THE CORRELATION BETWEEN LEADERSHIP, CULTURE, AND STUDENT ACHIEVEMENT

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Abstract: Educational institutions across the nation are being unsuccessful at meeting academic goals set by the states and preparing students to be college and career ready. Many schools around the globe are suffering from a shortage of experienced and competent school leaders that can bring about positive change and increase student achievement. Thus, the objective of this study was to determine the correlation between leadership practices, school culture, and student achievement in an effort to build the capacity of principal leaders. A correlational design was used to determine the relationship between principal leadership practices, culture, and achievement in elementary, middle, and high schools. A total of 216 teachers in 31 schools completed the Leadership Practices Inventory and School Culture Survey. A significant correlation was found between (a) leadership practices and school culture and (b) school culture and student achievement. No relationship was established between leadership practices and school culture. The results implied that school leaders who use transformational leadership practices indirectly impact student achievement through creating a positive school culture. It is recommended that principal preparation programs revamp leadership curriculum to develop leaders who can create positive school cultures and manage reform efforts.

INTRODUCTION

School leaders are confronted with a number of challenges on a daily basis. For instance, principals contend with staff issues, school improvement, structural changes, instructional matters, budgetary cuts, and parent concerns (Devos & Bouckenooghe, 2009; Johnson, 2008; Watkins & Moak, 2011). Furthermore, educational leaders are faced with improving the academic achievement of all students (Hildebrand, 2012; Hughes & Jones, 2010-2011). The accountability systems of the states and the nation require principals to lead organizations to high levels of academic achievement (Huff, Brockmeier, Leech, Martin, Pate, & Siegrist, 2011).

The No Child Left Behind (NCLB) Act was instituted to increase achievement for all students. However, educational institutions have been unsuccessful at meeting the academic goals set by the states (Dillon, 2010; Huff et al., 2011; Pepper, 2010). According to the National Assessment of Educational Progress, 62% of fourth and eighth grade students in American schools scored at the basic level on math assessments and 65% of fourth and eighth grade students scored at the basic level on reading assessments (Hanushek, Peterson, & Woessman, 2011; Peterson, Woessman, Hanushek, & Lastra-Anadon, 2011). Thus, it is vital that school organizations and leadership programs find approaches to raise achievement for all students.

One method to increase academic achievement is to improve school leadership. Leithwood, Harris, and Hopkins (2008) proposed that principals have a significant impact on student achievement. Successful leaders plan for systemic change and facilitate effective teaching and learning in the didactic organization (Hallinger, 2011; Maulding, Townsend, Leonard, Sparkman, Styron, & Styron, 2010). Transformational leaders create positive and healthy cultures, which motivates staff and improves teacher performance (Crum, Whitney, & Myran, 2009; Tajasom, 2011). Numerous researchers have indicated that effective principal leaders are fundamental to the success of educational institutions (Hallinger, 2011; Hallinger & Heck, 2010; Knab, 2009; Leithwood & Sun, 2012). However, there is a substantial shortage of qualified and competent educational leaders in schools throughout the nation (Maulding et al., 2010). In addition, principal preparation and certification programs are not preparing school leaders with the skills necessary to improve teaching and student learning (Huff et al., 2011). Thus, additional research is required to advance the leadership practices of principals.

Another approach to improve student achievement is through the creation of a positive school culture. The principal plays a crucial role in the development of a healthy culture (Lindahl, 2011). The culture of an organization impacts every aspect of the schooling process, especially student achievement (Kythreotis, Pashiardis, & Kyriakides, 2010; MacNeil, Prater, & Busch, 2009; Sahin, 2011). Researchers have indicated that school leadership and culture influence academic achievement (Hallinger & Heck, 2010; Kythreotis et al. 2010;

Leithwood & Sun, 2012; MacNeil et al., 2010; Sahin, 2011). However, the quantity of impact and the individual leadership and cultural practices required to increase student achievement is debatable (Gumuseli & Eryilmaz, 2011; Kythreotis et al., 2010). Thus, a deeper understanding of the relationship between leadership, culture, and student achievement is needed to assist principal certification programs in preparing school leaders to make positive change in the organization and improve student learning.

