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A Canonical Analysis of Successful and Unsuccessful High Schools: Accommodating Multiple Sources of Achievement Data in School Leadership[1]

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What distinguishes successful schools from unsuccessful schools? This question has relevance for the practice of educational leadership as well as the preparation of leaders. The social justice goals inherent in state and federal educational policy require equity in the outputs of schools so that all children may be afforded equality of educational opportunity. Accountability in education requires significant changes in leadership of schools and school districts.[2] Schools must organize themselves to accommodate student learning, however one chooses to measure that concept.[3] This new purpose of education has implications for school policy and the organization of schools.[4]

The extant literature is replete with studies detailing barriers to student achievement. These barriers are often attributed to race, socioeconomic status, and learning style. Despite the fact that barriers to student achievement exist, we know that leadership matters and that schools can overcome those barriers and aid students in achieving standards.[5] Successful schools are led by principals who set the direction and influence student learning, and who change the instructional process by focusing deliberately on teaching and learning.[6] Research indicates that a significant barrier to student achievement is teacher behavior, which is grounded in a system of beliefs.[7] Belief systems can be altered as evidenced by the fact that schools, even those with significant numbers of students living in poverty, can effectively close achievement gaps. Effective principals create school cultures supportive of continuous improvement.[8] They assure that optimal learning opportunities are provided for everyone, but most particularly those who are not experiencing success.[9] The use of data to make instructional decisions is an important new part of the role of educational leaders. The proliferation of state and federal testing requirements has increased the amount of data available to educators with regard to student achievement. This study introduces a statistical method of analysis, canonical analysis, as a means by which educational leaders can examine multiple dependent measures of student achievement in order to prioritize school improvement initiatives.

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Current Context of Educational Leadership

Hodgkinson states that education connects with the range of human values and that educational leaders must understand the deep roots of purpose that underlie their schools.[10] That purpose, in an era of standards based reform, is to provide equality of educational opportunity for all students. Increasingly, educational leaders must be the stewards of a vision of success for all students as they work to achieve consensus on the purpose of education and to implement the necessary structures to change the process of teaching and learning in order to assist all children to reach mandated levels of proficiency.

With regard to the role of educational leaders, several themes have emerged in the literature. Due to the current context of education, previous models of school leadership are seen as outdated and in need of reform to meet the current demands of standards-based education reform. The role of the principal has evolved from manager to that of leader where leader is defined as change agent, facilitator, and consensus builder.[11] In order to successfully lead schools, principals must understand the goals of public education in the 21st century and act collaboratively to develop a shared vision of success. The path to effective school leadership requires reflection; this requires school leaders to examine their beliefs and values with regard to the purpose of education and the creation of culture and climate to support student learning.[12] Authentic leaders who are committed to their core values inspire followership and trust. This, in turn, enables the leader to articulate a shared vision and to create a learning organizations that focuses on continuous improvement.[13]

Previous leadership theory is thought to be insufficient to address the current demands of education as well as the principalship. The change in the notion of school leadership begins with a focus on culture.[14] Effective 21st century schools are characterized by a culture wherein there is a shared purpose; decisions are made collaboratively; responsibilities are distributed among teacher leaders; and capacity exists to create and sustain change through a process of data-driven decision making. Leaders of 21st century schools focus on the most important facet of the schooling process--instruction.[15] After facilitating shared purpose and changing school culture, educational leaders must establish new norms for behavior that establish learning communities wherein the expertise of all members of the faculty are maximized to support the school's mission.

Although the literature points to the conflict in the role of the principal as leader or manager, scholars also recognize the need for educational leaders to work as both a leader and a manager. Fullan notes, "I have never been fond of distinguishing between leadership and management; they overlap and [principals] need both qualities."[16] The Interstate School Leaders Licensure Consortium (ISLLC) represents efforts to capture the current complexity of the role of the principal and to provide a research-based structure for

principal professional development.[17] The ISLLC standards define six important performance dimensions of the principalship. Although these performance standards are not listed in any particular order, it is understood that to be effective in the role of the principal, one must demonstrate a level of proficiency in each standard including the standard on instructional leadership (Standard 2) and management (Standard 3).

