Teachers' Perceptions of High School Principal's Monitoring of Student Progress and the Relationship to Student Achievement*

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Abstract

Principals in school buildings are under immense pressure to improve outcomes for all students. Recent literature suggests this accountability may be at least partly warranted, as there is overwhelming evidence that building principals can positively impact student achievement through their behavior as effective instructional leaders. Much of the evidence for this emanates from the elementary school level. The problem is that little research exists at the high school level to examine the relationship between building principals monitoring student progress and student achievement. This study examined the relationship between teachers' perceptions of principal behavior in monitoring student progress and student achievement. The Principal Instructional Management Rating Scale was used to collect teacher perceptions of principal behaviors in the subscale of Monitor Student Progress. Proxies of student achievement consisted of each high school's Performance Index. Analysis of variance (ANOVA) was used to determine that a statistically significant relationship exists between teachers' perceptions of principals' monitoring student progress and student achievement. This research could guide the practices of several groups of stakeholders from the local level through the state level.

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Sumario en español
Nunca ha habido una falta de la crítica ni la preocupación sobre el estado del sistema de América de la educación pública. Según el Colegio norteamericano que Prueba (ACTO) informe Colegial de Prontitud de Programa, el 78 por ciento de egresados de colegio secundario no encontró los niveles de referencia de prontitud para uno ni para el curso colegial más básico en matemáticas, la ciencia, leer, y/o inglés (ACTO, 2008). Afortunadamente, los educadores saben hoy más acerca de lo que hace una escuela efectiva que algún tiempo anterior en la historia (Marzano, Waters, & McNulty, 2005). Los directores del colegio secundario pueden promover la prontitud colegial para sus estudiantes vigilando progreso de estudiante directamente y/o indirectamente (ACTO, 2008). Las intervenciones son clave a asegurar a estudiantes tendrán las habilidades que deben estar listos para el colegio y su carrera (ACTO, 2008). Para utilizar intervenciones para mejorar resultados para estudiantes con deficiencias académicas, debe haber un proceso en el lugar de identificar las intervenciones apropiadas (ACTO, 2008).

NOTE: Esta es una traducción por computadora de la página web original. Se suministra como información general y no debe considerarse completa ni exacta.

1 Introduction

There has never been a lack of criticism or concern over the state of America's system of public education. According to the American College Testing (ACT) Program's College Readiness report, 78 percent of high school graduates did not meet the readiness benchmark levels for one or more entry-level college course in mathematics, science, reading, and/or English (ACT, 2008). Fortunately, educators today know more about what makes a school effective than any previous time in history (Marzano, Waters, & McNulty, 2005). High school principals can promote college readiness for their students by monitoring student progress directly and/or indirectly (ACT, 2008). Interventions are key to ensuring students will have the skills they need to be ready for college and their career (ACT, 2008). In order to use interventions to improve outcomes for students with academic deficiencies, there must be a process in place to identify the appropriate interventions (ACT, 2008).

Research supports the notion that principal leadership is essential in the intervention process. Recent meta-analyses of the relationship between school leadership and student achievement suggest the impact of school leadership is second only to the effect of the classroom teacher (Marzano, Waters & McNulty, 2005). One common theme that emerges from these studies is the importance of using data to monitor student progress. This is especially apparent at the elementary school level as many of these studies examine elementary schools rather than high schools (Cotton, 2003; Hattie, 2009; Marzano, et al., 2005; Robinson, 2007). This article will add to the literature by examining the relationship between high school principals monitoring student progress and student achievement.

Principals across this nation and perhaps throughout the world are under immense pressure to improve outcomes for all students (Hallinger, 2003; Marzano et al., 2005; Robinson, 2007). Adequate Yearly Progress

[1] http://www.ncpeapublications.org/latest-issue-ijelp.html

(AYP) targets are set with the penultimate expectation that all students are rated as proficient on state report cards by 2013-2014. The feasibility of this expectation is of little consequence as schools must either meet the targets set forth by AYP or face a litany of sanctions levied by state departments of education. The recent opportunities afforded to the states for flexibility regarding No Child Left Behind (2001) requirements will do little to alleviate this pressure. For states to receive a waiver of flexibility, they must still have in place a system of accountability that features differentiated recognition, accountability, and support for the continuous improvement of student outcomes (U.S. Department of Education, 2011).

