2005); Kirkpatrick & Locke (1991); Pisapia (2009); Zaccaro, Kemp, & Bader (2004)	
Tolerance for ambiguity	Pisapia (2009)	Begley & Boyd (1987); Miller & Dröge (1986); Schere (1982); Sexton & Bowman (1986)
Autonomous		Fernald et al. (2005); Lumpkin & Dess (1996); Rauch & Frese (2007)
Confidence	Fernald et al. (2005); Kirkpatrick & Locke (1991); Stogdill (1948, 1974); Zaleznik (1977)	
Moderate risk taker	Fernald et al. (2005)	Begley (1995); Begley & Boyd (1987); Brockhaus (1980); Covin & Slevin (1986, 1988)
Innovativeness		Covin & Slevin (1986, 1988); Miller (1983); Miller & Friesen (1982); Rauch & Frese (2007); Schumpeter (1934)
Proactive	Pisapia (2009)	Covin & Slevin (1986, 1988); Lumpkin & Dess (1996); Miller (1983); Rauch & Frese (2007)
Provide direction and purpose	Andrews & Soder (1987); Belchetz & Leitwood (2007); Jantzi & Leithwood (1996); Leithwood & Day (2007); Pisapia (2009)	

Despite commonalities, traditional leadership theories speak less to the flexibility, adaptability, and creativity of the nonlinear thinking and behavior required of leadership

in more complex environments. Entrepreneurial leadership, specifically, places an emphasis on novelty, looking for previously unexplored processes or unthought-of ideas to add value and remain ahead of the competition.

Kuratko (2007) suggested that the essence of entrepreneurial leadership is a perspective that leads to the reawakening of the innovative spirit found in all people. This type of leadership “offers a break from the past and movement into the future” (Fernald et al., 2005, p. 1). Amabile (1998) stressed that entrepreneurial leaders forego traditional perspectives and participate in unorthodox thinking to arrive at creative solutions. Harris (2002) found that head teachers of improving schools utilized creative approaches to meet new demands and accomplish positive change. According to Cohen (2004), entrepreneurial leaders are obsessed with opportunity, advancing change not simply to break with the status quo, but to create value.

While entrepreneurial leadership has recently become a field of study that piqued the interest of quite a few researchers (Covin & Slevin, 1988, 1989, 1991; Lumpkin & Dess, 1996; Miller, 1983; Miller & Friesen, 1982), it is in the early stages of theoretical development (Bagheri & Pihie, 2011). Most of the research in this area has been contained in the business field, with very little interest from educational leadership researchers. Although there is a plethora of research pertaining to instructional and transformational leadership in schools, there is little research pertaining to the impact of entrepreneurial leadership in education, and fewer still in the realm of K-12 schools. This study specifically seeks to investigate the relationship between a principal’s entrepreneurial leadership orientation and the performance of the school, potentially creating a new view of the entrepreneurial principal. This entrepreneurial principal may

help develop cultures of innovation, leading to the transformation of schools from centers of teaching and testing into laboratories of continuous experimentation, bountiful creativity, and perpetual learning.

Problem Statement

Education is not exempt from the move to increasingly complex and ambiguous environments. Much like the business and political worlds, schools face a much more complex future, with uncertain times and continuous change. Wherever complexity and ambiguity exist, a new form of leadership is required (Kotter, 1996; Pisapia, 2009; Quinn, 1996), one that promotes experimentation and risk taking with the purpose of generating innovative methods of teaching and learning (Jenkins, 1992, 1993; Peck, 1991). Entrepreneurial leadership, which Kuratko (2007) suggested focuses on seeing beyond the constraints of today, thinking differently, acting outside the boundaries of tradition, and constantly challenging convention to creatively address the organization's most pressing issues, could be the catalyst that creates an innovative culture and lifts the education system to new heights.

According to Harris (2002), "to cope with the unprecedented rate of change in schools in the 21st century requires radically new and alternative approaches to school improvement and school leadership" (p. 24). According to Townsend (2011b), a global trend in education "is the move towards a market orientation for education, with an underlying rationale that if schools compete for students, for resources and for achievements, then this will lead to an increase in the general level of educational achievement" (p. 97). Consumer choice has become the most powerful conviction as a method to improve performance and increase accountability (Jenkins, 1992). This type of

business mentality in education opens a need for leaders who willingly enter into risky endeavors proactively seeking innovation. Leadership, as Harris (2002) noted, is paramount, with radical new leadership approaches at the heart of successful 21st century schools.

Jenkins (1992) posited that “school principals will need to rethink schools as organizations and to create an entrepreneurial organization which can respond rapidly and effectively to new challenges” (p. 13). Times of chaos and complexity require the innovative, change-oriented, risk-tolerant culture of an adhocracy, entrepreneurial in its nature, limiting bureaucracy and allowing the entrepreneurial spirit of members to flow unimpeded (Cameron & Quinn, 1999, 2011; Yu & Wu, 2009). In such cultures in which hierarchy is replaced with flattened leadership structures, autonomy, and flexibility, the empowerment of teachers leads to experimentation, creativity, and innovation in teaching and learning (Arad, Hanson, & Schneider, 1997; Ahmed, 1998; Dobni, 2008a; Martins & Terblanche, 2003). Entrepreneurial leaders, thriving on creatively stepping out of the comfort zone to find innovative ways to create value, may be the leaders necessitated by the new globally connected society (Amabile, Conti, Coon, Lazenby, & Herron, 1996; Gupta, MacMillian, & Surie, 2004).

Purpose of the Study and Research Questions

The purpose of this study was to explore the possibility that entrepreneurial leadership, as an alternative to traditional forms of school leadership, may be an effective strategy for improving education. This was accomplished by examining the relationship between principal autonomy, a principal’s individual entrepreneurial orientation (IEO), the development of a school innovation culture and school performance.

The following research questions are explored in this study:

1. Is there a relationship between a principal's IEO and school performance?
2. Is there a relationship between a principal's IEO and the existence of a school adhocracy/clan culture?
3. Is there a relationship between a school's adhocracy/clan culture and school performance?
4. Is the relationship between principal IEO and school performance mediated by the existence of a school adhocracy/clan culture?
5. Is the relationship between principal autonomy, a principal's IEO, a school's culture, and school performance moderated by contextual variables? For example, does the IEO of a principal have a greater or lesser impact on innovative school culture in larger as opposed to smaller schools? At elementary as opposed to secondary schools? At high socioeconomic status (SES) schools as opposed to low SES schools?
6. Does perceived autonomy predict a principal's IEO?
7. Is there a relationship between perceived principal autonomy and school performance?

Significance of the Study

Hallinger and Heck (1998) noted numerous research studies with findings that principals have a profound impact on the effectiveness of teaching and the amount of learning occurring in schools. This study attempts to direct attention at a new approach to school leadership, potentially more effective in the more complex, chaotic, change-oriented environments of the postmodern condition, where schools exist in an educational marketplace and competition in education has become more critical than ever. Efforts to

improve education through the mandates of punitive accountability measures seem to have created a sterile educational landscape, one in which there is a scarcity of new and creative methods for increasing learning. Levin and Fullan (2008) suggested that focusing on improving schools simply through accountability measures generates a negative pressure that fails to motivate and build capacity. The motivation and commitment of teachers is the principal's most effective path to influencing school outcomes (Leithwood, 1994; Leithwood, Jantzi, Silins, & Dart, 1993). It goes to reason that in order to fertilize the environment to allow for the production of new innovations in how we think of and implement the education of our youth, new changes that motivate teachers and students, build capacity, and empower stakeholders are necessary.

Jenkins (1992) noted that as accountability and competition have become the preferred methods of school improvement, some principals have begun to challenge traditional methods of leadership and long standing models of organizational structure. This effort must continue and expand, as a new form of leadership may be the engine to power an educational renaissance, a leadership that removes barriers to positive change and creates alternatives to the failed traditional practices that have led to the stagnant state of American education. Entrepreneurial leadership, with its emphasis on risk taking, innovation, and proactiveness offers the promise of challenging the status quo with novel thinking, further advancing positive change. Additionally, this approach has the potential to support and encourage creativity and innovation, as well as promote the empowerment and capacity development in organizational members that many researchers cite as critical to success in the postmodern condition.

This quantitative research study seeks to explore the relationships between

principal autonomy, IEO, school culture, and school performance, adding to the educational leadership literature by investigating the potential effectiveness of entrepreneurial leadership in improving the teaching and learning occurring in American schools. An examination of the impact of innovation culture on school performance also holds the promise of determining the significance of new and creative methods in efforts to improve schools. Additionally, this study will provide a better understanding of the impact that risk taking, innovativeness, proactiveness, and autonomy have as distinct determinants of school performance.

Theoretical Considerations

The extant research has established the indirect influence principals have on school outcomes (Hallinger & Heck, 1998; Leithwood, 1994; Leithwood et al., 2008), leading to studies outlined in a mediated-effects framework (Hallinger & Heck, 1998). As seen in Figure 1, this study is framed by four concepts: (a) principal autonomy, serving as a predictor variable, principal IEO, serving as both predictor and criterion variable; (b) school adhocracy/clan culture, which serves as the mediating variable, as well as both predictor and criterion variable; (c) the criterion variable of school performance; and (d) the contextual factors of school size, school level, and school SES, which serve as moderating variables. The assumption, based on the empirical findings of school leadership studies, is that the orientation of the school principal will indirectly influence the development of strong adhocracy/clan cultures, which will improve levels of school performance (Hallinger & Leithwood, 1994; Heck, 1993; Leithwood & Mascall, 2008; Leithwood & Sun, 2012; Marks & Printy, 2003; Witziers, Bosker, & Kruger, 2003). As seen in Figure 1, these relationships will be moderated by contextual factors.

Entrepreneurial leadership. Entrepreneurial leaders are entrepreneurs who work within formal organizations. According to Fernald et al. (2005), entrepreneurs tend to focus on specific activities which they find most important such as (a) seeking opportunities, (b) needing to achieve goals, (c) being independent-minded, (d) taking risks, and (e) innovating. Those leaders seeking and participating in such activities are said to have a high IEO. The factors most often used to characterize entrepreneurs, those exhibiting entrepreneurial spirit, and firms with EO, are (a) need for achievement (Cunningham & Lischeron, 1991; Gartner, 1985; Lachman, 1980; McClelland, 1965; Miner, 1997, 2000); (b) risk taking (Brockhaus, 1980; Covin & Slevin, 1991; Cunningham & Lischeron, 1991; Kuratko, 2007; Meyer, Walker, & Litwin, 1961); and (c) the desire to innovate (Covin & Slevin, 1991; Kuratko, 2007; Lumpkin & Dess, 1996; Miller, 1983).

School culture. For the purpose of this study, organizational culture is defined as the deeply engrained values, norms, beliefs, and assumptions of organizational members that influence the structures and mechanisms of the organization and how the organization deals with internal integration and environmental changes. The Organizational Culture Assessment Instrument (OCAI) separates values, norms, and beliefs into four distinct categories with each category representing a distinct subculture: (a) clan, (b) adhocracy, (c) market, (d) hierarchy. The instrument measures the organizational culture in regards to the level of each subculture present in the organization. This study posited that the IEO of a principal will influence the culture of a school, promoting the creativity and novelty of an adhocracy culture and the relationship-driven values of clan culture.

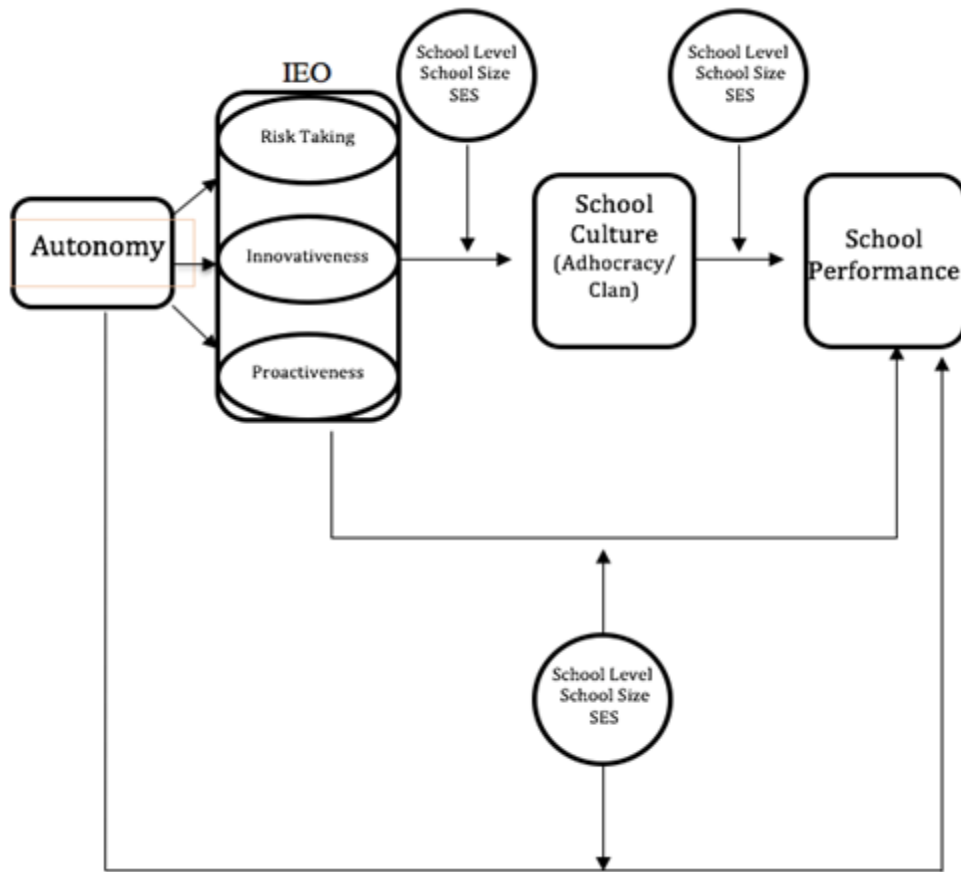


Figure 1. Conceptual framework for the entrepreneurial principal impact of school performance

Leithwood et al. (2008) suggested that the greatest direct impact school leaders, including principals, have on school outcomes are through their profound influence on member motivations, commitments, and beliefs toward the work environment. Management practices, freedom to experiment, management support, the norms of the school culture, and available resources all have tremendous influence on the perpetuation of creativity and innovation throughout the organization/school (Martins & Terblanche, 2003). Two types of organizational cultures, the adhocracy culture and the clan culture, are thought to have importance for entrepreneurial activities to be productive.

Adhocracy culture. Entrepreneurial leadership, with its emphasis on risk taking and innovativeness, is creative by definition. Tarabishy et al. (2005) suggested that this

style of leadership from the head of an organization translates into an organizational EO by stimulating proactive behaviors, and especially risk taking, from staff, a critical component of not only EO, but also a major determinant of creativity and innovation (Ahmed, 1998; Martins & Terblanche, 2003). According to Amabile et al.'s (1996) assertion that creativity is the genesis of innovation, it can be expected that an EO that fosters creativity in teaching and learning by promoting risk taking, proactive behaviors, and innovation could lead to high levels of innovation in the school culture. Lin and Liu (2012) found that employees who perceived a climate of creativity existed in their organization exhibited higher levels of work motivation and a positive perception of organizational innovation. Creative ideas are the root of innovation (Amabile et al., 1996; Udawadia, 1990), suggesting that a climate of creativity lends itself to the development of a culture that embraces and fosters innovation. Udawadia (1990) defined creativity as “the production of novel or original ideas of useful value” (p. 66). It is these novel ideas and approaches that potentially produce innovative methods of teaching and learning. Of utmost importance to the production of these novel ideas is the work environment that teachers face every day. Adhocracy culture places emphasis on doing things that have never been tried before (Cameron & Quinn, 2006; O’Neill & Quinn, 1993) in pursuit of the ends of organizational growth (Hartnell, Ou, & Kinicki, 2011; O’Neill & Quinn, 1993; Quinn & Rohrbaugh, 1983; Schmidt, 2009). Cameron and Quinn (2006) and O’Neill and Quinn (1993), among others, have agreed that leaders of adhocracy cultures are expected to be entrepreneurial in nature.

Clan culture. Human resources have long been seen as a vital component of organizational success. Following the work of McGregor (1960) and Argyris (1964), one

of the four dominant culture types of the Competing Values Framework places human relations at its core, the human relations model. Cameron and Quinn (2006) termed the human relations model of the Competing Values Framework the clan culture due to its emphasis on interpersonal relationships and fostering of a culture focused on developing individuals to their fullest potential. In clan cultures, leaders are aware of people's needs and work to develop an environment dominated by openness and cooperation. Teamwork is essential to the success of an organization with a dominant clan culture (Cameron & Quinn, 2006). Empowerment, a critical component of innovation and creativity, is also an integral dimension of this culture type, contributing to the clan culture's environment as fertile ground for EO (Cameron & Quinn, 2006; Quinn & Rohrbaugh, 1983; Yu & Wu, 2009).

Autonomy. As Moruku (2013) stated, autonomy is “acting independently of others to bring about ideas or vision” (p. 44). Brock (2003) proposed that autonomy involves the decision-making authority of individuals or teams. Lumpkin and Dess (1996) further described autonomy as not only the ability, but also the desire, to be self-directed in the pursuit of opportunities. Creating new value requires an organization to provide independence to firm members as an antecedent to innovative pursuits. Such freedom promotes the exploration of new ventures, stimulating a desire to actively seek out and explore previously undiscovered opportunities (Lumpkin, Cogliser, & Schneider, 2009). As such, a connection between autonomy and IEO seems not only possible, but plausible.

School performance. A majority of research investigating the relationship between EO of a firm and firm performance has found the existence of a positive

relationship (Covin & Slevin, 1989; Rauch, Wiklund, Lumpkin, & Frese, 2009; Sharma & Dave, 2011; Wiklund, 1999; Wiklund & Shepherd, 2005; Zahra, 1991). The results of these studies have provided support for the positive influence EO has on both the growth and financial performance of businesses.

Yet, in terms of linking the performance of schools to the entrepreneurial leadership of principals, research is limited. Leithwood and Day (2008) advocated for the importance of school leadership in determining school outcomes, noting that leadership is second only to classroom instruction in terms of impact on student learning. According to Hallinger (2003), a multitude of evidence supports the indirect influence of school principals on school outcomes, student achievement included. Although Naz et al. (2011) found that entrepreneurial skills have a significantly positive impact on the achievement levels of school leaders, there is a lack of substantial research as to the impact of entrepreneurial leadership on student achievement levels and other school performance outcomes.

Student performance on state adopted standardized tests has become the ultimate measure of school performance. In Florida, schools are graded based on the total number of points they receive based on student achievement results on standardized tests and other achievement-oriented components such as graduation rates and learning gains. Elementary schools can receive up to 800 points, middle schools up to 900 points, and high schools up to 1600 points. In this study, the total percentage of points earned by a school out of the total possible points that could be earned will be the measure of school performance in each of the participating schools.

Contextual factors. There are a multitude of factors that have the potential to

affect the relationships examined in this study. The principal's age, years of school leadership experience, gender, and race are antecedent factors that may influence the IEO of the principal, as might the previous academic performance of the school, as lower performance could either hinder the principal's tolerance for risk with a conservative, "take no chances" attitude, or increase it with a "nothing to lose" mentality. School size, school level, and school SES are possible moderating factors that have the potential to influence the relationship existing between the principal's autonomy and IEO, principal IEO and school performance, and principal IEO and the development of a school adhocracy/clan culture, as well as the relationship between the adhocracy/clan culture and school performance. The degree to which a school culture is innovative or family-like is a mediating variable that could significantly affect the relationship between principal IEO and school performance.

The following propositions are extracted from the preceding paragraphs:

Proposition 1: Principal autonomy will have a positive effect on principal IEO.

Proposition 2: Greater principal autonomy will have a positive effect on school performance.

Proposition 3: Greater principal IEO will have a positive, indirect effect on school performance.

Proposition 4: Schools led by principals with greater IEO will demonstrate greater degrees of adhocracy culture.

Proposition 5: Schools led by principals with greater IEO will demonstrate greater degrees of clan culture.

Proposition 6: A greater degree of adhocracy culture in a school will have a

positive effect on school performance.

Proposition 7: A greater degree of clan culture in a school will have a positive effect on school performance.

Proposition 8: School culture will mediate the relationship between principal IEO and school performance.

Proposition 9: Contextual factors will moderate the relationship between principal autonomy and principal IEO.

Proposition 10: Contextual factors will moderate the relationship between principal IEO and the development of school culture.

Proposition 11: Contextual factors will moderate the relationship between principal IEO and school performance.

Proposition 12: Contextual factors will moderate the relationship between school culture and school performance.

Methodology

This study of entrepreneurial leadership in K-12 schools employed a nonexperimental, quantitative, mediated-effects research design. The units of analysis for this study are public district elementary and secondary schools of various sizes and SES. Principals were surveyed to measure the IEOs of the principal and their level of autonomy, and teachers were surveyed to determine their perceptions of their school culture. Data for contextual factors and school performance were extricated from the Florida Department of Education. Correlation and regression analyses were applied to the data to test the propositions posed. Moderator analyses using multiple regression and mediation analysis using Hayes' PROCESS program were conducted to test moderation

and mediation effects, respectively.

Chapter Summary

As the world grows increasingly complex and globally interconnected, new school leadership is required to navigate the constantly changing landscape of education. There is tremendous potential for the risk-tolerant, innovation-driven, creative spirit of entrepreneurial leadership to blaze a path to improved educational outcomes. As teacher perceptions of the work environment are a key contributor to the overall school culture, this study utilized teacher perceptions to measure the degrees of adhocracy and clan cultures existing in schools. Principals' self-assessments were employed to measure IEO and autonomy. Through quantitative analysis, the researcher investigated the relationships between (a) principal autonomy and principal IEO, (b) principal autonomy and school performance, (c) principal IEO and school performance, (d) principal IEO and school culture, and (e) school culture and school performance, as well as the mediating effect of school culture on the entrepreneurial orientation-school performance relationship and moderating effects of contextual factors on each of the relationships examined in this study.

CHAPTER 2: LITERATURE REVIEW

This literature review provides context for this study of entrepreneurial leadership in schools and synthesizes the literature to formulate a research framework upon which this study can be designed. It begins with a brief description of the leadership role of the school principalship historically. It describes the need for a new form of leadership and then contrasts three forms of leadership (a) transformational, (b) strategic, and (c) entrepreneurial as potential focal points for school leaders. This chapter then discusses the origins of entrepreneurial leadership more directly through the concept of EO, organizational culture, and organizational performance in general and in education. Finally, this chapter examines how contextual variables shape the environment in which entrepreneurial leadership is practiced. From this review, a series of propositions that will be examined in this study were drawn.

The School Principalship: A Brief Review

The school principal of today has few equals in terms of impact (Leithwood et al, 2008; Murphy, 2010; Ogawa & Bossert, 1995; Rousemaniere, 2007). Yet, while the principal's work has always been influenced by "individual identities, leadership styles, and social and economic context" (Rousemaniere, 2009, p. 217), management of organizational structures, rules, and instructional practices have been a staple of the position since its inception (Goodwin, Cunningham, & Eagle, 2005; Kafka, 2009; Rousemaniere, 2009). While the basic role may not have changed, the political environment in which principals operate most certainly has (Kafka, 2009).

There now is extreme pressure placed on schools by political leaders to resolve society's social and educational inequities (Hallinger, 1992; Lattuca, 2012; Kafka, 2009). These pressures, along with the intrusive accountability systems and push for higher tests scores, have further increased the importance of the school-based principal (Goodwin et al., 2005; Hallinger, 1992; Kafka, 2009; Portin, 2000; Rousemaniere, 2009). The modern principal is still a supervisor responsible for managing the daily operations of the school, far removed from any policy-making decisions. They implement decisions made at the district office with little influence over such decisions (Rousemaniere, 2007). These decisions affect their roles to ensure compliance with federal regulations, knowledge of what is being taught, and how it is being taught in their classrooms. This can be viewed as the genesis of some of the contradiction noted by Rousemaniere (2009) in the roles of the principal, promoting change within the school while maintaining the traditional bureaucracy of education. Despite the goals of change aiming for educational improvement, evaluation systems with a strong focus on compliance have led principals to focus more on successful program implementation than successful outcomes, hindering efforts to improve schools (Hallinger, 1992). Principals, in essence, have become pawns of policymakers, enacting the change initiatives of external agents rather than owning their own improvement efforts.

The 1980s saw a very prescriptive model of the principalship, one in which policymakers provided principals with a "menu" of options with which to produce school improvement (Hallinger, 1992). This menu model yielded limited impact and failed to address the growing needs of educational institutions in an era of rapid change and complexity. As the 1980s drew to an end, the much-scripted instructional leadership

model gave way to the transformational leadership model for the school principalship. With this transition, transformational leadership replaced management as the primary function of the principal due to its emphasis on “ideas, innovation, influence, and consideration for the individual” (Marks & Printy, 2003, p. 391).

Transformational Leadership in Schools

Transformational leadership has been studied a great deal in recent decades, with many specifically investigating the effects of this leadership on student outcomes. Much research pertaining to leadership in the past has focused on how to maintain or marginally improve performance. These incremental changes are first-order changes that do nothing to change the existing paradigm, but rather attempt to simply improve the practices already in place. They require little in terms of employee intrinsic motivation, as performance hinges on implicit or explicit contracts between leaders and followers (Bass, 1985). Higher order changes, also known as second-order change, may “involve larger shifts in attitudes, beliefs, values, and needs,” (p. 27) which results not from contracts between leader and follower, but in transformational leadership that motivates people to do more than is expected of them (Bass, 1985).

Leaders who are strictly transactional work on a system of contingent reward, focusing on exchanges between themselves and followers in attempts to achieve desirable behavior. This type of leadership is not consistent with superior performance (Bass, 1985; Ogbonna & Harris, 2000). Transformational leaders, in contrast, appeal to the intrinsic motivation and higher needs of followers, fostering efforts to achieve more than is usually expected (Burns, 1978; Ross & Gray, 2006). They operate by working to elevate the motivation, hopes, and demands of followers (Burns, 1978), accomplishing this by

raising the level of consciousness of followers about the importance of reaching desired outcomes, getting followers to transcend self-interests for the good of the group, and raising the level of the needs of followers (Bass, 1985). It has been suggested that it is this concern for developing followers to the fullest potential and raising performance that leads to superior results (Bass & Avolio, 1990).

According to Bass (1985), the three factors of transformational leadership that push members of an organization to perform beyond expectations are (a) charisma, (b) individualized consideration, and (c) intellectual stimulation (Bass, 1985; Ross & Gray, 2006). Charisma involves leadership that stimulates the arousal of faith, trust, enthusiasm, and pride among followers. By developing relationships with individual followers, transformational leaders demonstrate individualized consideration. Intellectual stimulation involves behaviors that enhance the problem-solving capabilities of members of the organization (Bass, 1985). Bass (1985) found that units demonstrating these three transformational factors were more effective than those demonstrating transactional factors alone. From his studies, however, Bass found that not all factors were equal in influence. Charisma, although not sufficient in and of itself, is the most important factor of transformational leadership, and the element that distinguishes “the ordinary manager from the true leader” (p. 34). This is the factor that arouses emotions, once again motivating and inspiring followers to perform beyond expectations.

Leithwood’s and Jantzi’s (2005) noted meta-analyses of research on transformational leadership outside of an educational context found that the effect of such leadership on perceptions of effectiveness are large and significant, far stronger than impartial measures of effectiveness which, although positively correlated, are much more

modest in the size of their effect. In schools, although the research is mixed in terms of the results of studies investigating the effect transformational leadership has on student achievement, the findings are promising and trend toward a positive relationship (Leithwood & Jantzi, 2005). Leithwood and Jantzi (2005), Silins and Murray-Harvey (1999), Marks and Printy (2003), and Griffith (2004) all conducted studies finding that transformational leadership had a significantly positive impact on student achievement on a variety of tests. Furthermore, a meta-analysis of unpublished research conducted by Leithwood and Sun (2012) found transformational school leadership had large effects on shared goals (.67), working environment (.56), and improved instruction (.55), with a slightly smaller effect on organizational culture (.44). They also found that transformational school leadership had a small ($r=.09$) but significant, positive effect on student achievement.

