Evaluation of a School Systems Plan to Utilize Teachers' Perceptions of Principal Leadership to Improve Student Achievement

Ed Williams[1]
Clark Atlanta University

Abstract

This study examines fourth grade student achievement in relation to teacher perceptions of principal leadership and other selected variables in a large urban school district in Georgia. Student achievement was measured by performance on the Georgia Criterion-Referenced Competency Tests (CRCT) during the 2004-05 and 2005-06 school years. The leadership instrument measures six competencies: (I) Instructional Leadership, (II) Interpersonal Skills, (III) Decision-making Skills, (IV) Facilities Planning Skills and Student Behavior Expectations, (V) Evaluation, and (VI) School Climate. The sample consisted of 3,900 teachers from 81 schools in the district. Demographic variables for each school included enrollment, free/reduced lunch eligibility, discipline incidents, retained students, absenteeism, teacher experience, administrator experience, principal gender, and principal tenure.

Pearson correlation analyses indicated the following significant relationships:

> (a) student achievement with discipline incidents, free/reduced lunch participants, and school climate; (b) school climate with principals' instructional leadership, interpersonal skills, decision-making, facilities planning and student behavior expectations, evaluation, discipline incidents, retained students, enrollment, and free/reduced lunch participants.

1 Please address all correspondence to Ed Williams: ewilliams@cau.edu

Regression analyses indicated that: (a) student achievement was inversely explained by discipline incidents, but none of the other variables and (b) discipline incidents were explained by enrollment, absenteeism, retained students, principal tenure, teacher experience, and free/reduced lunch status.

Introduction

One of the most pressing problems with urban schools in America is stimulating students to achieve academic excellence. The State of Georgia has a "no promotion policy" for third, fifth and eighth grade students who do not meet grade level performance expectations in reading. The population of fourth grade students in the study school district had the highest percentage of students failing to meet expectations. This presents an excellent opportunity to identify critical factors for developing an early intervention.

Henig, Hula, Orr, and Pedescleaux (1999) contend that urban inner-city schools are facing problems beyond their control; consequently, they are providing mediocre instruction. Schools and teachers are not responsible for the economic and family issues that are the source of many school problems. Because of the pervasiveness of poor performance in urban communities, citizens are demanding tangible improvements in student achievement and discipline. Greene and Foster (2003) observed that high-stakes test results are strongly influenced by a variety of forces that are beyond the school system's control. These include the student's family background, family income, and community environment. If policymakers want to determine the difference that schools and educators make in student progress, they need to look at year-to-year score gains, or "value-added" measures, as part of a high-stakes accountability system.

In 1983, the National Commission on Excellence in Education reported excessively low student achievement in many American schools. During the first wave of reform, state legislatures and state departments of education became more proactive. Initially they issued new directives regarding graduation requirements and testing of teachers and students. The No Child Left Behind Act (2001) again raised the issue of school performance and the need to examine the role of the principal. The second wave of reform focused on restructuring. School roles and functions were reorganized in relation to curriculum, instruction and resources to promote performance outcomes.

According to Sanders (1999), the single most important factor affecting the academic growth of any population of youngsters is the effectiveness of the individual classroom teacher. Sanders based teacher effectiveness ratings on relative year-to-year achievement gains by students. The only teacher related demographic variable in this study was the teacher's average years of experience. There was no significant relationship of this variable to student achievement.

School context variables such as class size, teacher effectiveness, curriculum quality, instructional time, pupil attentiveness, and enrichment opportunities influence student achievement. Teacher satisfaction, quality, and productivity are more likely to affect student achievement directly than principal leadership is. A lack of incentives to teach, low standards that contribute to disrespect for the profession, the absence of comprehensive improvement strategies, and bureaucratic rigidity can also impede student achievement. These forces are complicated further by student demographic variables such as family income, parents' education, family size, and parental involvement.