2 Rationale for the Study

Accountability may be warranted, at least in part, as there is overwhelming evidence that building principals can positively impact student achievement through the instructional leadership behaviors in which they engage. Simply put, school leadership matters (Cotton, 2003; Hattie, 2009; Marzano et al., 2005; Robinson, 2007). Several recent meta-analyses of research on instructional leadership identified the importance of principals using data to monitor student progress and the effectiveness of school practices. Cotton (2003) suggests that "successful principals not only monitor and report student progress data, but they also ensure that findings are used to improve the instructional program" (p. 39). Marzano et al. (2005) conducted a meta-analysis of 69 school leadership studies that took place between 1978 and 2001 that identified 21 responsibilities including "monitoring the effectiveness of school practices and their impact on student learning" (p. 43). A synthesis of over 800 research studies conducted by Hattie (2009) suggests a positive correlation between monitoring the effectiveness of school practices and their impact on student learning with student achievement. Finally, Robinson (2007) found that principals in higher performing schools put more emphasis on using data for program improvement and monitoring student progress. The research is clear that school leadership is important, and one key aspect of school leadership is the principal's use of data to monitor student progress and the effectiveness of the school's curricular, instructional, and assessment practices. However, little research exists that examines the relationship between the high school principal's monitoring student progress and student achievement.

3 Purpose

The purpose of this study is to examine the relationship between teacher perceptions of high school principals' use of data to monitor student progress and student achievement. The results of this study should guide the practice of several groups of stakeholders: (1) school principals, (2) district leaders, and (3) state and federal policy makers. School principals may be able to use this research as a resource to build their own capacity to use data in monitoring student progress. District leaders will be able to use this research to develop district policies and expectations for practice based on these results. Finally, state and federal policy makers can use this research to develop and implement policies that support building leaders in their quest to become better instructional leaders by improving their ability to use data in monitoring student progress.

While improving K-12 public education is a complex and multifaceted process, this study focuses on building capacity in one area that has shown promise in positively impacting academic outcomes for students—the effective use of data by the building principal to monitor student progress.

4 Research Question

Is there a relationship between teacher perceptions of high school principals' monitoring student progress and student achievement as measured by the *Performance Index* on Ohio's local report card data?

5 Theoretical Framework

5.1 Effective Schools Research

This historical perspective of instructional leadership research begins with the effective schools research from the 1970s and 1980s. This research was conducted as a response to Coleman et al., (1966) study the *Equality of Educational Opportunity Study*. Coleman's research suggested that the most powerful variable in student learning is the student's family and background, and there was little a school could do to overcome the negative effects of this variable. Edmonds (1979) in particular took exception to this stance that students from low socio-economic status (SES) families were incapable of learning at high levels, as did Brookover and Lezotte (1979). Much of this research focused on schools that were having success educating low SES and/or minority students, and sought to discover what attributes these schools had in common. Since the seminal effective schools research there have been numerous studies expanding our knowledge base about what makes a school effective.

5.2 Principal Effects on Student Achievement

Despite the progress made in identifying correlates of effective schools, such as high expectations for all students and more specific instructional leadership behaviors as monitoring student progress, the findings were still very broad and open to interpretation by the practitioner. In light of this, Hallinger and Murphy (1985) developed a framework that provided a research-based definition of the principal's role as an instructional leader. Their model divided the instructional leadership role into three parts: (1) defining the school mission, (2) managing the instructional program, and (3) promoting a positive learning climate. From this model, Hallinger (1983) developed the Principal Instructional Management Rating Scale (PIMRS), which has been used in over 100 studies of instructional leadership.

The next phase in the instructional leadership research was the attempt to link principal instructional leadership to student achievement. Andrews and Soder (1987) provide an example of this line of inquiry in their study of the relationship between principal leadership and student achievement. Specifically, they studied the following roles of the school principal and the associated effect on student achievement: (1) resource provider, (2) instructional resource, (3) communicator, and (4) visible presence. Their findings suggested that teacher perception of the principal as an instructional leader were critical to the reading and mathematics achievement of students, especially among low achievers (Andrews & Soder, 1987).