According to Ross and Gray (2006), “increasing the transformational leadership practices in schools makes a small but practically important contribution to overall student achievement” (p. 798). In today’s world of fast-paced education reform, principals are constantly expected to inspire the best performance from their teachers. In recent decades, principals were asked to change from transactional to transformational leaders (Murphy & Hallinger, 1992). This made sense, as Ross and Gray (2006) noted, transformational leadership was compatible with then current trends of teacher empowerment and shared decision-making.

Van Knippenberg and Sitkin (2013) suggested that the construct of charismatic-transformational leadership fails to differentiate itself from other distinct forms of leadership. Although many aspects of what is considered transformational leadership are

important to successful leadership, they suggest all should be studied free of the constraints of the transformational leadership label. Despite many contributions to leadership research, Van Knippenberg and Sitkin (2013) proposed that transformational leadership as its own distinct form of leadership has “hardly any theory to guide research, and hardly any empirical evidence from which to more inductively derive theory” (p. 45). This calls into question the true impact transformational leadership has on school performance, and provokes interest in moving beyond the concept of principals following the narrowly defined construct of transformational leadership toward a more inclusive leadership approach combining aspects of transformational leadership with other approaches in a new form of school leadership.

The Evolution of Entrepreneurial Leadership

Principals in the current day and age are expected to lead, as well as manage, accepting responsibility for every aspect of the educational enterprise with the final accountability for school performance (Townsend, 2011a). They must be expert relationship builders and knowledgeable in curriculum and instruction, while at the same time performing all the day-to-day management activities such as scheduling, facility maintenance, and resource allocation (Chirichello, 2004). “The contemporary principal faces increased expectations for school improvement, demanding social pressures, and conflict between the roles of instructional leader, organizational leader, community leader, and strategic leader” (Goodwin et al., 2005, p. 7). Overwhelming expectations almost guarantee principal candidates will not measure up to the desires of policymakers and district leaders (Chirichello, 2004).

Given this environmental shift, current models of instructional and

transformational leadership predominantly espoused in education circles do not seem positioned to aid school principals in leading their organizations. In such circumstances, some suggest that principals must be “strategic, instructional, organizational, political, and community leaders” (Kafka, 2009, p. 328). They need to address and balance the needs of their teachers with the demands of the central office, and the needs of their communities and students with the needs of the central office and teachers. In summary, current principals are expected to be “all things to all people” and to accomplish much with little in terms of support (Kafka, 2009).

The Context

Society is transitioning from the modern age, “with its emphasis on rationalization and stability...to the hyper-rationalized chaos of the postmodern condition” (Pisapia, 2009, p. 1). Organizations, in general, no longer exist in the same stable, noncomplex times during which many leadership theories were formed. Stability has been replaced with change, linear thinking with nonlinear thinking, and certainty with ambiguity, as society shifted from the modern to postmodern condition (Pisapia, 2009; Quinn, 1996; Thompson, 2004). In such a world, innovation-based competition is the driving force (Tarabishy et al., 2005). It requires bold actions and novel strategies, which are inherently risky, stimulating creativity and innovation (Kotter, 1996; Naz et al., 2011; Santora et al., 1999). The weight of scholarly opinion is that during these dynamic and complex times, it is thought that a new breed of leader is required for organizational survival and growth (Cohen, 2004; Kotter, 1996; Pisapia, 2009; Quinn, 1996; Santora et al., 1999; Senge, 1992; Van Knippenberg, & Sitkin, 2013).

Schools are not immune to the changing context. The context of school leadership

has also seen more ambiguity and uncertainty. The contemporary principal faces increased pressure to improve schools while resolving the conflict between the role of instructional leader. According to Hallinger and Heck (2010), principal leadership exists not in the solitary realm of a lone hero, but rather in “dynamic relationships” (p. 105). In any such system, empowerment is at the core of successful leadership, as principals forfeit power in order to develop the trust-filled relationships necessary for postmodern leadership approaches, including strategic and entrepreneurial leadership, to blossom.

The Shape of the New Leadership

A new type of leadership is forming around the need for creativity and innovation for success and survival (Jamrog, Vickers, & Bear, 2006; Martins & Terblanche, 2003). Traditional leadership theories have emphasized a vertical, linear relationship between leader and follower with little, if any, focus on organizational context (Boal & Hooijberg, 2000; House & Aditya, 1997; Pisapia, 2013).

Pisapia (2013) has suggested that leadership, in its simplest form, involves establishing direction and supporting individuals that work together to move in that direction. Historically, in more certain times, traditional leadership theory framed these tasks as the relationship between leaders, followers, and common goals (Burns, 1978; Bass & Avolio, 1990; Blake & Mouton, 1964; Fiedler, 1967; House, 1971). What vertical theory lacks is recognition of the relationship between the organization and external environmental. However, this theoretical position has served well in leading people in vertical relationships (e.g., leader-follower-common goals) where command, control, and persuasion tactics are the levers of change. It serves less well in leading people and groups in horizontal relationships where collaboration, cocreation, coordination,

minimum specifications, chunking change, and generative processes are the levers of change (Pisapia, 2009).

The vertical leadership theories of (a) contingency theory, (b) path-goal theory, (c) LMX, and (d) transformational theory are well represented in the empirical literature. However, a less but growing, robust set of studies frame horizontal leadership theory, which involves individuals working together in a collective effort. The move toward horizontal leadership requires skills to create direction, alignment and commitment, to work in teams, and to develop community, which is suggested by the (a) distributed leadership theory (Cox, Pearce, & Perry, 2003; Gronn, 2002); (b) complexity science (Goldstein, Hazy, & Lichtenstein, 2010; Lichtenstein et al., 2006; Uhl-Bien, Marion, & McKelvey, 2007); and (c) relational theories (Drath, 2001; McNamee & Gergen, 1999; Uhl-Bien, 2006). It is thought that horizontal leadership theory has the qualities that hold the promise for greater effectiveness in times of ambiguity and uncertainty. This shift from vertical forms of leadership (e.g., supervisory leadership and transformational leadership) to horizontal forms of leadership (e.g. strategic and entrepreneurial leadership) is depicted in Table 2.

Supervisory and transformational leadership emphasize the relationship of the leader and the follower. Whereas, strategic and entrepreneurial leadership theories likewise emphasize the relationship between leader and follower, they also emphasize the relationship between the organization and external environment. These approaches suggest that leaders interact with followers on more level fields to pursue common goals, develop diverse leadership teams that work collaboratively to solve problems, analyze environmental factors to generate the most productive outcomes, and encourage and

support outside-the-box thinking. Such leadership, in which coordination and collaboration replace command and control (Pisapia, 2009), leads to flexibility grounded in empowerment, autonomy for organizational members to achieve results, and a greater focus on experimentation, creativity, and innovation (Ahmed, 1998; Dobni, 2008a, 2008b; Martins & Terblanche, 2003).

Hambrick and Mason (1984) focused fragmented strategic leadership theory literature on chief executive officers and top management teams. They called it upper echelons leadership. At the heart of the theory is the emphasis that upper echelon characteristics determine strategic choices, and these choices determine organizational performance. While their construction could be viewed as a form of vertical leadership, they see leadership of complex organizations as a shared activity, and understanding what organizations do and how they perform is related to the biases and dispositions of top executives. This claim is supported by the research of Carpenter and Frederickson (2001), Eisenhardt and Bourgeois (1988), Eisenhardt and Schoonhoven (1990), Leithwood and Jantzi (1999), and Simons, Pelled, and Smith (1999). They clearly tied managerial discretion to the amount of internal or external constraint or oversight (Hambrick & Finkelstein, 1987); or external pressure for performance, demanding boards or owners, or internal aspiration to deliver maximum performance (Hambrick, Finkelstein, & Mooney, 2005). As is the case with all theories, the upper echelon perspective to strategic leadership has distractors. Hurst, Rush, and White (1989) suggested that its focus on people at the top ignores the processes larger organizations use to make decisions and take action. They contend that long term viability requires ongoing recreation and management. From their view, it is not so much that upper echelon perspective is

incorrect but that it is incomplete.

Table 2

Comparison of Leadership Theories

Supervisory (traditional) leadership (Blake & Mouton, 1964; Fiedler, 1967; Hersey & Blanchard, 1969)	Transformational leadership (Bass, 1985; Burns, 1978)	Strategic leadership (Pisapia, 2009)	Entrepreneurial leadership (Covin & Slevin, 1986, 1988; Miller, 1983)
Hierarchical; command and control	Hierarchical; heroic leadership	Horizontal leadership structure; coordination and collaboration	Flattened leadership; empowerment and autonomy
Establishes vision	Establishes vision	Establishes vision and direction; aligns members and structures toward established direction	Establishes vision and inspires others to “join cause”
Develops culture of limited empowerment focused on process; all authority in central leadership	Develops culture of high expectations; focus on self-actualization of individuals’ higher level needs; authority centered in heroic leader	Develops supportive culture focusing on outcomes; tolerance for ambiguity; decision-making strategic; authority dispersed	Develops culture of risk-tolerance and experimentation in pursuit of innovation; tolerance for ambiguity; always looking for competitive advantage; authority dispersed
Many rules, regulations, procedures, guidelines	Emphasis on trust, empowerment, and autonomy	Minimum specifications; autonomy and flexibility	Emphasis on autonomy and flexibility
Focus on maintaining status quo; internal consistency	Focuses on achieving more than expected	Focus on outcomes; frame-sustaining and frame-breaking change	Focus on creating value; innovative change
Focuses on internal environment – processes and procedures to ensure efficiency	Focus internal – emphasis on helping members to realize higher level needs and improve individual performance	Anticipates internal and external environmental changes; focuses on organization and external relationships as well as followers’ needs	Anticipates environmental demands and proactively seeks to create opportunity; looks to be first to market
Leadership at top of organization	Leadership at top of organization	Leadership exists in all levels of organization	Leadership exists in all levels of organization
Managing dominant	Leading dominant	Managing and leading co-dominant	Leading dominant

Stressing both management and leadership working in tandem, Pisapia’s “all-echelons” strategic leadership foregoes the bureaucracy of traditional leadership

approaches to produce more horizontal interactions in an attempt to improve organizational effectiveness (Pisapia, 2009). This theory emphasizes leadership driven to developing a sense of community, with collective efforts moving the organization forward (Pisapia, 2013).

The strategic leader, by virtue of the position, lives, works, and leads in a state of perpetual conflict (Hambrick, 1989; Pisapia, 2009). Such a leader must carefully balance the need to maintain stability and continuity within the organization while at the same time leading it down the road of change, positioning the organization to continually compete in a rapidly changing environment (Bass, 2007; Pisapia, 2009). According to Pisapia (2009), this balance is the necessary mix of managing actions which is the need for stability, and transforming actions which is the need for change. Strategic leaders utilize practices that effectively give the organization a competitive edge over rivals by anticipating internal and environmental changes (Bass, 2007; Pisapia, 2009) and making decisions focused on outcomes with the intent to acquire knowledge, foster creativity, and improve workflow by building for the long-term while meeting short-term needs (Bass, 2007).

Pisapia (2009) defined strategic leadership as “the ability (as well as the wisdom) to make consequential decisions about ends, actions, and tactics in ambiguous environments,” linking “management with leadership, politics with ethics, and strategic intent with tactics and actions” (p. 7). His model forms on two keystones: (a) agility of the mind, and artistry of actions; and (b) agility of the mind is enhanced by strengthening the cognitive skills associated with reflecting, reframing, and systems thinking. In previous studies using this framework, the use of strategic thinking skills was strongly

associated with self-reported and objective measures of leader effectiveness (Pang & Pisapia, 2012; Pisapia, Reyes-Guerra & Yasin, 2006; Zsiga, 2008). They were also associated with (a) leader role and school type (Pang & Pisapia, 2012); (b) long-term firm performance of return on equity (Raghavan, Shukla, & Shaid, 2010); (c) self-directed learning (Zsiga, 2008); (d) transformational and authentic leadership (Brennan, 2010); and (e) age and experience (Penney, 2010; Pisapia, Pang, Hee, Lin, & Morris, 2009).

More effective leaders utilize a greater assortment of leadership behaviors (Bass, 2007; Pisapia, 2009; Quinn & Rohrbaugh, 1983). Artistry is the ability to use a multifaceted array of leader influence actions. Pisapia (2009) posited two types of influence actions, (a) directional-transforming and managing, and (b) those that enable the leader to maneuver-bonding, bridging, and bartering. He assumed that these influence actions enable leaders to steer their organizations through the strategic environment. According to Schmidt (2009), “a leader does not have to display all the behaviors at one time, but he/she needs to apply the right behavior at the right time” (p. 69). In previous studies using Pisapia’s strategic leadership framework, these influence actions more often were strongly associated with (a) self-reported effectiveness (Uğurluoğlu 2009; Yasin, 2006); (b) effectiveness reported by others (Reyes-Guerra, 2009); and (c) external objective measures of effectiveness (Pisapia & Pang, 2013). In one Chinese study, school principal leader prototype centered on transforming and bonding. Their supportive actions were managing and bridging. Bartering was the least often used type of action (Pisapia & Ying, 2011). These findings on bonding and transforming mirror results found in American studies (Reyes-Guerra, 2009; Urdegar 2008; Yasin, 2006), Malaysian studies (Yasin, 2006), and Turkish studies (Uğurluoğlu, 2009). The keystones of artistry

and agility form the foundation to execute Pisapia's strategic leadership method in which strategic leaders challenge their organizations to "work at understanding their environment, determining end results, creating a coherent organization, establishing relationships, and crafting a responsible learning organization" (p. 8).

Entrepreneurial Leadership in Schools

Complexity theory espouses a change in organizational leadership from avoiding or reacting to external changes to openly embracing a changing external landscape for its creation of opportunities for exploitation (Osborn & Hunt, 2007). Pisapia (2009) proposed that leaders have three primary options in responding to the demands of such an increasingly complex and chaotic global society: (a) work to alter the environment, (b) change the organization to conform to the environmental demands, or (c) perish. Altering the environment seems beyond the scope of most leaders, and perishing is not acceptable. Strategic leadership theorists choose the third option of anticipating environmental shifts and changing the organization to fit environmental demands, whereas entrepreneurial leadership theorists set out to proactively find niches not being served in the current environment and moving quickly to fill them with ideas and products that add value. Coupled with the risk-tolerant nature of entrepreneurial leadership with a constant eye on innovation, the proactive nature of this type of leadership promotes an organization that exists on the edge of chaos, which according to Pisapia (2009) is the ideal place under conditions of complexity.

Entrepreneurial leadership shares many qualities with strategic leadership, emphasizing the development of a shared vision, promoting the empowerment and autonomy of followers, tolerance of ambiguity, and flattening the organization to allow

leadership to permeate the organization at all levels. However, whereas strategic leadership focuses on environmental fit and improving organizational effectiveness, entrepreneurial leadership brings a focus on innovation and creating value. The interest in entrepreneurship has increased dramatically in recent years in large part due to the need for leadership more adapted to a chaotic, constantly changing environment (Rauch et al., 2009). McGrath and MacMillan (2000) suggested adopting an entrepreneurial mindset, upon which opportunities are quickly recognized and action taken providing leaders and their organizations the flexibility and rapid decision making necessary to compete in such times.

The extant literature focuses on numerous components of entrepreneurial leadership, including entrepreneurship, in general, as well as entrepreneurial mindset and EO. EO, as a measure of proclivity for entrepreneurial behaviors, has gained favor in research circles, becoming the most widely examined measure of entrepreneurial leadership.

Entrepreneurism

Cantillon was the first to coin the term *entrepreneur* in 1734, arguing that the willingness to enter unknown and uncertain realms separated these people from others (Lumpkin & Dess, 1996; Sharma & Dave, 2011). According to Schumpeter (1934), it is the activity of entrepreneurs that fuel innovation and drive the economy.

Entrepreneurship permeates society with its ability to tap into the innovative spirit of individuals, in essence becoming the core of entrepreneurial leadership (Kuratko, 2007). According to Kuratko and Hodgetts (2007), entrepreneurship is a dynamic process of vision, change, and creation. It requires an application of energy and passion towards the

creation and implementation of new ideas and creative solutions. Essential ingredients include (a) the willingness to take calculated risks, in terms of time, equity, or career; (b) the ability to formulate an effective venture team; (c) the creative skill to marshal the needed resources; (d) the fundamental skill of building a solid business plan; and finally, (d) the vision to recognize opportunity where others see chaos, contradiction, and confusion.

It is important to keep in mind that research has used various definitions by which to describe entrepreneurs, and various studies have used different groups of people to serve as entrepreneurs in entrepreneurial research (Carland, Hoy, Boulton, & Carland, 1984). For example, entrepreneurs have included business executives from various fields (McClelland, 1961), those who have established their own businesses (Brockhaus, 1980), and simply business owners (Hornaday & Aboud, 1971), to name some common examples. Whomever is studied, it is assumed that the entrepreneur is characterized by “a preference for creating activity, manifested by some innovative combination of resources for profit” (Carland et al., 1984, p. 357). Entrepreneurs are known as innovators and visionaries, breaking with existing paradigms and forging new ones (Fernald et al., 2005), as they continually push the envelope, confront known barriers, and challenge the status quo to create a new future (Kuratko, 2007).

The individual tradition is based on the study of entrepreneurial attributes, attitudes, and personality traits that relate to a person’s likelihood of beginning a business and EO (Domke-Damonte, Faulstich, & Woodson III, 2008; Raposo, do Paco, & Ferreira, 2008). From an attitudinal perspective, the extant literature characterizes entrepreneurs as individuals with (a) a need for achievement (McClelland, 1965; Miner, 2000); (b) an

internal locus of control (Brockhaus, 1980; Kets de Vries, 1989); (c) risk-taking propensity (Brockhaus, 1980; Covin & Slevin, 1991; Kuratko, 2007; Meyer et al., 1961); and (d) passion, desire to innovate, and intention on becoming an entrepreneur (Bolton, & Lane, 2012; Covin & Slevin, 1991; Kuratko, 2007; Lumpkin & Dess, 1996; Miller, 1983). Yet only two personality traits, openness to experience and conscientiousness, are typically associated with entrepreneurial intentions in the literature (Zhao, Seibert, & Lumpkin, 2010).

Entrepreneurial Mindset

The cognitive tradition rests on the assumption that entrepreneurs think differently (Busenitz & Barney, 1997; Cools & Van Den Broeck, 2007; Grégoire, Corbett, & McMullen, 2011; Kickul & Krueger, 2004; Nuntamanop, Kauranen, & Igel, 2013; Palich & Bagby, 1995). Cognitively oriented studies have suggested that entrepreneurs rely on cognitive skills to gain insight and make “assessments, judgments, or decisions involving new opportunity evaluation, venture creation, and growth” (Mitchell, Busenitz, Lant, McDougall, Morse, & Smith, 2002, pp. 8-10; Haynie, Shepherd, & Patzelt, 2012). However, these skills are seldom extracted.

Mindset is a critical notion for leaders today. A mindset is the set of beliefs that drive an individual’s actions, so powerful that it has the ability to determine an individual’s destination (Dweck, 2006). Although extremely influential in determining an individual’s decisions and actions, mindset, just like the beliefs that compose it, can be changed (Dweck, 2006). For instance, transformational organizational change is possible when a “Yes I can” mindset exists (Taulbert, 2013). According to Dweck (2006), an individual with a growth mindset truly believes all people can grow and cultivate

qualities through experience and new learning. This belief that individuals' abilities and characteristics are not set in stone is critical to developing an organization willing to experiment and learn, sometimes stumbling along the way, but always seeking to improve as a result of any setbacks. It is the mindset of the leader that defines the organization and influences the thoughts and actions of those who follow (Taubert, 2013). On one hand, with a growth mindset believing in the old adage, "nothing ventured, nothing gained" (Dweck, 2006, p. 9), those leaders with a growth mindset are likely to lead organizations willing to step out into the unknown and accept risk with the promise of potential reward. On the other hand, Dweck (2006) noted that the fixed mindset believes "nothing ventured, nothing lost" (p. 9), seemingly bound to lead to an organization content with the status quo, unwilling to take risks, and lacking in innovation. A growth mindset, therefore, seems integral to the development of an entrepreneurial organization seeking innovation and a desire to be on the cutting edge of the industry.

The development of the appropriate mindset often involves the need to alter existing mental models, which have stymied the implementation of creative, innovative, and novel ideas and practices (Senge, 1990). Such "deeply engrained assumptions, generalizations, or even pictures or images that influence how we understand the world and how we take action" (Senge, 1990, p. 469) exist with immense power, controlling thoughts and actions often on a subconscious level. By looking internally to unearth deeply buried mental models, an individual can hold these images to intense questioning, fostering the destruction of inhibiting models and paving the way for the development of a mindset more in sync with entrepreneurial thinking (Senge, 1990).

McGrath and MacMillan (2000) advocated for leaders to develop a mindset that refuses to settle for small improvements in organizational performance and rather focuses on actions that generate major enhancements. This mindset brings with it a new way of thinking that exhorts resolve and pushes for growth in daily planning, behaviors, and actions (Taulbert, 2013). Jamrog et al. (2006) suggested that breakthrough thinking, rather than incremental improvement, leads to remarkable new opportunities. Thornberry (2006) referred to this way of thinking as an entrepreneurial mindset, noting that those with such a mindset are entrepreneurial in their thinking and actions. Entrepreneurial thinking allows people to readily recognize opportunities and exploit these opportunities quickly and effectively rather than focus on threats to the organization (McGrath & MacMillan, 2000).

According to Taulbert (2013), “the embrace of personal resolve is deeply embedded within the entrepreneurial mind-set” (p. 54). Personal resolve emboldens leaders to continue on in the fight, despite obstacles and the threat of failure, and just as importantly sets the tone for the expectations of others in the organization (Taulbert, 2013). While the importance of resolve cannot be overstated, the ability to cope with failure is also critical to the success of entrepreneurial ventures, and a critical component of the entrepreneurial mindset (McGrath & MacMillan, 2000). Those with such a mindset, like Dweck’s (2006) growth mindset, do not see failure as fatal, but rather as an opportunity to learn and grow (Politis & Gabrielson, 2009; McGrath & MacMillan, 2000). From their quantitative study of 231 Swedish entrepreneurs, Politis and Gabrielson (2009) found an entrepreneur’s attitude toward failure can be influenced by new experiences and new information, lending evidence to the proposition that mindset is

not fixed in those with entrepreneurial tendencies.

There is debate over whether such entrepreneurial thinking is in innate quality or one that develops over time. Many researchers have suggested that entrepreneurial tendencies are an internal attribute, embedded deeply in an individual's personality (Fernald et al., 2005; McClelland, 1961). Others disagree (Kuratko, 2007; Politis & Gabrielson, 2009), with Kuratko (2007) noting that "an entrepreneurial perspective can be developed in individuals and it can be exhibited inside or outside an organization, in profit or not-for-profit enterprises, and in business or nonbusiness activities for the purpose of bringing forth creative ideas" (p. 2). Politis and Gabrielson (2009) suggested that experiential learning plays a critical role in the development of an entrepreneurial mindset. If experience affects mindset, then one can reason that mindset is not fixed, but can be altered as one proceeds through career and life. Taulbert (2013) suggested this is also true for the organization as a whole, noting that an organization can become entrepreneurial when the mindset it chooses to adopt becomes entrepreneurial in nature. When this happens, a sustainable model of success can be created.

EO

The entrepreneurship literature is characterized by a search for antecedents that explain EO and firm performance, following several research traditions. The EO tradition measures a firm's inclination toward entrepreneurial behaviors. It has been referred to as an entrepreneurial mindset, climate, or strategic orientation and has been described by Taulbert (2013) as the "the heart and soul of sustainable, long-term success in any industry..." (pp. 56). The EO construct has been applied at the individual level (Bolton & Lane, 2012), but more often as an antecedent to firm performance (Hult & Ketchen,

2001; Lee, Lee, & Pennings, 2001). The Top Management Team tradition examines antecedents suggested by upper echelon theory (Hambrick & Mason, 1984). According to Covin and Slevin (1991), Tarabishy et al. (2005), and Wiklund (1998) the EO of an organization is established at the uppermost level of leadership and results in stimulating risk taking and proactive behaviors from employees. Covin, Greene, and Slevin (2006) advocated for EO as “a strategic construct whose conceptual domain includes certain firm-level outcomes and management-related preferences, beliefs, and behaviors as expressed among a firm’s top-level managers” (p. 57). For instance, all imply that firm EO results from top managers having entrepreneurial management style (Covin, & Slevin 1988), or reflects a manager’s capability (Avlonitis, & Salavou, 2007), or, is determined by executives on the basis of their goals and temperaments (Miller & Friesen, 1982). These studies have reinforced the implication that EO is based on the IEO of the entrepreneur and the Top Management Team (Guth & Ginsberg, 1990; Lumpkin & Dess, 1996; Vitale, Giglierano, & Miles, 2003; Yadav, Prabhu, & Chandy, 2007).

EO is a measure of the tendency for an organization or individual to behave in an entrepreneurial manner. Most commonly, entrepreneurial leadership researchers have suggested that there are three dimensions of EO: (a) risk-taking, (b) innovativeness, and (c) proactiveness. The dimensions are described in Table 3.

Lumpkin and Dess (1996) suggested that EO “involves the intentions and actions of key players functioning in a dynamic generative process aimed at new-venture creation” (p. 137). EO, according to Moruku (2013), is an entrepreneurial intention, whereas entrepreneurial behavior is an action. He conducted a study with EO as an antecedent to entrepreneurial behavior and found that “entrepreneurial orientation had a

statistically significant explanation for entrepreneurial behavior” (p. 56). Accordingly, the disposition toward taking risks, pursuing innovation, and proactively seeking and exploiting opportunities would lead an individual to behave entrepreneurially, such as by establishing new enterprises, developing new markets, producing new products, growing existing firms, and investing in new product development. Moruku (2013) concluded, “entrepreneurs who nurture entrepreneurial orientation (disposition or what seems to be intention) do take action to realize their entrepreneurial thoughts, plans, or dreams” (p. 56).

Table 3

Description of the Dimensions of Entrepreneurial Orientation

Component	Description
Risk taking	Predisposition to venture into unknown environments and take bold actions; allocating resources to ventures with uncertain outcomes
Proactiveness	Predisposition to seek opportunity and beat the competition to the introduction of new products or services by anticipating future demand
Innovativeness	Predisposition to support creativity and experimentation in anticipation of the development of new products or services
Autonomy	Predisposition for self-directed pursuit of opportunities with the ability to both initiate and work through completion of such opportunities

Rauch et al. (2009) suggested that academic interest in EO has seen a dramatic increase, and according to Yang (2008), has become a commonly used measure in entrepreneurship research. As discussed earlier, EO, an individual’s or organization’s propensity for entrepreneurial behavior, consists of multiple components. According to Rauch et al. (2009), “the salient dimensions of entrepreneurial orientation can be derived from a review and integration of the strategy and entrepreneurship literatures,” (pp. 763)

specifically noting Miller (1983), Miller & Friesen (1978), and Covin and Slevin (1991). Risk taking, innovativeness, and proactiveness have become the foundational components of a majority of EO studies (see Table 4), although autonomy remains an important component according to some researchers (Lumpkin et al., 2009; Lumpkin & Dess, 1996).

Strong support has been established for EO as a measure with the three unique dimensions proposed by Miller (1983) (Hult, Hurley, & Knight, 2004; Kreiser, Marino, & Weaver, 2002). Although often used as a unidimensional construct, there is some support that the dimensions may vary independently of one another (Kreiser et al., 2002); Lumpkin & Dess, 1996). Joardar and Wu (2011), in line with propositions put forth by Lumpkin and Dess (1996) among others in regards to firms, supported the EO measure while suggesting that not all entrepreneurs are high on all three dimensions, and need not score high on all three to be considered to have an EO. Hult et al. (2004) explained EO “in terms of proactive and risky acts organizations undertake to exploit opportunities” (p. 436).