PURPOSE

The purpose of this investigation was to determine the relationship between leadership practices, school culture, and student achievement. Another objective of this study was to establish the leadership and cultural practices required to improve student achievement. The following questions guided the study:

RQ1. What is the relationship between leadership practices and school culture?
RQ2. What is the relationship between school culture and student achievement?
RQ3. What is the relationship between leadership practices and student achievement?

METHODOLOGY

Research Design

The study was quantitative in nature and was conducted with the use of an online survey. A correlational design was utilized to conduct the study. Regression techniques were appropriate for this investigation because the parametric test is functional at establishing correlations among variables (Yan, 2009). Multivariate multiple regression was employed to determine the association between the leadership practices and school culture variables. Multiple regression was utilized to establish the relationship among (a) leadership practices with student achievement and (b) school culture with student achievement.

Participants

An a priori power analysis was conducted to determine an appropriate sample size for the study. The sample size was calculated by assuming a power of 0.80, an effect size of 0.15, an alpha level of .05, and six predictors (Andersen, 2008; Coladarci et al., 2011; Yan, 2009). The required sample size was 98 subjects. The minimal sample size was met, since a total of 216 teachers participated in the study.

The participants were chosen with the use of a simple random sampling method. Various performing schools were chosen to participate in the study. A total of 310 participants from 31 elementary, middle, and high schools in Southwest Mississippi schools were selected to participate in the study. Two-hundred and sixteen participants successfully completed the online survey, which resulted in a 69.7% response rate. Approximately 79% of the teachers that participated in the study were Caucasian and 88% of the subjects were female.

Variables

The variables for this study included leadership practices, school culture, and student achievement. Transformational leadership was conceptualized in this study using the five leadership practices as identified by Kouzes and Posner (2007). The five leadership variables included modeling the way, inspiring a shared vision, challenging the process, enabling others to act, and encouraging the heart. School culture was conceptualized with the use of the six cultural factors as identified by Gruenert and Valentine (1998). The six cultural factors are collaborative leadership, teacher collaboration, professional development, collegial support, unity of purpose, and learning partnership. Leadership practices and school culture variables were independent variables and student achievement was the dependent variable. Student achievement data for the 2011-2012 school year was obtained from the Mississippi Department of Education website.

Instrumentation

The instrument used to measure leadership practices was the Leadership Practices Inventory (LPI) by Kouzes and Posner (2003). The LPI measures the following five transformational leadership practices: modeling the way, inspiring a shared vision, challenging the process, enabling others to act, and encouraging the heart. The LPI consists of a total of 30 questions and is based on a 10-point Likert-scale. A maximum score of 60 and a minimum score of 6 can be obtained for each leadership practice. High scores indicate that the leader employs the leadership practice regularly, while low scores signify that the principal rarely utilizes the leadership practice. The internal reliability of the instrument ranges from 0.85 to 0.92.

A definition for each of the leadership practices is provided below:

Modeling the way. Modeling the way is the extent to which the transformational leader sets the example for others to follow (Kouzes & Posner, 2007).

Inspiring a shared vision. Inspiring a shared vision is the degree to which the leader creates a shared vision with the stakeholders and nurtures a promise to fulfill the goals of the institution (Kouzes & Posner, 2007).

Challenging the process. Challenging the process is the extent to which the leader takes risks to make positive change to the organization (Kouzes & Posner, 2007).

Enabling others to act. Enabling others to act is the degree to which the principal empowers the staff to become leaders and includes the faculty in the decision-making process (Kouzes & Posner, 2007).

Encouraging the heart. Encouraging the heart is the extent to which the school leader encourages and recognizes the staff for achieving the goals of the organization (Kouzes & Posner, 2007).