In discussing the research examining the link between principal leadership and student achievement, one important question to be answered is, "*How* do principals affect student achievement?" Hallinger and Heck (1998) provide a useful framework for categorizing studies based on how they attempt to demonstrate an answer for that question. They divided the studies into five models: direct-effects; direct, with antecedent effects; mediated-effects; mediated, with antecedent effects; and reciprocal-effects. The research conducted by Hallinger and Heck (1998) and the models contained therein are important because they capture the general trend of principal leadership research between 1980 and 1995. The most promising model for studying the principal-student achievement link during the period of 1980-1995 was the *mediated, with antecedent-effects model*. This suggests that principal effects on student achievement are indirect and mediated through others on whom they have an effect, such as teachers. This period of research was important in that it shifted the focus from behaviors of principals in effective schools to the effects these principal behaviors have on student achievement, and how to best measure these effects. This is important groundwork for later meta-analyses that more conclusively demonstrate the link between principal leadership and student achievement.

5.3 Syntheses and Meta-analyses Research

The current phase of research on principal leadership features a number of syntheses and meta-analyses that attempt to synthesize principal leadership practices that have been shown to have a positive impact on student outcomes. Some of these studies also attempt to quantify the effect of principal leadership on one or more student outcomes.

Syntheses. Cotton (2003) provided a narrative analysis of 81 principal leadership studies spanning the time period of 1970-2003, focusing mainly on the latter fifteen years of that period. Cotton focused on research that studied principal behaviors, particularly principal leadership, in relation to student achievement. Cotton's synthesis isolated 25 principal leadership behaviors and characteristics that research suggest positively impact student outcomes. Leithwood and colleagues (Leithwood, Louis, Anderson, & Wahlstrom, 2004; Leithwood, Harris, & Hopkins, 2008) provide two more reviews that help to compartmentalize and support Cotton's (2003) work. These reviews conclude that there are four broad categories of basic leadership practices that are present in high achieving schools: (a) building vision and setting direction, (b) understanding and developing people, (c) redesigning the organization, and (d) managing the teaching and learning program.

Meta-analyses. The study of education in general, and specifically principal leadership, presents challenges that must be overcome. Especially in education, research findings are only important if they impact the practice of those in the field or impact the policies that guide those in the field. The meta-analysis, a utilized research method, is doing just that. Marzano et al. (2005) conducted an influential meta-analysis on school leadership and its impact on student achievement that examined 69 studies completed or published between 1978 and 2001. The number of schools involved in this study was 2802 with an estimated 14,000 teachers and 1.4 million students. The authors were attempting to synthesize the previous 35 years of research on principal leadership and illustrate that school leadership is important to student achievement. This meta-analysis produced an average correlation between principal leadership behavior and student achievement of .25. The authors identified *21 Responsibilities of the School Leader* and provided average correlations for each *responsibility*. The list is similar to the list Cotton (2003) developed with her narrative review.

Another important review of the recent literature comes from Robinson (2007) who identified leadership dimensions that made the biggest difference in student outcomes and explained why they make that difference. Change to "Robinson examined 11 studies published in English speaking journals that empirically examined the links between leadership and student outcomes" This meta-analysis identified 198 behaviors which Robinson grouped into five *Leadership Dimensions*. The dimensions consist of related groups of principal leadership practices impacting student outcomes. The *Leadership Dimensions* that Robinson identified are:

1. establishing goals and expectations;
2. strategic resourcing;
3. planning, coordinating, and evaluating teaching and the curriculum;
4. promoting and participating in teacher learning and development; and
5. ensuring an orderly and supportive environment.

