Does leadership matter? Examining the Relationship Among Transformational Leadership, School Climate, and Student Achievement

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The purpose of this correlational study was to examine the relationship between transformational leadership, school climate, and student mathematics and reading achievement. Survey data were collected from a purposeful sample of elementary school principals and a convenience sample of his or her respective teachers located in a small suburban school district in southeast Texas. The Multifactor Leadership Questionnaire (MLQ-5X) was used to measure the degree to which a principal displays the factors of a transformational leader based on teacher perceptions and was used by the principals surveyed to self-assess. The School Climate Inventory-Revised (SCI-R) survey was used to measure teacher perceptions of school climate. Findings indicated a positive relationship between transformational leadership and school climate. However, a relationship was not found to exist between transformational leadership and student achievement nor between school climate and student achievement. When determining whether a relationship existed between the campus principal's perceptions of their own transformational leadership qualities and his/her teachers' perceptions of those same qualities, only two out of the 25 correlations were found to be statistically significant.

Keywords: correlational, school climate, student achievement, transformational leadership

Introduction

Calls for reform of the educational system in the United States (U.S.) have cycled regularly since the establishment of compulsory education in the early 20th Century. The latest round of school improvement efforts came in 2001 with the passage of *No Child Left Behind* (NCLB); an amendment to the *Elementary and Secondary Education* Act of 1965. This legislation holds school districts accountable for meeting federal guidelines based on Adequate Yearly Progress (AYP) as measured by student performance on standardized assessments. With the recent addition of President Obama's *Race to the Top* initiative, additional pressure has been placed on public school administrators and teachers to achieve more rigorous and challenging standards (Bird, Wang, Watson, & Murray, 2009). As a result, school staff are continuously searching for ways to improve student learning so they can successfully meet the goals set forth by both federal and state requirements (Bevans, Bradshaw, Miech, & Leaf, 2007).

Schools in the improvement process often examine the various leadership factors that play a substantial role in school effectiveness (Bruggencate, Luyten, Scheerens, & Sleegers, 2012). Transformational leadership is one style that has been advocated for success in the school improvement process. Burns (1978) defined transformational leadership as a person's ability to engage others for the purpose of building motivation. Given that transformational leaders generally have staff members who are committed to a shared goal or vision and are more satisfied in their positions, this type of leadership has the potential to greatly impact the organizational climate of a campus (Bass & Riggio, 2006). As a result, there is also the potential to effect student achievement, as intermediate outcomes, such as teacher job satisfaction and school and classroom climate have been found to impact the student outcomes required by federal and state guidelines (Brown, Anfara, & Roney, 2004). School districts that are searching for research-based methods of school improvement should begin by examining campus leadership styles and taking note of their effect on the school climate and student achievement.

The school leader is considered one of the most influential factors in the development of the quality and character of a school (Cohen, McCabe, Michelli, & Pickeral, 2009). Much of the current research demonstrates that a principal's leadership style and skills impact a variety of teacher characteristics, from job satisfaction and efficacy to engagement levels and academic emphasis (Bird et al., 2009). With additional focus being placed on closing the achievement gaps between the various sub-populations, more researchers are attempting to identify school factors that affect student achievement that are also within the scope of a school administrator's control (McGuigan & Hoy, 2006). Even though it has been observed that a principal's leadership skills may not have a direct impact on student outcomes, these skills can impact the principal's relationship with his or her teachers (Cotton, 2003). Given that many of a campus's basic organizational structures are controlled and greatly influenced by the principal, assessing the impact of an individual leader on his or her school's climate and student achievement levels has become a crucial area of focus (McGuigan & Hoy; Cohen et al., 2009).

In today's age of increased accountability, the learning environment of students has become a more significant educational issue (Frieberg & Stein, 1999). School climate, which usually refers to a teacher's perceptions of his or her work environment (Hoy, Tarter, & Kottkamp, 1991), has therefore become an attractive factor to study in the search for components that promote school effectiveness (Hoy, 1990). School climate is often considered the "heart and soul" of a campus (Freiberg & Stein, 1999, p. 11). According to Hoy (1990), climate is a particularly useful construct for studying the characteristics of schools that positively impact

student achievement; however, the connections between the qualities of a healthy school and student and teacher outcomes is an area for further research. These findings have important consequences for campus leaders, who often seek to create learning environments that promote shared decision-making among campus stakeholders and lend themselves to further research on the impact of school climate on student achievement (Pepper, 2010).

More rigorous standards for student achievement have led many school districts to look for research-based methods that will positively affect student scores on standardized assessments. With a lack of research examining the relationship between a school leader's traits, school climate, and student achievement (Bulach & Lunenberg, 1995; Mackey, Pitcher, & Decman, 2006) and the belief that there is a disparity between the research on school climate and actual school practice (Cohen et al., 2009), there is a definitive need for more research in this area in order to constructively impact student outcomes. As a result, the purpose of this study was to examine the relationship among transformational leadership, school climate, and student mathematics and reading achievement.

Theoretical Perspective and Related Literature

Transformational Leadership

Burns' (1978) pioneering work, *Leadership*, not only provided a comprehensive assessment of its power and purpose, but also distinguished between varieties of leadership styles. He acknowledged the existence of two common types of leadership: (a) transactional and (b) transformational. The relationships between most leaders and followers are transactional, where the main purpose of the relationship is for an exchange of things that are valued. This style of leadership is generally acceptable when attempting to maintain the status quo (Moolenaar, Daly, & Sleegers, 2010). Transactional leadership is contrasted with transformational leadership, which emphasizes a leader's ability to recognize the potential skills of an employee and engage the complete person and not just particular traits.