The instrument used to measure the cultural factors was the School Culture Survey (SCS) by Gruenert and Valentine (1998). The SCS assesses the following six school culture factors: collaborative leadership, teacher collaboration, professional development, collegial support, unity of purpose, and learning partnership. The SCS consists of a total of 35 questions and is based on a 5-point Likert-scale. High scores signify that the principal utilizes the cultural practice frequently, while low scores indicate that the leader seldom employs the cultural practice. The internal reliability of the instrument is 0.96.

A definition for each of the school cultural variables is provided below:

Collaborative leadership. Collaborative leadership is the degree to which the principal develops mutual affiliations with the faculty (Gruenert & Valentine, 1998; Gumuseli & Eryilmaz, 2011).

Teacher collaboration. Teacher collaboration is the extent to which the teachers work together as a group to improve instructional practices and meet organizational goals (Gruenert & Valentine, 1998; Gumuseli & Eryilmaz, 2011).

Professional development. Professional development is the degree to which the educational staff engages in seminars and trainings to stay current with educational issues and improve instructional practices (Gruenert & Valentine, 1998; Gumuseli & Eryilmaz, 2011).

Collegial support. Collegial support is the extent to which teachers trust and work together to achieve the objectives of the school (Gruenert & Valentine, 1998; Gumuseli & Eryilmaz, 2011).

Unity of purpose. Unity of purpose is the degree to which stakeholders work towards the common mission of the school (Gruenert & Valentine, 1998; Gumuseli & Eryilmaz, 2011).

Learning partnership. Learning partnership is the extent to which the principal, teachers, and parents work together to improve the performance and achievement of the child (Gruenert & Valentine, 1998; Gumuseli & Eryilmaz, 2011).

Data Collection

First, permission from the superintendents, principals, and Northcentral University was obtained before collecting data. Second, a random sample of participants was attained with the use of a simple random sampling method. Third, the teachers were invited to participate in the study. Fourth, the online survey was sent to the participants through email. Data was collected for approximately one month.

Data Analysis and Assumptions

The data was analyzed with the use of inferential statistics. Multivariate multiple regression was employed to determine the relationship between leadership practices and school culture. This statistical test was appropriate for measuring the associations among multiple predictor and multiple dependent variables. Multiple regression was utilized to establish the correlation between leadership practices and student achievement and school culture and student achievement.

The assumption of normality, homoscedasticity, linearity, and multicollinearity were assessed before conducting the regression analyses. The assumption of normality, homoscedasticity, and linearity were evaluated through visual inspections of histograms and scatterplots. Each of the assumptions was met. The assumption of multicollinearity was assessed by calculating variance inflation factors (VIF) for each of the leadership practices and school culture variables. The VIF values were within the acceptable range, which indicated that the assumption of multicollinearity was satisfied.

RESULTS

The purpose of this study was to determine the relationship between leadership practices, school culture, and student achievement. The first question was concerned with determining the relationship between leadership practices and school culture. A multivariate multiple regression analysis was employed to answer Research Question 1. The results of the analysis between leadership practices and school culture are presented in Table 1.

Table 1:*Multivariate Test of the Contribution of Independent Variables to the Full Model*

Effect	Pillai's Trace[a]	*F*	*p*
Intercept	.586	41.17	<.001
Modeling the Way	.053	1.91	.081
Inspiring a Shared Vision	.066	2.41	.029
Challenging the Process	.077	2.84	.011
Enabling Others to Act	.122	4.74	<.001
Encouraging the Heart	.059	2.15	.050

Note. [a]Hypothesis df=6 and Error df=205. Collaborative Leadership: ($F(5, 210)=30.12$, $p<.001$, $R^2=.363$), Teacher Collaboration: ($F(5, 210)=15.10$, $p<.001$, $R^2=.223$), Professional Development: ($F(5, 210)=19.95$, $p<.001$, $R^2=.274$), Unity of Purpose: ($F(5, 210)=20.99$, $p<.001$, $R^2=.285$), Collegial Support: ($F(5, 210)=16.46$, $p<.001$, $R^2=.238$), Learning Partnership: ($F(5, 210)=9.50$, $p<.001$, $R^2=.153$).