5.4 Principals Monitoring Student Progress

An examination of the school leadership research over the last 30 years reveals several consistent patterns. The frequent and careful monitoring of student progress is one of these patterns; this includes both the monitoring behaviors of the principal and the degree that the principal ensures that staff monitor student progress (Cotton, 2003). Hallinger and Murphy (1985), in creating their *Principal Instructional Management Rating Scale*,include five principal behaviors in the subscale *Monitor Student Progress*, which are listed below:

- Meet individually with teachers to discuss student progress;
- Discuss academic performance results with the faculty to identify curricular strengths and weakness;
- Use of tests and other performance measures to assess progress towards school goals;
- Inform teachers of the school's performance results in written form; and
- Inform students of the school's academic progress.

In a study by *The Education Trust* (2005), Robinson, Stempel & McCree compared practices of high impact and low impact high schools in five key areas: (1) school culture, (2) academic core, (3) support for all

students, (4) teachers, and (5) organizing instruction. All schools in the study had access to assessment data, but principals at high impact schools met with teachers to discuss student progress. A common theme of leadership taking a more direct role in coordinating the curriculum vertically is apparent in high performing schools, with principals leading the development of a progression of teaching objectives across grade levels (Robinson, 2007). Finally, Marzano et al. (2005) concluded from their meta-analysis that monitoring the effectiveness of the school's curricular, instructional, and assessment practices is part of the behaviors associated with effective school leadership.

Leithwood et al. (2004) found that the systematic use of student testing data for district planning was identified as a characteristic of academically effective school districts. Similarly, higher student achievement was found in schools where teachers conducted an in-depth analysis of assessment information to guide instruction (Robinson, 2007). Hallinger and Murphy (1985) found that an important aspect of instructional leadership included school leaders presenting written reports of school assessment results in a timely fashion.Hallinger and Murphy (1985) suggested that principals maintaining a student-centered focus were perceived by teachers and supervisors as the strongest instructional leaders. Hamilton et al. (2009) found that providing instruction to students on how to use their own achievement data to monitor their progress led to increased motivation for secondary school students.

5.5 Data Utilization

Effective data practices are interdependent among the classroom, school, and district levels. The Education Trust (2005) found significant differences in the ways high-impact and average-impact high schools use data. In the high-impact schools, data was used more formally and a greater effort was made to use data to improve curriculum and instruction. The literature suggests that the role of the school principal is central to building systems and capacity so that educators know what the data means and know what to do with it.

The importance of school principals utilizing data to monitor student progress and inform instruction is clear. External achievement data, mainly state mandated assessment scores, was the most commonly used data by principals (Marsh, Pane, & Hamilton, 2006; Deike, 2009). The most common reason principals are using data is to focus conversations around the improvement of instruction (Wayman, Cho, & Johnston, 2007; Wayman, Brewer, & Stringfield, 2009). Many principals lack adequate preparation in using data to drive instruction (Wayman et al., 2007). Finally, access to data has served as a barrier to effective data use (Wayman et al., 2007). Facilitators that support data use by school principals include both formal and informal structures. Some formal structures would include both new and already existing structures; staff professional development days for instance. It would also include the use of data centered on specific and measurable goals. Informal structures include using data in a non-threatening way and structures that encourage collaborative work (Wayman et al., 2009).

5.6 Population and Sampling

The population for this study consisted of teachers in 44 high schools located in Ohio's Region 12 during the 2010-2011 school year. Region 12 is a twelve-county region in southeastern Ohio that is one of 16 regions in Ohio's statewide system of support. There are 42 public school districts in Region 12, and 19 of those initially indicated they would allow their high schools to participate. However, one high school principal requested her school be excluded, bringing the total number of high schools to 18. One of the researchers was employed by the State Support Team in this region and the results were to inform school improvement work in Region 12.

The non-probability sample for this study consisted of 18 high schools within the region. The sample was vetted through three levels of self-selection. First, district superintendents had to agree to allow their high schools to participate by responding to a solicitation email. Second, high school principals also had to agree to participate and were asked to forward an email to teachers from the researcher requesting their participation in the study. Finally, teachers decided whether or not they would participate. The main limitation associated with this method of sampling is the possibility that schools agreeing to participate may not be representative of the population.