Lumpkin and Dess (1996) built upon Miller’s (1983) definition, adding the components of competitive aggressiveness and autonomy. Although competitive aggressiveness has been discussed in limited EO literature, this study will focus on the three most widely accepted components of EO: (a) risk taking, (b) proactiveness, and (c) innovativeness (Covin & Slevin, 1986, 1988, 1989; Miller, 1983; Poon, Ainuddin, & Junit, 2006), along with autonomy as a determinant of EO (Lumpkin et al., 2009; Lumpkin & Dess, 1996).

Risk taking. Sitkin and Pablo (1992) defined risk as “the extent to which there is

uncertainty about whether potentially significant and/or disappointing outcomes of decisions will be realized” (p. 10). The lack of knowledge of potential outcomes and lack of control over such outcomes in risky situations have led researchers to associate uncertainty with risk more frequently than any other factor. Risk increases not only with a rise in the level of uncertainty regarding outcomes, but also with increased difficulty in achieving desired outcomes (Sitkin & Pablo, 1992). Seemingly in agreement with the propositions regarding risk offered by Sitkin and Pablo (1992), Rauch et al. (2009) defined risk taking as “taking bold action by venturing into the unknown, borrowing heavily and/or committing significant resources to ventures in uncertain environments” (p. 763).

Sharma and Dave (2011) noted that Cantillon clearly argued in 1734 that it was the riskiness of going out on one’s own, far from the comforts of being sheltered from risk by the employ of another, which separated an entrepreneur from an employee. The literature considering risk taking as a characteristic distinguishing entrepreneurs from nonentrepreneurs is divided, with studies both supporting Cantillon’s assertion (Begley, 1995; Begley & Boyd, 1987), finding that entrepreneurs scored significantly higher on risk-taking proclivity than nonentrepreneurs, and others who failed to find any significant difference between the two populations (Babb & Babb, 1992; Brockhaus, 1980; Kogan & Wallach, 1964; Palich & Bagby, 1995).

Although risk taking as a distinguishing characteristic is highly debated, the importance of risk taking in 21st century leadership is less divisive. Notwithstanding greater agreement on risk-taking’s role in modern leadership, the evidence supporting this complex relationship is not unanimous (Baird & Thomas, 1985). Many studies have

found a significant and positive correlation between risk taking and business performance (Rauch et al., 2009; Sharma & Dave, 2011; Yang, 2008).

Table 4

Influence of Entrepreneurial Orientation in Entrepreneurial Leadership Studies

Study	EO dimensions studied	Findings
Miller & Friesen (1982)	Risk taking, innovativeness	Innovation is a natural occurrence in entrepreneurial firms; occurs only in response to challenges in conservative firms
Miller (1983)	Risk taking, proactiveness, innovativeness	Entrepreneurship is influenced by the environment, structure, strategy, and leadership of an organization; relationships and significance of factors vary depending on organization
Covin & Slevin (1988)	Risk taking, proactiveness, innovativeness	Entrepreneurial leadership from highest levels of management have positive effect on performance of organic firms; negative effect on mechanistic firms
Naman & Slevin (1993)	Risk taking, proactiveness, innovativeness	The fit between EO, organizational structure, and organizational strategy influences performance
Zahra & Covin (1995)	Risk taking, proactiveness, innovativeness	Corporate entrepreneurship (EO) is positively related to organizational financial performance; relationship can strengthen over time; long-term strategy for success
Lumpkin & Dess (1996)	Risk taking, proactiveness, innovativeness, competitive aggressiveness, autonomy	Dimensions of EO may vary independently of each other
Wiklund (1999)	Risk taking, proactiveness, innovativeness	There is a positive relationship between EO and organization performance. The relationship increases over time. Investments in EO improve performance over time
Yang (2008)	Risk taking, proactiveness, innovativeness	Proactiveness, innovation, and risk-taking are good predictors for distinguishing between higher and lower business performance
Rauch et al. (2009)	Risk taking, proactiveness, innovativeness	There is a moderately large correlation between EO and firm performance
Bolton & Lane (2012)	Risk taking, proactiveness, innovativeness, autonomy, competitive aggressiveness	Developed IEO scale. Found risk-taking, innovativeness, and proactiveness to be valid measures of individual EO; did not find validity for autonomy and competitive aggressiveness
Bolton (2012)	Risk taking, proactiveness, innovativeness	Confirmed validity and reliability of IEO scale
Moruku (2013)	Risk taking, proactiveness, innovativeness	EO explains entrepreneurial behaviors

With findings that do not coalesce around a single determination of the impact of risk taking, it goes to reason that perhaps it is not risk taking, in and of itself, that impacts performance, but rather the extent and severity of risks taken that influence the outcome. Begley and Boyd (1987) found a curvilinear effect regarding the relationship between risk taking and organizational performance. Up to a certain threshold, risk taking had a positive impact on firm performance, beyond which return on investment decreased (Begley & Boyd, 1987). As a result of consistent findings among various studies, moderate risk taking is generally expected of entrepreneurs (Begley, 1995; Begley & Boyd, 1987; Brockhaus, 1980).

The performance of an organization can also be affected indirectly, through influence over organizational culture, with its proclivity for seeking novel approaches to solving problems greatly affected by risk. Risk taking is a major factor in stimulating creativity and innovation (Ahmed, 1998; Martins & Terblanche, 2003). Jamrog et al. (2006), acknowledged the importance of risk in the development of new ideas and products, going so far as to assert there can be no innovation without risk.

Innovativeness. Innovativeness is the factor that distinguishes entrepreneurs from nonentrepreneurs (Carland et al., 1984; Schumpeter, 1934), and is considered to be the measure of an individual or organization's propensity to support the creativity and experimentation that gives rise to new ideas, products, and services (Lumpkin & Dess, 1996; Rauch et al., 2009; Salavou, 2004; Sharma & Dave, 2011). It occurs in the search for creative solutions in response to developmental, organizational, or administrative challenges facing the organization (Knight, 1997). This propensity to support innovation could possibly exist on a continuum, ranging from willingness to try new things to

passionately committing to exploring new avenues (Sharma & Dave, 2011).

As this involves the pursuit of creative, novel solutions to existing challenges (Wiklund, 1999), innovativeness is an organizational dynamic over which leadership has a great deal of control (Hult et al., 2004). It is a persistent trait that emanates from the core of innovative organizations, with consistently demonstrated creative behavior becoming an integral part of organizational life (Salavou, 2004; Subramanian & Nikilanta, 1996).

Empirical findings support the importance of innovativeness as a determinant of business performance (Hult et al., 2004). Some researchers have suggested that it is the most significant of the three components of an EO (Sharma & Dave, 2011). This postulation was investigated by the meta-analysis conducted by Rauch et al. (2009), with positive although statistically insignificant results. When compared to risk taking and proactiveness, innovativeness was the most highly correlated with performance, having a correlation coefficient of .195 (Rauch et al., 2009), although the differences were not statistically significant.

Proactiveness. Proactive individuals and organizations are those who refuse to follow, choosing to lead by seizing opportunities and attempting to shape the environment in which they compete (Sharma & Dave, 2011; Zaleznik, 1977). Lumpkin and Dess (1996) claimed that “economic scholars since Schumpeter have emphasized the importance of initiative in the entrepreneurial process” (p. 146). Such proactive individuals and organizations are aggressive in their interactions with competitors, persistently attempting to outmaneuver rivals (Knight, 1997).

Rauch et al. (2009) defined proactiveness as “an opportunity-seeking, forward-

looking perspective characterized by new products and services ahead of the competition and acting in anticipation of future demand” (p. 763). This involves assuming risk and taking initiative, and pursuing unknown and previously unexplored new opportunities as well as participating in emerging markets (Sharma & Dave, 2011; Zaleznik, 1977).

Proactiveness is aided greatly by anticipating the future, as attempts to forecast environmental challenges and opportunities lead to more rapid responses to potential prospects and gaps in the market to which the proactive organization can beat its competition (Lumpkin & Dess, 1996; Pisapia, 2009; Venkatraman, 1989).

Autonomy. Lumpkin and Dess (1996) referred to autonomy as “the independent action of an individual or a team in bringing forth an idea or a vision and carrying it through to completion... it means the ability and will to be self-directed in the pursuit of opportunities” (p. 140). The autonomous efforts of key individuals acting without prior approval or direction from superiors are often responsible for generating entrepreneurial results (Burgelman, 1983). Lumpkin and Dess (1996) suggested that “the exercise of autonomy by strong leaders, unfettered teams, or creative individuals who are disengaged from organizational constraints” is actually a requirement of entrepreneurial activity (p. 140).

Providing freedom to organizational members is critical if organizations are to promote the innovative, entrepreneurial behaviors necessary to create new value (Lumpkin et al., 2009). Lumpkin and Dess (1996) proposed that entrepreneurship has flourished because people have the courage to leave the security of positions in organizations that impede their creativity to innovate in new markets. Lumpkin et al. (2009) supported this line of thought, further noting research that suggested that

individuals and teams who are unimpeded by organizational restrictions feel empowered to delve into previously unexplored opportunities to exploit new products, services, or markets (Burgelman, 1983; Greene, Brush, & Hart, 1999). Lumpkin and Dess (1996) noted that Miller (1983) “found that the most entrepreneurial firms had the most autonomous leaders” (p. 141).

Lumpkin et al. (2009), citing autonomy as a “vital aspect of entrepreneurial value creation” (p. 63), developed a set of four items to measure autonomy as a component of EO that they claim overcome the limitations of previously existing measures of autonomy in organizations. One limitation is the inability of previous measures to differentiate between autonomy and decentralization. According to Brock (2003), autonomy is the decision-making authority of individuals or teams, whereas decentralization refers to where decision making is concentrated within an organization (Lumpkin et al., 2009). They also contended that most measures focus on structural issues, whereas they propose that autonomy in an EO construct should be focused on strategic issues. The four items proposed by Lumpkin et al. (2009) to measure autonomy “sorted cleanly onto a separate factor, providing a set of items that are content valid yet warrant further construct validation in future EO research” (p. 63).

Although autonomy is an important dimension of EO, most studies involving EO have failed to include this component in the EO construct (Lumpkin et al., 2009).

Although Lumpkin and Dess (1996) included autonomy as a critical dimension of EO, and Lumpkin et al. (2009) concluded that “autonomy is a separate dimension of EO and not isomorphic with the other EO dimensions (p. 63), many researchers continue to exclude autonomy as a dimension in the EO scale, preferring to hold true to Miller’s

(1983) original dimensions and those included by Covin and Slevin (1986, 1989) in their EO scale: (a) risk taking, (b) innovativeness, and (c) proactiveness. Lumpkin et al. (2009) suggested one reason for this is that many researchers consider autonomy to be an antecedent of EO rather than a dimension of EO.

Autonomy, while findings are inconsistent and sometimes contrary, has also often been found to have a significant relationship with school performance. While some studies have disavowed the positive impact of autonomy on school performance (Gunnarsson, Orazem, Sanchez, & Verdisco, 2009), others have found the opposite to be true (Patrinos, Arcia, & Macdonald, 2015; Steinberg, 2014). Caldwell (2014) noted OECD studies using PISA scores have concluded that greater autonomy in curricular and resource decisions are associated with better school performance. He also noted that studies involving PISA scores have found that school systems where schools have more freedom over curriculum, resources, and budget have better overall performance than those with less opportunities to make those decisions freely.

IEO

While a majority of research utilizing EO as a measure has been conducted with the organization as the unit of study, researchers are “increasingly arguing in favour of EO at the individual level” (Joardar & Wu, 2011, p. 337). Bolton and Lane (2012) and Kollman, Christofor, and Kuckertz (2007) have agreed that EO characteristics can be applied to the individual level as well as the organization level. Applying a theoretical construct to a field for which it was not originally designed is a risky proposition (Joardar & Wu, 2011; Kollman et al., 2007), although in this case it is less risky due to the fact that a majority of entrepreneurial organizations are sole proprietorships, and individuals

make a majority of the decisions concerning entrepreneurial ventures. Joardar and Wu (2011) agreed, emphasizing the influence that top level management has on the “actions, activities, and processes of the organization” (p. 330). Poon et al. (2006) suggested that the behaviors of an organization and those of the entrepreneur creating and leading the venture are likely to be the same. Lau, Shaffer, and Au (2007) took this proposition further, suggesting “entrepreneurial firms are a natural extension of entrepreneurs” (p. 126).

Furthermore, noting the work of Lumpkin and Dess (1996) and Richard, Barnett, Dwyer, and Chadwick (2004), Joardar and Wu (2011) suggested that EO “is said to be concerned with methods, practices, and managers’ styles of decision making, thereby suggesting that it operates at the individual level” (p. 337). They also stressed the individual level used to examine firm level EO in the studies of Covin and Slevin (1989) and Lumpkin and Dess (2001), as the firm’s EO was measured by the perceptions of individual leaders within the organization. Accordingly, Joardar and Wu (2011) asserted that the orientation of the individual leaders will be embedded in the organization, generating a situation in which they are one and the same. One could then make the leap to suggest that the orientation of the leader equates to the EO of the organization, which according to Joardar and Wu (2011) bodes well for those organizations with leaders demonstrating high IEOs. They found entrepreneurs with higher IEOs perform better than those with lower IEOs, performances that are attributable to those with higher IEOs having a greater willingness to risk failure while trying new ideas in response to opportunities.

Measuring EO

Yang (2008) noted EO is generally measured by the Entrepreneurial Orientation Questionnaire developed by Covin and Slevin (1986, 1988). Based on the work of Miller and Friesen (1982), and Khandwalla (1977), the Covin and Slevin scale is an aggregate measure of the three most recognized and studied dimensions of EO: (a) risk taking, (b) proactiveness, and (c) innovativeness (Naman & Slevin, 1993). This scale, including modified versions, has been used in much of the EO literature and has exhibited high levels of validity and reliability (Chadwick, Barnett, & Dwyer, 2008; Hult et al., 2004; Kreiser et al., 2002). Rauch et al. (2009) suggested that even with careful modifications by researchers, validity of this scale does not suffer.

The scale contains nine items measuring each of the three components of EO: (a) risk taking, (b) proactiveness, and (c) innovation. Each item uses a 7-point Likert-type scale for rating purposes (Yang, 2008). The scale's reliability was confirmed in numerous studies, with overall Cronbach's alphas over .80 (Chadwick et al., 2008; Covin & Slevin, 1989; Knight, 1997; Kreiser et al., 2002; Naman & Slevin, 1993; Yang, 2008). Rauch et al. (2009) found the dimensions to be of equal importance, supporting the use of a summed index of the three to explore the relationship between EO and performance.

Despite proposing that individual EO has the same dimensions as firm-level EO, Joardar and Wu (2011) questioned the validity of using a firm-level scale to measure an individual construct, citing the need for the development of "an independent construct of IEO and scale to measure it at this level" (p. 337). Bolton and Lane (2012) developed the IEO scale to specifically measure the entrepreneurial dispositions of individuals. After conducting validation tests and measures of reliability during the scale development

process, Bolton and Lane (2012) found the three components of risk-taking, innovativeness, and proactiveness to be valid measures of individual EO, finding little validation for the dimensions of autonomy and competitive aggressiveness. These dimensions, accounting for 60% of the variance in factor analysis, are measurable, distinctive, and “significantly correlated, as they are in the EO scale, lending support for the unidimensionality of this construct” (Bolton & Lane, 2012, p. 229). The IEO scale consists of 10 items, 3 for risk, 4 for innovativeness, and 3 for proactiveness.

Impact of EO on Organizational Performance

Throughout the 1980s and 1990s, most of the entrepreneurial research used entrepreneurship as a dependent variable and investigated the determinants of entrepreneurship (Zahra, Jennings, & Kuratko, 1999). More recently, however, EO has gained favor in research circles (Rauch et al., 2009; Yang, 2008), with researchers examining entrepreneurial tendencies as an independent variable, seeking to determine the impact of such dispositions on organizational performance in terms of financial and nonfinancial outcomes (Zahra et al., 1999). Many of these studies have found that EO has a significant positive influence on the performance of various organizations (see Table 4) (Covin & Slevin, 1988, 1989; Naman & Slevin, 1993; Poon et al, 2006; Rauch et al., 2009; Sharma & Dave, 2011; Wiklund, 1999; Yang, 2008; Zahra & Covin, 1995).

Although the size of the relationship varies in different studies, the results of EO research have provided substantial evidence that having an EO is likely to have a positive impact on organizational performance of businesses (Rauch et al., 2009). Hult et al. (2004) suggested that the proactive, aggressive, and initiative qualities of EO can drive managers into innovative action. While organizations from different contexts can

certainly gain advantage from the boldness and responsiveness of a strong EO, those organizations operating in dynamic arenas with rapid change are mostly likely to reap the greatest benefit (Rauch et al., 2009).

Using regression and multiple regression analyses, Sharma and Dave (2011) found a high correlation between EO and performance (0.781), with 61% of the variance ($R^2 = 0.611$) in performance explained by EO. Although finding a positive influence for EO over firm performance, Sharma and Dave (2011) found that innovativeness did not significantly impact firm performance. In contrast, Hult et al. (2004) asserted that innovativeness has been shown empirically, in and of itself, to be a major determinant of business performance, and critical to organizational success. Hult et al. (2004) also found that EO “is an important driver of firm innovativeness (p. 437). In Yang’s (2008) study of Taiwanese small and medium enterprises, all three components (risk taking, innovativeness, proactiveness) were found to have significant, positive correlations with the performance of the business, with EO having a medium, positive correlation overall. Rauch et al. (2009) found a moderately large correlation between EO and performance.

EO and Educational Leadership

“Forms of leadership originally used to identify what happened in business crossed over into the educational framework and we started to hear about leadership that was visionary, passionate, adaptive, invitational, servant, transactional or transformational” (Townsend, 2011a). Taulbert (2013) argued that a mindset driven by ownership, resolve, and commitment is necessary for schools, just as it is in noneducational organizations, to succeed in “today’s highly competitive, challenging, and changing environment” (p. 53). Entrepreneurial organizations have such a mindset,

offering the ability to respond quickly and effectively to both internal and external changes (Jenkins, 1992). Although Sergiovanni (1998) claimed that entrepreneurial leadership has not improved schools in desired ways, Jenkins (1993) posited that an entrepreneurial climate in schools creates an environment in which teachers feel confident that attempts at innovative strategies will be supported, even if resulting in failure. This confidence, according to Jenkins (1993), leads to the development of trust, breaking down potential barriers to school improvement.

In summary, Sashkin (1988), asserted that visionary leaders create an environment in which there are shared risks between organizational members. Covin and Slevin (1991), Rauch et al. (2009), and Tarabishy et al. (2005), have agreed that the EO of an organization is established at the uppermost level of leadership, signifying that this perspective must be drawn from the school principal. Consistent with this assertion, the findings of Pihie and Bagheri (2013) indicated that principal entrepreneurial leadership has a significant influence over the innovativeness of the school, including the frequency and impact of such innovations. As an entrepreneurial leader, the principal must promote others' acceptance of the need for change, create alternatives to traditional practices, and remove barriers to positive change (Peck, 1991). Hult et al. (2004) concluded that "entrepreneurial orientation might be regarded as the spark that ignites the firm into innovative action," (p. 437), demonstrating the critical role of the principal in promoting innovation in today's schools.

Organizational Culture

Regarding the organizational sciences, the concept of organizational culture is recent in its popularity (Van Houtte, 2005). Blake and Mouton (as cited in Hofstede,

Neuijen, Ohayy, & Sanders, 1990) were the first to use the term culture in place of what others referred to as climate, followed by Pettigrew (1979) introducing the term “organizational cultures” to American researchers. Since then there have been thousands of articles devoted to the concept. The recent interest in studying organizational culture is warranted, as one of the most critical components of leadership is the development of an organizational culture conducive to fulfillment of the organization’s vision and purpose (MacNeil, Prater, & Busch, 2009).

A prevalence of scholarly opinion regarding organizational culture has described organizational culture in terms that include the values, norms, beliefs, behavior patterns, and traditions that unite an organization and a definition of how members should act (Cameron & Quinn, 1999; Deal & Peterson, 1990; Gruenert, 2000; Hofstede et al., 1990; Martins & Terblanche, 2003; Schein, 1984; Schoen & Teddlie, 2008; Van Houtte, 2005). Gruenert (2000) suggested that organizations, as groups of people, develop their own personalities in response to environmental circumstances. As these responses become regularly demonstrated behaviors, the norms of the organization’s culture take root, further reinforced by rewards systems and the pressures of doing things *the right way*.

According to Cameron and Quinn (1999), “an organization’s culture is reflected by what is valued, the dominant leadership styles, the language and symbols, the procedures and routines, and the definitions of success that make an organization unique” (p. 15). It is independent of other organizational attributes and can be an effective predictor of potential organizational success. According to many researchers, it is a determinant of organizational success, with the potential to generate superior performance over the long term (Barney, 1986; Deal & Peterson, 1990; Denison &

Mishra, 1995). According to Deal and Peterson (1990), “institutions work best when people are committed to certain commonly held values and are bonded to one another and to the organization by means of key symbols” (p. 9). From an entrepreneurial leadership perspective, Covin and Slevin (1991) suggested that organizational culture clearly affects the entrepreneurial posture of the organization, encouraging or discouraging entrepreneurial behaviors.

Like EO, the culture of an organization is generally determined by decisions made at the highest levels of organizational leadership (Hult et al., 2004). Deal and Peterson (1990) claimed that “one of the most significant roles of leaders [and of leadership] is the creation, encouragement, and refinement of the symbols and symbolic activity that give meaning to the organization” (p. 13). Effective leaders, therefore, through their ability to influence the behaviors and perceptions of followers, have the ability to greatly influence organizational culture, molding the organizational structures and systems that determine the meanings, interactions, and organizational events in the minds of members (Jamrog et al., 2006; Ogawa & Bossert, 1995).

Externally responsive, innovative, and competitive organizational cultures have a positive relationship with performance while bureaucratic cultures, with their internal focus on maintenance, have a small and indirect negative effect on performance (Ogbonna & Harris, 2000). The internal focus of a bureaucratic culture creates a disadvantage for organizations seeking to change in response to environmental stimuli, impeding the long-term health of the organization. Ogbonna and Harris (2000) concurred with Barney (1986), who contended that an organizational culture must be able to adapt to external threats and opportunities to generate competitive advantage.

Competing Values Framework

This study uses Quinn and Rohrbaugh's (1983) Competing Values Framework (CVF) to identify the organizational cultures of schools. They developed the CVF utilizing the 39 different criteria of effectiveness devising 3 competing value dimensions: (a) control versus flexibility, (b) internal versus external orientation, and (c) means versus ends (Howard, 1998; Quinn & Rohrbaugh, 1983; Yu & Wu, 2009), all of which are "recognized dilemmas in the organizational literature" (Quinn & Rohrbaugh, 1983, p. 370). Schmidt (2009) noted that the CVF was the first attempt to integrate these values into a single framework. As the framework development proceeded, the means-ends dimension was integrated into the other two dimensions, leaving only two major competing values dimensions (Schmidt, 2009; Yu & Wu, 2009).

Hartnell et al. (2011) found the CVF's culture types were positively linked to organizational effectiveness criteria. However, mixed support for hypotheses based on the CVF's suppositions theorizing the existence of four culture types with competing values led them to extoll the need to consider a configural approach, ascertaining that a complete cultural profile would be more effective in organizational culture research, rather than "testing and evaluating culture types' independent association with effectiveness criteria" (p. 687). Although somewhat challenged by Hartnell et al. (2011) and Hooijberg and Choi (2000), multiple studies have found support for Quinn and Rohrbaugh's (1983) CVF (Buenger, Daft, Conlon, & Austin, 1996; Denison, Hooijberg, & Quinn, 1995; Howard, 1998; Kwan & Walker, 2004; Lamond, 2003).

A study of U.S. Air Force commanders conducted by Buenger et al. (1996) produced empirical evidence that the four models exist within organizations and that

value sets differ based on contextual factors. In their quantitative study of teaching staff in a Hong Kong higher education institution, Kwan and Walker (2004) found empirical support for differentiating institutions based on one or more of the four quadrant models, offering evidence of the CVF's validity in defining and distinguishing organizational cultures. Howard (1998), based on findings in his study of 10 U.S organizations, affirmed the instrument's validity, noting that Quinn and Rohrbaugh's (1983) CVF captures the shared values of organizational members, and thus "provides a valid metric for understanding organizational cultures, comparing organizational cultures, and evaluating organizational cultures relative to other variables" (p. 245). Lamond (2003) offered further support of the value of the framework "as a way of operationalizing organizational culture" (p. 56) in his study of 462 Australian managers. Denison et al. (1995) also studied managers, finding empirical support for the four-quadrant model, although the ordering of leadership roles within quadrants was not supported. Thus, while Yu and Wu (2009) noted that others have claimed the CVF has become "the dominant model in quantitative research on organizational culture" (p. 39), there remains a desire among organizational science researchers to see more studies conducted on organizational culture theory.

Value dimensions. Quinn and Rohrbaugh (1983) developed the CVF based on the polar opposite values of flexible versus stabile structures and external versus internal emphasis. O'Neill and Quinn (1993) asserted that all of the competing values in the framework, although seemingly in conflict and polar opposites, are necessary to some extent in all organizations.

Flexibility vs. control. "The differing viewpoints of order and control versus

innovation and change are at the heart of most heated debates in sociology, political science, and psychology” (Quinn & Rohrbaugh, 1983, p. 370). Organizations can exist as a loose federation of individuals and groups, where flexibility and autonomy are expected to lead to creativity and innovation, or a tightly controlled unit through which power and decision making is concentrated in a central authority with the expectation that order and control will produce stability and production. According to Deter, Schroeder, and Mauriel (2000), “control, coordination, and responsibility pervade almost all frameworks of organizational culture” (p. 857). The tighter the controls, the less empowerment and autonomy of employees, with loosely controlled working conditions offering increased autonomy and flexibility (Deter et al., 2000).

Internal vs. external. The orientation of an organization toward both its internal core and external environment is a relationship included in many organizational culture frameworks (Deter et al., 2000). Organizations can lean toward an internal orientation, which views the organizations as a “socio-technical system” that focuses on individual members’ preferences and feelings for the purpose of maintaining stability, or an external orientation, with a view of the organization as a competitor in the frequently changing external environment, more concerned with adapting to those changes than maintaining stability (Quinn & Rohrbaugh, 1983). For internally oriented organizations, innovation comes as a result of improvements implemented by people within the organization, whereas externally oriented organizations rely on external ideas and are concerned with customers and external stakeholders (Deter et al., 2000).

Four models of organizational culture. As seen in Figure 2, the CVF approach to organizational analysis centers on the proposition that competing values produce four

organizational culture types (Cameron & Quinn, 1999). The clan and adhocracy cultures would be considered organic according to Burns and Stalker (1961), and most successful in complex, chaotic, and changing times, due to their flexibility. The remaining two cultures, market and hierarchy, are mechanistic in nature, finding success in more stable environments (Burns & Stalker, 1961).