Pillai's Trace was the multivariate statistic employed to establish the leadership practices that contributed to the regression model. Inspriring a shared vision, challenging the process, enabling others to act, and encouraging the heart were the four leadership practices that contributed to the model at the .05 significance level. The regression model with the four predictor variables accounted for 36% of the variation in collaborative leadership, 22% of the variance in teacher collaboration, 29% of the variation in unity of purpose, 27% of the variance in professional development, 24% of the variance in collegial support, and 15% of the variation in learning partnership. Furthermore, the regression analysis revealed that inspiring a shared vision and enabling others to act were significant predictors of school culture. Inspiring a shared vision was a significant predictor of collaborative leadership (p=.003), unity of purpose (p=.029), and professional development (p=.013). Enabling others to act was a significant predictor of teacher collaboration (p=.041). The findings indicated that a significant relationship existed between leadership practices and school culture.

The objective of Research Question 2 was to determine the correlation between school culture and student achievement. A multiple regression analysis was conducted to answer Research Question 2. Furthermore, multiple regression was employed to establish the relationship between the six cultural factors and student achievement. The results of the regression analysis are presented in Table 2. The analysis revealed a significant correlation between school culture and student achievement, ($F(6,209)=3.294$, $p=.004$, $R^2=.086$). The full model accounted for approximately 9% of the variation in student achievement. As can be seen in Table 2, learning partnership was the only significant predictor of student achievement ($\beta=.223$, $p=.027$). The results of the regression analysis signified that a statistically significant association existed between school culture, especially learning partnership, and student achievement.

The objective of Research Question 3 was to establish the association between leadership practices and student achievement. A multiple regression analysis was conducted to answer this research question and to determine the relationship between the five leadership practices and student achievement. The results of the regression analysis are presented in Table 3. The regression analysis indicated that no significant correlation existed between the leadership practices and student achievement, ($F(5,210)=2.176$, $p=.058$, $R^2=.049$). The full model revealed that the five leadership practices only accounted for 4.9% of the variation in student achievement. As can be seen in Table 3, no leadership practice was a significant predictor of student achievement. The findings of the multiple regression analysis signified that no relationship existed between leadership practices and student achievement.

Table 2:*Multiple Regression Analysis of School Culture and Student Achievement*

Variables	*B*	*SE*	β	*t*	*p*
Collaborative Leadership	.145	3.163	.006	.046	.963
Teacher Collaboration	-3.017	2.879	-.133	-1.048	.296
Professional Development	-.579	3.826	-.022	-.151	.880
Collegial Support	-1.218	2.710	-.051	-.449	.654
Unity of Purpose	6.202	3.626	.232	1.710	.089
Learning Partnership	4.683	2.099	.223	2.231	.027

Note. N=216. Full Model: F(6, 209) = 3.294, p=.004, R^2 = .086; *SE*=Standard Error.

Table 3:*Multiple Regression Analysis of Leadership Practices and Student Achievement*

Variables	*B*	*SE*	β	*t*	*p*
Modeling the Way	-4.547	2.395	-.430	-1.899	.059
Inspiring a Shared Vision	.957	2.296	.086	.417	.677
Challenging the Process	1.982	2.534	.185	.782	.435
Enabling Others to Act		1.804	1.816	.158	.993
.322					
Encouraging the Heart	1.933	1.848	.194	1.046	.297

Note. N=216. Full Model: F(5, 210) = 2.176, p=.058, R^2 = .049, *SE*=Standard Error

DISCUSSION

The relationship between leadership practices, school culture, and student achievement was investigated in this study. Kouzes and Posner's transformational leadership model and Gruenert and Valentine's cultural model was utilized to conceptualize the leadership practices and school culture variables. The findings are presented as follows: a) correlation of leadership practices and school culture, b) correlation of school culture and student achievement, and c) correlation of leadership practices and student achievement. The implications of the findings and recommendations for practice will also be presented in this section.