Transformational leadership is one of the most prominent contemporary theories regarding leadership (Moolenaar et al., 2010). Stewart (2006) claimed that leadership is an important area of focus for researchers, especially given the current emphasis on school accountability. School leaders generally set the atmosphere of a campus establishing various norms for the behavior that staff members follow (Cohen et al., 2009). Burns (1978) stated that a transformational leader was typically focused on the end product, uniting staff in the pursuit of goals that match the leader's vision, while finding ways to excite even the most uninterested employee. In addition, Sergiovanni (2007) claimed that a transformational leader practices purposing, provides a clear and concise goal focus uniting the organization, and encourages commitment. When a principal provides evidence that he or she understands the need to empower teachers, there is increased motivation and commitment towards campus goals (Leithwood & Jantzi, 2005; Marks & Printy, 2003; Sergiovanni, 2007).

Transformational leadership has also been found to have an impact on teachers' perceptions of school conditions, their individual commitment to change, and organizational learning and student outcomes (Hallinger & Heck, 1998). Finnigan and Stewart (2009) found that transformational leadership behaviors were most frequently evident in high performing schools, lending credence to the belief that transformational leadership is the most effective form of leadership. Additionally, Goff, Goldring, and Bickman (2014) studied the extent to which a

principal's self-assessment of leadership characteristics matched his or her teachers' perceptions of the same characteristics discovering an often large, measurable gap between the two sets of perceptions; suggesting that teachers see and interpret various leadership characteristics differently than their principals.

School Climate

While the relationship is a complicated one, the influence of transformational leadership qualities on "follower" outcomes and the development of a positive working environment is an important one to note. Cohen et al. (2009) stated there is no universally agreed-upon definition; school climate, in a broad sense, encompasses teachers' shared perceptions of their overall work environment to include the internal features that distinguish one campus from another and its impact on the behavior of its staff members (Hoy, 1990; Hoy & Tarter, 1992; Owens, 2004; Stolp & Smith, 1995). Leadership is a key component in the development and sustainment of school climate (Bass & Riggio, 2006; Burns, 1978). Owens (2004) and Vos, van der Westhuizen, Mentz, and Ellis (2012) found that the behavior of principals was especially influential on school climate, as the specific strategies used to manage the campus influence the experience of the teachers and the overall work atmosphere. In addition, Bird et al. (2009) discovered that teachers' reported engagement levels were strongly related to their level of trust in the school, their colleagues, and their principal.

Moolenaar et al. (2010) learned that transformational leadership was positively related to teachers' perceptions of their school's climate of innovation. However, they also determined that teachers who were performing administrative tasks in support of the principal, in addition to their teaching tasks, perceived their school's climate as less innovative than those teachers who were not assigned additional administrative tasks. Regarding the lack of significance, Bulach and Lunenberg (1995) discovered that there were no statistically significant differences in school climate as a result of principal leadership styles; implying that any leadership style could lead to the development of a positive school climate, especially when the staff is experienced.

Teacher perceptions of a principal's leadership style can also influence school climate. Rhodes, Camic, Milburn, and Lowe (2009) found that principals can improve teachers' perceptions of school climate by exhibiting collaborative decision-making and attempting to remove obstacles that prohibit teachers from focusing on instruction. As a teacher's perception of leadership improves, he or she becomes more effective in the classroom. This implies that principals who want to positively impact school climate should focus on providing teachers with the necessary support and resources.

According to Vos et al. (2012), an unhealthy school climate can lead to ineffectiveness. Discovering the climate of a school is an important component for developing strategies for management and improvement of an organization's overall health. Given that the overall climate of a campus has a significant effect on the job satisfaction levels of staff members, it is especially important to evaluate organizational health to maintain positive work performance (Vos et al., 2012). Lastly, a sustainable, positive school climate encourages the development and learning necessary for students to become productive contributors to a democratic society (Cohen et al., 1999). In conclusion, Hoy (1990) claims organizational health and climate, as a whole, can be an important factor in effective change efforts.

Student Achievement

The current focus on monitoring student achievement levels, as defined by the state and federal government, has led many educational researchers to study the factors within a school and a school district that impact student outcomes on standardized assessments. Brookover et al. (1982) wrote that school learning climates are often characterized by the degree to which they effectively produce desired student learning outcomes and student achievement is often the primary factor to consider when measuring the climate of a school. This idea was furthered by studies that show that academic emphasis is an integral component of a healthy school (Goddard et al., 2000; Hoy & Tarter, 1992). It is also imperative to note the impact of leadership on academic emphasis. An effective administrator promotes academic learning by actively encouraging high expectations for students and by promoting effective instruction in each classroom (Stockard & Mayberry, 1992). Transformational leaders can then contribute to this factor by aligning the objectives and goals of all stakeholders in the organization (Bass & Riggio, 1996).

Research has determined that principal leadership can have a significant, yet indirect, impact on student outcomes (Braughton & Riley, 1991; Hallinger & Heck, 1996; Marzano, Waters, & McNulty, 2005; Robinson, Lloyd, & Rows, 2008). Finnigan and Stewart (2009) specifically studied transformational leadership and found that this specific style had an indirect influence on student achievement. Heck and Hallinger (1996) and Hallinger (2005) also noted that a principal can impact classroom instruction, but indirectly through the development of school climate rather than through direct supervision of classroom practices. Given that a principal is generally not involved in the direct delivery of instruction, the behavior of the principal, especially when supportive, collegial, and not overly restrictive, can have a positive impact on student achievement through the impact this behavior has on school climate and thus his or her teachers (Tschannen-Moran & Tschannen-Moran, 2011).

When the campus leader develops a strong, clear, shared vision, and focuses resources and attention on the overall improvement of the organization, the results are positive changes in student outcomes (Finnigan & Stewart, 2009). Hallinger (2005) found that principals who developed strategies and activities that aligned with the school's mission and kept an academic emphasis were more effective in leading staff and saw more improvement in student outcomes. In addition, Onorato (2013) stated that effective principals have a great effect on student achievement when they are more attuned to the specific behaviors that influence teachers. Principals who pay attention to building organizational capacity as a whole in ways that are culturally appropriate can also positively influence student achievement (Jacobson, Johnson, Ylimaki, & Giles, 2005; Mulford et al., 2008; Murakami-Ramalho, Garza, & Merchant, 2010). Principals who exhibit transformational characteristics play a major role in the fostering of conditions for school improvement by stimulating teachers' engagement in professional learning activities, which can impact student achievement.