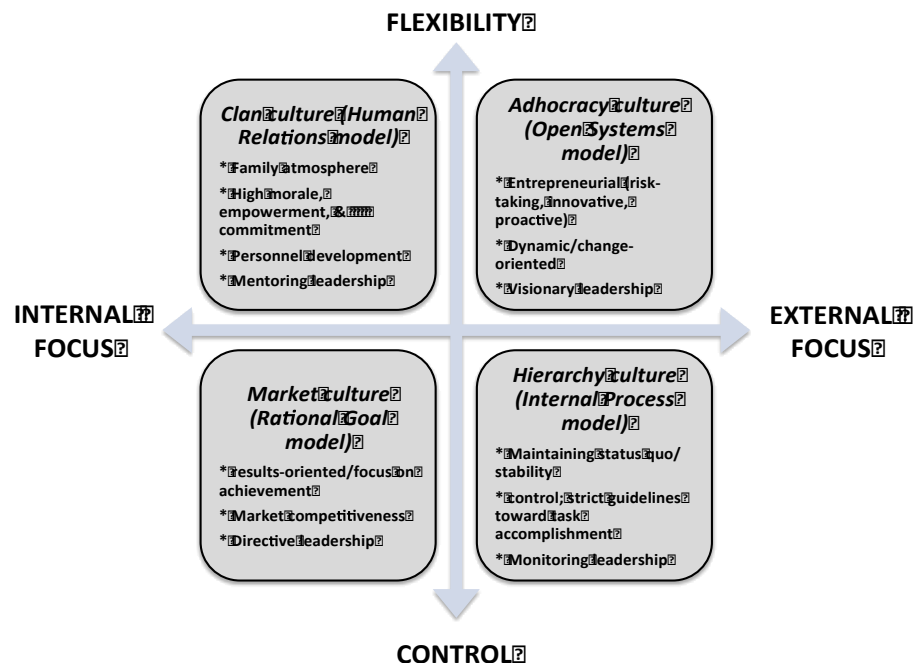


Figure 2. Competing values framework (Adapted from Cameron & Quinn, 1999)

Clan culture. The clan culture emphasizes flexibility with an internal orientation, stressing the means of cohesion and morale in pursuit of the ends of the development of personnel (Buenger et al., 1996; Hartnell et al., 2011; Quinn & Rohrbaugh, 1983). The center of the clan culture is an atmosphere of collectivism with employee empowerment and commitment as guiding characteristics (Cameron & Quinn, 2006; Quinn & Rohrbaugh, 1983; Yu & Wu, 2009). According to O’Neill and Quinn (1993), clan cultures are led by mentors and facilitators, showing compassion for organizational

members with a process-oriented mindset, resulting in a “warm and friendly workplace where people can freely share knowledge” (Tseng, 2010, p. 271). Through meta-analysis, clan culture was found to have a significant, positive correlation with employee job satisfaction and organizational commitment, greater than the positive relationships between adhocracy or market cultures and each of these two effectiveness criteria (Hartnell et al., 2011). Carroll (2008) found clan culture had a positive association with firm performance. Although Carroll did not find a significant relationship between clan culture and financial performance, Hartnell et al. (2011) did find that clan culture had a small, but significant positive relationship with certain financial performance measures, including subjective profit, market performance, and growth.

Adhocracy culture. Like the clan culture, the adhocracy culture favors flexibility over control (Cameron & Quinn, 2006), but differs from the clan culture in its external orientation (Buenger et al., 1996; Quinn & Rohrbaugh, 1983). This cultural model tends to flexibility and readiness as it pursues the ends of growth, resource acquisition, and external support (Hartnell et al., 2011; O’Neill & Quinn, 1993; Quinn & Rohrbaugh, 1983; Schmidt, 2009). These attributes make the adhocracy culture the “most responsive to the hyperturbulent, hyperaccelerating conditions that increasingly typify the organizational world of the 21st century” (Cameron & Quinn, 1999, p. 38). In this cultural model, leaders are expected to be visionary, innovative, and oriented toward risk (Cameron & Quinn, 1999, 2006, 2011; O’Neill & Quinn, 1993; Schmidt, 2009). “Decision making comes with creativity, flexibility and external legitimacy,” (Schmidt, 2009, p. 72) which enables organizations to favor creativity and novelty in their dynamic relationship with the external environment (Cameron & Quinn, 2006), promotes an

atmosphere where the focus is on "...doing things that have never been done before," further enabling members of adhocracy organizations to unite in order to achieve "something of great importance" (O'Neill and Quinn, 1993, p. 3). These organizations are composed of individuals who "are not controlled but inspired... feeling fully committed and fully challenged" (Cameron & Quinn, 2006, p. 3), and seek personal development and yearn for stimulation (Schmidt, 2009). The key behaviors found in the adhocracy culture include risk taking, creativity, and adaptability (Hartnell et al., 2011), producing a "dynamic, entrepreneurial, and creative workplace" (Tseng, 2010, p. 271). Hartnell et al. (2011) found that adhocracy culture was positively associated with employee attitudes, organizational commitment, innovation, and quality of products and services. Additionally, Tseng (2010) found that organizations with adhocracy culture have significantly better corporate performance than those with clan culture. These findings have been corroborated by Carroll (2008), who found that adhocracy culture was positively associated with employee performance, operational performance, and financial performance in firms.

Market culture. Like the adhocracy culture, the market culture displays an external orientation to planning and goal setting and the ends of productivity and efficiency (Quinn & Rohrbaugh, 1983). However, it differs from the adhocracy culture in its emphasis on control and on earning profits through market competition (Yu & Wu, 2009). It also differs from the hierarchy culture in that it is concerned with external markets, focusing on external transactions rather than internal harmony (Buenger et al., 1996; Cameron & Quinn, 2006, 2011). This culture produces a "results-oriented organization" that creates a "workplace with hard-driving competitiveness" (Tseng, 2010,

p. 271). Leaders of rational goal model organizations or market cultures act as directors, providing structure and direction and focus on completing tasks (O'Neill & Quinn, 1993). Carroll (2008) found market culture to be positively associated with operational performance, with a negative relationship with employee performance. The relationship between market culture and financial performance was not significant. In a meta-analysis conducted by Hartnell et al. (2011) it was found that market culture was positively correlated with the financial performance of an organization to a greater extent than clan and adhocracy cultures, as well as having a positive relationship with the quality of products and services, although this relationship was not significantly different from that of adhocracy and the quality criteria.

Hierarchy culture. Like the market culture, the hierarchy culture is characterized by an emphasis on control and by high standardization of rules and responsibilities (Yu & Wu, 2009), balancing the means of information management and communication with the ends of stability and control (Buenger et al., 1996; Hartnell et al., 2011; Quinn & Rohrbaugh, 1983). It differs from the market culture because rather than market competition it employs a rigid organizational structure to maintain the status quo, valuing internal stability over the risk and uncertainty that accompany change. Strict supervision, rules, and procedures hinder employee empowerment. Leaders in this culture type are conservative and cautious, expected to be technical experts, monitoring employees' progress toward task accomplishment as they coordinate functions and responsibilities to maintain stability (O'Neill & Quinn, 1993). Carroll (2008) found hierarchy culture was negatively associated with employee and financial performance, while the relationship with operational performance was not significant.

Measuring Organizational Culture

While self-report surveys are the predominant instruments used to examine organizational culture (Jung et al., 2009), there has been continuous debate as to the most effective methods for measuring organizational culture, with researchers conflicted over the effectiveness of quantitative methods of studying such a complex phenomenon (Cameron & Quinn, 2011). Culture demonstrates itself through various expressions of an organization's history and tradition with values, norms, myths, stories, rituals, and symbols being among the most prevalent, many are not measurable or even known to the conscious awareness of members (Gruenert, 2000).

Qualitative and quantitative methods offer different strengths. Qualitative approaches offer greater depth, while quantitative measures offer greater breadth, widening the sample size (Jung et al., 2009). According to Schoen and Teddlie (2008), organizational culture must be measured in a variety of ways, including both quantitative and qualitative methods, ethnographic observations to discover behavioral norms, psychometrics to ascertain members' beliefs and perceptions, and a combination of methods to uncover the stories, myths, heroes, traditions, and rituals of the school community.

Jung et al. (2009) noted that most organizational culture research has traditionally been conducted with a qualitative approach, although this field underwent a shift toward quantitative methods in the late 1980s. While the time and cost effectiveness, as well as ease, entice many researchers to engage in quantitative studies, many continue to prefer the insight gained from more time consuming and intrusive qualitative methods. Seeking to cover depth and breadth, many organizational culture researchers promote the use of

both quantitative and qualitative methods to measure organizational culture, as they complement each other and provide opportunities to triangulate data (Denison & Mishra, 1995; Jung et al., 2009; Maslowski, 2006).

Based on their study of 70 identified instruments, Jung et al. (2009) suggested that there is no single instrument that is ideal for measuring organizational culture. They continued that quantitative research is limited in that it only contains predetermined categories, possibly neglecting important factors. It fails to uncover any unexpected findings, and it does not offer insight as to why respondents answer a particular way. Cameron and Quinn (2011), however, believed that it is possible to effectively measure organizational culture with a quantitative instrument, and they developed such a measure.

The CVF does not attempt to measure the entirety of an organization's culture, but rather "the value dimensions related to effectiveness" (Yu & Wu, 2009, p. 37). Even Cameron and Quinn (1999) freely admitted that it is impossible to include every possible factor in assessing a phenomenon as broad as culture. They said that

no one framework is comprehensive, of course, nor can one particular framework be argued to be right while others are wrong. Rather, the most appropriate frameworks should be based on empirical evidence, should capture accurately the reality being described (be valid), and should be able to integrate and organize most of the dimensions being proposed. That is the purpose of using the Competing Values Framework to diagnose and facilitate change in organizational culture. It is a framework that was empirically derived, has been found to have both face and empirical validity, and helps integrate many of the dimensions proposed by various authors. (p. 29)

Although originally designed as a framework to determine organizational effectiveness, Schmidt (2009) noted that the CVF has also been used in many investigations of organizational culture. Cameron and Quinn (1999) emphasized its strength in doing so, noting, "... the Competing Values Framework has been found to

have a high degree of congruence with well-known and well-accepted categorical schemes that organize the way people think, their values and assumptions, and the ways they process information” (p. 29). Schmidt (2009) further noted that although the framework has not been used extensively in school settings, much has been learned from its use in other organizational settings.

Based on the CVF, Cameron and Quinn (1999) developed the OCAI to measure organizational effectiveness utilizing the competing values in an organization’s culture, surveying six dimensions of culture: (a) dominant characteristics of the organization, (b) leadership style and approach, (c) management style and work environment, (d) organizational glue, (e) strategic emphasis of organization’s strategy, and (f) criteria of success (see Table 5). Although not comprehensive, these six dimensions have proven effective in providing an image of the culture existing in an organization (Cameron & Quinn, 2011).

Acknowledging the assertion of many researchers that quantitative measures are superficial, failing to reach a depth necessary for examining culture, Cameron and Quinn (1999) remained confident that the questions in the OCAI are adequate for uncovering the underlying organizational culture. Cameron and Quinn (2011) suggested that cultural strength, the power of culture in influencing behaviors in the organization, cultural congruence, which is how culture is similar in various parts of the organization, and cultural type, defined as the specific kind of culture in an organization, are the dominant patterns found in the literature regarding organizational culture. They claimed that the OCAI, unlike any other culture instruments, is able to identify each of these patterns in an organization’s culture.

According to Cameron and Quinn (2011), Quinn and Spreitzer (1991), Yeung, Brockbank, and Ulrich (1991), and Zammuto and Krakower (1991) have all tested the reliability and validity of the OCAI and have found that it is a valid instrument that reliably measures the dimensions of organizational culture. From a review of studies measuring the reliability and validity of the OCAI, Cameron and Quinn (2011) noted that they had not found any studies refuting the reliability and validity of the OCAI as a measure of organizational culture. As such, they suggested that the OCAI does, in fact, measure the central dimensions of organizational culture.

Innovation Culture

Innovation, which produces long-term benefits and has the potential to drastically alter the dynamics of the market (Dobni, 2008b), is the process of creating value by acquiring new knowledge or utilizing existing knowledge in new ways, resulting in new products, services, business models, management techniques, or organizational structures (Jamrog et al., 2006). According to Schumpeter (1934), innovation drives the introduction of new products into existing markets and creates wealth. Innovation always begins with creative ideas (Amabile et al., 1996) and has been described by Ahmed (1998) as “a pervasive attitude that allows business to see beyond the present and create the future” (p. 31).

Innovation leads to change, although not all change leads to innovation (Martins & Terblanche, 2003). As instances of change, innovations do not result in positive outcomes for all members of an organization (Heifetz, Grashow, & Linsky, 2009). Learning can be uncomfortable, often resulting in loss, and changes resulting from innovation can cause members to feel incompetent or irrelevant. Loss promotes feelings

of failure, and failure, even for those with a growth mindset focused on learning from mistakes, can be painful (Dweck, 2006). Ahmed (1998) went as far as to suggest that the risk of loss associated with change frightens many organizations from even attempting to innovate. However, along with the uncertainty and risk, change creates opportunity (Ahmed, 1998). Despite discomfort, the change and the learning that comes from change is integral to making improvements allowing for the sustaining of organizational success (Deter et al., 2000). The importance of innovation in determining organizational performance, in large part developed as a result of EO, encourages the development of an innovation culture within an organization, promoting the proposition that “the task for the management is to design and implement an organizational culture that embodies market, learning, and entrepreneurial orientations” (Hult et al., 2004, p. 437).

Leadership is critical to innovativeness permeating an organization. As entrepreneurial tendencies of an organization are established at the top levels of leadership, leaders can stimulate the development of organizational norms and values emphasizing risk taking and innovativeness (Covin & Slevin, 1991). Leaders in an adhocracy culture, valuing innovation as the core of its existence, are expected to be entrepreneurial, visionary, risk takers (Cameron & Quinn, 1999; O’Neill & Quinn, 1993; Schmidt, 2009). The responsibility lies with leaders to ensure that organizational structure and strategy support the pursuit of innovation.

Jamrog et al. (2006) noted that despite acknowledging the importance of innovation, only one third of all American executives have developed structures that reward experimentation and foster creativity. According to an *AMA/HRI Leadership Development Survey 2005*, fostering creativity and innovation is critical to effective

leadership and an ability that will be increasingly in demand in the future (Jamrog et al., 2006). AMA/HRI found that a lack of leadership support, along with lack of an official innovation strategy, lack of clear goals, and insufficient resources are major barriers to organizational innovation (Jamrog et al., 2006). It is only under the right conditions that creativity and innovation will flourish (Martins & Terblanche, 2003). These conditions require much more than words, as the actions of leadership must create the environment in which organizational members are comfortable with innovating (Ahmed, 1998). According to research (Ahmed, 1998; Amabile, 1998; Ekvall & Ryhammer, 1999), it seems evident that the environment influences individual creative efforts, which in turn lead to organizational innovation. Actions result from the attitude of those in the organization. “The mechanism of encouragement for creative experimentation is a collective spirit of innovation” (Gupta et al., 2004, p. 256).

It has been suggested that organizational culture appears to influence the creativity and innovation demonstrated by an organization (Martins & Terblanche, 2003; Tushman & O’Reilly, 1997). Many have suggested that it is actually the primary determinant of innovation (Ahmed, 1998; Dobni, 2008a; Tushman & O’Reilly, 1997). The ability to infuse innovation into culture and leadership is a key attribute of successful organizations (Tushman & O’Reilly, 1997). Dobni (2008a) agreed, asserting that “the extent to which an organization can be regarded as innovative will be circumscribed by its culture” (p. 542). An innovative culture, consistent with the values of Cameron and Quinn’s (1999) adhocracy culture, requires a persistent dedication to those identified conditions. They further have described an adhocracy culture:

A dynamic, entrepreneurial, and creative place to work. People stick their necks out and take risks. The leaders are considered innovators and risk takers. The glue

that holds the organization together is experimentation and innovation. The emphasis is on being on the leading edge. The organization's long-term emphasis is on growth and acquiring new resources. Success means gaining unique and new products or services. Being a product or service leader is important. The organization encourages individual initiative and freedom. (p. 58)

Table 5

Four Models of Organizational Culture According to the CVF

Culture dimension	Clan culture (human relations model)	Adhocracy culture (open systems model)	Market culture (rational goal model)	Hierarchy culture (internal process model)
Dominant organizational characteristics	Family; informal; people-oriented	Entrepreneurial; risk taking; innovation-oriented	Competitive; achievement-oriented	Controlled; structured; formal
Leadership style	Mentoring; facilitating; family-oriented;	Entrepreneurial; innovative; risk taking; value creation-oriented	Directing; results-oriented	Monitoring; coordinating; stability-oriented
Working environment / management	Collaboration; teamwork; participation	Freedom; individual risk-taking; innovation	Competitiveness; achievement-oriented	Conformity; predictability
Organizational glue	Loyalty; trust; respect	Commitment to innovation and improvement	Emphasis on goal achievement	Formal rules, procedures, and processes
Strategic emphasis	Human development	Innovation; acquisition of resources; growth	Beating competitors in the market	Stability; status quo
Criteria for success	Development of human resources	Creation of new value	Outpacing competition	Efficiency

Sources: Cameron & Quinn (1999, 2011); Quinn & Rohrbaugh (1983)

Ahmed (1998) strongly asserts support for this proposition, suggesting that becoming innovative requires an organizational culture that pushes members to strive for innovation. An organization through which a high level of innovativeness has permeated

the culture exists with a high absorptive capacity, allowing it to readily absorb innovation into the organization (Tushman & O'Reilly, 1997).

Ahmed (1998) also contended that organizations will be best served if leaders spend more time designing and developing an environment supportive of innovation. If innovation is a goal, then companies need to focus on the creation and sustaining of organizational cultures that “perpetually create innovation” (p. 42). Dobni (2008a) posited that a successfully implemented innovation culture will provide an organization with a competitive advantage over rivals with the potential to culminate in industry leading performance. Ahmed (1998) boldly noted that,

without doubt the most innovative companies of the future will be dominated by those that do not simply focus energies upon product and technical innovation, but those who have managed to build enduring environments of human communities striving towards innovation through the creation of appropriate cultures and climate. (p. 43)

Dobni (2008b) further asserted that “successful innovation requires the organization to focus on the details that will foster an innovation environment at the operational level” (p. 49). According to Gupta and Srivastava (2013), innovation and EO develop simultaneously from a “perceived supportive organizational environment, nurturing lifelong learning, encouragement to innovative thinking, and freedom to employees to share their ideas” (p. 7). Martins and Terblanche (2003) proposed a model consisting of five determinants: (a) strategy, (b) structure, (c) support mechanisms, (d) behaviors that encourage innovation, and (e) communication.

Strategy. Organizations wishing to promote innovation and creativity within their ranks require a strategy that promotes the development of new ideas, products, and services (Jamrog et al., 2006; Martins & Terblanche, 2003). According to Covey (1993),

a shared vision and mission focused on the future is the genesis of organizational creativity and innovation. In pursuit of innovation, the vision and mission must be customer oriented, support creativity, and be well understood by members (Martins & Terblanche, 2003). The leadership helps develop the shared vision and provides the guidance in the form of strategic goals (Bass, 1985, 2007; Pisapia, 2009), ensuring members understand the direction the organization has taken, and then gets out of the way by allowing employees the freedom to be creative in arriving at the desired destination (Jamrog et al., 2006; Martins & Terblanche, 2003). According to Amabile et al. (1996), it is actually the creative ideas of those working within the organization, whether individually or as teams, that “sow the seeds” of successful innovation (p. 1178).

Structure. Organizational culture influences structure and structure likewise influences culture (Martins & Terblanche, 2003). An organization’s structure is its “architecture” or “anatomy” (Arad et al., 1997, p. 45); it is how the organization is built and the form it takes in its environment. The structure of an organization seems to influence the prevalence of creativity and innovation occurring within an organization (Martin & Terblanche, 2003). It both influences the behavior of individual members as well as determines its ability to adapt to changing environmental demands (Arad et al., 1997).

A primary feature of the organization’s anatomy, heavily influential on the behaviors and attitudes of membership, is the management system employed by the organization. According to Burns and Stalker (1961), there are two contrasting management systems. The mechanistic system, best suited for maintaining stability, consists of a clearly hierarchical structure featuring differentiation, distinct roles and

responsibilities, vertical interactions, internal orientation, and a focus on means rather than ends. The other management system, effective in seeking and implementing change, is known as organic, emphasizing freedom of horizontal interaction, flexibility of roles and responsibilities, and authority granted based on knowledge and ability (Burns & Stalker, 1961). A study conducted by Covin and Slevin (1989) supported these propositions, finding that small firms with high degrees of “organicity” performed best in “hostile” environments, while mechanistic firms performed better in stable, “benign” environments (p. 80).

The overwhelming majority of research on organizational performance consistently supports the importance of more organic structures in the development of creativity and innovation (Ahmed, 1998; Arad et al., 1997; Martins & Terblanche, 2003). Arad et al. (1997) summed this up, noting cultures valuing flexibility, autonomy, and collaboration promote less hierarchy and rigidity, leading to greater levels of innovation, while cultures valuing control, stability, and order, favor a hierarchical organizational structure with too little freedom to allow creativity to flourish, hindering the pursuit of innovation (Arad et al., 1997). Organizational structures that have decreased hierarchy, flattened their leadership structures, increased autonomy, developed work teams, and provided flexibility to employees, hold the promise of stimulating creative thinking and producing innovative new ideas, products, and services (Arad et al., 1997).

The complexity of the postmodern condition requires innovative approaches to changes in the environment. The characteristics of the more stable industrial age - hierarchy, rigidity, control, stability, and compartmentalization - will suppress creative behaviors and hinder an organization’s ability to innovate (Kimberly & Evanisko, 1981).

Structural constraints, such as those evident in hierarchical, mechanistic systems, create a barrier to risk taking, experimentation, and creative thinking (Matsuno, Mentzer, & Ozsomer, 2002). Hierarchical structures increase management's control over employees (Ekvall & Ryhammer, 1999). The corresponding loss of control reduces the intrinsic motivation of employees, suppressing levels of creativity (Amabile, 1998). Unlike in the industrial age, adaptability, autonomy, and empowerment are critical to creating postmodern organizational cultures.

Adaptability, frequently seen in nonhierarchical structures, is a key trait of organizational culture that leads to "flexibility, openness, and responsiveness" (Denison & Mishra, 1995, p. 204). Flexibility is one of the characteristics found to be critical to an organization's ability to contend with the lack of predictability associated with innovation (Dobni, 2008b; Martins & Terblanche, 2003). By increasing control (Ekvall & Ryhammer, 1999), hierarchy reduces the flexibility and autonomy that allow enterprising individuals to generate innovative new ideas, while less hierarchy leads to an organization that is more adaptable, fostering the flexibility that allows for quicker response to changes in the external environment (Martin & Terblanche, 2003).

Autonomy, an important dimension of more flexible organizational structures, is also prevalent in the literature as a determinant of creativity and innovation. Individuals are more likely to produce creative thought and outputs if they perceive themselves as having the freedom of choice in accomplishing their tasks (Amabile & Gitomer, 1984). Greater creative output from individuals leads to greater potential for organizational innovation. Lower levels of standardization, where work is guided by strict rules and procedures, and formalization, where written documents determine how work is

accomplished, lead to greater employee freedom, allowing for creative experimentation and the pursuit of innovation (Arad et al., 1997). Entrepreneurial organizations have such structures that value the autonomy that encourages creativity and experimentation, resulting in the production of new ideas (Lumpkin & Dess, 1996; Matsuno et al., 2002).

Autonomy often precedes the empowerment of employees. Greater empowerment, via the ability to participate in decision making and problem solving, is positively related to the levels of creativity and innovation in an organization (Arad et al., 1997), while more control and less autonomy becomes a hindrance (Jamrog et al., 2006; Judge, Fryxell, & Dooley, 1997). Judge et al. (1997) suggested that leaders should not only empower followers to make decisions, but also encourage them to be creative in their thought processes. Peck (1991) went so far as to call for schools to adopt entrepreneurial leadership specifically for its tendency to empower and motivate organizational members.

Support mechanisms. Within an organization, there are certain means by which leadership can support creativity and innovation. Martins and Terblanche (2003) indicated that numerous support mechanisms have been shared in the creativity and innovation literature, including rewards, recognition, and resources. Although Gupta and Srivastava (2013) found reward systems did not play an important role in the development of EO within organizational members, research has consistently supported the promulgation of behavior that has been rewarded by leadership. When the leadership of an organization rewards certain behavior, that behavior is elevated to a status that renders it the desired behavior within the organization. As that behavior is repeatedly reinforced, it becomes the dominant behavior among the rank and file of the organization

(Arad et al., 1997; Martins & Terblanche, 2003). As such, leaders seeking creativity and innovation should “create a vision that emphasizes entrepreneurship” (Arad et al., 1997, p. 48) and reward risk taking and experimentation when exhibited by members of the organization (Martins & Terblanche, 2003).

Behaviors that encourage innovation. Organizational characteristics play a vital role in the development of innovations (Amabile et al., 1996; Arad et al., 1997). While the generation of creative ideas is critical to innovation, the development of such novel approaches is meaningless without successful implementation of said creative concepts (Arad et al., 1997). According to Argyris (1966), it is the responsibility of the leader to ensure that members have the freedom to express ideas without the fear of reprisal. The emphasis of management to create an environment favorable to the actions and behaviors that encourage innovation are paramount to the development of new ideas, products, and services (Hult et al., 2004). Amabile et al. (1996) noted the extensive mention of encouragement of creativity as a critical dimension of the development of a creative work environment. Members of an organization who feel empowered to experiment by supportive behaviors and intrinsic motivation will generate the most creativity. Those who feel restricted by controlling management can have their motivation to be creative suppressed (Amabile, 1988; Amabile & Gitomer, 1984).

Risk taking and experimentation are behaviors often found to promote innovation (Martin & Terblanche, 2003). Leadership that values innovation in all levels of the organization, encouraging idea-generating and risk-taking behaviors, is critical to unleashing an organization’s creative potential (Kanter, 1983; Kimberly & Evanisko, 1981). For employees to be willing to take risks, leaders must cultivate an environment in

which risk is rewarded, regardless of the outcome (Jamrog et al., 2006). Argyris (1966) agreed, noting that employees will undertake riskier ventures if they are confident that their efforts will not be questioned or criticized. These high-risk, high-reward behaviors are fostered by leadership behaviors that tolerate letdowns, viewing failures as a result of experimentation and risk as lessons to be learned on the road to eventual success (Martins & Terblanche, 2003). According to Martins and Terblanche (2003), how the leadership handles mistakes could be the critical factor in developing an organizational culture that supports creativity and innovation.

Learning from mistakes is an attribute of successful organizations (Tushman & O'Reilly, 1997). If mistakes are not only tolerated, but failure is actually celebrated as an opportunity to learn, members will be more willing to experiment and act creatively on behalf of the organization (Martins & Terblanche, 2003). Attitudes towards failure may influence a person's perception of outcomes, thereby affecting how they behave in a given situation (Shepherd, 2003). A person who sees failure as a definition of one's identity allows the failure to become a permanent part of their character and a trauma that continually plagues future behavior (Dweck, 2006). A positive attitude toward failure, in contrast, is a tremendous advantage in a competitive world, allowing the individual with such an attitude to freely accept uncertain situations, move forward despite risk, and learn from any ensuing failures, not only surviving setback but growing as an individual (Politis & Gabrielson, 2009). Freedom to fail without the fear of punishment supports creative thinking and the successful birth of new ideas (Jamrog et al., 2006). The way in which failure is handled, whether it is punished as something bad and unwanted, or celebrated as an opportunity to learn, will facilitate the development of organizational

culture. When failure is celebrated, a culture of creativity and innovation is likely to develop (Martins & Terblanche, 2003).

Communication. Open and transparent communication is an important component of an organizational culture focused on creative thinking and innovation production (Jamrog et al., 2006; Martins & Terblanche, 2003; McClean, 2005). Such communication exists between members of teams, among members in different segments of the organization, between leadership and membership, and is prevalent both horizontally and vertically throughout the organization (Jamrog et al., 2006). Jamrog et al. (2006) emphasized that lessons learned from failures and successes are a critical component of such open communication, and necessary for the development of creativity.

School Culture

Since the mid-1990s, the interest in culture among educational researchers has grown tremendously (Van Houtte, 2005). Although there is no unanimously accepted definition of culture (Deal & Peterson, 1990; Gruenert, 2000), Deal and Peterson's (1990) description of school culture has embraced the factors most consistently discussed. They suggested that "the concept of culture is meant to describe the character of the school as it reflects deep patterns of values, beliefs, and traditions that have been formed over the course of its history" (p. 7). Schoen and Teddlie (2008) noted that many researchers, including Deal and Peterson (1990, 1999), Halsall (1998), Hopkins (1995), and Stoll and Fink (1996), agreed that "school culture is a crucial variable in school improvement" (p. 148). Heck and Marcoulides (1996) found that an understanding of a school's culture could provide insight into school performance.