Data-Driven Decision Making and Instructional Leadership

The conflict between principal roles of manager, decisions about *how* things should be done, and leadership, decisions about *what* should be done, necessitates that educators understand the process of decision making and its relationship to problem solving.[18] Elmore noted that the practice of educational leadership must be anchored in the instructional core of schools and that changes to systemic educational problems require systemic solutions.[19] Historically, educators have relied on intuition, routine, and experience to solve complex problems in the process of schooling.[20] What is needed is a reflective process that enables educators to understand what they are trying to do; to formulate, select, apply, and assess possible solutions; and thereby improve upon practice.[21] Simply stated, data-driven decision making involves the use of quantitative or qualitative information to inform practitioners when determining a course of action involving policy and procedures.[22] The use of data is at the heart of instructional leadership.

Black and William argue that in order for learning to occur, students must possess "recognition of the desired goal, evidence about present position, and some understanding of a way to close the gap between the two."[23] These three elements, when combined with some type of progress monitoring, form the heart of instructional leadership. Beghetto and Alonzo note that the aforementioned elements of instructional leadership are cyclical and that the process begins with clarifying learner outcomes.[24] The creation of clear targets is essential because it guides what is taught and assessed in schools.[25] A good curriculum helps teachers to establish and communicate clear targets of learning. Learner outcomes may take five forms: knowledge; reasoning; skill; product; and dispositions.[26] In order to establish a clear vision of learning, the curriculum must not only align with state and national standards but also be expressed in student-friendly terms.[27]

After clear learner outcomes have been established, schools must assess the present level of student performance. Stiggins, Arter, Chappuis, and Chappuis refer to this stage in the learning process as assessment for learning.[28] Due to high stakes assessments, principals and teachers tend to analyze data from end-of-the-year state administered tests, which is too late to change instructional practices for students needing remediation. Others argue that several tests are needed to measure what students have learned. For example, Popham states that "diverse types of classroom assessments to clarify the nature of any learning outcome you seek."[29] Further, Guskey argues that multiple assessments are needed to tap the full range and depth of learning, to respond to the reality of individual differences that exist among students, and to guard against potential errors in measurement.[30] Both Popham and Guskey indicate that classroom assessments supply teachers with needed information about student learning to modify instruction, especially when classroom assessments are used formatively.[31] Thus, teachers and principals have ample data to make instructional decisions; however, they may need to organize data for analysis and identify interventions based on the use of summative and formative assessments.

The analysis and interpretation of data provide links to interventions that may require the use of a grade-level team, content area team, or professional learning community to make the aforementioned connections a reality. Unfortunately, the analysis of student outcomes is not always used as intended, and instruction remains unchanged. Joyce, Calhoun, and Hopkins point to the need for teachers and principals to search the knowledge base for curricular changes and instructional strategies to enhance student learning.[32] This should be done before following assessments with high-quality corrective instruction.[33] Thus, data-based decision making is only useful when, based upon the analysis of student assessments, interventions are identified to improve student learning. In large part, the selection of proper instructional strategies is dictated by the requirements of the No Child Left Behind Act of 2001(NCLB) that educators make use of instructional programs that are grounded in "scientifically based research."[34] According to Met, "Research cannot and does not identify the right or best way to teach, nor does it suggest certain instructional practices should always or should never be used. But research can illuminate which instructional practices are most likely to achieve desired results, with which kinds of learners, and under what conditions."[35]

The final element in the process of instructional leadership is progress monitoring although one could argue that progress monitoring is an ongoing component of instruction and, as noted previously, it should not take place at the end of an initiative or program in order to be most effective. Progress monitoring is a form of evaluative decision making.[36] Those judgments may include: How to define and communicate goals; whether learners have the requisite skills; whether learners are making satisfactory progress; whether instructional supports and resources need to be adjusted; and how success might be sustained.

Conflicting Views on the Principal's Role in Curriculum Development and Instruction

Who gets to make decisions about curriculum and classroom delivery of content? The standards movement was supposed to remove that decision from schools and teachers. By mandating that all children be exposed to the same curriculum, reformers sought to eliminate bias on the part of teachers as to who would be exposed to different content. Of course, questions still remain about rigor even when similar content is made available to students. The decision regarding curriculum delivery at the classroom level is especially important with regard to numeracy and literacy, and the literature points to conflicting views of the need to change curriculum. When content-area-specific reformers propose changes in curriculum, critics rail against the wished for changes. For example, in the mid 1950s to the mid 1960s, the "new" mathematics reformers had their critics, and the tension between them became known as the "math wars."[37] Even today, the standards promoted by the National Council of Teachers of Mathematics (NCTM) have opponents among columnists and parents.[38] However, conflict tends to hinge on anecdotal support as opposed to empirical evidence.