Johnson and Stevens (2006) found a statistically significant relationship between teachers' perceptions of school climate and student achievement. This indicates that school climate is a factor that should be considered when attempting to understand student achievement. Teachers who perceived a positive school climate had higher levels of student achievement. The authors state, however, that there are a number of factors that could influence this, including specific student characteristics, and that school climate could conversely be influenced by

student achievement. Contrary to previously mentioned research, Shouppe and Pate (2010) found there was not a relationship between school climate and student achievement.

One important area of study for the present and future lives of many students is mathematics achievement (Choi & Chang, 2011). Choi and Change (2011) discovered that school climate had a significant impact on mathema tics achievement. For example, when classroom teachers perceived the school climate as positive and healthy, the mathematics achievement of the students improved. Webster and Fisher (2002) concluded that the methods used by teachers to present mathematics curriculum were directly influenced by the teachers' perceptions of school climate. In addition, the achievement outcomes of the students were influenced by the teachers' instructional strategies and students in classrooms that were more teacher-directed had better attitudes towards mathematics, which influenced their achievement levels in the subject matter. Concerning reading achievement, Silva, White, and Yoshida (2011) found that when principals engaged in discussions with students concerning their potential achievement on a standardized reading assessment, the student exhibited more motivation to do well on the exam. In addition, those students met the established target goal for their scores on the state assessment.

While it is impossible to provide a single image of a school leader that would be appropriate for all schools, studying the complimentary relationship between a principal's transformational leadership qualities, school climate, and student achievement could provide useful information to any school district regarding best practices for school improvement. While the relationship may not always be a direct one, the results of focusing on strong leadership and the development of a positive school climate will benefit student engagement and bring about a rise in the levels of student achievement.

Methods

Participants

Data were collected from a purposeful sample of elementary principals governing six campuses located in a small suburban school district in southeast Texas. Female participants composed the majority of the responses in the study with 83.3% (n = 5), while male participants represented 16.7% (n = 1). A majority of the participants self-identified as White with 83.3% (n = 5) and 66.7% (n = 4) reported they had been administrators for 11 to 15 years. A convenience sample of teacher participants (n = 55; 72.4% response rate) working within the six elementary schools yielded the following demographics. Female participants composed the majority of the responses in the study with 96.4% (n = 53), while male participants represented 3.6% (n = 2). A majority of the participants self-identified as White with 78.2% (n = 43), while the next largest group self-identified as Hispanic with 14.5% (n = 8). For the number of years in the teaching profession, 25.5% (n = 14) reported that they had been teaching 11 to 15 years and another 25.5% (n = 14) reported that they had been teaching for more than 20 years.

Instrumentation

Transformational leadership. The *Multifactor Leadership Questionnaire* (MLQ-5X), developed by Bass and Avolio (1995), is an existing survey which assesses the frequency of various transformational leadership behaviors based on the perceptions of teachers. The MLQ-

5X is a 36-item survey that measures five areas of transformational leadership: (a) idealized attributes (α = .83), (b) idealized behaviors (α = .83), (c) inspirational motivation (α = .82), (d) intellectual stimulation (α = .88), and (e) individual consideration (α = .78). Participants were asked to rate leadership characteristics using a 5-point Likert scale (0 = *Not at all*, 1 = *Once in a while*, 2 = *Sometimes*, 3 = *Fairly often*, 4 = *Frequently, if not always*). The larger the score, the more a person is perceived as being a transformational leader.

School climate. School climate was measured using the *School Climate Inventory-Revised* (SCI-R). It was developed by an expert panel at the Center for Research in Educational Policy at the University of Memphis to assess teacher and administrator perceptions of school climate. The SCI-R has been validated at both the elementary and secondary school levels (CREP, 2002). The SCI-R is a 49-item survey that measures seven areas of school climate: (a) order (α = .78), (b) leadership (α = .77), (c) environment (α = .83), (d) involvement (α = .79), (e) instruction (α = 81), (f) expectations (α = .80), and (g) collaboration (α = .86). Participants were asked to rate school climate characteristics using a 5-point Likert scale (1 = *Strongly disagree*, 2 = *Disagree*, 3 = *Neutral*, 4 = *Agree*, 5 = *Strongly agree*). The larger the score the more positive the school climate.

Student achievement. In Texas, the STAAR (State of Texas Assessment of Academic Readiness) assessment is used to measure student achievement levels. The purpose of the STAAR test is to determine whether or not a student has mastered specific knowledge of a core subject at the grade levels tested and is ready to enter the next grade level (TEA, 2014b). Launched in 2012, the STAAR test is given to students at the end of grades 3-8 in reading and mathematics and to high school students in Algebra I, English I, English II, Biology, and U.S. History. For purposes of this study, only mathematics and reading scores for grades 3-5 were examined.

In grades 3-5, the test is composed of 43-47 multiple choice items, with three items containing a "grid-able" response. These items provide an opportunity for an open-ended response, which allows the student the opportunity to derive an answer independently (TEA, 2010c). For the reading portion of the STAAR test, greater emphasis is given to the critical analysis of a reading passage, rather than to a student's literal understanding (TEA, 2010b). In grade 3, the reading test is composed of 4-5 single selections for a total of 40 multiple choice items. The genres assessed include fiction, literary nonfiction, poetry, media literacy, expository, and procedural. The total reading load is approximately 2,700 words. In grades 4-5, the STAAR reading test includes 3-4 single selections and a paired selection for a total of 44-46 items. The total reading load is approximately 3,100-3,300 words.