Schools must have effective leadership that can create a vision and build a culture in pursuit of excellence (Sashkin, 1988). Chirichello (2004) suggested that “principals are the individuals who are expected to maintain open climates and promote the values and beliefs that shape the school’s culture” (p. 122). As complex as school culture is, however, culture is not the result of the thoughts and ideas of a leader alone. Deal and Peterson (1990) reminded us that “school culture is created through the experience and interplay of many people, a dialectic among all the key players in the school, of which the principal is only one” (p. 15). School culture, “by focusing on the values and beliefs of leaders, teachers, and students...has provided a helpful means of understanding the ways in which schools operate” (Bush, 2010, p. 5).

Deal and Peterson (1990) suggested that those cultural factors that lead to high performance in business should also lead to higher student achievement. Just as the work environment in a business organization impacts firm performance, the status of the learning environment in a school is a significant contributor to student success.

MacNeil et al. (2009) found that students scored higher on standardized tests in schools with “healthy learning environments” (p. 73). According to their findings, schools with a supportive culture that set and pursue clear goals, tolerate stress and ambiguity, and respond effectively and efficiently to the pressures of changes in the external environment produce greater student achievement than schools that lack this type of culture (MacNeil et al., 2009).

Deal and Peterson (1990) suggested that effective schools’ research identified certain cultural characteristics common to high-performing schools. These characteristics coalesced to create learning environments that not only addressed the academic needs of

students, but the mental and emotional needs as well. Strong values, “ethos, teamness, and school culture” (p. 10) were indicated as factors critical to achieving high test scores. A common practice connecting organizations across disciplines is the importance of strong leadership. As Deal and Peterson (1990) noted that, “leadership shapes culture, and culture shapes leaders” (p. 13). Gruenert (2000) emphasized the “pervasive effect” (p. 15) school culture has on organizational performance. By communicating commonly shared values and effectively utilizing symbols, rituals, and traditions, principals can build strong, positive cultures that foster better teaching and learning. Failing to create such a culture can result in a decrease in productivity, commitment, and creativity in teachers and students (Deal & Peterson, 1990).

Leithwood, Seashore, Anderson, and Wahlstrom (2004) asserted that the development of effective relationships between teachers and students promotes the engagement of students and increases student motivation to learn in any environment. As a culture emphasizing community is developed, student perceptions of personal relationships improve, leading to a sense of belonging and a sense of pride in the school. This culture, a behavioral manifestation of the organizational climate (Ekvall & Ryhammer, 1999), influences change initiatives, policy, and teacher and student behaviors, and is impacted significantly by principals (Leithwood et al., 1993). According to Leithwood and Sun (2012), school culture was most influenced by leadership practices that set directions and developed people. Strengthening school culture and fostering a collaborative environment within the school are two avenues by which leaders can greatly influence the conditions of the school (Leithwood & Sun, 2012).

Engels, Hotton, Devos, Bouckennooghe, and Aelterman (2008) studied the effects of principal personality factors on school culture. Active involvement of an achievement-oriented principal in developing a positive school culture “yields a purposeful and innovative attitude in their teams,” further fostering a transformation of the school culture into one that inspires stakeholders in the “continuous pursuit of improvement” (Engels et al., 2008, p. 171).

Despite the findings of some research suggesting teacher participation in decision making fails to have a significant impact on teacher and student outcomes (Taylor & Bogotch, 1994), Leithwood et al. (2004) asserted the importance of teacher involvement in decision making. Such empowerment generates greater teacher compliance, builds loyalty, improves teacher morale, and increases job satisfaction. Although they did not find significance in the outcomes of greater teacher participation, Taylor and Bogotch (1994) did find that teachers wished they were more involved in the decision-making process.

In extremely negative school cultures, principals are often conflicted between the roles with which they hope to identify and their priorities (Engels et al., 2008). A greater focus on stability and control are a focus of the principals’ identified roles as managers, with an affinity for predictability limiting their tolerance for ambiguity. Principals who lead extremely positive school cultures, in contrast, identify as mentors and innovators and “focus on creating a flexible, stimulating, participative, and supportive environment” (Engels et al., 2008, p. 170). They are transformational leaders who motivate and support teachers, promote creativity and are creative themselves, are willing to take risks, and plan for the future of the organization (Engels et al., 2008). They suggested that it is these

positive school cultures that seem to stimulate the improvement of teaching and enhancement of learning.

Gruenert (2000) asserted that a school's culture "provides the context in which the whole educational process occurs" (p. 14). Based on culture's influence over so many facets of an educational program, it is not surprising that studies examining the effect of school culture on student achievement consistently find a strong correlation between the two (Mees, 2008; Stolp, 1996). Many scholars have indicated that strong, positive cultures correlate to more effective schools and higher student achievement (Gruenert, 2000; MacNeil et al., 2009; Salfi & Saeed, 2007). According to Kythreotis, Pashiardis, and Kyriakides (2010), innovation, commitment, and decision making are three variables of culture that significantly impact school outcomes. Culture impacts student engagement and motivation, as well as teacher satisfaction, influencing both the teaching and learning occurring in classrooms (Gruenert, 2000; Stolp, 1996). Collaborative school cultures, embedded with these characteristics, have been identified as a culture typology conducive to increased student achievement and learning (Gruenert, 2000).

CVF and School Culture

Griffith (2003) found Quinn and Rohrbaugh's (1983) CVF to be a good fit for identifying effective schools, providing "a framework to develop measures of school processes and outcomes, in addition to an analytic method for determining their adequacy in describing schools" (p. 39). Of the four models according to the CVF, the adhocracy culture accounted for the greatest variance in school achievement progress at 18.9% (Quinn & Rohrbaugh, 1983).

Performance Measures

Lumpkin and Dess (1996) suggested that as a multidimensional concept, the relationship existing between EO and performance may depend on the indicators used to assess performance. In the business world, commonly used performance measures are job satisfaction, global success ratings, sales growth, and return on investment (Rauch et al., 2009). Rauch et al. (2009) argued that while EO has a significant impact on financial measures, such as sales growth and return on investment, there is little direct relationship between EO and nonfinancial measures, including satisfaction.

Performance Measures in Schools

As Schmidt (2009) noted, school effectiveness is paramount to educational researchers just as organizational effectiveness is a central focus of studies in the organizational sciences. Policymakers have defined the objectives of schooling to be improved student achievement (Hallinger, 1992), leading to student achievement being regarded as the primary measure of a school's performance. In Leithwood and Sun's (2012) meta-analysis of transformational school leadership studies, 31 of the 33 studies used student achievement, as measured by statewide achievement tests, as the dependent variable. Leithwood and Jantzi (2005), although using student engagement as the dependent variable in their study, suggested future research "incorporate a much broader set of student outcome variables, something much closer to the total set of academic, social, and psychological outcomes included in the curricula of most schools" (p. 471). However, policymakers have set student achievement as the priority of school leadership, and student achievement is the primary measure of the effectiveness of schools (Hallinger & Heck, 1998).

Principal Leadership Impact on School Performance

Since 1980, there has been a dramatic increase in the number of studies investigating the effectiveness of school principals (Hallinger & Heck, 1998). As seen in Table 6, research has consistently shown that principal leadership has significant influence over school performance (Andrews & Soder, 1987; Hallinger, 1992; Hallinger & Heck, 1998; Kafka, 2009; Leithwood, 1994; Leithwood & Jantzi, 2005; Leithwood et al., 2008; Louis, Dretzke, & Wahlstrom, 2010; Nettles & Herrington, 2007; Ogawa & Hart, 1985; Robinson, Lloyd, & Rowe, 2008; Sashkin, 1988; Waters, Marzano, & McNulty, 2003), and is second in importance only to teachers (Fullan, 2010; Hallinger & Heck, 1998; Leithwood, 1994; Leithwood et al., 2004).

Despite the abundance of evidence supporting the impact principals have on student performance, there is lack of a clear direct-effects causal relationship (Hallinger, Bickman, & Davis, 1996; Nettles & Herrington, 2007; Witziers et al., 2003). A plethora of the research has found that the school principal's influence is in great part indirect, through the development of school climate and culture, and influencing the behaviors of teachers (Leithwood, 1994; Leithwood & Jantzi, 2005; Ross & Gray, 2006). Yet, the lack of direct causal relationship does not lessen the statistical significance of the indirect relationship (Hallinger & Heck, 1998; Leithwood et al., 2008; Nettles & Herrington, 2007).

Empirical studies show that principals impact student achievement due to their influence over school vision, mission, goals, school structures, social structures and relationships, and finally, organizational culture (Hallinger & Heck, 1998). The literature is sprinkled with findings supporting the influence of high goals and expectations on

school outcomes (Brewer, 1993; Hallinger et al., 1996; Heck, Larsen, & Marcoulides, 1990; Leithwood, 1994). Brewer (1993) concluded that schools in which the principal maintained high academic expectations attained higher student achievement than schools with lower expectations. Hallinger and Heck (1998) concluded that Brewer's (1993) study, despite limitations, reinforces the potential impact of school culture on academic achievement.

The weight of scholarly opinion sides with the notion that the greatest impact a principal has on school outcomes is through influence over the norms, values, beliefs, and behaviors of stakeholders (Leithwood et al., 1993; Leithwood, 1994; Leithwood et al., 2008). As they become shared throughout the organization, these values and beliefs become engrained in school life as expressions of the school culture (Martins & Terblanche, 2003). Although the culture is “negotiated between administrators, teachers, students, and staff” (Rousemaniere, 2009, p. 216), the principal is the guiding force in the collaboration, and hence, in the development of those shared values and beliefs (Deal & Peterson, 1990; Hult et al., 2004). This culture, in turn, fosters the environment in which the teachers teach and students learn. Waters et al. (2003) suggested that principals influence student achievement either positively or negatively depending on how well they match attempted changes with the existing school culture.

Contextual Factors

The EO research literature has failed to sufficiently emphasize moderator variables (Rauch et al., 2009). However, there are a few individual studies that explore the moderating effects of variables on both the EO-performance relationship and the development and implementation of innovations (Arad et al., 1997; Kimberly &

Evanisko, 1981; Rauch et al., 2009). Based on the results of a meta-analysis, Rauch et al. (2009) suggested that moderator variables influence the relationship between EO and performance.

Table 6

Select Studies of Principal Effects on Student Achievement and School Outcomes

Study	Findings
Bossert, Dwyer, Rowan, & Lee (1982)	Although there are not clearly identified relationships between principal actions and student learning, research supports both direct and indirect influence of principal management on student learning experiences.
Ogawa & Hart (1985)	Principals have a small but important influence on student achievement (accounting for between 2-8% of variability in test scores)
Andrews & Soder (1987)	Schools of principals with strong instructional leadership saw gains 2-3 times higher than those with weak instructional leadership.
Eberts & Stone (1988)	Principal leadership in instructional activities and conflict resolution are important to student achievement.
Heck et al. (1990)	Principal efforts to improve educational environment impacts school performance.
Brewer (1993)	Schools with principals maintaining high academic expectations had higher student achievement.
Hallinger et al. (1996)	Principals do not have a direct effect on student achievement but do have indirect effect by influencing climate and school conditions.
Hallinger & Heck (1998)	Principals have a small but significant, although indirect, influence over school performance and student achievement.
Leithwood & Jantzi (1999)	Principal transformational leadership has strong direct effects on school and classroom conditions and weak, but significant effects on student identification.
Marks & Printy (2003)	Principal integrated leadership (transformational/instructional) has substantial impact on teacher effectiveness and student performance.
Leithwood & Jantzi (2005)	Transformational leadership has a small but significant indirect effect on student achievement and student engagement.
Leithwood & Jantzi (2006)	Principal transformational leadership practices had significant effects on teacher motivation, capacities, and classroom practices, but not on student achievement.
Leithwood et al. (2008)	The principal holds significant influence over student learning, second in importance only to teaching. School leaders improve teaching and learning through influence over teacher motivation, satisfaction, and working conditions.
Leithwood & Sun (2012)	Transformational school leadership from principal had large effects on shared goals, working environment, and improved instruction, with a slightly smaller effect on organizational culture, as well as a small but significant, positive effect on student achievement.

This study sought to explore the role played by school size, school level, and school SES in moderating the relationships between principal EO, school culture, and school performance. Opdenakker and Van Damme (2006) noted that the context of what was happening inside the schools was most important for explaining differences in achievement between students in different schools. While the contextual factors examined in this study may not have a direct impact on school performance, research has shown that these factors may influence “what is happening inside schools” (p. 111). In other words, the other aspects of the learning environment and social features of a school do impact the academic performance of students.

School size. Research has suggested that organization size is a variable very likely to affect the levels of innovation in an organization (Arad et al., 1997; Rauch et al., 2009). According to Jamrog et al. (2006), larger firms prefer lowered risk and incremental innovation, even with the decrease in potential returns. Smaller organizations are found to be more directly influenced by the EO of top-level management, and due to greater flexibility are more capable of significant change and seizing new opportunities, providing support for the assumption that EO could have a greater impact on smaller organizations (Rauch et al., 2009).

Although many research studies are unable to definitively claim that organization size moderates organizational performance relationships, there is evidence that this may be the case (Arad et al., 1997; Kanter, 1988; Rauch et al., 2009). While Rauch et al. (2009) did not find size to moderate the EO-performance relationship, Kimberly and Evanisko (1981) found organizational characteristics, such as size, did influence

innovations within organizations. Despite the lack of direct correlational evidence, there are studies providing indirect evidence of such a relationship. Kanter (1988) specifically found a negative relationship between specialization and innovation, and with larger organizations generally consisting of greater specialization (Arad et al., 1997), there is support for the claim that larger organizational size can be expected to have an indirect suppressing effect on organizational innovation.

In terms of schools, many call for the consolidation of schools into larger institutions to reduce costs and provide more diverse curricula (Fowler & Walberg, 1991). Despite the potential cost savings and opportunity for a greater variety in courses offered providing a more “comprehensive curriculum” (p. 199), evidence has consistently demonstrated that students perform better in smaller schools and the environments fostered in such schools (Fowler & Wahlberg, 1991; Leithwood et al., 2004; Salfi & Saeed, 2007). Fowler and Wahlberg (1991) claimed that the financial and curricular advantages of larger schools pale in comparison to the improved outcomes resulting from smaller school size. Generally, smaller schools provide stronger interpersonal relationships and a more supportive culture, fostering environments that promote student engagement and motivation (Fowler & Wahlberg, 1991; Leithwood et al., 2004; Salfi & Saeed, 2007). Fowler and Walberg (1991) concluded that “it appears that keeping schools relatively small might be more efficacious and may exhibit rare consensus as a goal of educators, the public, and those seeking equality of opportunity for students” (p. 200).

School level. School level has not consistently moderated the relationships between school leadership and student achievement. On one hand, studies have found a moderation relationship. Witziers et al. (2003) found that while there were small direct

effects of principal leadership on the achievement of students on elementary schools, no such effect existed at the secondary school level. On the other hand, research has failed to find support for such moderation. For example, Leithwood and Sun (2012) measured moderator effects of school level on the relationship between transformational leadership and school variables. The relationships between (a) transformational school leadership and school culture, (b) transformational school leadership and teacher commitment, (c) transformational school leadership and teacher job satisfaction, and (d) transformational school leadership and student learning were analyzed, finding there was no significant moderation of the relationship based on school level.

SES. For decades, educational research has promulgated the existence of a linkage between SES and student achievement (Coleman et al., 1966; Magnuson & Duncan, 2006; Perry & McConney, 2010; Quinn, 2015). Perry and McConney (2010), in a study using 2003 PISA data, found that not only did student achievement rise consistently as school SES rose, but they also found that this was the case regardless of the student's individual SES. Jiminez (2001), specifically studying middle school students, found that students qualifying for the free or reduced-price lunch program scored significantly lower on reading tests than those students who did not qualify for assistance. Quinn (2015) further found that reading and math gaps between Black and White children at the kindergarten level was in large part due to student SES, with the gap continuing to grow throughout elementary school. Quinn's (2015) findings that school quality was found to be the cause of the widening gap in kindergarten supports the earlier findings of Hanushek and Rivkin (2006).

One reason for differences in school quality between low and high SES schools is

the access to resources. The availability of resources has a direct relationship with student achievement (Bouhilia, 2014; Gunnarsson et al., 2009; Jiminez, 2001). Resources are integral to student success, with low SES schools often found to have critical shortages of basic educational resources such as textbooks and technology in the 21st century. Home resources are often equally in critically low supply (Chin & Phillips, 2004). Bouhilia (2014) pointed to TIMSS 2007 on Middle East and North African data that showed that students with less resources at home perform worse than those students from homes with greater access to resources.

Chapter Summary

This literature review has extricated information necessary for a complete understanding of the concepts proposed in this study. This review has specifically examined the principalship, postmodern leadership approaches in schools, EO, innovation, organizational culture, performance measures, and moderating factors.

The principalship was investigated to provide a perspective on the development of the principalship into the roles commonly accepted today as well as the impact the principal's leadership has on the development of school culture and school performance. In terms of leadership approaches, the review moves from the popular school leadership approach of transformational leadership to the postmodern leadership theories of strategic and entrepreneurial leadership, similar in their commitment to improving organizational performance in relation to the external environment. These theories are examined in depth to provide a framework for each of these approaches believed to be most effective in the ever-changing, chaotic, and ambiguous world of the postmodern condition. These theories are further explored to discover the characteristics that make each unique, those

commonalities that make each effective in the 21st century, and the impact each has on the present and future success of organizations, finally applying each of these approaches to the school setting.

As this study proposes to investigate the effect a principal's entrepreneurial leadership has on the development of an innovative culture in schools as well as on school performance, EO, the most commonly used measure of entrepreneurial leadership, is examined from both a business and education perspective. The methods of measuring EO, which gauges a leader's inclination toward entrepreneurial behaviors, are explored, as is the impact of EO on organizational performance.

This review then looks at innovation and organizational culture as they relate to each other, and to the development of a culture that values innovation. The concept of organizational culture and how it is measured are examined to provide a framework from which to study the impact of school culture on school performance and the influence a principal maintains over the development and sustaining of an innovation culture. The CVF is discussed in detail as the gold standard of assessing organizational culture and effectiveness. Finally, by looking at the potential effects of contextual factors, this review offers insight into the role such factors may play in moderating the relationship between a principal's EO, school culture, and school performance.

CHAPTER 3: METHODOLOGY

This chapter describes the research design utilized to conduct this study, including descriptions of the purpose and sample, description of the instruments, data collection methods, and statistical analysis procedures.

Purpose

The purpose of this study was to explore the possibility that entrepreneurial leadership, as an alternative to traditional forms of school leadership, may be an effective strategy for improving education. This was accomplished by examining the relationship between principal autonomy, a principal's IEO, the development of a school adhocracy/clan culture, and school performance.

The study was guided by the following research questions:

1. Is there a relationship between a principal's IEO and school performance?
2. Is there a relationship between a principal's IEO and the existence of a school adhocracy or clan culture?
3. Is there a relationship between a school's clan or adhocracy culture and student performance?
4. Is the relationship between principal IEO and school performance mediated by the existence of a school adhocracy culture or school clan culture?
5. Is the relationship between principal autonomy, a principal's IEO, a school's culture, and school performance moderated by contextual variables? For example, does the IEO of a principal have a greater or lesser impact on innovative school culture in

larger as opposed to smaller schools, at elementary as opposed to secondary schools, or at high SES as opposed to low SES schools?

6. Does principal autonomy predict a principal's IEO?

7. Is there a relationship between principal autonomy and school performance?

Propositions were extracted from the theoretical considerations framing the study and then the following hypotheses were created to test the propositions and answer the research questions:

H₁ = Principals with greater autonomy exhibit greater IEO (unidimensional and multidimensional) than principals with less autonomy.

H₂ = The relationship between principal autonomy and IEO is moderated by school size, school level, and school SES.

H₃ = Schools led by principals with a greater level of autonomy have higher school performance scores than schools led by principals with less autonomy.

H₄ = The relationship between principal autonomy and school performance is moderated by school size, school level, and school SES.

H₅ = Principal IEO does not significantly predict school performance.

H₆ = The relationship between principal IEO (unidimensional and multidimensional) and school performance is moderated by school size, school level, and school SES.

H₇ = The relationship between principal IEO and school performance is mediated school culture.

H₈ = Schools led by principals with higher IEO (unidimensional and multidimensional) are more closely associated with clan and adhocracy school cultures

than schools led by principals with low IEO (unidimensional and multidimensional).

H₉ = The relationship between principal IEO and school culture is moderated by school size, school level, and SES.

H₁₀ = School's with higher clan or adhocracy cultures demonstrate higher school performance scores than schools with lower clan or innovation cultures.

H₁₁ = The relationship between school culture (clan and adhocracy) and school performance is moderated by school size, school level, and SES.

Research Design

This study employed a nonexperimental, quantitative mediated research design to explore the relationship between principal autonomy, a principal's IEO, school culture, and school performance.

The first part of the study explored the relationships between autonomy, IEO, and school performance. In exploring the autonomy-IEO and autonomy-school performance relationships, the predictor variable was autonomy with IEO, the individual dimensions of IEO (risk taking, innovativeness, proactiveness), and school performance as criterion variables. In exploring the relationship between IEO and school performance, unidimensional IEO and the individual dimensions of IEO served as predictor variables while school performance was the criterion variable.

The second part of the study explored the relationship between IEO, school culture, and school performance. In the exploration of the IEO-school culture relationship, unidimensional IEO, and the individual dimensions of IEO served as predictor variables with school culture serving as the criterion variable. In exploring the relationship between school culture and school performance, culture was the predictor

variable with school performance as the criterion variable. In the mediation study of the IEO-school performance relationship, school culture served as the mediating variable. In the moderation effects exploration of all relationships in this study, school size, school level, and school SES served as moderating variables.

Sample

This study surveyed 60 principals and 326 teachers from public elementary and secondary schools of various sizes in 2 counties in Florida. As the moderating effect of contextual factors is an important part of this study, every effort was made to obtain a representative sample of elementary and secondary school principals and teachers, as well as principals and teachers from schools of varying populations and SES levels. Principals were selected using a convenience sample. The study was divided into two parts.

The first analysis inquired into the IEO of the school principal using a sample of 60 principals obtained from a population of 192 principals in 2 school districts in Florida. Of the 60 principals in the sample, 70% (n=42) worked at schools with student enrollment under 1,000 students while 30% (n=18) worked at schools with student enrollment greater than 1,000 students. Also from this sample, 65% (n=39) of the principals led elementary schools, and 35% (n=21) led secondary schools. In terms of SES, schools in the sample ranged from 18% of the students qualifying for the free and reduced-price lunch program to 100% of the students qualifying for the free and reduced-price lunch program.

The second analysis inquired into the nature of the school's culture and its relationship to the principal's IEO and the school's performance using a sample of 326

teachers from the schools led by the surveyed principals. Of the 60 schools whose principals agreed to participate, 31 returned at least 5 teacher survey responses and were included, while 29 schools did not reach the minimum threshold of 5 teacher surveys returned and were excluded from the culture part of the study. Of the 31 schools with at least 5 teachers participating, 71% (n=22) had student enrollment under 1,000 students with 29% (n=9) having student enrollment greater than 1,000 students. In regards to school level, 58% (n=18) were elementary schools, and 42% (n=13) were secondary schools. Again, the SES status of the schools ranged from 18% to 100% of the students qualifying for the free and reduced-price lunch program.

Instruments

This study used two instruments, the IEO scale and the OCAI.

IEO scale. Based on the Entrepreneurial Orientation Scale originally developed by Covin and Slevin (1986) to measure the EO of firms, Bolton and Lane (2012) developed the IEO scale to measure the entrepreneurial orientation of individuals. The Bolton and Lane instrument consists of 10 items: (a) 3 for risk taking, (b) 3 for proactiveness, and 4 (b) for innovativeness (see Appendix A). As used in this study, the instrument also included four items measuring autonomy recommended by Lumpkin et al. (2009). Each item was rated on a 5-point Likert-type scale. Following Bolton and Lane and Jelenc and Pisapia (2015), the school principal's IEO was measured by their disposition towards risk taking, innovativeness, and proactiveness.

Each principal self-reported ratings on each of the 14 items, which generated summed ratings for risk taking, proactiveness, innovativeness, and autonomy, as well as an aggregate score representing the principal's unidimensional IEO (sum of risk taking,

innovativeness, and proactiveness scores only). Autonomy was first tested as a part of the IEO and failed to factor out and thus was not considered further as a part of the principal's IEO. Autonomy was then analyzed as an antecedent variable to the principal's IEO. Hence, the component sub scores of the IEO (risk taking, innovativeness, proactiveness) were used as predictor variables in multiple regression of the relationships between principal IEO and school culture, as well as the relationship between principal IEO and school performance. The unidimensional IEO score was used as a predictor variable in a simple regression to explore the relationship between principal IEO and school adhocracy and clan cultures as well as the relationship between principal IEO and school performance. The unidimensional IEO, risk taking, innovativeness, and proactiveness scores were also used as criterion variables in regressions testing the relationship between principal autonomy and principal IEO.

Bolton and Lane (2012) used Cronbach's α to assess internal consistency reliability and factor analysis with "principal component analysis using promax rotation" to measure convergent and discriminant validity (p. 227). After conducting the reliability testing, the items measuring competitive aggressiveness ($\alpha = 0.585$) and autonomy ($\alpha = 0.205$) were removed from the scale due to low Cronbach's α , leaving the IEO with only the three components of (a) risk taking, (b) innovativeness, and (c) proactiveness. The three components remaining in the scale, each which emerged from factor analysis with Cronbach's α above the acceptable 0.60 standard accounted for 60% of the variance in IEO. "Scale purification and item reduction, along with the results of factor analysis, resulted in a ten-item scale with three subscales that suggest a measure of IEO which is content valid and reliable with construct validity" (Bolton & Lane, 2012, p. 228). Bolton

(2012), in a follow-up study with 340 entrepreneurs, found Cronbach's alphas above 0.70 for each of the three dimensions of (a) innovativeness (0.80), (b) proactiveness (.77), and (c) risk taking (0.77) which explained 68% of the variance, further verifying the internal consistency of the IEO instrument.

Several issues have been raised in the literature regarding the Bolton and Lane scale. For instance, George and Marino (2011) suggested that this scale may not be appropriate for all conditions. However, the major concern was the lack of a confirmatory factor analysis which described the scale's nomological network. Thus, prior to this study, a confirmatory factor analysis was conducted to discover the reliability, validity, and nomological network of the Bolton and Lane IEO scale. Using structural equation modeling with AMOS software, a combined sample (n) of 218 participants from the United States and Croatia, who exhibited entrepreneurial intentions, completed the IEO 10-item instrument. The sample consisted of 122 males (55.9%), 87 females (39.9%), and 9 participants (4.2%) who failed to identify gender. The results of the SEM analysis found a lack of support for the theoretical model tested. Results yielded a significant, chi-square statistic that allowed the researcher to reject the null hypothesis for good fit of the model (χ^2 (df)=73.863, df=32, p =.001). In terms of descriptive fit indices, the comparative fit index (CFI=.915) fell below commonly accepted cutoff of .95 (Hu & Bentler, 1999). The model had a root mean square error of approximation (RMSEA=.078) demonstrating that the model was not a good fit. The result of the analysis did not support the good fit of the 10-item Bolton and Lane IEO scale. Thus, prior to using this studies data for statistical analyses, a second attempt to discover the factor structure and nomological network was undertaken.

The data gathered from the IEO were subject to confirmatory factor analysis to determine the reliability and validity of the IEO scale. In order to test the reliability of various scales administered for the purpose of the study, reliability coefficient, that is, Cronbach's alpha (α) scores were obtained. Cronbach's α scores for various scales and subscales were found to be more than 0.6 (the minimum value that is acceptable as per standard norms) which indicates the reliability of all the measures used for the study.