To answer the question of whether a relationship exists between control of curriculum by teachers and student achievement, Wiseman and Brown conducted a study whose results "suggest that a direct and positive relationship between teacher curricular control

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and student achievement is both inappropriate and false,"[39] and that the pedagogy that teachers use "is one of the only truly independent actions of a teacher.[40] The findings of Leithwood, Louis, Anderson, and Wahlstrom that teachers in the classroom explain the largest amount of variance in student achievement scores lend support to the latter statement.[41] These findings lead one to conclude that the important use of teachers' energy is on formative assessments and modification of instructional strategies while principals' efforts should be on provision of an educational environment that is conducive to teaching and learning. This latter statement is supported by the findings from a study by Hofman, Hofman, and Guldemond that found "a positive educational climate, parents' educational involvement and effective school-based management are found to be prerequisites for an effective schooling process in countries all over the world."[42]

Theoretical Framework

Current educational policy requires both equity in outcomes and a fundamental change in the process by which schools educate children. Linn notes that standards-based education reform offered a challenge to the practices of education that had differentiated both content and instruction based on perceptions of student ability.[43] The standards movement required more intellectually demanding content and pedagogy for all students and challenged deeply rooted beliefs about who can do intellectually demanding work.[44] In order to inform the practice of school leadership, the extant literature includes multiple studies examining the relationship between inputs to school and outputs of schools. From a strategic standpoint, the researchers believed that educational leaders could use of this knowledge to realign resource allocation to maximize student achievement. These studies made use of education production functions and included independent variables such as teacher quality; expenditures per pupil; use of technology; the role of the principal; and school characteristics, such as school size and school culture. While these studies have made meaningful contributions to the research literature, they focused on inputs to schooling rather than outputs or the process of education.

The changing role of the educational leader coupled with the focus on improved instruction necessitates the use of data to inform decisions. Clearly, an examination of data regarding inputs to schooling has strategic implications as educational leaders attempt to realign resource allocations to achieve different results. However, an examination of output data is also helpful in the strategic planning process. Because of the multiple goals of schooling, e.g., academic achievement, rate of attendance in postsecondary education, entry in to the work force, data analysis must include multiple dependent, or outcome, measures. We postulate that an analysis of multiple dependent variables speaks directly to the focus of schools and how they prioritize goals. As educational leaders struggle to efficiently utilize inputs to education, it would seem that the appropriate place to start is to thoroughly examine all educational outputs.

Method and Results

This study used school level data from a total of 102 high schools in Kentucky. For the purpose of this study, schools that were classified as successful schools were high schools that met all NCLB outcome goals. In Kentucky, high schools must demonstrate proficiency in reading and mathematics as well as meet graduation targets in order to successfully fulfill NCLB requirements. Proficiency rates on the state-mandated criterion-referenced examinations in reading and mathematics were examined for the 2005 through 2007 school years. Schools which met all annual measureable objects for each of the three years were classified as successful schools (N=33). Schools failing to make all annual measureable objects for each of the three years were classified as unsuccessful schools (N=69). In effect, schools were classified based on established NCLB criteria. Title I was not a consideration when classifying schools.

Eight independent variables, or inputs, were included in the study. The first three are measures of student demographics while the remaining five are school level resources identified in the extant literature as significant predictors of student achievement:

1) Percentage of students receiving free and reduced price lunch;
2) Percentage of students receiving services for special education;
3) Percentage of students receiving services for limited English proficiency (LEP);
4) Average class size;
5) Teacher education level;
6) Average teacher salary;
7) Years of teaching experience;
8) Expenditure per pupil.

Eleven dependent variables, or outcomes, were included in the study:

1) Graduation rate;
2) Proficiency rate on the criterion-referenced reading test;
3) Proficiency rate on the criterion-referenced mathematics test;
4) Retention rate;
5) Dropout rate;
6) Percentage of students enrolling in a four year college;
7) Percentage of students entering the military;
8) Percentage of students entering the workforce;
9) Percentage of students enrolling in a vocational education program;
10) Percentage of students working part time and attending college part time;
11) Percentage of students who made an unsuccessful transition from high school.

Means and standard deviations for dependent and independent variables appear in Table 1.

To discern if differences existed in the independent variables between the two school groups, an independent sample t-test was performed. Significant differences were found to exist in all three measures of student demographics. However, no significant differences were found for two of the resource variables: class size or teacher quality. Similarly, an independent sample t-test was performed to discern if differences existed in group means in the dependent variables related to student achievement. Significant differences were found to exist in measures of student output for all dependent variables in this study, with two exceptions: percentage of students enrolling in a vocational education program and the percentage of students who fail to make a successful transition post-high school.