Principal leadership has an indirect effect on student achievement. Through their role as leader of the organization, their attitudes, expectations, policies, practices, and leadership style set the tone for school climate. Glassman (1994) found that the principal who treats the teachers in a professional manner enhances academic achievement. These behaviors include displaying trust, communicating confidence, and demonstrating respect to create a comfortable and caring environment. Maslow's (1943) hierarchy of needs supports the view that every teacher has a need for acceptance, recognition, and belonging as the fundamental basis for self-actualization. Therefore, the involvement of teachers in decision-making by the principal would enhance their self-efficacy and hence their evaluation of the school climate measure.

Effective principals have a vision and an organizational plan that teachers understand and support. An effective principal sets high expectations, motivates his/her team, and recognizes positive work. These are usually identified with creating a positive school climate. The leader's attitude towards his/her school and expectations for success outweigh the leader's training experiences and personal characteristics (Edmonds 1988). Hall (1987) found that the climate of the school was a function of several school related factors. The factors included leadership qualities of principals, teacher-colleague relations, parent-teacher relations, student-teacher interpersonal relations, student-teacher instruction related interaction, school buildings and facilities and student-peer relations.

Ubben and Hughes (2001) indicated that most effective schools have strong creative principals who work with their administrative teams. They cite the following behaviors: (a) setting the agenda and forming needed advisory groups and coalitions; (b) creating a positive image for the schools; (c) pursuing autonomy for themselves and the schools; (d) delegating authority at all levels; (e) bringing innovative projects, training opportunities and new resources to their schools; and (f) anticipating impending issues and adjusting planning and staffing to meet students' needs. This research evaluates the effectiveness of a school system's plan to utilize teachers' perceptions about principal leadership behavior to improve student performance, when controlling for the influence of selected variables.

Method

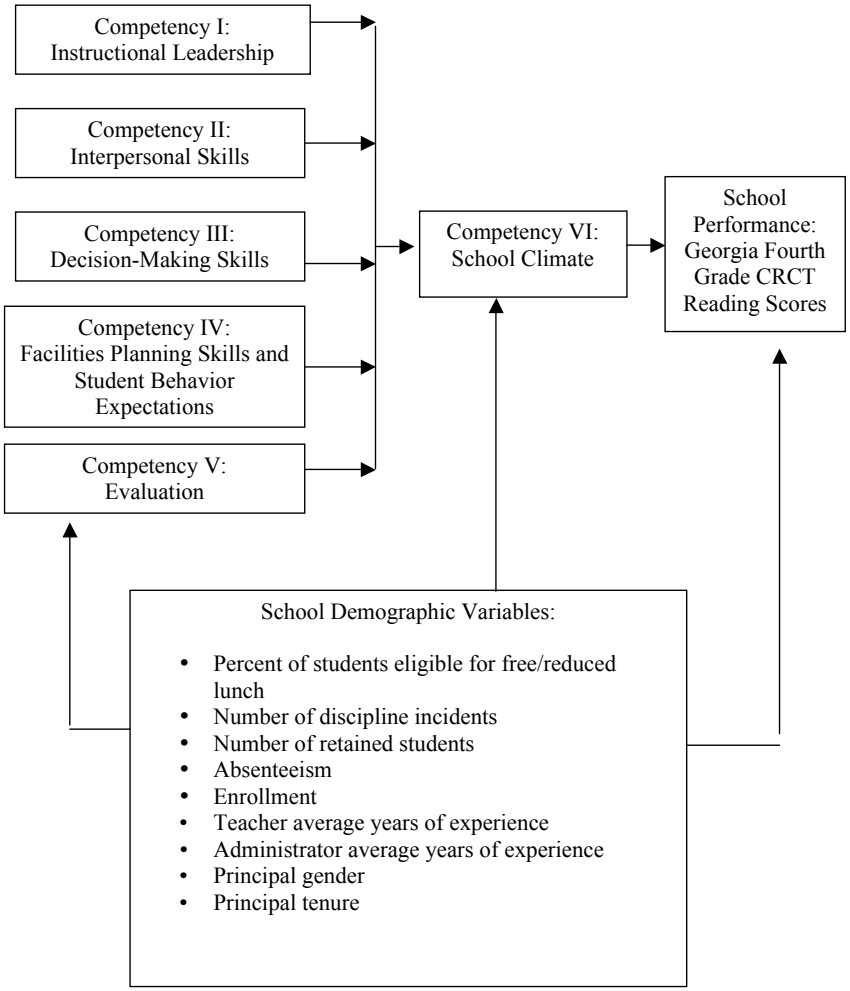
In this study, the ex post facto survey design, in which correlation analyses were conducted on a purposive sample, corresponds to Kerlinger's definition:

> *Ex post facto* research is systematic empirical inquiry in which the scientist does not have direct control of the independent variables because their manifestations have already occurred or because they are inherently not manipulable. Inferences about relationships among variables are made, without direct intervention, from concomitant variation of independent and dependent variables. (1986:520)

The purpose of the study was to describe and interpret existing conditions in a population of teachers that work with principals who utilize different leadership styles and in schools that perform at different academic levels. School demographic variables were used to control for potential bias in teachers' perceptions. The conceptual framework is outlined below in Figure 1. Unlike an experimental design in which a researcher manipulates and controls the independent variables and observes the dependent variables for variations related to the manipulation of the independent variables, this study was concerned only with observations of the relationship that exists between the independent and dependent variables in the natural school settings.

The sample population consisted of 98 percent of elementary schools in the district and 99 percent of teachers in those schools. Consequently, the sample is large enough to capture any diversity in the population and to be reflective of the factors used for analyses in this study.

Figure 1
Conceptual Framework



Population and Sample

There are approximately 84 elementary schools and centers in the school system. Only schools with pre-k through fifth grade were chosen. Centers and special education schools were omitted. The study school district had 82 elementary schools with a fourth grade. The fourth grade student enrollment was approximately 7,500. Schools in the sample reflect all SES backgrounds. Ninety-seven percent of the fourth graders sat for the CRCT reading examination in the 2005-2006 administration, and 99 percent sat for the 2004-2005 administration. Two elementary schools were omitted from the study because one of the schools did not have a fourth grade, and the other school did not assess their principal's leadership behavior.

Student achievement CRCT scores were collected from the data warehouse of the Georgia Governor's Office of Student Achievement Report Card on Schools.

Table 1
Distribution of Mean Fourth Grade Students' CRCT Reading Performance Levels in Percentages

	Mean	SD	Variance	SE
Student Achievement*	-10.56	9.42	88.74	1.04
CRCT Reading Did Not Meet Expectations 2005	16.94	10.05	101.05	1.12
CRCT Reading Meets Expectations 2005	42.86	11.71	137.21	1.30
CRCT Reading Exceeds Expectations 2005	40.21	18.90	357.19	2.10
CRCT Reading Did Not Meet Expectations 2006	27.52	13.06	170.55	1.45
CRCT Reading Meets Expectations 2006	51.77	9.35	87.43	1.04
CRCT Reading Exceeds Expectations 2006	20.74	15.95	254.39	1.77

*Student Achievement is defined as the difference between the 2004-2005 and 2005-2006 school year percentage of students who met and exceeded performance level expectations; N = 81

School level demographics reported below in Table 2 were also collected on enrollment, free/reduced lunch eligibility, discipline incidents, retained students, absenteeism, teacher and principal experience, principal gender,

and principal tenure.

Table 2
School Demographics: Mean for Each Selected Variable

	Min	Max	Mean	SD.	SE
Number of Discipline Incidents	0	549	126.65	133.91	14.97
Number of Retained Students	0	51	9.01	8.05	0.90
Number of Enrolled Students	333	1,404	684.71	255.95	28.62
% Students Five or Fewer Days Absent	42.2	75.1	55.64	6.06	0.67
% Students Six to 15 Days Absent	22.8	44.2	35.83	4.16	0.46
% Students More Than 15 Days Absent	2.1	16.6	8.51	3.12	0.34
% Students Eligible for Free/ Reduced Lunch	3.42	97.35	68.99	26.45	2.95
Administrator Average Years Experience	10	33	21.64	5.42	0.61
Teacher Average Years Experience	8.2	16.5	11.75	2.05	0.22

N = 80

Instrumentation

Principal's leadership data were collected using an instrument developed internally for the school district to measure six competencies. It is updated periodically by a representative group of educators from the school system to ensure face validity. Each competency was defined and items were selected to match the dimensions. Responses were arranged on a four-point ordinal scale: Always = 4; Often = 3; Occasionally = 2; Never = 1.