First, an exploratory factor analysis was conducted with the current study sample ($n=60$), using principal axis factoring with Oblimin rotation. The 60 cases were subject to empirical analysis in an iterative fashion to identify latent factors and their means and standard deviations. Communalities were estimated by iteration from initial squared multiple correlations using the SPSS default. The principal axis factor analysis was used to extract the common factors in the IEO. The Oblimin rotation was selected because it allows the factors to correlate and EO anticipates some correlation among subscales. Factors were retained based on eigenvalues greater than 1.0. The analysis revealed a three factor solution as seen in Table 11. The results supported the construct validity of original IEO subscales. The IEO scale that resulted from the principal axis factoring analysis is comprised of three subscales: (a) risk taking (2 items), (b) proactiveness (3 items), and (c) innovativeness (3 items). Thus, two of the original Bolton and Lane 10 items, one for risk taking and one for innovativeness, did not factor out and were removed from the instrument for use in this study. The component scales resulted in high Cronbach's α scores: (a) risk taking (.827), (b) innovativeness (.791), and (c) proactiveness (.869) which is considered a sufficient reliability by psychometric authorities (Nunnally, 1978; Peterson, 1994) thus demonstrating strong internal reliability for the resulting 8-item

instrument. The items remaining in the scale are presented in Table 7.

Table 7

Pattern Matrix From the Principal Axis Factor Analysis With Direct Oblimin For Modified IEO

Item	1 Risk taking	2 Proactiveness	3 Innovativeness
I like to take bold action by venturing into the unknown.	-.926	-	-
I tend to act boldly in situations where risk is involved.	-.709	-	-
I usually act in anticipation of future problems, needs, or changes.	-	-.872	-
I tend to plan ahead on projects.	.101	-.818	.109
I prefer to step-up and get things going on projects rather than sit and wait for someone else to do it.	-	-.778	.124
In general, I prefer a strong emphasis in projects on unique, one-of-a-kind approaches rather than revisiting tried and true approaches used before.	-	-	1.038
I prefer to try to try my own unique way when learning new things rather than doing it like everyone else does.	-	-	.613
I favor experimentation and original approaches to problem solving rather than using methods others generally use for solving their problems.	-	-	.573
% of variance explained – (scale = 78.2)	10.2	18.6	49.4
Means	3.67	4.17	3.63
Standard deviations	1.53	2.17	2.46
Reliability	.827	.869	.791
Risk taking correlation	1.0	.507	-.628
Proactiveness	.507	1.0	-.395
Innovativeness correlation	-.628	-.395	1.0

Note. Extraction method principal axis factoring. Oblimin with Kaiser normalization rotation covered in 6 iterations. Values less than .10 thresholds were suppressed.

Exploratory factor analysis was conducted apriori to determine the factors and associated variables. Confirmatory factor analysis was then used to validate the proposed factor model and to test emergent factor solutions from the exploratory factor analysis

and find a best fit model. Confirmatory factor analysis was conducted using SPSS Amos software. Multiple indices were referenced to determine model fit (Raykov & Marcoulides, 2000). First, model fit was assessed using the chi-square goodness-of-fit statistic. A well-fitting model would be expected to have a nonsignificant value of chi-square. Additionally, the Good Fit Index (GFI), Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA) were used. Hu and Bentler's (1999) recommendations were followed in regards to fit indices. They suggested that an acceptable confirmatory factor analysis fit model is characterized by the following values: GFI >.90, CFI >.95, RMSEA <.10. As seen in Table 8, on these indices the model demonstrated a good fit to the data. The results for the confirmatory factor analysis are displayed in Table 8.

Table 8

Confirmatory Factor Analysis: Construct Validity Test of Individual Entrepreneurial Orientation

Model	χ^2	df	GFI	CFI	RMSEA
	9.102	17	.963	1.000	<.001

Note. χ^2 is not statistically significant at 0.05. df=degrees of freedom, GFI=good fit index, CFI=comparative fit index, RMSEA=root mean square error of approximation

The analysis of the resulting data demonstrated that the model was a good fit. A chi-square statistic of 9.102 with $df=17$ ($CMIN/df=.535$) and $p=.937$ led the researcher to fail to reject the null hypothesis and provided support for the 8-item model. Descriptive indices also supported the validity of the theoretical model with $GFI=.963$, $CFI=1.000$, and $RMSEA = <.001$. Figure 3 presents the results of the Structural Equation Modeling and the resulting nomological network.

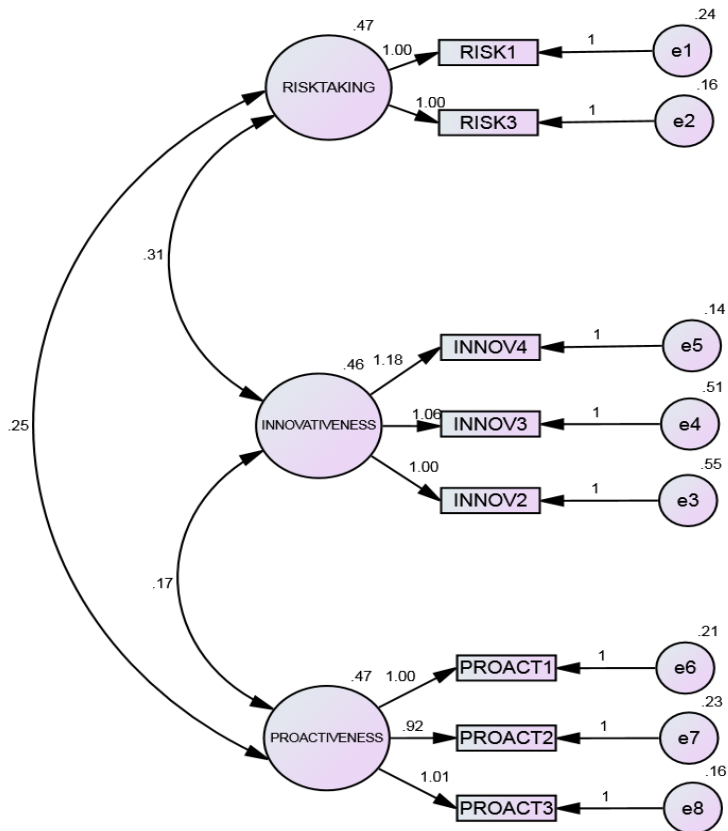


Figure 3. Results of structural equation modeling: A simple framework of individual entrepreneurial orientation (model fit)

The high Cronbach α scores obtained through principal component axis factoring for risk taking, proactiveness, and innovativeness in the modified 8-item IEO scale (.827, .869, .791) demonstrate satisfactory internal reliability for the instrument. The $\chi^2(17)=9.10$ and descriptive fit results (GFI=.963, CFI=1.000, RMSEA<.001) of confirmatory factor analysis using structural equation modeling indicated a model with good fit and provided support for the validity of the 8-item IEO scale. The paths from latents to variables are all strong and uniform. Further, the paths between latents represented by the scale are not large, demonstrating that each of the dimensions is

indeed distinct, thus supporting construct validity. Internal reliability analysis and confirmatory factor analysis suggested a strong degree of fit for the modified 8-item IEO scale, demonstrating satisfactory construct validity for the instrument as a valid and reliable measure of IEO.

OCAI. The teachers were administered the OCA, developed by Cameron and Quinn (1999), modified to provide participants with language representative of the education profession (i.e. the term “organization” was replaced with the term “school”). This instrument provided statistical data informing the levels of the four culture types present in the school community. This instrument provided description and definition of the organization’s culture based on the rating of six dimensions of culture: (a) dominant characteristics of the organization, (b) leadership style and approach, (c) management style and work environment, (d) organizational glue, (e) strategic emphasis of organization’s strategy, (f) criteria of success (see Appendix B). For each dimension, there were four descriptive items of behaviors, each associated with one of the four dominant culture types as follows: (a) clan, (b) adhocracy, (c) market, and (d) hierarchical, according to Quinn and Rohrbaugh’s (1983) CVF. The OCAI was utilized using both an ipsative scale and a 7-point Likert-type scale. In ipsative studies, participants rate their organization’s culture on these six dimensions, dividing 100 points over the descriptions that correspond to the four culture types for each dimension. The ratings for each dimension are then added to determine the individual’s perception of the organizational culture as it currently exists. This provides greater variance in responses than the Likert-type scale and requires participants to account for “trade-offs” in organizational culture (Cameron & Quinn, 1999, p. 144). However, as noted by Cameron

and Quinn (1999), ipsative responses are not independent as they are in Likert-type scale instruments. “Normal statistical correlational analyses, which are based on the assumption of independent responses on each item, are usually not appropriate for analyzing this kind of data [ipsative response data]” (Cameron & Quinn, 1999, p. 145).

Following the lead of Quinn and Spreitzer (1991) and Yeung et al. (1991), this study employed the 7-point Likert-type scale to measure school culture and standard statistical correlational and regression analyses to examine the relationships between principal EO, school culture, and school performance. As such, teachers rated each of the four statements for each dimension of organizational culture using the 7-point Likert-type scale, with 1 representing *never*, and 7 representing *always*, for each statement. The ratings reported by each teacher within the school were aggregated and averaged to determine the measure of the school’s culture types. For example, adhocracy culture responses for each dimension provided by each individual teacher were summed, with an average of the summed response of all teachers participating from a particular school used as the adhocracy culture score of that school.

Cameron and Quinn (2011) noted that the reliability and validity of the OCAI have been tested in numerous studies, including Quinn and Spreitzer (1991), Yeung et al. (1991), and Zammuto and Krakower (1991). Quinn and Spreitzer found Cronbach alphas for each culture type to be above the .70 threshold, assuring the reliability of the 4-quadrant model - adhocracy culture (.79), clan culture (.74), hierarchy culture (.71), and market culture (.71). Yeung et al. found similar results, with alphas ranging from .80 for the adhocracy culture to .76 for the hierarchy culture. Zammuto and Krakower found congruence with these other findings in their study involving higher education

institutions, with alphas of .83 for adhocracy, .82 for clan, .78 for market, and .67 for hierarchy cultures.

In terms of validity, Quinn and Spreitzer (1991) found support for both convergent and discriminant validity of the OCAI using multitrait-multimethod analysis (Cameron & Quinn, 1999). Using the OCAI and another instrument, they found support for convergent validity as correlation coefficients ranged from .212 to .515. In terms of discriminant validity, three tests provided evidence that items in the same culture quadrant were more highly correlated with each other than with items in other culture quadrants. Zammuto and Krakower (1991) also validated the instrument, finding that each culture type was strongly associated with the factors that supposedly represent the specific culture type.

Data Collection

An email with a link to the IEO survey was sent to all principals in the school districts to secure principal participation in the study (see Appendix C). When principals completed the IEO survey, a follow-up email with a link to the OCAI was sent to the principals (see Appendix D), who were asked to forward the emails to their teachers and request participation. From these efforts, the sample size of 60 principals and 326 teachers from the participating schools was used to collect the desired data. As an a priori power analysis with an effect size of .50, medium according to Cohen, an alpha of .05, and three predictors produced a required sample of 24 units of analysis for a power of .90, this sample was sufficient to conduct the study. Each participant agreed to participate with an electronic acknowledgement of informed consent along with assurances of confidentiality of data collected in the study.

Data was collected from principals and teachers employed in county public and charter schools by way of electronic survey. Principals completed an online version of the modified IEO scale. Teachers from each of the principals' schools completed an online version of the full 24-item version of the OCAI. As these instruments were not designed specifically for use in the education field, modifications to these instruments were made in the form of terminology commonly associated with the education profession.

Data collected from the principal IEO surveys provided quantitative measures of the principal IEO. The OCAI results from teacher surveys provided data to measure the organizational culture of each school. School performance scores were based on the percentage of possible points earned by the school based on standardized test scores and other academic measurements as awarded by the state Department of Education. The number of points earned by the school was divided by the possible points that could be earned, providing the measure of school performance for each school used in this study. The school performance data used to calculate this score was public information obtained from the state accountability database found on the Florida Department of Education website.

Statistical Analyses

The analysis proceeded in three stages. First, a confirmatory factor analysis of the IEO scale was conducted to determine its usability as a predictive instrument. Second, the full sample of 60 schools was used to determine the relationship of principal autonomy, IEO, and school performance. Finally, the 31 schools providing teacher observations of the school's culture were used to test the mediating relationships among principal IEO, school culture, and school performance.

This study used simple and multiple regression analyses to explore the relationships between (a) principal autonomy and principal IEO, (b) principal autonomy and school performance, (c) principal IEO and school performance, (d) principal IEO and the levels of school adhocracy/clan cultures, and (e) the relationship between the level of adhocracy/clan cultures and school performance. Moderator analyses were conducted using multiple regressions to determine the moderation effects of school size, school level, and SES on each of the relationships being studied. Mediation analysis using Hayes' PROCESS macro was conducted to determine if a school culture mediates the relationship between principal IEO and school performance. The level of significance for all statistical tests were set at $\alpha = .05$.

Hypothesis testing. This study tested 11 hypotheses exploring the relationship between principal autonomy, principal IEO, school culture, and school performance. Hypotheses also involved mediation and moderation of the relationships. This was accomplished by conducting a series of simple and multiple regression analyses to test for moderation, and Hayes' PROCESS macro to test for mediation.

There were several multiple regression analyses conducted in this study. Simple regressions were used to test the relationships between autonomy and IEO, as well as autonomy and school performance, with autonomy as the predictor variable and risk taking, innovativeness, proactiveness, unidimensional IEO, and school performance as the criterion variables in independent analyses. The predictor variables in the first multiple regression were the components of principal EO (risk taking, innovativeness, proactiveness), as measured by IEO responses, with school performance as the criterion variable. Correlation analysis tested the relationship between unidimensional IEO

(predictor) and school performance (criterion). Regression analyses were used to study moderator effects of the contextual factors of school level, school size, and school SES. In the second part of the study, a multiple regression analysis was run using risk taking, innovativeness, and proactiveness as predictor variables with the school culture score (clan/adhocracy), as measured by the average of teacher culture perceptions according to OCAI survey results, as the criterion variable. Correlation analysis tested the relationship between unidimensional IEO and school culture. Again, regression analyses were used to study the moderator effects of school level, school size, and school SES on the relationship between principal IEO and school culture. Bivariate correlation analysis was used to examine the relationship between school culture and school performance. Hayes' PROCESS macro for SPSS was used to explore the mediation effect of school culture on the IEO-school performance relationship.

Moderators. One question explored in this study was how contextual factors moderate the relationship between the principal's IEO and school performance, as well as the principal's IEO and the development of school adhocracy and/or clan cultures, and the relationship between the level of adhocracy/clan culture and school performance. The contextual factors serving as moderator variables in this study included school size, school level, and school type. The moderation effect of each contextual factor was studied utilizing multiple regression analyses. Schools were classified according to size. Schools with student enrollment of $\leq 1,000$ students were classified as small, and schools with enrollments of $> 1,000$ students were classified as large. In terms of level, schools were classified as elementary if they supported Grades K-5, and secondary if they were middle (Grades 6-8) or high school (Grades 9-12). For school SES, the percentage of the

student population qualifying for the federal free and reduced-price lunch program was used.

Chapter Summary

This chapter included a description of the methodology used in this study. The research design, including research questions and hypotheses tested, data collection methods, and instruments used were described in detail. The design was used to study the relationships between principal autonomy, principal IEO, school culture, and school performance. There were 7 research questions posed and 11 hypotheses tested. Through correlation and multiple regressions, including moderator analyses, the following relationships were studied: (a) principal autonomy and principal IEO, (b) principal IEO and school performance, (c) principal autonomy and school performance, (d) principal IEO and school culture, and (e) school culture and school performance. Mediator analysis was utilized to study the mediating effect of school culture on the principal IEO-school performance relationship. Principal IEO was measured using a modified IEO scale; principal autonomy was measured using Lumpkin et al., (2009) recommended 4-item measure. School culture data was collected using the OCAI developed by Cameron and Quinn (1999). School performance data was collected from the Florida Department of Education Accountability website.

CHAPTER 4: RESULTS

This study was conducted to explore the link between principal autonomy, principal IEO, school culture, and school performance as moderated by school level, school size, and school SES. The analysis proceeded in three stages. First a confirmatory factor analysis of the IEO scale was conducted to determine its usability as a predictive instrument. The results are found in Chapter 3. Second, the full sample of 60 schools was used to determine the relationship of principal autonomy, IEO, and school performance. Finally, the 31 schools providing teacher observations of the school's culture were used to test the relationships among principal IEO, school culture, and school performance.

Autonomy, IEO, and School Performance

Using data from the administration of the IEO scale from the full sample of 60 schools, the relationship of principal autonomy, IEO, and school performance was explored. First, correlation analysis tested the direct-effects relationships between autonomy and entrepreneurial behavior (both multi- and unidimensional), and between autonomy and school performance, and then multiple regression was used to test the relationship between IEO and school performance. Finally, moderator analyses using multiple regression tested the moderation influences of school level, school size, and SES on each of those direct-effects relationships.

Descriptive statistics. The means, standard deviations and bivariate correlations of the contextual factors, IEO components, and criterion variables are provided in Table 9.

Table 9

Descriptive Statistics and Correlations Among the Study Variables – Part I (n=60)

No. Variables	Descriptives		Pearson correlation coefficients									
	M	SD	1	2	3	4	5	6	7	8	9	
1 School level	1.33	.475	--									
2 School size	1.30	.465	*.540	--								
3 SES	53.33	23.5	-.119	-.243	--							
4 Autonomy	16.7	2.66	-.098	.083	-.249	--						
5 Proactiveness	12.52	2.17	-.071	.079	-.191	*.968	--					
6 Risk taking	7.33	1.53	-.203	.024	-.136	*.537	*.494	--				
7 Innovativeness	10.88	2.46	*-.270	-.043	.001	*.403	*.391	*.556	--			
8 IEO	31.15	4.91	-.247	-.043	-.086	*.672	*.654	*.789	*.835	--		
9 School performance	.687	.094	.204	*.474	*-.622	*.304	.252	.128	.004	.127	--	

Note. *p<.05; **p<.01

The highest possible scores for the IEO component scales are: proactiveness (15), risk taking (10), and innovativeness (15). The means displayed in Table 9 reflect the average of the summed total of dimension items.

All response items were rated by the principals on a Likert-type scale ranging from 1 to 5, with 1 being *never* and 5 being *always*. The item means (risk taking=3.67, innovativeness=3.63, proactiveness=4.17), scored out of a possible 5, indicate that the principals rated themselves higher on proactiveness than they did for either risk taking or innovativeness. The average response for proactiveness was 4.17 out of 5, demonstrating a strong disposition for principals engaging in proactive behaviors. The average scores on risk taking and innovativeness, while still above average, were slightly lower at 3.67 and 3.63, respectively. These differences may be the result of the wording of the questions.

As expected, there were significant correlations between each of the components of IEO and each other, as well as between each component scale and the unidimensional IEO score. Although the correlations were significant, there was no more than 30% shared variance, offering support for construct validity of the scale. There were also significant correlations between autonomy and the IEO unidimensional score ($r=.672$), and between autonomy and each IEO dimension score: proactiveness (.968), risk taking ($r=.537$), and innovativeness ($r=.403$). With the exception of innovativeness, all effect sizes between autonomy and IEO measures, as determined by the r value, were large ($>.50$), according to Cohen (1988). This indicates strong relationships between autonomy and unidimensional IEO, as well as between autonomy and the individual EO components. Autonomy was also positively correlated to school performance ($r=.304$). This autonomy-school performance correlation was significant ($p<.05$), exhibiting a

medium effect size and representing a moderately strong relationship.

There was limited correlation between the contextual factors and other variables. As expected, school level correlated positively to school size ($r=.540$), as secondary schools are generally larger than their elementary counterparts. Another expected correlation was that between SES and school performance, as this relationship has been supported by numerous research studies over decades. Research has suggested that there is a significant relationship between SES and school outcomes (Coleman et al., 1966; Magnuson & Duncan, 2006; Perry & McConney, 2010; Quinn, 2015). In this study, SES was significantly and negatively correlated to school performance ($r=-.622$), with a large effect size, suggesting that as the percentage of free and reduced-price lunch students in the school population increases (SES decreases), school performance decreases. Surprisingly, there was a significant, positive correlation with medium to large effect size, between school size and school performance ($r=.474$), indicating that there was significantly higher school performance at the larger schools in the study than at the smaller schools. The lack of significant correlations between IEO, its components of risk taking, innovativeness, and proactiveness, and the contextual factors of school size, school level, and school SES demonstrates that a principal's entrepreneurial dispositions are not related to level, size, or SES.

Hypothesis testing. H_1 = Principals with greater autonomy exhibit greater IEO (unidimensional and multidimensional) than principals with less autonomy.

H_1 posits that there will be a difference between the IEO of a principal who perceives that they have greater autonomy and a principal who perceives that they have less autonomy. Hence, there will be a difference in entrepreneurial disposition, meaning

that the principal with greater autonomy will be more apt to take risks, pursue innovations, and be proactive in decision making based on a greater sense of freedom to make decisions and implement strategies. This hypothesis was tested using bivariate correlation analyses. The correlations are displayed in Table 9.

As seen in the Table 9, autonomy was shown to have a significant relationship with a principal's tendency to behave in an entrepreneurial manner. The largest effect size ($r=.968$) and strongest correlation was between autonomy and proactiveness demonstrating a nearly perfect correlation. The results suggest that the level of autonomy perceived by the principal predicts 93.7% ($r^2=.937$) of the variance in a principal's disposition toward proactiveness. For each 1-point increase in autonomy score, it is predicted that there will be a 3.166-point increase in the principal's proactiveness score ($b=3.166$). Also found were significant, moderate to strong correlations between autonomy and risk taking ($b=1.233$, $r=.537$, $r^2=.289$) and between autonomy and innovativeness ($b=1.492$, $r=.403$, $r^2=.162$). Although not nearly as strong as the relationship between autonomy and proactiveness, autonomy still predicts 28.9% of the variance in a principal's willingness to take risks and 16.2% of the variance in the disposition for innovativeness. A 1-point increase in autonomy score also predicts a 1.233-point rise in risk taking and 1.492 rise in innovativeness scores. If taken as a unidimensional measure, a principal's IEO is greatly influenced by the amount of autonomy the person has ($b=4.965$, $r=.672$, $p<.001$). Autonomy predicted 45.2% of the variance in a principal's IEO with an effect size of .672. A 1-point increase in autonomy score is predicted to result in a 4.965-point increase in the IEO score of a principal ($b=4.965$). The effect size of .672 is considered to be large (Cohen, 1988) and indicative

of a strong relationship. Hence, statistical analysis demonstrates that autonomy influences the IEO of a principal directly, with more autonomy leading to principals who are more entrepreneurial, which means they are more willing to take risks, pursue innovative methods and strategies, and proactively lead their schools.

Figure 4 provides a visual aid displaying the results of the analyses conducted to test the relationship between autonomy, IEO, and the individual components of IEO. The arrows depict the direction of the predictive relationship, with each representing a single relationship studied. The r^2 value, representing the percentage of the variance predicted in the relationship, is displayed on the line, along with the effect size (r) in parentheses.

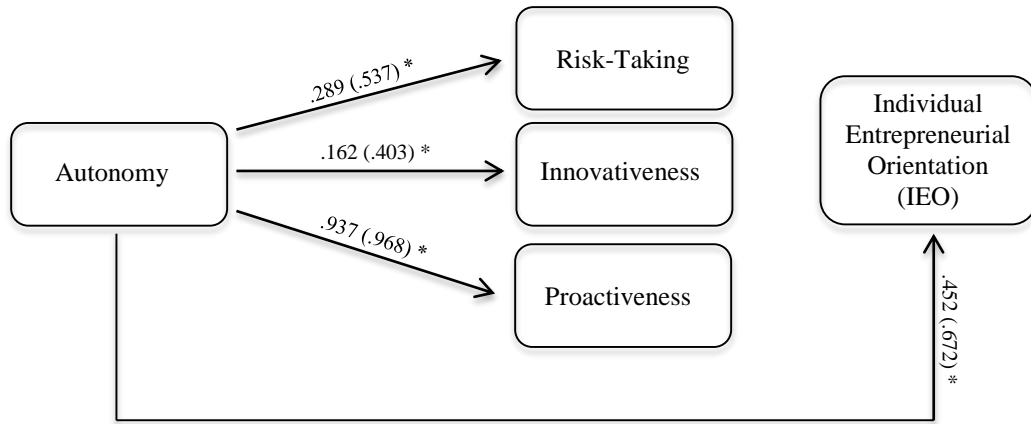


Figure 4. Relationships between autonomy, the individual dimensions of IEO, and unidimensional IEO

H₂ = The relationship between principal autonomy and IEO is moderated by school size, school level, and school SES.

H₂ posits that contextual factors have a moderating influence on the relationship between principal autonomy and principal IEO, both unidimensional and multidimensional. Using multiple regression moderator analysis, H₂ was tested to

determine if school level, school size, and/or SES had a moderation effect on the relationship between principal autonomy and principal IEO. The results of the moderator analysis, presented in Table 10, suggest that only SES ($b=.058$, $\beta=.211$, $p=.042$) had a significant moderation effect, with a small to moderate effect size, on the principal autonomy-principal IEO relationship.

Table 10

Moderator Analyses of the Relationship Between Principal Autonomy and Principal IEO (n=60)

Moderator variable	β	t	p
Autonomy*school level	.231	.774	.442
Autonomy*school size	.308	1.013	.315
Autonomy*SES	.211	2.085	.042

A split-case bivariate correlation analysis was then conducted to test the moderation effect of SES on the autonomy-IEO relationship. Two correlation analyses were run for autonomy and IEO: (a) only in cases with 50% or less free and reduced-price lunch (high SES), and (b) only in cases with greater than 50% free and reduced-price lunch (low SES). The results are presented in Table 11.

Table 11

Split-Case Correlation Analysis of Autonomy-IEO Relationship (Moderated by SES)

Free and reduced-price lunch percentage	N	Correlation coefficient	p
$\leq 50\%$ (High SES)	32	.565	.001
$>50\%$ (Low SES)	28	.748	$<.001$

The higher positive correlation between autonomy and principal IEO at schools with greater percentage of free and reduced-price lunch students (low SES schools) explains the nature of the moderation. While the relationship is positive regardless of SES, it is more positive for low SES schools. The relationship grows more positive as school SES decreases, suggesting that principals with greater autonomy behave differently in low SES schools as opposed to high SES schools. In other words, when principals have more autonomy, they are more likely to be entrepreneurial in low SES schools, participating more frequently in riskier ventures, pursuing innovation with greater frequency, and behaving in a more proactive manner. All VIFs in moderator regression analyses involving the relationship between principal autonomy and principal IEO were under 10.0 (level=9.833, size=9.780, SES=1.139), reducing concerns of multicollinearity.

Each of the IEO dimensions were also tested in multiple regression analyses to determine if the contextual factors moderated the relationship of autonomy with each individual component. There was no significant moderation effect for school level or school size on the relationship between autonomy and risk taking, autonomy and innovativeness, or autonomy and proactiveness. Although there were also no significant moderation effects of SES on the autonomy-risk-taking relationship or autonomy-proactiveness relationship, there was a significant moderation effect of SES on the relationship between autonomy and innovativeness ($b=.037$, $\beta=.265$, $p=.038$). The effect size of .265 is small to medium in size, and indicates a weak to moderate relationship. Furthermore, a split-case bivariate correlation analysis was conducted to test and compare the correlation of autonomy to innovativeness at both high SES and low SES schools.

The results of the correlation analyses are presented in Table 12.

Table 12

Split-Case Correlation Analysis of Autonomy-Innovativeness Relationship (Moderated by SES)

Free and reduced-price lunch percentage	<i>N</i>	Correlation coefficient	<i>p</i>
≤50% (High SES)	32	.201	.271
>50% (Low SES)	28	.601	.001

The results of the moderator and split-case bivariate correlation analyses demonstrate that the relationship between autonomy and innovativeness becomes more positive with decreasing school SES, indicating that principals with greater autonomy are more likely to pursue innovation at schools with lower SES (higher free and reduced-price lunch percentages). Coupled with the results of the moderator analysis involving unidimensional IEO as the predictor variable, the results of this analysis indicate that while principals are more likely to display IEO in low SES schools when they have greater autonomy, the strength of that IEO is found more in the pursuit of innovation than in risk-taking or proactive behaviors.