Having established that there was no significant difference between successful and unsuccessful schools in school level resources, we next turned our attention to answering the question: What is the difference in how outputs are prioritized in successful and

Table 1

Descriptive Statistics: Inputs and Outputs of Successful and Unsuccessful Schools

Inputs and Outputs of Schooling	Schools			
	Successful (N = 33)		Unsuccessful (N = 69)	
Inputs	Mean	Standard Deviation	Mean	Standard Deviation
LEP Students (%)	.37	.51	1.41	2.91
Students Receiving Free/Reduced Price Lunch (%)	36.42	18.94	48.51	17.18
Special Education Students (%)	11.52	2.73	17.96	11.48
Average Teacher Salary ($)	42,749.94	8,855.77	44,017.94	3,764.88
Average Class Size	15.94	3.53	15.87	1.99
Teachers with Master's Degree (%)	50.29	8.84	48.22	9.02
Years of Teaching Experience	11.78	2.05	10.98	2.08
Expenditure Per Pupil ($)	5,892.76	1,058.19	6,469.26	1.770.45
Outputs	Mean	Standard Deviation	Mean	Standard Deviation
Graduation Rate	91.71	6.36	81.78	8.72
Reading Proficiency	67.88	13.3	55.34	9.71
Math Proficiency	48.48	16.08	32.13	9.62
Students Retained (%)	3.46	2.09	7.52	4.12
Dropout Rate (%)	1.42	1.25	3.57	2.36
Students Attending 4 Year College (%)	60.90	17.40	49.74	16.39
Students in Military Service (%)	1.86	1.43	2.54	1.57
Students in Workforce (%)	24.62	14.13	30.36	11.55
Students in Vocational Education (%)	4.59	4.89	4.54	3.35
Students Attending College Part Time (%)	5.133	6.69	8.37	8.28
Students who Failed to Transition (%)	2.84	2.72	4.67	4.80

unsuccessful schools? To answer this question, a canonical analysis was performed on each group. Conceptually, canonical analysis and multiple regression are similar in terms of purpose and assumptions. The two methodologies differ in that canonical analysis enables the researcher to include multiple dependent measures. According to Thompson, a multivariate method of analysis can better simulate the reality from which the researcher is making generalizations.[45] Because researchers care about multiple outcomes, and because outcomes are the result of myriad factors, the chosen method of analysis must honor the researchers' view of reality; otherwise there will be a distortion of results.[46]

Canonical analysis is a multivariate method of analysis that subsumes other parametric techniques such as t-tests, analysis of variance, regression, and discriminant analysis.[47] In canonical analysis, two linear combinations are formed, one of the predictor variables and one of the criteria variables, by differentially weighting them so that the maximum possible relationship between them is obtained. These linear combinations are referred to as the canonical variates and the relationship between the canonical variates is called the canonical correlation, R_c^2. The square of the canonical correlation, R_c^2, is an estimate of the variance shared by the two canonical variates. It is not an estimate of the variance shared between the predictors and criteria but rather of the linear combination of these variables.[48] Canonical correlation finds the relationship between the linear combination of dependent and independent variables. After having obtained the maximum R_c in canonical analysis, additional R_c's are calculated, subject to the restriction that each succeeding pair of canonical variates of the *X*'s and the *Y*'s not be correlated with all the pairs of canonical variates that precede it. Like factor analysis and discriminant analysis, the first canonical correlation will probably not account for all of the variance in the data.[49] The first pair of linear combinations is the one that yields the highest R_c possible in a given data set. The second R_c is based on the linear combinations of predictor and criterion variables that are not correlated with the

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first pair and that yield the second largest R_c possible in the given data set. The same calculation follows for succeeding R_c's with the maximum number of R_c's extracted equal to the number of variables in the smaller set of dependent or independent variables. A test of significance exists for each canonical correlation and for the total amount of variance accounted for in the two sets of variables. In addition to more scientific tests of significance, the literature suggests that canonical correlations that explain less than 10% of the shared variance are not considered to be meaningful.[50]

Sheskin and Thompson state the complexity of calculation coupled with the difficulty of interpretation of results has limited the use of canonical analysis.[51,52] As such, a brief explanation of guidelines for interpretation is offered. First, the statistical significance of each canonical correlation is determined by a Wilk's test. Interpretation of these results is similar to that of a Pearson correlation as one is interested in significance, size, and total variance explained by each relationship. The researcher retains any canonical correlations that are found to be statistically significant and proceeds to interpret any statistics (canonical loadings, standardized canonical coefficients, and cross loadings) that are associated with the canonical variates. Finally, the examination may include an inspection of redundancy. Three types of analysis are possible using canonical analysis. These include an interpretation of the relative importance of independent variables, an interpretation of the relative importance of dependent variables, and an interpretation of the relationship of individual variables with the linear combination of variables in the opposite set.