Table 3
Distribution of the Mean Scores on the Leadership Instrument Competencies

	Mean	SD	SE
Instructional Leadership	3.38	.61	.00
Interpersonal Skills	3.36	.71	.01
Making Decisions	3.29	.75	.01
Planning and Organization	3.39	.65	.01
Teacher Evaluation Program	3.56	.63	.01
School Climate	3.47	.56	.00

N = 3952; Competency Scale: (4) Almost Always; (3) Often; (2) Seldom, and (1) Never

Reliability and Validity

A group of 26 raters was used to assure that each item reflected the dimension in which it was placed. The reliability analysis for school climate indicated that each of the six competency components was valid and reliable in the 1998 administration of the instrument as shown in Table 4. As observed, no items obtained less than 0.93 Cronbach's Alpha reliability coefficients, indicating exceptional internal consistency. The reliability was calculated for all competencies in the 2005-2006 academic year. Items not reaching significant levels were omitted.

Table 4
Instrument Reliability Coefficients

	Cronbach's Alpha
Principal demonstrates skills in instructional leadership	.98
Principal demonstrates skills in relating to others	.96
Principal demonstrates skills in making decisions	.96
Principal demonstrates skills in planning and organization	.93
Principal demonstrates skills in implementing guidelines and evaluating programs	.96
School climate	.93

N = 6,100

Data Analysis and Scoring

Pearson product-moment correlation coefficients were used to determine the strength of relationships between variables. Factor analysis was conducted to identify patterns among variables. The variables were grouped according to their factor placement for the regression analyses in order to prevent collinear interaction effects. A stepwise multiple regression analysis was used to determine the influence of the leadership competencies and the school demographics on the dependent variable, student achievement.

A structural equation model (Maruyama, 1998) was used to examine the direct effect of principal leadership competencies and school context variables on student achievement. The structural equation model (SEM) was also used to examine the relationship of principal leadership competencies, school context with school climate and student discipline incidents. The SEM analyses relied on aggregated school and teacher demographics. In some analyses, the teachers' responses to the leadership profile were aggregated on the school level. To justify group-level analyses, the aggregated data should show Greater between-school differences than within-school differences. The significant F values indicate greater between-school differences than within-school differences, giving evidence of group level effects (Bliese, 2000).

Findings

Correlation Analyses

As reported in Table 5, Pearson correlation analyses indicated significant relationships of student achievement with only two demographic variables: discipline incidents (r = -.31) and free/reduced lunch (r = -.29). Table 6 illustrates student achievement with the leadership competencies including school climate. Only planning and organization were positively and significantly related to student achievement, but with weak correlation coefficients.

Table 7 reports the correlation analysis of school climate and other leadership competencies. School climate was significantly related at the .05 level to all other leadership competencies: principals' instructional leadership (r = .76), interpersonal skills (r = .74), decision-making (r = .72), facilities planning and setting student behavior expectations (r = .73), and evaluation implementation (r = .65). In the correlation analysis of school climate to the demographic variables, schools with more student discipline incidents, grade retentions, larger enrollments, and higher percentages of students eligible for free/reduced lunch had low school climate (inverse relationship). Schools with high teacher average years experience tended to be associated positively with high school climate (Table 8).