H₃ = Schools led by principals with a greater level of autonomy have higher school performance scores than schools led by principals with less autonomy.

H₃ posits that the level of principal autonomy has a direct effect on school performance. Specifically, it was hypothesized that when a principal perceives to have more autonomy, the school will have greater school performance than schools where the principal perceives to have less autonomy. This hypothesis was tested using bivariate correlation analysis. The results of the regression analysis are presented in Table 9.

The results of bivariate correlation analysis indicate a significant relationship exists between principal autonomy and school performance ($p=.018$, $r=.304$). A simple regression analysis found that each 1-point increase in autonomy results in an increase of .043 points in school performance scores ($b=.043$), which represents a 4.3% increase in overall school performance. The r^2 value of .092 suggests that principal autonomy accounts for 9.2% of the variance in a school performance score, with little shrinkage upon generalization with the overall population (adjusted $r^2=.077$). The medium effect size of .304 indicates the strength of the relationship between autonomy and school performance is moderate in its impact. Principal autonomy, as supported by the results of statistical analysis in this study, significantly influences school performance directly. It has been demonstrated that in this study, schools led by principals who claimed to have more autonomy have significantly higher school performance than those led by less autonomous principals.

H₄ = The relationship between principal autonomy and school performance is moderated by school size, school level, and SES.

H₄ posits that contextual factors moderate the relationship between principal autonomy and school performance. Using multiple regression analysis, H₄ was tested to determine if school level, school size, and/or SES had a moderation effect on the relationship between principal autonomy and school performance. The results of the moderator analyses, presented in Table 13, suggest that there were no significant moderation effects of school level, school size, or SES on the relationship between principal autonomy and school performance. Again, all VIFs resulting from the analyses were under 10.00, allaying any concerns for issues with multicollinearity.

Table 13

Moderator Analyses of the Relationship Between Principal Autonomy and School Performance (n=60)

Moderator variable	β	t	p
Autonomy*school level	-.500	-1.311	.195
Autonomy*school size	-.056	-.158	.875
Autonomy*SES	-.166	-1.549	.127

H₅ = Principal IEO does not significantly predict school performance.

H₅ posits that a principal's IEO would not have a direct effect relationship with school performance. The results of the bivariate correlation analyses testing the relationship between the unidimensional IEO construct and school performance are listed in Table 9, along with the correlations of each IEO component construct and school performance.

There was no statistically significant direct influence relationship between the unidimensional IEO construct and the criterion variable of school performance. Furthermore, there was no significant, direct relationship between risk taking, innovativeness, proactiveness, and school performance. However, the relationship between proactiveness and school performance was approaching significance (p=.053). The small sample size could limit the appearance of a significant relationship between proactiveness and school performance.

H₆ = The relationship between principal IEO (unidimensional and multidimensional) and school performance will be moderated by school level, school size, and SES.

H₆ posits that school level, school size, and school SES will significantly

moderate the relationship between principal IEO and school performance. This hypothesis was tested using moderator regression analysis. The results of the multiple regression moderator analysis using unidimensional IEO, the contextual factors of school level, school size, and school SES, and the unidimensional IEO-contextual factor products as the predictor variables are presented in Table 14.

Table 14

Moderator Analyses of the Relationship Between Principal IEO and School Performance (n=60)

Moderator variable	β	t	p
IEO*school level	.091	.222	.825
IEO*school size	.510	1.482	.144
IEO*SES	-.055	-.444	.659

There were no significant moderation effects of the unidimensional IEO-school performance relationship found in this study. The VIFs were all under 10, reducing concerns of multicollinearity. The results of multiple regression moderator analyses of risk taking and the risk taking-contextual factor product, innovativeness, and the innovativeness-contextual factor product, and proactiveness and the proactiveness-contextual factor product are presented in Table 15.

The regression moderator analysis of the contextual factors school level, school size, and school SES with risk taking, innovativeness, and proactiveness as predictor variables for the criterion variable school performance did not yield any significant moderation effects. Therefore, there was no significant moderation of the relationships between risk taking and school performance, innovativeness and school performance, or proactiveness and school performance by any of the contextual factors of school level,

school size, and SES that were studied. Again, VIFs were all under 10, reducing concerns of multicollinearity.

Table 15

Moderator Analyses of the Relationship Between Predictor Variables Risk Taking, Innovativeness, and Proactiveness and Criterion Variable School Performance (n=60)

IEO component	Moderator variable	β	t	p
Risk taking	RT*school level	.192	.474	.637
	RT*school size	.164	.469	.641
	RT*SES	.087	.798	.428
Innovativeness	INN*school level	.080	.194	.847
	INN*school size	.290	.827	.412
	INN*SES	.059	.539	.592
Proactiveness	PRO*school level	-.474	-1.225	.226
	PRO*school size	-.064	-.180	.858
	PRO*SES	-.179	-1.645	.106

IEO, School Culture, and School Performance

Finally, the 31 schools providing teacher observations of the school's culture were used to test the mediating relationships among principal EO, school culture, and school performance, as well as the direct-effect relationship between principal IEO and school culture, school culture and school performance, and the moderation effects of school level, school size, and SES on each direct-effects relationship.

Descriptive statistics. The means, standard deviations, and correlation coefficients of each of the variables used in the second part of the study are presented in Table 16.

Table 16

Descriptive Statistics and Correlations Among the Study Variables – Part II (n=31)

No.	Variables	Descriptives		Pearson correlation coefficients															
		M	SD	1	2	3	4	5	6	7	8	9	10						
1	School level	1.42	.502	--															
2	School size	1.29	.461	*.753	--														
3	SES	45.45	20.99	-.278	-.186	--													
4	Proactiveness	12.90	1.58	.053	.040	.006	--												
5	Risk taking	7.81	1.42	-.069	-.013	-.032	*.362	--											
6	Innovativeness	11.03	2.09	-.141	-.217	.257	.011	.316	--										
7	IEO	31.74	3.53	-.087	-.116	.142	*.600	*.752	*.724	--									
8	Clan	29.58	4.79	-.095	-.052	-.169	-.045	.173	.097	.107	--								
9	Adhocracy	28.60	4.11	-.181	-.19	-.122	.092	*.424	.230	.348	*.802	--							
10	School performance	.707	.108	*.463	.354	*.580	.212	.083	-.248	-.019	.039	.027	--						

Note. *p<.05; **p<.01

Not surprisingly, there were significant correlations between risk taking ($r=.752$), innovativeness ($r=.724$), and proactiveness ($r=.600$), all correlated strongly to the unidimensional IEO score. The large effect sizes presented in Table 16 are indicative of strong relationships. Surprisingly, while risk taking and proactiveness were positively correlated ($r=.362$), neither was significantly correlated with innovativeness. This could be due to the small sample size ($n=31$) compared to the sample size in the first part of the study ($n=60$) which produced results more congruent with expectations. The medium effect size of $.362$ indicates a moderately strong relationship between risk taking and proactiveness. In terms of culture types, there were no significant correlations involving clan or adhocracy culture with other variables in the study other than a very strong correlation between the two culture types themselves ($r=.802$). The extremely large effect size represents a very strong relationship between the two culture types. As an adhocracy culture is one that promotes novelty, creativity, and innovation, this correlation suggests that teachers may relate the entrepreneurial spirit and innovative atmosphere of adhocracy culture with the family-like atmosphere of the clan culture. In other words, teachers could be more open to trying new things and taking chances in a school where they feel a family-like atmosphere exists and support and strong interpersonal relationships permeate the culture. Adhocracy culture did have one other significant correlation with risk taking ($r=.424$), moderate to strong in its effect size, an indication that principals who are willing to explore risky ventures in their own behaviors promote an entrepreneurial culture within their schools.

Of the contextual factors, school size, and school level were significantly and strongly correlated ($r=.753$), as was expected considering secondary schools generally

have larger student populations than elementary schools. Unlike in the first part of this study, however, school size and school performance were not correlated. School level also had a significant, moderate correlation with school performance ($r=.463$), while SES had a strong, significant, and negative correlation with school performance ($r=-.580$). These correlations suggest school performance was greater at the secondary schools in the study, and that, as expected, school performance scores were lower at low SES schools which have a higher free and reduced-price lunch percentage. The correlation between school performance and school level could be the result of restrictions placed on research of particular schools, including the lowest performing schools in the county.

Hypothesis testing. H_7 = The relationship between principal IEO and school performance is mediated by school culture.

H_7 posits that school culture mediates the relationship between principal IEO and school performance. To test this hypothesis, mediation analyses were conducted using Hayes' PROCESS macro for SPSS (Hayes, 2013). There were two mediation analyses run on the PROCESS macro, one using adhocracy culture as the mediating variable and the other using clan culture as the mediating variable. The analyses were run with 10,000 bootstrap samples. Figure 5 models the mediation analyses.

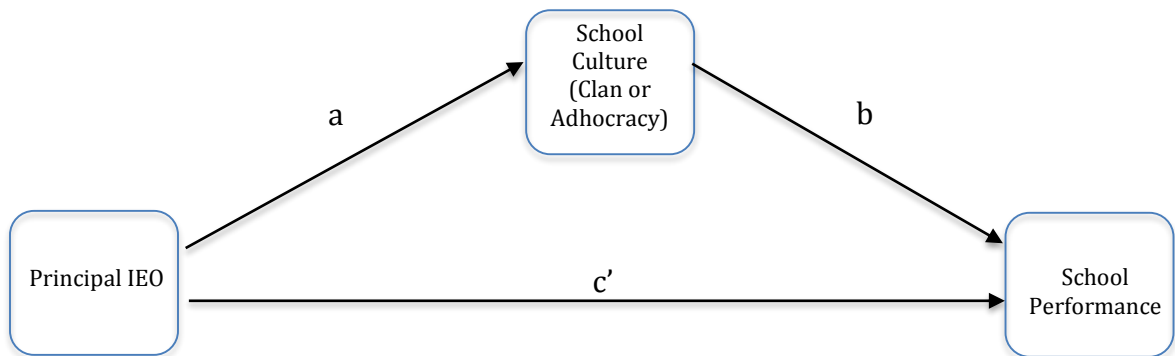


Figure 5. Mediation analysis of the effect of school culture on the IEO-school performance relationship

The results for both adhocracy and clan culture as mediating variables in independent mediation analyses are presented in Table 17, with a representing the effect of IEO on school culture, b representing the effect of school culture on school performance controlling for IEO, c representing the total effect of IEO and school culture on school performance, and c' representing the direct effect of IEO on school performance controlling for culture.

Table 17

Mediation Analysis of the IEO-School Performance Relationship

Mediating variable	a	b	c	c'	BootLLCI	BootULCI
Adhocracy culture	.4053	.0010	-.0006	-.0010	-.0044	.0050
Clan culture	.1452	.0009	-.0006	-.0007	-.0027	.0026

In the analysis of adhocracy culture as a mediating variable in the relationship between principal IEO and school performance, the BootLLCI of -.0044 with a BootUCLI of .0050 leads the researcher to fail to reject the null hypothesis, indicating that there was no significant mediation effect of adhocracy culture on the principal IEO-school performance relationship. None of the paths in the analyses were significant, although the IEO-adhocracy relationship (represented by a in Figure 5) was approaching significance ($p=.0549$). The lack of a significant relationship could be the result of sample size.

In the analysis of clan culture as a mediating variable in the relationship between principal IEO and school performance, the BootLLCI of -.0027 with a BOOTUCLI of .0026 again leads the researcher to fail to reject the null hypothesis, indicating that there is no significant mediation of the principal IEO-school performance relationship. As with

adhocracy, there were no significant relationships found in the mediation analysis.

There was no significant, direct relationship between principal IEO and school performance. The results of the mediation analyses indicate that there were no significant mediation effects of adhocracy culture on the IEO-school performance relationship. Furthermore, the analysis also indicated a lack of significant mediation effects of clan culture on the same relationship.

H₈=Schools led by principals with higher IEO (unidimensional and multidimensional) are more closely associated with clan and adhocracy school cultures than schools led by principals with low IEO (unidimensional and multidimensional).

H₈ posits that principals who score higher on the IEO scale, both unidimensionally and multidimensionally, would preside over schools in which the teachers find greater levels of clan and adhocracy school cultures. This hypothesis was tested using both bivariate correlation and multiple regression analyses. Multiple regression analyses were run to test the predictive relationship of risk taking, innovativeness, and proactiveness with clan culture, as well as the predictive relationship risk taking, innovativeness, and proactiveness have with adhocracy culture. The results of the multiple regression analyses are presented in Table 18.

The three IEO dimensions did not significantly predict the level of either clan or adhocracy cultures at the schools in the study. The bivariate correlation analysis, presented in Table 16 was used to further examine the potential influence each of the components taken individually might have on school culture. There were no significant relationships found between innovativeness and either clan or adhocracy culture, nor between proactiveness and clan or adhocracy cultures or between risk taking and clan

culture. The relationship between risk taking and adhocracy culture was significant ($r=.424$, $p=.017$). The medium to large effect size of .424 demonstrates a moderate to strong relationship between principal risk taking and adhocracy culture level in a school. The analysis found that risk taking predicted 18% of the variance in the level of adhocracy culture in a school ($r^2=.180$). An adjusted r^2 of .151 showed little shrinkage upon generalization to the population. This suggests that principals who are willing to take risks could foster a school culture where teachers are also willing to be more entrepreneurial and innovative. VIF values less than 10 reduce concerns of multicollinearity.

Table 18

Multiple Regression of Predictor Variables Risk Taking, Innovativeness, Proactiveness and Criterion Variables Clan and Adhocracy Cultures (n=31)

Predictor variables	Criterion variables					
	Clan culture			Adhocracy culture		
	β	t	p	β	t	p
Risk taking	-.120	-.592	.559	.100	2.102	.045
Proactiveness	.206	.960	.346	-.059	-.317	.754
Innovativeness	.034	.170	.867	.100	.545	.590
R^2	.044			.193		
<i>Adjusted R²</i>	-.062			.103		
<i>F (df)</i>	.417 (30)			2.152 (30)		

The relationship between unidimensional IEO and clan culture, as well as the relationship between unidimensional IEO and adhocracy culture were tested in the bivariate correlation analysis. As seen in Table 16, the analysis did not result in any

significant relationships between IEO and school culture, either clan or adhocracy, although the p value of .055 in the IEO-adhocracy relationship is approaching significance. This could suggest that sample size might have impacted the potential significance of the relationship and that principal IEO may directly influence the entrepreneurial nature of school culture.

H₉ =The relationship between principal IEO and school culture is moderated by school size, school level, and SES.

H₉ posits that the relationship between principal IEO and school culture will be moderated by the contextual factors of school level, school size, and SES. According to this hypothesis, this relationship may be influenced by whether the school is elementary or secondary, has a small (≤ 1000) or large (>1000) student enrollment, and the percentage of students who qualify for the free and reduced-price lunch program. Moderator analysis using multiple regression was used to test this hypothesis. The results of the multiple regression analysis of the IEO-clan relationship are presented in Table 19. The results of moderator multiple regressions analysis of the IEO-adhocracy relationship are presented in Table 21.

Table 19

Moderator Analyses of IEO-Clan Relationship (n=31)

Moderator variable	β	T	p
IEO*school level	-.514	-.836	.411
IEO*school size	-.577	-.820	.420
IEO*SES	.415	2.392	.024

There was no significant moderation of the relationship between principal IEO and clan culture by school level or school size. Two of these analyses produced

significantly high VIFs (level=10.675, size=13.904), raising possible concerns of multicollinearity. The results of the regression analysis suggest that there is significant moderation of the IEO-clan relationship when SES is introduced as a moderator variable ($p=.024$). The effect size (.415) is medium to large and indicates a moderate to strong relationship. The split-case bivariate correlation analysis of the IEO-Clan relationship at both low and high SES schools is presented in Table 20.

Table 20

Split-Case Correlation Analysis of IEO-Clan Culture Relationship (Moderated by SES)

Free and reduced-price lunch percentage	<i>N</i>	Correlation coefficient	<i>p</i>
≤50% (High SES)	10	-.168	.468
>50% (Low SES)	21	.518	.125

Clan culture does not develop equally at low SES and high SES schools as principal IEO increases. As a result, IEO seems to be more predictive of the development of clan culture in a low SES school as opposed to a high SES school. In fact, the relationship between IEO and clan culture is negative at high SES schools. A clan culture is more likely to exist in a low SES school led by a principal with greater IEO. A VIF just over 1.0 dismisses any concerns of multicollinearity in this moderation relationship.

Table 21

Moderator Analyses of IEO-Adhocracy Relationship (n=31)

Moderator variable	β	<i>T</i>	<i>p</i>
IEO*school level	-.254	-.439	.664
IEO*school size	-.793	-1.230	.229
IEO*SES	.279	16.24	.116

There were no significant moderation influences of school level, school size, or SES on the relationship between IEO and a school's level of adhocracy culture. High VIFs (level=10.675, size=13.904), both above 10.00, cause concern for issues with multicollinearity.

H₁₀ = Schools with higher clan or adhocracy cultures demonstrate higher school performance scores than schools with lower clan or adhocracy cultures.

H₁₀ posits that a school's adhocracy or clan scores will be directly correlated to the school performance scores. According to this hypothesis, more entrepreneurial schools (higher adhocracy scores) and schools with a greater emphasis on family and relationships (higher clan scores) will exhibit higher school performance scores than schools that are less entrepreneurial and those that pay less attention to fostering a family-like atmosphere within the school community. This hypothesis was tested with the bivariate correlation analysis presented in Table 16.

There were no significant direct effects relationships between culture and school performance. According to the correlation analyses, the level of adhocracy or clan culture in a school does not directly impact the school performance score.

H₁₁ = The relationship between school culture (clan and adhocracy) and school performance is moderated by school size, school level, and SES.

H₁₁ posits that school level, school size, and SES will have a moderating influence over the relationship between the clan and adhocracy culture scores and the levels of school performance at individual schools. Moderator analyses using multiple regressions were used to test this hypothesis. The results of the moderator analysis of the clan culture-school performance relationship are presented in Table 22. The results of the

moderator analysis of the adhocracy-school performance relationship are presented in Table 23.

Table 22

Moderator Analyses of Clan Culture-School Performance Relationship (n=31)

Moderator variable	β	T	p
Clan*school level	.231	.451	.655
Clan*school size	-.292	-.535	.597
Clan*SES	.300	1.959	.061

Using multiple regression moderator analysis, it was determined that there were no significant moderator influences of school level, school size, or SES on the relationship between clan culture in a school and that school's performance scores. However, SES was approaching significance as a moderator ($p=.061$), with the small sample size perhaps limiting the appearance of a moderation effect. Although VIFs for school level (9.143) and school size (9.352) were high, they did not rise above 10.0, reducing concerns of multicollinearity. The VIF for the SES regression was only 1.095.

Table 23

Moderator Analyses of Adhocracy Culture-School Performance Relationship (n=31)

Moderator variable	β	T	p
Adhocracy*school level	.416	.803	.429
Adhocracy*school size	.036	.065	.949
Adhocracy*SES	.148	.903	.375

Using multiple regression moderator analysis, it was determined that there were no significant moderator influences of school level, school size, or SES on the

relationship between adhocracy culture in a school and that school's performance scores. Although VIFs for school level (9.609) and school size (9.667) were high, they did not rise above 10.0, reducing concerns of multicollinearity. The VIF for the SES regression was only 1.123.

Chapter Summary

This study was conducted to investigate the relationship between principal autonomy, principal IEO, school culture, and school performance. This study additionally sought to explore the role of contextual factors in these relationships, to determine whether school level, school size, or SES moderated any of the relationships explored. From the conceptual framework, 11 hypotheses were tested through numerous simple and multiple regression analyses.

H₁ posited that principals with greater autonomy would have a greater IEO than principals with less autonomy. Autonomy was found to be a significant predictor of a principal's unidimensional IEO as well as a principal's disposition for risk taking, innovativeness, and proactiveness as individual criterion variables. This suggests that principals who find themselves to have greater freedom from superiors to make decisions, implement strategies, and take actions to solve problems may be more willing to pursue entrepreneurial means to achieve their goals. Therefore, the null hypothesis for H₁ was rejected.

H₂ posited that the relationship between autonomy and a principal's IEO would be moderated by school level, school size, and SES. Only SES was found to have a significant moderation effect on the relationship between a principal's autonomy and IEO, suggesting that principals with greater autonomy are more entrepreneurial at low

SES schools. It was also found that in the relationships between the individual components of IEO, the only moderation effect was that SES moderated the relationship between autonomy and innovativeness, suggesting that autonomous principals are more likely to pursue innovative methods and strategies at low SES schools.

H₃ posited that principal autonomy has a direct influence on school performance, with greater autonomy leading to higher school performance. The analysis of this relationship found a significant relationship between principal autonomy and school performance, with autonomy predicting 9.2% of school performance outcomes and an increase of 4.3% in school performance with every 1-point increase in principal autonomy scores. Therefore, principal autonomy was found to have a direct-effects relationship with school performance, and the null hypothesis for H₃ was rejected.

H₄ posited that the relationship between principal autonomy and school performance is moderated by school level, school size, and SES. The results of multiple regression analyses did not lead to any significant moderating effects of any of the contextual factors studied. Therefore, the researcher failed to reject the null hypothesis, and H₄ is not supported.

H₅ posited that there was no direct-effects relationship between principal IEO, both unidimensional and multidimensional, and school performance. There was no significant relationship found between a principal's unidimensional IEO score and school performance, or between the multidimensional IEO construct and school performance, with the relationship between a principal's proactiveness and school performance approaching significance ($p=.053$). Therefore, the researcher failed to reject the null hypothesis.

H₆ posited that the relationship between principal IEO, both unidimensional and multidimensional, and school performance would be moderated by school level, school size, and SES. Following completion of the multiple regression analyses testing this hypothesis, it was found that there were no significant moderation effects of any of the contextual factors on this relationship. Therefore, the null hypothesis is not rejected, and H₆ is not supported.

H₇ posited that school culture would mediate the relationship between principal IEO and school performance. Through utilization of Hayes' PROCESS macro for SPSS, statistical mediation analysis did not find any mediation effects of either adhocracy or clan culture on the relationship between IEO and school performance. Therefore, the researcher failed to reject the null hypothesis, and H₇ is not supported.

H₈ posited that schools led by principals with high IEO are more closely associated with clan and adhocracy cultures than schools led by principals with low IEO. There were no significant relationships found between principal IEO and dominant school culture type, although the relationship between principal IEO and adhocracy culture was approaching significance with a *p* value of .055. Therefore, H₈ is rejected as there is failure to reject the null hypothesis. There was one relationship, however, that was found to be significant, which was that principal risk-taking scores predicted 18% of the variance in a school's adhocracy culture score with a medium to large effect size.

H₉ posited that the relationship between principal IEO and school culture type is moderated by school level, school size, and SES. The only significant moderation effect was that the relationship between principal IEO and clan culture became significant with the introduction of SES as a moderator variable. This result suggests that principals with

high IEO are more likely to foster the development of a clan culture in low SES schools. Therefore, the null hypothesis cannot be fully rejected.

H₁₀ posited that schools with greater clan and adhocracy cultures would have significantly higher school performance than schools with lesser clan and adhocracy cultures. There were no significant relationships found, leading to a failure to reject the null hypothesis.

H₁₁ posited that the relationship between clan and adhocracy cultures and school performance would be moderated by school level, school size, and SES. Multiple regression analyses did not find any significant moderating influences for any of the contextual factors on the relationship between clan culture and school performance or adhocracy culture and school performance. Therefore, there is failure to reject the null hypothesis, and H₁₁ is not supported.

Table 24 provides a summary of the 11 hypotheses tested in this study.

Table 24

Hypotheses Table

No.	Text	Status	
		Not rejected	Rejected
H ₁	Principal autonomy significantly predicts principal IEO.	x	
H ₂	Contextual factors significantly moderate the relationship between principal autonomy and principal IEO.	x	
H ₃	Principal autonomy does not significantly predict school performance.		x
H ₄	Contextual factors significantly moderate the relationship between principal autonomy and school performance.		x
H ₅	Principal IEO does not significantly predict school performance.	x	
H ₆	Contextual factors significantly moderate the relationship between principal IEO and school performance.		x
H ₇	School culture significantly mediates the relationship between principal IEO and school performance.		x
H ₈	Principal IEO significantly predicts school clan or adhocracy cultures.		x
H ₉	Contextual factors significantly moderate the relationship between principal IEO and school culture types.	x	
H ₁₀	School clan and adhocracy cultures significantly predict school performance.		x
H ₁₁	Contextual factors significantly moderate the relationship between clan or adhocracy culture and school performance.	x	

CHAPTER 5: DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

The final chapter of this dissertation reviews the purpose, problem, and methods used in the study, as well as summarizing results, discussing the findings, and providing recommendations for future research.

Restatement of the Problem

Much like the business and political worlds, schools face a much more complex future, with uncertain times and the promise of continuous change. Similarly, the growingly complex and ambiguous environment schools now must navigate requires a new form of leadership (Kotter, 1996; Pisapia, 2009; Quinn, 1996). Entrepreneurial leadership, which Kuratko (2007) suggested focuses on seeing beyond the constraints of today, thinking differently, acting outside the boundaries of tradition, and constantly challenging convention to creatively address the organization's most pressing issues, could be the catalyst that creates an innovative culture and lifts the education system to new heights.

According to Harris (2002), "to cope with the unprecedented rate of change in schools in the 21st century requires radically new and alternative approaches to school improvement and school leadership" (p. 24). A new business mentality in education opens a need for leaders who willingly enter into risky endeavors proactively seeking innovation (Townsend, 2011b). Leadership, as Harris (2002) noted, is paramount, with radical new leadership approaches at the heart of successful 21st century schools.

Jenkins (1992) posited that "school principals will need to rethink schools as

organizations and to create an entrepreneurial organization which can respond rapidly and effectively to new challenges” (p. 13). Times of chaos and complexity require the innovative, change-oriented, risk-tolerant culture of an adhocracy, entrepreneurial in its nature, limiting bureaucracy and allowing the entrepreneurial spirit of members to flow unimpeded (Cameron & Quinn, 1999, 2011; Yu & Wu, 2009). In such cultures, in which hierarchy is replaced with flattened leadership structures, autonomy, flexibility, and the empowerment of teachers lead to experimentation, creativity, and innovation in teaching and learning (Ahmed, 1998; Arad et al., 1997; Dobni, 2008a; Martin & Terblanche, 2003). This study explored the possibility that entrepreneurial leaders, thriving on creatively stepping out of the comfort zone to find innovative new ways to create value (Amabile et al., 1996; Gupta et al., 2004), may be the leaders necessitated by the new globally connected society.

Review of the Purpose of the Study

The purpose of this study was to explore the possibility that entrepreneurial leadership, as an alternative to traditional forms of school leadership, may be an effective strategy for improving education. This was accomplished by examining the relationship between principal autonomy, a principal’s entrepreneurial leadership orientation, the development of a school adhocracy and clan cultures, and school performance.

Review of the Methodology

This study sought to answer the following research questions:

1. Is there a relationship between a principal’s IEO and school performance?
2. Does principal autonomy predict a principal’s IEO?
3. Is there a relationship between principal autonomy and school performance?

4. Is there a relationship between a principal's IEO and the existence of a school adhocracy or clan culture?

5. Is there a relationship between a school's clan or adhocracy culture and school performance?

6. Is the relationship between principal IEO and school performance mediated by the existence of a school adhocracy culture?

7. Are the relationships between principal autonomy, a principal's IEO, a school's culture, and school performance moderated by contextual variables? For example, does the IEO of a principal have a greater or lesser impact on innovative school culture in larger as opposed to smaller schools, at elementary as opposed to secondary schools, or at high SES as opposed to low SES schools?

The IEO instrument was tested for reliability and an 8-item instrument was the final result of principal component analysis and confirmatory factor analysis using structural equation modeling. That instrument was used to collect principal IEO data. Four autonomy items proposed by Lumpkin et al. (2009) were added to the instrument to measure principal autonomy. The OCAI, modified only to include language specific to schools, was completed by teachers and used to collect school culture data. Contextual factor and school performance data were collected from the Florida Department of Education Accountability website. The direct-effects relationships in this study were tested using a series of bivariate correlation and multiple regression analyses. The influence of contextual factors on each of the direct-effect relationships studied was examined using moderator multiple regression analysis. Hayes' PROCESS macro was used to test whether school culture mediated the relationship between principal IEO and

school performance.