Both the standardized canonical coefficients and the canonical loadings provide the necessary information to discern the relative importance of independent and dependent variables. Standardized canonical coefficients are weights assigned to each variable so that the maximum possible Pearson correlation can be found between the canonical variates. The use of the standardized canonical coefficients is valuable since the coefficients are partial coefficients with the effect of the other variables removed.[53] Standardized canonical coefficients are interpreted in much the same way that one interprets a standardized regression coefficient in multiple regression.

The correlation between the canonical variate and the variable is called the canonical loading. The cross loading is the correlation between individual variables and the linear combination of the opposite set of variables. During each of these examinations, the researcher is interested in the largest (absolute value) coefficients or correlations that are used.[54] The literature reveals that an interpretation of the results of canonical analysis is strengthened by an examination of canonical loadings and cross loadings for two reasons. First, it is assumed that there is greater stability in the correlation statistic when there are high or fairly high intercorrelations among the variables and the sample is of small or medium size. Second, the correlations provide a more clear indication of which variables are most closely aligned with the canonical variate. The researcher is interested in these correlations since the canonical variate is an unobserved trait.[55] As a rule of thumb, canonical loadings and cross loadings that are greater than .30 should be treated as meaningful.[56]

Analysis of Results

Results of the canonical analysis for successful schools and unsuccessful schools are found in Table 2 and Table 3 respectively. These results indicate one statistically significant relationship between the linear combination of inputs and outputs for each set of schools:

- Successful schools Rc=.950, Wilk's (88)=.003, p<.037
- Unsuccessful schools Rc=.795, Wilk's (88)=.080, p<.000)

The interpretation of the data results will be made on the output variates for this study. Using a cutoff correlation of .30 for interpretation, the output variables relevant to the canonical variate in the successful schools set were, in order of magnitude:

1. Mathematics proficiency (-.885)
2. Percentage of students entering the workforce (.861)
3. Percentage of students attending college (-.854)
4. Reading proficiency (-.721)
5. Graduation rate (-.707)
6. Failure to transition (.467)
7. Dropout rate (.421)
8. Retention rate (.373)

Similarly, the output variables relevant to the canonical variate in the unsuccessful schools set were, in order of magnitude:

1. Dropout rate (-.813),
2. Graduation rate (.725),
3. Percentage of students attending college (.700),
4. Mathematics proficiency (.683),
5. Percentage of students entering the workforce (-.639),
6. Reading proficiency (-.608),
7. Percentage of students entering the military (-.375),
8. Percentage of students working part time and attending post secondary education part time (-.326)
9. Failure to transition (-.309).

The results of the canonical analysis reveal that the most heavily weighted outcome in successful high schools was math proficiency. That outcome variable was followed by the output variables percentage of students entering the workforce; percentage of students enrolling in a four year college; and proficiency in reading. These results indicate that successful schools in this study placed emphasis on the academic content areas of mathematics and reading, and were committed to the retention of students so that they complete their high school education.

By contrast, the most heavily weighted output variable in the sample of unsuccessful high schools was the dropout rate. While the results of this analysis did not allow us to conclude that unsuccessful schools tried to fail, we can conclude from these results that unsuccessful schools were not aligning their resources in a manner that resulted in improved measures of student achievement. In addition, these schools need to focus on why students are not achieving as opposed to strategies to keep them from dropping out. This output variable was followed by graduation rate, percentage of students enrolling in a four year college and math proficiency rate. The two most heavily weighted output variables in unsuccessful schools were not measures of student achievement that demonstrated a focus on academic content, nor were they output variables that demonstrated a level of preparation for life following high school. In fact, these outcome variables simply measure high school completion rates and have nothing to do with academic or vocational skills. It is a hopeful finding that unsuccessful schools place emphasis on college going rates and math proficiency; however, we postulate that not all children in these schools are exposed to the requisite level of curriculum that will enable them to enroll in and complete a four year degree nor are there equal expectations for all students in these schools. These data are helpful for strategic planning purposes and illustrate changes needed.