Data Collection Procedures

Following IRB approval, the elementary school principals were contacted by email with information regarding the purpose of the study and the process for collecting the surveys. The researcher made arrangements with a district representative for the dissemination of the surveys to all of the elementary teachers through the use of SurveyMonkey. The purpose of the study, voluntary participation in the study, and the timeframe for taking the survey, along with confidentiality requirements were communicated to the teachers through a survey cover letter. A follow-up reminder was sent by email approximately two weeks after the first letter.

Data Analysis

Given that the teachers (Level 1) in this study were nested within six schools (Level 2), a methodological dilemma concerning the unit of analysis was created. To address this issue, initially a multilevel data analysis technique, hierarchical linear modeling (HLM), was utilized. To justify the use of a multi-level analysis, unexplained variation in school climate and student achievement were examined across each campus. To do this, a one-way Analysis of Variance (ANOVA) with random effects model (unconditional model) was used. The one-way ANOVA model contained only an outcome variable and no Level 1 or Level 2 predictors. Given that unexplained variation was not found to exist ($p > .05$), a single level analysis, such as Pearson's product moment correlations and simple linear regression, was used to analyze the data. All variables (transformational leadership, school climate, and school achievement) were of continuous measurement.

Findings

Transformational Leadership and School Climate

Sufficient evidence was found to justify the rejection of the null hypothesis and thus accept the alternative (research) hypothesis. Findings indicated a statistically significant positive relationship ($p < .05$) between the five factors of transformational leadership (idealized attributes, idealized behaviors, inspirational motivation, intellectual stimulation, and individual consideration) and the seven dimensions of school climate (order, leadership, environment, involvement, instruction, expectation, and collaboration).

Idealized attributes. Results indicated that there was a statistically significant positive relationship between the idealized attributes of a leader and the school climate dimensions: (a) Order, $F(1, 53) = 20.16$, $p < .001$, adjusted-$r^2 = .262$, (b) Leadership, $F(1, 53) = 53.55$, $p < .001$, adjusted-$r^2 = .493$, (c) Environment, $F(1, 53) = 91.79$, $p < .001$, adjusted-$r^2 = .627$, (d) Involvement, $F(1, 53) = 11.46$, $p = <.001$, adjusted-$r^2 = .162$, (e) Instruction, $F(1, 53) = 23.39$, $p < .001$, adjusted-$r^2 = .293$, (f) Expectations, $F(1, 53) = 47.57$, $p < .001$, adjusted-$r^2 = .463$, and (g) Collaboration, $F(1, 53) = 42.19$, $p < .001$, adjusted-$r^2 = .433$. These findings suggest that a principal's ability to develop respect, exhibit power, and focus on what is best for the group influences teacher perceptions of the overall school climate. The factor of idealized attributes can explain the variation in dimensions of school climate 26.2%, 49.3%, 62.7%, 16.2%, 29.3%, 46.3%, and 43.3% respectively. Table 1 depicts the summary of the regression analysis.

Table 1
Model Summary of Correlations between Idealized Attributes (IA) and the Dimensions of School Climate

	N	F-value	*r*-value	adjusted-r^2	*p*-value
IA - Order	55	20.16	.525	.262	<.001*
IA – Leadership	55	53.55	.709	.493	<.001*
IA - Environment	55	91.79	.796	.627	<.001*
IA - Involvement	55	11.46	.422	.162	<.001*

IA - Instruction	55	23.39	.553	.293	<.001*
IA - Expectations	55	47.57	.688	.463	<.001*
IA - Collaboration	55	42.19	.666	.433	<.001*

*Statistically significant ($p < .05$)

Idealized behaviors. Results indicated that there was a statistically significant positive relationship between the idealized behaviors of a leader and the school climate dimensions: (a) Order, $F(1, 53) = 18.48$, $p < .001$, adjusted-$r^2 = .245$, (b) Leadership, $F(1, 53) = 34.29$, $p < .001$, adjusted-$r^2 = .381$, (c) Environment, $F(1, 53) = 54.16$, $p < .001$, adjusted-$r^2 = .496$, (d) Involvement, $F(1, 53) = 17.72$, $p < .001$, adjusted-$r^2 = .236$, (e) Instruction, $F(1, 53) = 21.09$, $p < .001$, adjusted-$r^2 = .271$, (f) Expectations, $F(1, 53) = 54.75$, $p < .001$, adjusted-$r^2 = .499$, and (g) Collaboration, $F(1, 53) = 44.34$, $p < .001$, adjusted-$r^2 = .445$. These findings suggest that a principal's sense of purpose, goal-focus, and moral and ethical behavior influences teacher perception of the overall school climate. The factor of idealized behaviors can explain the variation in dimensions of school climate 24.5%, 38.1%, 49.6%, 23.6%, 27.1%, 49.9%, and 44.5% respectively. Table 2 depicts the summary of the regression analysis.

Table 2
Model Summary of Correlation between Idealized Behaviors (IB) and the Dimensions of School Climate

	N	F-value	*r*-value	adjusted-r^2	*p*-value
IB - Order	55	18.48	.508	.245	<.001*
IB - Leadership	55	34.29	.627	.381	<.001*
IB - Environment	55	54.16	.711	.496	<.001*
IB - Involvement	55	17.72	.501	.236	<.001*
IB - Instruction	55	21.09	.534	.271	<.001*
IB - Expectations	55	54.75	.713	.499	<.001*
IB - Collaboration	55	44.34	.675	.445	<.001*

*Statistically significant ($p < .05$)

Inspirational motivation. Results indicated that there was a statistically significant positive relationship between the inspirational motivation of a leader and the school climate dimensions: (a) Order, $F(1, 53) = 29.68$, $p < .001$, adjusted-$r^2 = .347$, (b) Leadership, $F(1, 53) = 54.25$, $p < .001$, adjusted-$r^2 = .496$, (c) Environment, $F(1, 53) = 95.91$, $p < .001$, adjusted-$r^2 = .637$, (d) Involvement, $F(1, 53) = 18.67$, $p < .001$, adjusted-$r^2 = .247$, (e) Instruction, $F(1, 53) = 18.44$, $p < .001$, adjusted-$r^2 = .244$, (f) Expectations, $F(1, 53) = 48.20$, $p < .001$, adjusted-$r^2 = .466$, and (g) Collaboration, $F(1, 53) = 42.40$, $p < .001$, adjusted-$r^2 = .434$. These findings suggest that a principal's confidence, optimism, enthusiasm, and vision for the future influences teacher perception of the overall school climate. The factor of inspirational motivation can explain the variation in dimensions of school climate 34.7%, 49.6%, 63.7%, 24.7%, 24.4%, 46.6%, and 43.4% respectively. Table 3 depicts the summary of the regression analysis.