Summary of Findings

The major research findings of this study are presented in Table 25. Each finding is discussed in detail in the paragraphs following Table 25.

Table 25

Major Research Findings

Research findings	
Finding 1	Principal autonomy significantly predicted principal IEO.
Finding 2	Principal autonomy significantly predicted principal risk taking, innovativeness, and proactiveness scores.
Finding 3	Principal autonomy had a significant, positive, direct relationship with school performance.
Finding 4	SES significantly moderated the relationship between principal autonomy and principal IEO.
Finding 5	SES significantly moderated the relationship between principal autonomy and principal innovativeness.
Finding 6	Principal risk-taking significantly predicted the level of school adhocracy culture.
Finding 7	SES significantly moderated the relationship between principal IEO and the development of clan culture.
Finding 8	School adhocracy culture was strongly correlated to school clan culture.

Finding 1 - Principal autonomy significantly predicted principal entrepreneurial orientation.

Krueger, Reilly, and Carsrud (2000) noted Shapero's model of the entrepreneurial event, which suggests that entrepreneurial intentions are dependent on the personal desirability of the intention, its perceived feasibility, and the person's propensity to act. They further suggested that intentions and attitudes are influenced by the situation and the person, and it is these intentions, specifically, that effectively predict

entrepreneurship. It can be suggested that autonomy increases feasibility, and in many situations, entrepreneurial actions could be considered extremely desirable. Principal autonomy was found to predict over 45% of the variance in a principal's IEO with an effect size of .672, indicating a very strong relationship between the two. A *b* value of 4.965 indicates an almost 5-point increase in a principal's IEO score for every point increase in autonomy score. According to Lumpkin et al. (2009), autonomy as it relates to EO is strategic in nature and grants individuals or teams the ability to define the problem and goals necessary for solving a problem. This finding demonstrates that principals who are granted more autonomy from district, educational management, or corporate leadership are more likely to behave in an entrepreneurial manner, defining potential problems, proactively determining goals, and developing strategies to exploit opportunities. This is consistent with research that has suggested that greater autonomy is a determinant of creativity and innovation (Amabile & Gitomer, 1984; Arad et al., 1997; Lumpkin et al., 2009), suggesting that principals will be more willing to take risks, pursue innovative strategies, and be proactive in decision making and problem solving if they perceive they have been granted more freedom to lead.

Finding 2 - Principal autonomy significantly predicted principal risk taking, innovativeness, and proactiveness scores.

Principal autonomy was found to significantly predict each of the components of IEO. Autonomy predicted more than 93% of the variance in a principal's proactiveness score, suggesting that greater autonomy creates an environment in which principals feel empowered to be proactive in heading off problems and identifying and exploiting opportunities. The correlation coefficient of .968 suggests a near perfect correlation,

further supporting the influence of autonomy on a principal's proactiveness. Although not nearly as strong, autonomy is also significantly correlated to risk taking and innovativeness, explaining nearly 29% of the variance in risk taking, and more than 16% of the variance in innovativeness. It was found that the level of autonomy perceived by a principal greatly influences each of those entrepreneurial dispositions as well. These findings support previous research findings that greater control stifles innovation (Jamrog et al., 2006; Judge et al., 1997) and autonomy empowers employees (Arad et al., 1997). This study further supports the proposition that by granting principals more autonomy, school districts could stimulate the development of more entrepreneurial principals.

Finding 3 - Principal autonomy had a significant, positive, direct relationship with school performance.

Much research on the effect of the school principal on school outcomes have found the principal to have an important influence on student achievement and school performance (Hallinger & Heck, 1998; Heck et al., 1990; Leithwood et al., 2008; Leithwood & Sun, 2012; Ogawa & Hart, 1985). Research examining the effect of autonomy on school performance has been inconsistent (Caldwell, 2014; Gunnarson et al., 2009; Hanushek, Link, & Woessmann, 2013; Patrinos et al., 2015; Pilnam, 2015; Steinberg, 2014). Although some autonomy research has found that greater autonomy does not result in better school outcomes (Gunnarson et al., 2009), other researchers have found that autonomy has a significant, positive relationship with school outcomes (Patrinos et al, 2015; Pilnam, 2015; Steinberg, 2014). Student performance, according to Zigarelli (1996), is effected by numerous effective schools characteristics, one of the most important being the level of autonomy principals have to hire and fire their own

teachers. Steinberg (2014) found that increased principal autonomy, although it takes time with no initial payout, led to an 18% increase in reading proficiency scores after 2 years. Patrinos et al. (2015) and Pilnam (2015) found that increased school autonomy correlated with higher PISA scores. Hanushek et al. (2013) suggested that school autonomy is positively related to student achievement in highly developed systems, but neutral or negatively associated with achievement in low-performing systems. The Organization for Economic

Cooperation & Development research using PISA scores has demonstrated both positive and negative influences of school autonomy on school performance, with the final conclusion suggesting that greater autonomy related to curriculum and resource allocation tend to be linked to better school performance (Caldwell, 2014). This study supports such conclusions, finding that a significant correlation existed between principal autonomy and school performance. The medium effect size of .304 suggests a moderate relationship between the two. In schools where principals perceived greater autonomy, school performance was significantly higher, with every 1-point increase in autonomy predicted to generate a 4.3% increase in school performance outcomes. The r^2 value of .092 suggests that 9.2% of the variance in school performance outcomes could be explained by principal autonomy.

Finding 4 - SES significantly moderated the relationship between principal autonomy and principal IEO.

School SES significantly moderated the relationship between principal autonomy and principal IEO. Innovativeness was influenced more than the other dimensions. This positive moderation effect suggests that although principals at all schools had

greater entrepreneurial dispositions with greater perceived autonomy, principals with greater autonomy were more likely to possess a stronger IEO at low SES schools. Likewise, while greater autonomy was correlated to greater innovativeness with all principals in this study, autonomous principals were more likely to pursue innovation at low SES schools than autonomous principals at high SES schools. This finding deviates from previous research regarding the relationship between autonomy and school performance. For example, Mourshed, Chijioke, and Barber (as cited in Caldwell, 2014), noted that school autonomy is often based on the part of the school improvement journey in which they currently find themselves. In other words, schools attempting to move from poor performance to fair performance are often treated differently by central office leadership than schools attempting to move from good performance to great performance. Schools moving from poor to fair are tightly controlled while schools moving from good to great are guided by loose guidelines, resulting in more autonomy to make educational decisions. Mourshed et al.'s claim suggests that SES, due to its direct relationship with school performance, would hamper innovativeness at low SES schools. The findings from this exploratory study do not support their claim and might be interpreted as the result of principals at high SES schools with satisfactory student achievement being satisfied with simply maintaining the status quo, and principals at more poorly performing low SES schools feeling the need for novel methods and strategies to boost performance. This finding suggests that autonomy could be a critical component of improving school performance at low SES schools.

Finding 5 - SES significantly moderated the relationship between principal autonomy and principal innovativeness.

The relationship between principal autonomy and the innovativeness of a principal was significantly moderated by the SES of the school. Principals at low SES schools who are afforded more autonomy are more likely to explore innovative strategies than autonomous principals at high SES schools. As offered in the previous paragraph, this could be a result of a satisfaction in the status quo at high SES schools, where school performance scores are generally higher than they are at low SES schools. This finding also suggests that of the three individual dimensions of IEO, innovativeness is seemingly seen as the most critical for principals at underperforming schools, especially those with low SES.

Finding 6 - Principal risk taking significantly predicted the level of school adhocracy culture.

The literature has suggested that organizational culture is a critical factor in the success of an organization. This also goes for schools with school culture a critical component of not only school performance, but school improvement efforts, as well (Deal & Peterson, 1990; Gruenert, 2000). MacNeil et al. (2009) noted that successful principals have promoted the notion that focusing on the development of school culture as a learning environment is a necessary precursor for improving student achievement.

Deal and Peterson (1990) proposed that not only does leadership inform culture, but culture also informs leadership. Although there was no direct-effects relationship found between principal IEO and the development of an adhocracy culture at schools, there was a significant predictive relationship found between principal risk taking and adhocracy culture. Bivariate correlation analysis demonstrated a medium to large effect size ($r=.424$). Analysis suggested 18% of the variance in a school's adhocracy scores

were explained by the risk-taking score of its principal. This study further offers the possibility of school principal IEO influencing school culture, as the IEO-adhocracy culture relationship was approaching significance ($p=.055$), indicating that the small sample size could have influenced the significance of this relationship.

As supported by the research of Leithwood and his associates in numerous studies, Hallinger and Heck (1998) noted that the principal's influence on student learning is mediated through the school's culture rather than through a direct effect. This finding holds the promise that a principal's propensity for risk taking, and possibly IEO in general, has the potential effect of fostering the development of an adhocracy culture in the school. This culture promotes innovation and novelty in strategies, encouraging teachers and students to venture into the unknown to explore new ways of doing things, enhancing potential student learning (Cameron & Quinn, 1999). As entrepreneurial dispositions have been found to improve organizational performance, the pursuit of new alternatives to previously tried solutions offers hope of improved school performance outcomes (Covin & Slevin, 1988; Rauch et al., 2009; Sharma & Dave, 2011; Wiklund, 1999).

Finding 7 - SES significantly moderated the relationship between principal IEO and the development of clan culture.

Although there was no direct-effects relationship found between principal IEO and clan culture, the product of IEO and SES generated a significant relationship with clan culture. In other words, the relationship between principal IEO and clan culture that was not significant became significant with the addition of SES as a moderator variable. Interestingly, upon split-case analysis, it was found that the direction of the relationship

was different for schools of differing SES. Higher IEO was related to higher clan culture scores at low SES schools, whereas in high SES schools there was a negative relationship, with higher IEO leading to less clan culture. This finding suggests that in low SES schools, principals with high IEOs may foster the development of the relationship-focused, family-like environment of a clan culture in their schools, with the opposite being true in high SES schools. As there is a dearth of literature regarding this relationship, this finding is a direct contribution to the educational leadership literature.

Finding 8 - School adhocracy culture was strongly correlated to school clan culture.

School adhocracy culture and school clan culture were found to be very strongly related, with a correlation coefficient of .802 ($p < .001$). As a clan culture is demonstrative of a culture in which interpersonal relationships are the focus, with an organization that stresses morale as a mean to its end of the fullest development of its personnel (Buenger et al., 1996; Hartnell et al., 2011; Quinn & Rohrbaugh, 1983), this finding suggests that a focus on the development of positive relationships within the school community could lead to a more entrepreneurial spirit. MacNeil et al. (2009) suggested that it is important for principals to develop support structures within the school that foster its ability to deal with environmental stress and adapt to environmental changes. The compassion found within clan culture promotes the development of support structures and lends itself to an environment in which teachers, students, and administrators feel comfortable enough to explore their entrepreneurial tendencies and to try new things. These are the underpinnings of the adhocracy culture, which favors innovation, novelty, and creativity over the tried and true strategies that have led to the status quo (Cameron & Quinn, 2006;

O'Neill & Quinn, 1993).

Conclusions

This study explored how principal autonomy and IEO influenced school culture and school performance, as well as the relationship between school culture and school performance. Contextual factors were also explored to test how these relationships exist in various educational contexts. The conceptual framework began with the theory that the level of principal autonomy would be a determinant of the principal's IEO. Both principal autonomy and IEO were theorized to positively influence school performance. It was further theorized that principal IEO would positively influence the development of school adhocracy and clan cultures. Based on the suggestions of numerous studies that school leaders influence school culture, which in turn effects student achievement (Witziers et al., 2003), it was finally theorized that such clan and adhocracy cultures would positively impact school performance.

1. Autonomy was found to have significant positive relationships with unidimensional principal IEO, risk taking, innovativeness, proactiveness, and school performance. The relationships between principal autonomy and unidimensional IEO, as well as between principal autonomy and innovativeness, were both significantly moderated by the school's SES. Autonomy was also found to have a significant correlation with school performance. For every 1-point increase in a principal's autonomy score, there is a predicted increase of 4.3% in school performance scores. The findings of this study suggest that schools led by principals with greater autonomy can expect to lead schools that demonstrate greater school performance than those schools led by less autonomous principals.

2. The EO at the firm level has been found to have a positive impact on organizational performance in the business world (Covin & Slevin, 1988; Poon et al., 2006; Rauch et al., 2009; Sharma & Dave, 2011; Wiklund, 1999; Yang, 2008). This study focused on the IEO of the leader, a line of inquiry much less studied. In this study, principal IEO was not found to have any significant relationships with school culture or school performance, although correlation analysis showed the relationship between principal IEO and school adhocracy culture to be approaching significance ($p=.055$), as was the principal proactiveness-school performance relationship ($p=.053$). The significance of these relationships could have been restricted by the small sample size. Risk taking, however, did demonstrate a significant and positive predictive relationship with adhocracy culture ($p=.045$). The principal IEO-clan culture relationship was moderated by SES, and the nonsignificant relationship between principal IEO and clan culture became significant when SES was introduced as a moderating variable. These findings suggest that, with autonomy and the right environment, entrepreneurial leadership may still offer promise as an effective alternative to traditional school leadership.

3. Despite the suggestions of previous research regarding the impact of school culture on student achievement and school performance (Hallinger & Heck, 1998; MacNeil et al., 2009; Witziers et al., 2003), school culture was not found to have any significant relationships with school performance. Neither clan nor adhocracy cultures were found to have a significant impact on school performance measures. The findings of this study, inconsistent with the extant literature in organizational culture studies, could be the result of instrumentation. Although highly regarded in the field of organizational

culture studies, it is possible that the OCAI is not suitable for the education profession, and perhaps an instrument specific to school culture should be used in future studies. The OCAI is a typology instrument, used for measuring the levels of four distinct culture types found in an organization. It is possible that a dimensional instrument, measuring the strength of various dimensions of school culture, rather than culture types, may have produced results more consistent with expectations.

4. The IEO scale was modified to include 8 items: (a) 2 for risk taking, (b) 3 for innovativeness, and (c) 3 for proactiveness. The new scale was found to be internally reliable and have construct validity through principal axis factor analysis and confirmatory factor analysis using structural equation modeling. This contribution to the leadership literature puts forth a valuable instrument that offers a reliable measure of IEO for use in future entrepreneurial leadership studies and offers school districts a selection tool with which to distinguish candidates based on qualities that could lead to better performance.

Recommendations for Practitioners

This study was conducted to explore the potential impact of entrepreneurial principals on improving school performance outcomes by examining the relationship between principal autonomy, principal IEO, school culture, and school performance. Based on the findings of this study, several recommendations can be made.

As a potential opportunity to stimulate improved school performance, principal autonomy is a cost-free option for school districts. Considering that increasing principal autonomy does not cost school districts the expenditure of any resources, it seems to be a safe alternative to other school improvement efforts. As such, it is recommended that

schools be deregulated to the greatest extent possible, with less directives handed down from district offices serving to grant principals more autonomy to deal with the issues specific to their schools. This includes autonomy over budgeting, curricular and instructional strategies, staffing, and calendar. This increased autonomy, however, should be supplemented with improved principal training programs and a practical, consistent, and stringent principal selection process.

School districts should consider using the new IEO scale as a selection tool during the principal hiring process to choose candidates who exhibit qualities that could lead to better performance. The use of this instrument could distinguish entrepreneurial leaders, those with dispositions favoring risk, innovation, and proactive behaviors, from those who lack such qualities. This instrument could be most valuable in the selection of principals to lead low-performing schools, as these schools require new and often creative solutions to the problems that have kept student achievement low.

Principals should work to foster a school culture in which interpersonal relationships and development of personnel is foundational to the school's vision and mission, furthering an environment in which teachers and students will be more comfortable stepping out of their comfort zone to seek creative, innovative solutions and strategies. Principals should also take the lead in promoting entrepreneurial behaviors not simply by encouraging risk taking, innovativeness, and proactiveness, but actually modeling such behaviors in their own daily work.

Implications for Future Research

The stability of the modified, 8-item IEO scale, although validated in this study, may be questioned due to the small number of items in the instrument. With only 8 items

total, and 2 items in the risk-taking dimension, replication of the instrument validation studies with new data and further research utilizing this scale could lead to greater psychometric support of the instrument and support for its use as a measure of IEO.

The information from this study suggests linkages between the amount of principal autonomy and IEO. Such autonomy can be used to stimulate entrepreneurial leadership from principals and the development of school cultures where all options remain available, where creativity can flourish and school stakeholders are encouraged to seek innovative ways to improve school performance. The merits of this study suggest implications with regard to the level of autonomy required for principals to behave in entrepreneurial ways and to create the educational environments that can promote improvements in school performance. As this study also indicates that principal autonomy is an important variable in school performance and has the potential to positively impact school improvement efforts, future studies should explore the antecedents of autonomy, delving further into the psychological aspects distinguishing those who effectively use the autonomy they are granted from those who fail to use autonomy to their advantage.

The study also implicates the role principal risk taking has in the development of a school culture that promotes and encourages innovation and entrepreneurial attitudes. However, the study's exploration of any relationship involving school culture is limited by its lack of emphasis on principal tenure. As research has suggested that a leader's impact on organizational culture is a process that takes a great deal of time and effort, limited principal tenures in this study could have had a negative impact on the multiple

regression results, providing the appearance of less of a relationship than truly exists.

As this is an exploratory study, future research should seek to overcome the limitations of this study and build upon its foundation. First, this study can be repeated with a larger sample size and a greater emphasis on principal tenure, delimiting any new studies to exclude principals with less than 3 years of experience as principal at their current schools. Organizational researchers agree on the importance of organizational culture in influencing organizational effectiveness, so any future studies involving principal IEO should also include school culture as a variable. Furthermore, if the OCAI is used in future studies to measure school culture, all four subculture types should be included. However, it is recommended that researchers find the most valid instrument to measure school culture based on the purpose of the study. This study utilized a typological approach to school culture, using the OCAI to measure the levels of various subculture types in school for the purposes of exploring the IEO-culture and culture-performance relationships involving only the clan and adhocracy culture types. Many school culture studies have utilized a more dimensional approach, for which an instrument such as Higgins-D'Alessandro and Sadh's (1998) School Culture Scale could be a better fit and provide results more consistent with previous organizational culture studies.

As the findings involving the influence that principal autonomy has on entrepreneurial dispositions and school performance, future studies could seek to add educational governance as a contextual factor, testing for the moderation and mediation effects public district, public charter, and private school structures have on the relationship between IEO and school performance and the relationships involving school

culture. Educational governance (public, charter, private) can also be used as an antecedent to both autonomy and IEO, exploring the role that governance has on the perceived freedom and entrepreneurial dispositions of a principal. The introduction of for-profit and nonprofit could also be introduced as a moderator variable to explore the influence that financial matters have on the IEO of a principal and its effect on the relationship between IEO, school culture, and school performance.

Finally, in order to truly determine the potential of entrepreneurial leadership to replace traditional school leadership with the promise of improved school performance, it is necessary to study the translation of IEO into entrepreneurial behaviors. School principals may have the predisposition to take risks, pursue innovation, and proactively seek out and exploit new opportunities, but if they do not feel they have been empowered to do so in an environment conducive to such behaviors, the predispositions will not be translated into action. Therefore, future studies examining the relationship between principal autonomy, IEO, entrepreneurial behaviors, and school performance are recommended.

Limitations

This study was limited by both sample and data methods. First, the convenience sampling utilized to obtain participants for the study fails to produce a truly random sample, thus limiting generalizability. The sample size was also relatively small, limiting the power to detect all but the largest of effect sizes. Secondly, this study relied on the IEO to determine principal IEO, which is a self-report instrument that requires the principal to self-rate on the dimensions of EO. As self-report instruments are generally less reliable, this produces a limitation. The IEO instrument, in and of itself, may produce

a limitation. Although found to be a valid and reliable measure of an individual's EO in multiple studies by its creators, the IEO scale is a relatively new instrument and has not undergone the rigorous testing of external researchers. For this reason, confirmatory factor analysis was conducted using the data collected in this study to develop the most valid instrument possible for conducting the analyses. Thirdly, the accuracy and perceptions of the teachers in rating the six dimensions of school culture posed another limitation, although it was assumed that participants would respond honestly and describe the culture effectively using the OCAI instrument. Bias in reporting by principals and teachers could lead to some validity concerns. Fourthly, the translation of a principal's entrepreneurial intentions into entrepreneurial actions could be hampered by bureaucratic and administrative limitations in place by school district or educational management authority control. Fifthly, as the development of school culture is an involved process, limited principal tenure in schools may not produce generalizable findings regarding relationships involving school culture. Sixthly, a lower than desired response rate lends the study to the possibility of bias in the reporting of ratings and scores. Finally, district limitations on school availability for conducting research limited data collection and prevented the collection of data from the lowest performing schools, limiting the variance in school performance data available to this study.

APPENDICES

Appendix A: Individual Entrepreneurial Orientation Scale With Autonomy

Please rate each of the following items based on your level of agreement with the statement (1=strongly disagree; 3=neutral; 5=strongly agree):

1) I like to take bold action by venturing into the unknown.

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

2) I am willing to invest a lot of time and/or money on something that might yield a high return.

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

3) I tend to act “boldly” in situations where risk is involved.

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

4) I often like to try new and unusual activities that are not typical but not necessarily risky.

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

5) In general, I prefer a strong emphasis in projects on unique, one-of-a-kind approaches rather than revisiting tried and true approaches used before.

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

6) I prefer to try my own unique way when learning new things rather than doing it like everyone else does.

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

7) I favor experimentation and original approaches to problem solving rather than using methods others generally use for solving their problems.

	1	2	3	4	5	
Strongly Disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Strongly Agree

8) I usually act in anticipation of future problems, needs or changes.

Strongly Disagree 1 2 3 4 5
 Strongly Agree

9) I tend to plan ahead on projects.

Strongly Disagree 1 2 3 4 5
 Strongly Agree

10) I prefer to “step-up” and get things going on projects rather than sit and wait for someone else to do it.

Strongly Disagree 1 2 3 4 5
 Strongly Agree

11) I and my team are able to work autonomously.

Strongly Disagree 1 2 3 4 5
 Strongly Agree

12) The best results occur when I and/or my team decide what opportunities to pursue.

Strongly Disagree 1 2 3 4 5
 Strongly Agree

13) I and/or my team are able to pursue opportunities without constantly referring to superiors.

Strongly Disagree 1 2 3 4 5
 Strongly Agree

14) I am able to identify and select entrepreneurial opportunities my team/organization pursues.

Strongly Disagree 1 2 3 4 5
 Strongly Agree

Appendix B: Organizational Culture Assessment Instrument

Please rate each of the following items based on your level of agreement with the statement (1=never; 7=always):

1. Dominant Characteristics

A. The organization is a very personal place. It is like an extended family. People seem to share a lot of themselves.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

B. The organization is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

C. The organization is very results oriented. A major concern is with getting the job done. People are very competitive and achievement oriented.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

D. The organization is a very controlled and structured place. Formal procedures generally govern what people do.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

2. Organizational Leadership

A. The leadership in the organization is generally considered to exemplify mentoring, facilitating, or nurturing.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

B. The leadership in the organization is generally considered to exemplify entrepreneurship, innovating, or risk-taking.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

C. The leadership in the organization is generally considered to exemplify a no-nonsense, aggressive, results-oriented focus.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

D. The leadership in the organization is generally considered to exemplify coordinating, organizing, or smooth-running efficiency.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

3. Management of Employees

A. The management style in the organization is characterized by teamwork, consensus, and participation.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

B. The management style in the organization is characterized by individual risk-taking, innovation, freedom, and uniqueness.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

C. The management style in the organization is characterized by hard-driving competitiveness, high demands, and achievement.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

D. The management style in the organization is characterized by security of employment, conformity, predictability, and stability in relationships.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

4. Organization Glue

A. The glue that holds the organization together is loyalty and mutual trust. Commitment to this organization runs high.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

B. The glue that holds the organization together is commitment to innovation and development. There is an emphasis on being on the cutting edge.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

C. The glue that holds the organization together is the emphasis on achievement and goal accomplishment. Aggressiveness and winning are common themes.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

D. The glue that holds the organization together is formal rules and policies. Maintaining a smooth-running organization is important.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

5. Strategic Emphasis

A. The organization emphasizes human development. High trust, openness, and participation persist.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

B. The organization emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

C. The organization emphasizes competitive actions and achievement. Hitting stretch targets and winning in the marketplace are dominant.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

D. The organization emphasizes permanence and stability. Efficiency, control, and smooth operations are important.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

6. Criteria of Success

A. The organization defines success on the basis of the development of human resources, teamwork, employee commitment, and concern for people.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

B. The organization defines success on the basis of having the most unique or newest products. It is a product leader and innovator.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

C. The organization defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is the key.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

D. The organization defines success on the basis of efficiency. Dependable delivery, smooth scheduling, and low-cost production are critical.

	1	2	3	4	5	6	7	
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Always

Appendix C: Email to Principals

My name is Keith Feit and I am a doctoral candidate at Florida Atlantic University. My dissertation chair is Dr. John Pisapia. We are looking into principal and school entrepreneurial behavior that might improve student achievement. The study has been approved by the Florida Atlantic University Institutional Review Board (FAU IRB), and permission has been granted by the Palm Beach County School District (see attached letter of approval) to ask you to participate. Of course its voluntary – but we hope you will see the value of this research since it is the first study that we know of that is trying to determine if there is a relationship between entrepreneurial behaviors of school personnel and student achievement.

Request:

We are requesting your participation in my dissertation study by asking that you to complete a short, 14-item online survey that should take no more than 10 minutes of your time. If you are willing please click on this link when you have the time to devote to this (yes, we know that time is valuable, that is why we made it short):

https://docs.google.com/forms/d/1fW29sTlyYu9nTCn5fR9Eaig96tfUOVEF7Ei6Xrj1a-I/viewform?usp=send_form

If you decide to participate, we will follow up with an email request for your teachers to complete the Organizational Culture Assessment Instrument (OCAI), a 24-item online survey, designed to assess the current school culture. The invitation to participate, with all information regarding this study, has been attached for your review.

If you would like to discuss with myself or Dr. Pisapia prior to participating, please contact us.

Thank you for your consideration of this dissertation research study.

Sincerely,
Keith Feit
Doctoral Candidate
Florida Atlantic University

Appendix D: Email to Principals for Teachers

Thank you for participating in our research study. Now that you have completed the IEO, we are requesting that you distribute the email below to your teachers and ask them to complete the short, 24-item online Organizational Culture Assessment Instrument (OCAI) survey to assess the school culture. If you have already distributed this link, please send out this follow-up to remind those teachers who have not yet completed the survey that they may do so at this time.

Request of Teachers:

My name is Keith Feit and I am a doctoral candidate at Florida Atlantic University. My dissertation chair is Dr. John Pisapia. We are looking into principal and school entrepreneurial behavior that might improve student achievement. The study has been approved by the Florida Atlantic University Institutional Review Board (FAU IRB), permission has been granted by the Palm Beach County School District (see attached letter of approval), and your principal has agreed to participate. Of course its voluntary – but we hope you will see the value of this research since it is the first study that we know of that is trying to determine if there is a relationship between entrepreneurial behaviors of school personnel, school culture, and student achievement.

We are requesting your participation in my dissertation study by asking that you to complete a short, 24-item online survey that should take no more than 20 minutes of your time. If you are willing, please click on this link when you have the time to devote to this:

https://docs.google.com/forms/d/1FqEFqP60OPc_cMJOAKDmq62_4rldBGj9LmTOZO4NbZg/viewform?usp=send_form

The invitation to participate, with all information regarding this study, has been attached for your review.

If you would like to discuss with myself or Dr. Pisapia prior to participating, please contact us.

Thank you for your consideration of this dissertation research study.

Sincerely,
Keith Feit
Doctoral Candidate
Florida Atlantic University

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