Table 5
Correlations of Student Achievement with Demographic Variables

	Student Achievement
Number of Discipline Incidents	-.31*
Number of Retained Students	.11
Number of Enrolled Students	.03
% Students Five or Fewer Days Absent	-.07
% Students Six to 15 Days Absent	.18
% Students More Than 15 Days Absent	-.09
% Students Eligible for Free/Reduced Lunch	-.29*
Administrator Average Years Experience	.00
Teachers Average Years Experience	-.06
Principal Gender	-.17
Principal Tenure	.06

*p < 0.05
N = 81 Schools

Table 6
Pearson Correlations of Leadership Competencies with Student Achievement

	Student Achievement
Instructional Leadership	.01
Interpersonal Skills	.02
Making Decisions	.01
Planning and Organization	.04*
Teacher Evaluation Program	-.01
School Climate	.05*

*p < 0.05
N = 3,890

Table 7
Pearson Correlations of Leadership Competencies with School Climate

	School Climate
Instructional Leadership	.76*
Interpersonal Skills	.74*
Making Decisions	.72*
Planning and Organization	.73*
Teacher Evaluation Program	.65*

*p < 0.05
N = 3920

Table 8
Pearson Correlations of School Climate (Dependent) with School Demographic Variables as Independent

	School Climate
Number of Discipline Incidents	-.26*
Number of Retained Students	-.28*
Number of Enrolled Students	-.26*
% Students Five or Fewer Days Absent	.12
% Students Six to 15 Days Absent	-.02
% Students More Than 15 Days Absent	-.20
% Students Eligible for Free/Reduced Lunch	-.39*
Administrator Average Years Experience	.09
Teachers Average Years Experience	.27*
Principal Gender	-.17
Principal Tenure	.06

*p < 0.05
N = 80

Factor Analysis

In a factor analysis of all variables, five factors were created. Student achievement and principal gender were placed in a factor independent of all other variables. All leadership competency variables were placed in factor 1, and the demographic variables were split among factors 2, 3, 4 and 5.

Regression Analyses

Table 9 reports the results of regression analysis for student achievement. Student discipline incidents significantly explained student achievement inversely, while all leadership competency variables and other demographic variables were eliminated from the equation.

Table 9
Student Achievement in Relation to the Selected Independent Variables

	SE	Beta	t	p
(Constant)	.70		-5.65	.00*
Discipline Incidents	.00	-.31	-2.87	.00*

Dependent Variable: Student Achievement
*$p < 0.05$; Adjusted $R^2 = 0.08$; F Ratio = 8.283
N = 81 Schools

As reported below in Table 10, student discipline was explained positively by enrollment, indicating that large schools are likely to experience more discipline problems. Discipline was explained inversely by five or fewer days absent, student achievement, and principal tenure, indicating an expected direction and relationship of discipline to attendance, achievement, and experience.

Table 10
Stepwise Regression Analysis: Discipline Incidents as Dependent with Six Leadership Competency Variables and All Demographic Variables as Independent

	SE	Beta	t	p
(Constant)	48.46		12.07	.00*
Number of Enrolled Students	0.01	.65	28.62	.00*
% Students Five or Fewer Days Absent	0.65	-.54	-16.88	.00*
Student Achievement	0.53	-.33	-19.30	.00*
Principal Tenure	5.36	-.23	-13.91	.00*
Number of Retained Students	0.45	.11	4.89	.00*
Principal Gender	5.71	-.11	-6.54	.00*
% Students More than 15 Days Absent	1.50	-.18	-5.27	.00*
Teachers Average Years Experience	1.27	.06	3.19	.00*
% Students Eligible for Free/Reduced Lunch	0.13	.06	2.79	.00*

Dependent Variable: Number of Discipline Incidents
*$p < 0.05$; $R^2 = .453$, $F(9, 2303) = 210.745$; (Principal Gender 1 = Male, 2 = Female; Principal Tenure 1 = Two Years or More, 2 = One Year or Less)
(N = 2303 Teachers in 81 Schools)

Discussion

Leadership behaviors of the principals as perceived by teachers are not aligned with student achievement. Although principal leadership behaviors are often observed and rated by their teachers, schools' reading scores are decreasing. School administrators should re-evaluate, plan, and measure leadership assessment in terms of its impact on student achievement.