Table 3
Model Summary of Correlations between Inspirational Motivation (IM) and the Dimensions of School Climate

	N	F-value	*r*-value	adjusted-r^2	*p*-value
IM - Order	55	29.68	.599	.347	<.001*
IM - Leadership	55	54.25	.711	.496	<.001*
IM - Environment	55	95.91	.803	.637	<.001*
IM - Involvement	55	18.67	.510	.247	<.001*
IM - Instruction	55	18.44	.508	.244	<.001*
IM - Expectations	55	48.20	.690	.466	<.001*
IM - Collaboration	55	42.40	.667	.434	<.001*

*Statistically significant ($p < .05$)

Intellectual stimulation. Results indicated that there was a statistically significant positive relationship between the intellectual stimulation of a leader and the school climate dimensions: (a) Order, $F(1, 53) = 30.33$, $p < .001$, adjusted-$r^2 = .352$, (b) Leadership, $F(1, 53) = 34.61$, $p < .001$, adjusted-$r^2 = .384$, (c) Environment, $F(1, 53) = 71.60$, $p < .001$, adjusted-$r^2 = .567$, (d) Involvement, $F(1, 53) = 20.44$, $p < .001$, adjusted-$r^2 = .265$, (e) Instruction, $F(1, 53) = 29.19$, $p < .001$, adjusted-$r^2 = .343$, (f) Expectations, $F(1, 53) = 51.33$, $p < .001$, adjusted-$r^2 = .482$, and (g) Collaboration, $F(1, 53) = 58.51$, $p < .001$, adjusted-$r^2 = .516$. These data suggest that a principal's ability to solve problems and think creatively influences teacher perception of the overall school climate. The factor of intellectual stimulation can explain the variation in dimensions of school climate 35.2%, 38.4%, 56.7%, 26.5%, 34.3%, 48.2%, and 51.6% respectively. Table 4 depicts the summary of the regression analysis.

Table 4
Model Summary of Correlations between Intellectual Stimulation (IS) and the Dimensions of School Climate

	N	F-value	*r*-value	adjusted-r^2	*p*-value
IS - Order	55	30.33	.603	.352	<.001*
IS - Leadership	55	34.61	.629	.384	<.001*
IS - Environment	55	71.60	.758	.567	<.001*
IS - Involvement	55	20.44	.528	.265	<.001*
IS - Instruction	55	29.19	.596	.343	<.001*
IS - Expectations	55	51.33	.701	.482	<.001*
IS - Collaboration	55	58.51	.724	.516	<.001*

*Statistically significant ($p < .05$)

Individual consideration. Results indicated that there was a statistically significant positive relationship between the individual consideration of a leader and the school climate

dimensions: (a) Order, F(1, 53) = 23.53, $p < .001$, adjusted-r^2 = .294, (b) Leadership, F(1, 53) = 40.44, $p < .001$, adjusted-r^2 = .422, (c) Environment, F(1, 53) = 65.65, $p < .001$, adjusted-r^2 = .545, (d) Involvement, F(1, 53) = 17.49, $p < .001$, adjusted-r^2 = .234, (e) Instruction, F(1, 53) = 18.45, $p < .001$, adjusted-r^2 = .244, (f) Expectations, F(1, 53) = 30.55, $p < .001$, adjusted-r^2 = .354, and (g) Collaboration, F(1, 53) = 36.93, $p < .001$, adjusted-r^2 = .399. These findings suggest that a principal's mentoring skills and ability to recognize strengths in others influences teacher perceptions of the overall school climate. The factor of individual consideration can explain the variation in dimensions of school climate 29.4%, 42.2%, 54.5%, 23.4%, 24.4%, 35.4%, and 39.9% respectively. Table 5 depicts the summary of the regression analysis.

Table 5
Model Summary of Correlations between Individual Consideration (IC) and the Dimensions of School Climate

	N	F-value	*r*-value	adjusted-r^2	*p*-value
IC - Order	55	23.53	.554	.294	<.001*
IC - Leadership	55	40.44	.658	.422	<.001*
IC - Environment	55	65.65	.744	.545	<.001*
IC - Involvement	55	17.49	.498	.234	<.001*
IC - Instruction	55	18.45	.508	.244	<.001*
IC - Expectations	55	30.55	.605	.354	<.001*
IC - Collaboration	55	36.93	.641	.399	<.001*

*Statistically significant (p < .05)

Transformational Leadership and Student Achievement

Mathematics achievement. Results indicated that there was not a statistically significant positive relationship (p > .05) between the five transformational leadership characteristics of a principal and mathematics achievement: (a) Idealized Attributes, F(1,24) = 0.58, $p = .454$, (b) Idealized Behavior, F(1, 24) = 0.78, $p = .387$, (c) Inspirational Motivation, F(1, 24) = 0.66, $p = .426$, (d) Intellectual Stimulation, F(1, 24) = 1.26, $p = .272$, and (e) Individual Consideration, F(1, 24) = 0.36, $p = .556$. These findings suggest that a principal's leadership characteristics do not influence student achievement in mathematics. Table 6 depicts the summary of the regression analysis.