Table 2
Canonical Analysis for Successful Schools

Inputs and Outputs of Schooling	First Canonical Variate		
Inputs	Loading	Coefficient	Cross Loading
LEP Students (%)	-.149	.046	-.142
Students Receiving Free/Reduced Price Lunch (%)	.964	.784	.915
Special Education Students (%)	.454	.137	.431
Average Teacher Salary ($)	-.550	-.413	-.523
Average Class Size	-.623	.169	-.591
Teachers with Master's Degree (%)	.120	.032	.114
Years of Teaching Experience	-.171	.089	-.163
Expenditure Per Pupil ($)	.338	.232	.321
Outputs	Loading	Coefficient	Cross Loading
Graduation Rate	-.707	-.482	-.671
Reading Proficiency	-.721	-.067	-.685
Math Proficiency	-.885	-.638	-.841
Students Retained (%)	.373	-.176	.354
Dropout Rate (%)	.421	-.231	.399
Students Attending 4 Year College (%)	-.854	15.437	-.811
Students in Military Service (%)	.103	1.279	.097
Students in Workforce (%)	.861	12.722	.818
Students in Vocational Education (%)	.015	4.456	.014
Students Attending College Part Time (%)	.186	6.332	.177
Students who Failed to Transition (%)	.467	2.269	.443

Canonical Correlation	.950
Wilk's	.003
Significance	.037
Percent of Variance (%)	90.2
Redundancy	.350

Implications for Practice

This study considered the research question how do successful schools differ from schools unsuccessful? If data-driven decision making is indeed a process by which practitioners utilize data to make informed, strategic decisions about the alignment of resources and the process of school improvement, the chosen method of data analysis must accommodate the multiple realties of schooling. Canonical analysis is a method of analysis that allows researchers to make use of multiple dependent variables. We contend that this method best allows researchers and practitioners to simulate the reality of schooling.

As noted, instructional leadership and data driven decision making requires not only a conversation of *what* must be done, but also *how* things must be done. The results from this study suggest that successful schools are schools where there is a strong focus on proficiency in math content as well as a focus on school completion and planning for the future. Successful schools prepare their students to transition to the workforce or to further their education. The *what* of leadership in successful schools is to ensure that all students are given access to a rigorous curriculum and to provide opportunities for mentoring and planning for post-high school transitions. Failure to

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Table 3
Results of Canonical Analysis for Unsuccessful Schools

Inputs and Outputs of Schooling	First Canonical Variate		
Inputs	Loading	Coefficient	Cross Loading
LEP Students (%)	-.291	.053	-.231
Students Receiving Free/Reduced Price Lunch (%)	-.852	-.542	-.677
Special Education Students (%)	-.345	-.096	-.275
Average Teacher Salary ($)	-.171	-.221	-.136
Average Class Size	.747	.351	.594
Teachers with Master's Degree (%)	.442	.278	.351
Years of Teaching Experience	.336	.274	.268
Expenditure Per Pupil ($)	-.611	-.009	-.485
Outputs	Loading	Coefficient	Cross Loading
Graduation Rate	.725	.155	.576
Reading Proficiency	.608	-.015	.483
Math Proficiency	.683	.281	.543
Students Retained (%)	-.293	-.028	-.233
Dropout Rate (%)	-.813	-.464	-.646
Students Attending 4 Year College (%)	.700	-.537	.557
Students in Military Service (%)	-.375	-.259	-.298
Students in Workforce (%)	-.639	-.621	-.508
Students in Vocational Education (%)	.128	-.123	.102
Students Attending College Part Time (%)	-.326	-.467	-.259
Students who Failed to Transition (%)	-.309	-.213	-.246

Canonical Correlation	.795
Wilk's	.080
Significance	.000
Percent of Variance (%)	63.2
Redundancy	.306

expose students to content at the appropriate level of rigor is often the result of bias. An appropriate role for principals is to take a leadership role in ensuring that state mandated curriculum is taught in each classroom without bias.

The how of leadership is seen in the culture of individual schools. Principals need to facilitate the work of teachers in the classroom. Although curriculum development is important, it appears that the delivery of curriculum is a crucial factor in student achievement. Thus, school leaders should place emphasis on developing a culture that is focused on teaching and learning. Recently, formative assessment systems and professional learning communities are receiving attention as parts of a positive school culture. Use of the aforementioned initiatives, formative assessment and professional learning communities, engages teachers in meaningful conversations centered on the process of teaching and learning and will aid in the improvement process.

Endnotes

[1] This article is based upon a paper originally presented at the Annual Convention of the University Council for Educational Administration, Orlando, Florida, November, 2008.

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