Correlation of Leadership Practices and School Culture

The results of this research indicated that a strong correlation existed between leadership practices and school culture in Southwest Mississippi. The findings of this study are supported by other researchers (Cemaloglu, 2011; Engels, Hotton, Devos, Bouckenooghe, & Aelterman, 2008; Kythreotis et al., 2010; Leithwood & Sun, 2012; MacNeil et al., 2009). This research and other studies have demonstrated that the principal leader plays a significant role in the development of a positive school culture (Hallinger, 2011, Sahin, 2011). A healthy and positive organizational culture improves the morale and motivation of the teaching staff in the school organization. Thus, it is imperative that school leaders improve the school culture in order to improve teacher performance and increase student achievement (Hallinger, 2011; MacNeil et al., 2009).

The findings of this study implied that school leaders who effectively utilize the Kouzes and Posner's leadership practices have a healthier and more positive school culture. However, it was established that inspiring a shared vision and enabling others to act were the only significant predictors of school culture. No literature was

discovered that examined the association among the five transformational leadership practices and the six cultural elements of school culture. The results of this study are similar to other studies conducted in the educational arena (Engels et al., 2008; Kythreotis et al., 2010; Sahin, 2011). One research team determined that creating a vision and building the competence of teachers were leadership practices that significantly impacted school culture (Leithwood & Sun, 2012).

Correlation of School Culture and Student Achievement

The findings of the study suggested that school culture significantly impacted student achievement. Learning partnership was the cultural factor that was a significant predictor of academic achievement in Southwest Mississippi Schools. The results of this research are supported by other correlational studies involving school culture and achievement (Demirtas, 2010; MacNeil et al., 2009; Ohlson, 2009). Gruenert (2005) discovered that learning partnership and unity of purpose were the cultural factors that correlated positively with academic achievement. Another researcher found that collaborative leadership and unity of purpose were significant determinants of student attainment (Demirtas, 2010). Based on the results of this study and the literature, it is recommended that school leaders improve their cultural practices, especially learning partnership, in order to increase academic achievement.

Correlation of Leadership Practices and Student Achievement

The results of this study indicated that no significant correlation existed among transformational leadership practices and student achievement. This research is supported by other educational scholars (Gieselmann, 2009; Siegrist et al., 2009). One research team found that the leadership practices of principal leaders had no impact on academic achievement (Siegrist et al., 2009). Another researcher established that principal leadership did not forecast academic achievement on state tests (Gieselmann, 2009).

It was concluded from this study that the leadership practices of school leaders, as identified by Kouzes and Posner, do not directly influence academic achievement. However, the findings suggested that principal leaders directly and positively impacted school culture. It is recommended that principals employ Kouzes and Posner's five transformational leadership practices in order to positively influence school culture. Furthermore, this study advocated that school leaders improve academic achievement indirectly through creating a positive school culture.

Conclusion

Multiple regression analysis was used in this study to ascertain the correlation among leadership practices, school culture, and student achievement. A significant relationship was established among the five leadership practices and six elements of school culture. Furthermore, a correlation was found to exist between school culture and student achievement. The results of this study revealed that no significant association existed between transformational leadership and academic achievement. The findings of this study implied that the impact of leadership practices is mediated through school culture. Therefore, it is imperative that school leaders work diligently to create a healthy school culture.

It is recommended that universities and principal preparation programs utilize the results of this study and other similar studies to improve their leadership programs. It is recommended that certification programs revamp their curriculum to better prepare principal candidates for the leadership role. Leadership preparation programs need to provide students with internships that are suitable to prospective principal candidates. In addition, school districts are advised to provide mentors to new and struggling principals in order to bring positive change to didactic institutions and increase student achievement.

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