Table 6
Model Summary of Correlations between Transformational Leadership and Mathematics Achievement

	N	F-value	*p*-value
IA – Mathematics	26	0.58	.454
IB – Mathematics	26	.078	.387
IM – Mathematics	26	0.66	.426

IS - Mathematics	26	1.26	.272
IC - Mathematics	26	0.36	.556

*Statistically significant (p < .05)

Reading achievement. Results indicated that there was a statistically significant positive relationship between one of the transformational leadership characteristics, inspirational motivation, and reading achievement, F(1, 23) = 4.83, p = .038, adjusted-r^2 = 0.156. These findings suggest that a principal's confidence, optimism, enthusiasm, and vision for the future has a positive influence on student reading achievement. Approximately 16.0% of the variation in reading achievement can be attributed to the principal's inspirational motivation. However, there was not a statistically significant positive relationship (p > .05) between the other four transformational leadership characteristics of a principal and reading achievement: (a) Idealized Attributes, F(1, 23) = 0.08, p = .783, (b) Idealized behavior, F(1, 23) = 2578, p = .620, (c) Inspirational Motivation, F(1, 23) = 4.83, p = .038, (d) Intellectual Stimulation, F(1, 23) = 1.93, p = .178, and (e) Individual Consideration, F(1, 23) = 1.33, p = .261. Table 7 depicts the summary of the regression analysis.

Table 7
Model Summary of Correlations between Transformational Leadership and Reading Achievement

	N	F-value	p-value
IA – Reading	25	0.78	.783
IB – Reading	25	0.25	.620
IM – Reading	25	4.83	.038*
IS - Reading	25	1.93	.178
IC - Reading	25	1.33	.261

*Statistically significant (p < .05)

School Climate and Student Achievement

Mathematics achievement. Results indicated that there was not a statistically significant relationship (p > .05) between the dimensions of school climate and mathematics achievement: (a) Order, F(1, 24) = 1.19, p = .286, (b) Leadership, F(1, 24) = 0.12, p = .733, (c) Environment, F(1, 24) = 0.85, p = .365, (d) Involvement, F(1, 24) = 0.13, p = .720, (e) Instruction, F(1, 24) = 0.88, p = .358, (f) Expectations, F(1, 24) = 0.18, p = .672, and (g) Collaboration, F(1, 24) = 0.63, p = .435. These findings suggest that school climate does not influence student mathematics achievement. Table 8 depicts the summary of the regression analysis.

Table 8
Model Summary of Correlations between School Climate and Mathematics Achievement

	N	F-value	*p*-value
Order - Mathematics	26	1.19	.286
Leadership – Mathematics	26	0.12	.733
Environment - Mathematics	26	0.85	.365
Involvement - Mathematics	26	0.13	.720
Instruction - Mathematics	26	0.88	.358
Expectations - Mathematics	26	0.18	.672
Collaboration - Mathematics	26	0.63	.435

*Statistically significant ($p < .05$)

Reading achievement. Results indicated that there was a statistically significant positive relationship between two of the dimensions of school climate, order and involvement, and reading achievement, $F(1, 23) = 4.38$, $p = .048$, adjusted-$r^2 = 0.138$. These findings suggest that an environment in which there is order and appropriate student behavior, along with parental and community involvement, can positively influence student reading achievement. Approximately 14.0% of the variation in reading achievement can be attributed to the school's climate. However, there was not a statistically significant relationship ($p > .05$) between the other five school climate dimensions and reading achievement: (a) Order, $F(1, 23) = 4.38$, $p = .048$, (b) Leadership, $F(1, 23) = 1.34$, $p = .258$, (c) Environment, $F(1, 23) = 2.01$, $p = .170$, (d) Involvement, $F(1, 23) = 4.42$, $p = .047$, (e) Instruction, $F(1, 23) = 1.29$, $p = .268$, (f) Expectations, $F(1, 23) = 2.64$, $p = .118$, and (g) Collaboration, $F(1, 23) = 2.13$, $p = .158$. Table 9 depicts the summary of the regression analysis.

Table 9
Model Summary of Correlations between School Climate and Reading Achievement

	N	F-value	*p*-value
Order - Reading	25	4.38	.048*
Leadership – Reading	25	1.34	.258
Environment – Reading	25	2.01	.170
Involvement - Reading	25	4.42	.047*
Instruction - Reading	25	1.29	.268
Expectations - Reading	25	2.6	.118
Collaboration – Reading	25	2.13	.158

*Statistically significant ($p < .05$)

Transformational Leadership Qualities of the Campus Principal

Pearson's product moment correlation coefficients were computed among the five transformational leadership factors for both the principal's self-assessment and his or her teachers' assessment. Only two out of the 25 correlations were found to be statistically significant. Results indicated that a correlation existed between the teacher's perception of his or her principal's inspirational motivation and the principal's perception of his or her own inspirational motivation, $r = .95$, $p = .012$, $r^2 = .90$. These findings suggest that a principal's optimism, enthusiasm, and vision influence the teacher's perceptions of those characteristics. Ninety percent of the variation found in a teacher's perception of the principal's "inspirational motivation" can be explained by the principal's perception of his or her "inspirational motivation".

Results also indicated that a correlation existed between the teacher's perception of his or her principal's idealized attributes and the principal's perception of his or her own inspirational motivation, $r = .89$, $p = .043$, $r^2 = .79$. These findings suggest that a principal's perception of his or her optimism, enthusiasm, and vision influence a teacher's perception of the principal's ability to instill pride in staff and focus in doing what is best for the campus. Seventy-nine percent of the variation found in a teacher's perception of the principal's "idealized attributes" can be explained by the principal's perception of his or her "inspirational motivation". Table 10 depicts the summary of the correlations.