The most significant finding in this study is that the number of discipline incidents had a stronger relationship with student achievement than with any of the other factors used in the study, including SES. According to Grobe and Bishop (2001), certain attributes are fundamental to promoting

student achievement. The researchers administered a survey and found that on the elementary level, students, teachers, and parents believed that a safe environment influenced achievement. On the high school level, achievement was higher where teachers, students, and parents believed that discipline was not a problem and where parents believed that they were given sufficient information about their children. The school leadership must support teachers' efforts to maintain discipline, and develop systematic approaches to effective classroom management. Marsden (2005) found that safe and orderly classroom environment and school facilities were significantly related to student achievement in elementary schools. As discipline becomes a classroom and school issue, leadership will have to devote the attention and resources to combat student discipline problems. The principal and teachers can learn effective discipline management techniques through professional development training, collaboration between teachers showing best practices in models of discipline, behavior and classroom management techniques.

Schools should include more indicators of student discipline and behavior as part of the school climate profile. Researchers suggest that a good school climate should have the following characteristics: openness to innovation, trust and caring among professionals, respect, cohesiveness, high morale, opportunities for professional development, and supportive leadership. The measure of school climate should also consider leadership qualities of the principals, teacher-colleague relations, parent-teacher relations, student-teacher interpersonal relations, student-teacher instruction-related interaction, school buildings and facilities, and student-peer relations. According to Grobe and Bishop (2001), certain attributes are fundamental to promoting student achievement. For teachers, the essential features are morale, the principal, and student behavior.

The initial belief was that variations in student achievement might be related to the organizational structure and functional relationships of the role players in relation to student performance. However, the findings in this study did not demonstrate such a relationship. There was no significant relationship between student achievement and principals' assignment of personnel within the school or with principal interpersonal skills.

The conceptual model of this study (Figure 2) focused on the principal's leadership behavior with teachers around the six competencies in the culture of a school and the relationships could be explained by reference to Getzel and Guba's (1957) social system model. The principal was expected to focus on interpersonal skills while conducting the various competencies to improve climate and thereby improving student achievement. The findings

showed no relationship between the principal's interpersonal relationships (Competency II), and student achievement. Performance on the CRCT is more related to the school and teacher demographic factors. The Gezel and Guba social organization model suggests that the principal should be high on both human relationships and task relationships in order for teachers to be productive in improving student achievement.

Contrary to earlier research (Hall 1987, Edmonds 1988, Glassman, 1994, Sanders, 1999), this study shows that teacher's perceptions of principal leadership behavior in terms of instructional leadership skills are not related to student achievement. This study demonstrates a strong relationship between teachers' perceptions of principals' instructional leadership skills and school climate, but a very weak relationship between school climate and student achievement. According to Findley and Findley (1992), an effective school is based on the instructional leadership of the principal. Ubben and Hughes (cited in Findley & Findley, 1992) claim, "Although the principal must address certain managerial tasks to ensure an efficient school the task of the principal must be to keep focused on activities which pave the way for high student achievement" (p. 102). Edmonds (1979) states that strong leadership in instruction and evaluation facilitates positive climate that supports student achievement among low socio-economic schools. Hallinger, Bickman, and Davis (1996) found no direct effects of principal instructional leadership on student achievement. Their results however do support the position that a principal can have an *indirect effect* on school effectiveness through actions that shape the school's learning climate. They also found that principal leadership itself is influenced by both personal and contextual variables (SES, parental involvement, and gender).

The findings in this study suggest that school and teacher demographics are more related to student achievement than principal leadership behavior as perceived by teachers. The socioeconomic status indicator for the schools used in this research is free/reduced lunch eligibility. On average, they had a student population with 69 percent eligible for free/reduced lunch. The number of discipline incidents in schools had a more significant influence on student achievement than the schools' SES. One of the most enduring studies, the Coleman Report (1966), supports the view that socioeconomic variables tend to predict student achievement. Kunjufu (1989) recognized that socioeconomic status might be an indicator of student achievement, but not the cause. Ford (1997) found that when minority and low SES parents instilled a positive achievement orientation in their children, they perform better.

Considering the findings in this study, more research is needed to identify

> (a) more significant factors related to principal leadership and (b) other factors that affect student achievement. These factors can vary from school to school and from region to region through out the country. Many researchers have produced results that show various factors that influence student achievement. The politics, economy, educational validity, and philosophy of a school must be considered when research is used to make organizational changes and establish new policy.

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