Table 10
Correlations among Transformational Leadership Factors: Principals vs. Teachers

	Principal's IA	Principal's IB	Principal's IM	Principal's IS	Principal's IC
Teacher's IA	.45	.44	.89*	.49	.84
Teacher's IB	.62	.65	.81	.40	.75
Teacher's IM	.41	.45	.95*	.40	.79
Teacher's IS	.45	.76	.76	.38	.70
Teacher's IC	-.55	-.67	-.48	.00	-.26

*Statistically significant ($p < .05$)

Discussion

Transformational Leadership and School Climate

Leadership is a key component in the success of a campus. Transformational leaders have great potential to impact a school's climate (Bass & Riggio, 2006). In this study, all five factors of transformational leadership (idealized attributes, idealized behaviors, inspirational motivation, intellectual stimulation, and individualized consideration) exhibited significant positive relationships with the seven dimensions of school climate, highlighting the importance of leadership on a campus. The perceptions of a principal's idealized attributes influence the overall perception of school climate. The results presented in this study were consistent with the findings of Hallinger and Heck (1998), who found that transformational leaders have an impact on teachers' perception of school climate. As supported by previous research (Bird et al., 2009; Rhodes et al., 2009) a teacher's perception of school climate was strongly related to his or her perceptions of the principal's idealized attributes. When teachers believe their principal exhibit a high level of idealized attributes, they identify better with their leader and thus leads them to feel more positive about the overall climate of the campus.

Idealized behaviors were similar to those of Owens (2004) and Vos et al. (2012), whereas the teachers' perceptions of the school climate was influenced by the behavior of the principals. A leader who is a role model for staff and behaves in accordance with the values he or she promotes can easily build commitment to the campus and its goals, which can lead teachers to perceive the school climate as a positive one. However, this study disagreed with Bulach and Lunenberg (1995), who found there were no significant differences in school climate perceptions as a result of principal leadership behaviors. One possible explanation for this difference could be the different survey instruments that were used. The current study used an instrument that focused specifically on transformational leadership characteristics, while Bulach and Lunenberg used a survey that simply defined leadership style.

The findings associated with inspirational motivation were consistent with findings reported by previous research (Leithwood & Jantzi, 2005; Marks & Printy, 2003); principals who motivate and empower teachers can positively influence school climate. When a principal is excited about a particular initiative and displays optimism that campus goals can be accomplished, the teachers will share that enthusiasm and be more dedicated to the process. Principals who exhibit high levels of inspirational motivation also excite staff and encourage support for future plans, which has a positive influence on the teachers' perception of school climate.

The findings in this study for intellectual stimulation were consistent with the previous research completed by Leithwood (1994) and Moolenaar et al. (2010). Intellectual stimulation indicates that transformational leaders inspire their staff to be innovative and creative, while refraining from being critical of their mistakes (Bass & Riggio, 2006). Principals who encourage the development of teacher strengths can motivate teachers to try new instructional strategies. In addition, when teachers believe that the principal will support new initiatives and will help them work through problems, they are more willing to try something new. This level of support from the principal will positively influence a teacher's perception of school climate.

In this study the individualized consideration of the leader and the seven dimensions of school climate were similar to the previous research of Hauserman et al. (2013) and Leithwood and Jantzi (2005). Successful principals recognize that one of the most important components in

student success is the teacher. Teachers felt more positive about their school environment when their principal values them as a partner in the school program, and not just as a staff member. In addition, leaders who demonstrate individualized consideration exhibit more confidence in the abilities of their staff members, which positively influences school climate. Principals who provide professional development opportunities and a supportive climate will particularly influence the school climate dimensions of environment and collaboration. In addition, administrators can impact school climate when they choose to build trusting, cooperative relationships with teachers, particularly when they recognize the individual needs and desires of their staff.

Transformational Leadership and Student Achievement

In the current study there was insufficient evidence of a direct influence of transformational leadership on student achievement in the areas of mathematics and reading. These findings suggest that principals should examine their interactions with both students and teachers in an attempt to find more opportunities to impact student achievement. This is consistent with the findings of Heck and Hallinger (1996, 2005), Finnigan and Stewart (2009), Jacobson et al. (2005), Mulford et al. (2008), and Murakami-Ramalho et al. (2010) that a principal's transformational leadership characteristics do not have a direct influence on student achievement. Nevertheless, previous research (Braughton & Riley, 1991; Finnigan & Stewart, 2009; Hallinger & Heck, 1996; Robinson et al., 2008) has determined that leadership, particularly transformational leadership, has an indirect influence on student achievement. When a leader builds trust with teachers and treats them as professionals, teachers excel in the campus environment and will have the opportunity to use their expertise to provide exceptional instruction to all students.

Conversely, Silva et al. (2011) determined that principals who engaged in discussions with students about their potential reading achievement met their established target goal on the state assessment. This suggests that principals who model the skills needed to be successful readers and who encourage the development of critical thinking strategies set a positive example for students, which can influence their level of reading achievement. Similar to mathematics achievement, as suggested by previous research (Braughton & Riley, 1991; Finnigan & Stewart, 2009; Hallinger & Heck, 1996; Robinson et al., 2008), when a leader demonstrates trust in a teacher's skills and encourages the development of creative instructional strategies, reading achievement can be influenced, albeit indirectly.

School Climate and Student Achievement

There was not a significant relationship between the school climate dimensions and mathematics and reading achievement, consistent with the research of Shouppe and Pate (2010). This suggests that a teacher's perceptions of the overall climate of the campus does not influence the level of student achievement in mathematics and reading. Conversely, Choi and Chang (2011) determined that school climate had a significant effect on mathematics achievement. One explanation for the difference in results could be that Choi and Chang surveyed students as part of their data collection and the current study did not. In addition, Webster and Fisher (2002) discovered that the achievement outcomes of students in mathematics classes were influenced by the teachers' instructional strategies, which was a reflection of the perceptions of school climate.

In their study, Webster and Fisher not only examined student beliefs and attitudes about mathematics, but researched the teaching methods used in the classrooms. The inclusion of those factors could explain the differences between their study and the current one.

In the campuses studied, there was clear evidence of positive school climate based on the answers provided by teachers on the SCI-R. When teachers are more satisfied with their careers and feel connected to other staff and their students, they often provide better instruction to their students. While students may not recognize this as a factor in their success, school personnel understand that their satisfaction with their abilities to teach reading impacts the achievement levels of their students.

Transformational Leadership Qualities of the Campus Principal

When examining the relationship between a principal's self-assessment of the five transformational leadership factors and the teacher's perceptions of those same qualities, there was a correlation between inspirational motivation and idealized behaviors. Leaders use inspirational motivation to develop commitment among staff to a mission or goal (Bass & Riggio, 2006). This is similar to the research of Goff et al. (2014) suggesting that a principal's self-assessment of his or her leadership characteristics matched their teachers' perceptions of the same characteristics.

In this study, there was a positive relationship between the idealized behaviors of a leader and the seven dimensions of school climate. Similar to the findings of Owens (2004) and Vos et al. (2012), the teachers' perceptions of the school climate were influenced by the behavior of principals. A leader who is a role model for staff and behaves in accordance with the values he or she promotes can easily build commitment to the campus and its goals, which can lead teachers to perceive the school climate as a positive one. Conversely, Bulach and Lunenberg (1995) established that there were no significant differences in school climate perceptions as a result of principal leadership behaviors. One possible explanation for this difference could be the different survey instruments that were used. The current study used an instrument that focused specifically on transformational leadership characteristics, while Bulach and Lunenberg used a survey that simply defined leadership style.

Transformational leaders motivate and inspire those around them by valuing the work of a teacher and challenging staff to achieve more (Bass & Riggio, 2006). In this study, a significant positive relationship was discovered between the inspirational motivation of a leader and the seven dimensions of school climate. This is consistent with previous research (Leithwood & Jantzi, 2005; Marks & Printy, 2003) in that principals who motivate and empower teachers can positively influence school climate. When a principal is excited about a particular initiative and displays optimism that campus goals can be accomplished, the teachers will share that enthusiasm and be more dedicated to the process. Principals who exhibit high levels of inspirational motivation also excite staff and encourage support for future plans, which has a positive influence on the teachers' perception of school climate.

The current study revealed a positive relationship between the intellectual stimulation characteristic of a leader and the school climate dimensions. This is consistent with the previous research completed by Leithwood (1993) and Moolenaar et al. (2010). Principals who encourage the development of teacher strengths can motivate teachers to try new instructional strategies. In addition, when teachers believe the principal will support new initiatives and will help them

work through problems, they are more willing to try something new. This level of support from the principal will positively influence a teacher's view of the school climate.

In this study there was also a positive relationship between the individualized consideration of the leader and the seven dimensions of school climate, similar to the previous research of Hauserman et al. (2013) and Leithwood and Jantzi (2005). Successful principals recognize that one of the most important components in student success is the teacher. Teachers felt more positive about their school environment when their principal values them as a partner in the school program, and not just as a staff member. In addition, leaders who demonstrate individualized consideration exhibit more confidence in the abilities of their staff members, which positively influences school climate. Principals who provide professional development opportunities and a supportive climate will particularly influence the school climate dimensions of environment and collaboration. In addition, administrators can impact school climate when they choose to build trusting, cooperative relationships with teachers, particularly when they recognize the individual needs and desires of their staff.

Implications

The findings of this study can be utilized by school administrators and teachers to improve school climate by addressing campus strengths and weaknesses. It is also important for any district to remember that while an individual school can develop a specific climate independently of the district as a whole, any changes in school culture or climate at the district level can affect school climate at the campus level (Tableman, 2004). While making positive changes in school climate can motivate staff and students to improve, long-term improvement will not be possible without the support of district-level staff. The district should also be concerned with providing professional development opportunities that can strengthen the transformational leadership characteristics of their campus leaders and build the efficacy of their teachers.

Given the importance of transformational leadership as a contributing factor to school climate, it would be reasonable to conclude that regular evaluation of a principal's leadership characteristics should be conducted. When feedback is then provided in a timely manner, campus leaders can ensure they are providing appropriate leadership to their staff and can make changes or improvements if needed. In addition, administrators who wish to improve students' work ethic and emphasis on academics should be fully aware of any school-level factors that could help or hinder student outcomes (Bevans et al., 2007). In addition, principals can work on developing their transformational leadership skills in an effort to positively impact school climate. Another area of focus for a district should be on the hiring process. District personnel should be conscious of the leadership style of potential candidates to guarantee that a principal is chosen who exhibits the transformational leadership characteristics that will impact school climate the most. The MLQ-5X could be administered to potential hires as a means of determining the transformational leadership characteristics that person will exhibit.

Given the connection between transformational leadership and student achievement is an indirect one, it would be helpful for school administrators to assess their evaluation procedures of teachers and the instructional strategies being used in the classroom. In addition, principals should encourage professional development in an effort to build a toolbox of teaching methods that are effective in engaging students and promoting the critical thinking skills needed for many of the standardized tests students are expected to take.

Brookover et al. (1982) wrote that one of the most important concepts related to school climate is that it can be changed. With increasing pressure and incentives to become more innovative and to create more effective learning environments, educational systems are constantly seeking new ideas and practices for the purpose of improving performance (Moolenaar et al., 2010). Therefore, the findings of the current study could be used by school administrators and teachers to improve school climate. Schools with effective learning climates have been found to meet high achievement levels regardless of the type of community served by the school (Brookover et al., 1982). This study did not find a significant relationship between transformational leadership and student achievement, nor did it find a significant relationship between school climate and student achievement at the elementary level. This suggests that school administrators and teachers need to examine other potential factors when addressing school achievement for the purpose of improvement.

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