The sample of teachers from 18 high schools was divided into three groups of 6 according to their Performance Index scores from the 2010-11 state report card data. The schools were simply listed from the highest Performance Index to the lowest and divided evenly between Low, Medium and High Performance Index Groups (see Table 1). Analysis of Variance detected a statistically significant difference when comparing the three Performance Index categories ($F=24.937$; $df=2$; $p < 0.001$). Bonferroni and Scheffe post-hoc comparisons suggest significant differences between all three Performance Index categories.

Table 1
High Schools by Achievement Group

Low PI		Medium PI		High PI	
Coded HS	Performance Index	Coded HS	Performance Index	Coded HS	Performance Index
25	96.5	32	99.4	4	104
15	96.2	10	98.6	38	102.5
32	95.8	12	98.5	5	102
43	94.6	13	97.5	36	101.1
23	92.6	26	97.5	22	100.6
14	89.7	40	97.4	28	99.7
M (SD)	94.23 (2.6)	M (SD)	98.15 (.812)	M (SD)	101.6 (1.5)

The 18 schools that participated in the study employ an estimated 607 teachers and serve an estimated 10,670 students. Table 2 illustrates the response rate of the teachers by Performance Index group. It should be noted that 213 teachers from 18 high schools volunteered to participate in this study. This corresponds to a 35 % participation rate from the sample of high school teachers.

Table 2
Respondents by PI Category

Performance Index	Teachers	Students	Respondents
Low	205	3424	95 (46%)
Medium	214	3644	72 (34%)
High	188	3602	46 (25%)
Totals	607	10,670	213 (35%)

5.7 Instrumentation

Teachers' perceptions' of their principal's monitoring student progress was the dependent variable in this study. It was measured by high school teachers completing the *Monitor Student Progress Subscale* of

the *Principal Instructional Management Rating Scale* (PIMRS) Teacher Form 2. The proxy for student achievement, the independent variable, was the Performance Index for each high school listed on their Local Report Card (LRC) for the 2010-2011 school year. High schools were ranked according to this measure and placed into one of three groups denoting a low, medium or high level of student achievement.

The Principal Instructional Management Rating Scale (PIMRS) was developed in response to a lack of research focused on what principals do to manage curriculum and instruction in schools (Hallinger, 1983). The PIMRS consists of 50 behaviorally anchored items divided into 10 subscales of five items each. Since the focus of this study is to examine the relationship between high school principals' monitoring student progress and student achievement, the *Monitor Student Progress* (MSP) subscale will be the only one utilized in this study.

Ratings on the PIMRS do not demonstrate the success of a principal in a particular subscale but rather show active leadership in that area. Behaviorally anchored rating scales are statements of critical job-related behaviors that raters can use to assess an individual's performance within a given dimension of the job. Data generated by the PIMRS is used most effectively to underscore patterns of principal leadership (Hallinger, 1983).

Cronbach's alpha was used to measure reliability of the PIMRS and all subscales surpassed the .80 level. This would indicate that the PIMRS represents the instructional leadership of a school principal well (Krathwohl, 1998). In this study, the Cronbach's Alpha was .88 for the Monitoring Student Progress Subscale of the Principal Instructional Rating Scale.

The following questions make up the *Monitor Student Progress Subscale*. The stem to each question reads, "To what extent does your principal..."

1. Meet individually with teachers to discuss student progress.
2. Discuss academic performance results with the faculty to identify curricular strengths and weaknesses.
3. Use tests and other performance measures to assess progress toward school goals.
4. Inform teachers of the school's performance results in written form (e.g., in a memo or newsletter).
5. Inform students of school's academic progress.

Teachers were asked to respond to these items using a 5 point Likert-type scale with the following descriptors: *almost never, seldom, sometimes, frequently,* and *almost always.* The score from each teacher was placed within the appropriate Performance Index group. Placement was according to their school's academic achievement: low, medium, or high. In the original PIMRS administration, validity was tested by conducting an Analysis of Variance (ANOVA) within-school groups and between-school groups. In order for an instrument to be valid, there must be more variance between schools than within schools. The F value of the MSP subscale was 2.66, which indicated that the between-school variance was greater than the within-school variance with statistical significance at the .05 level (Hallinger, 1983).

5.8 Performance Index

Student performance in all subject areas of the *Ohio Achievement Assessment* (OAA) and *Ohio Graduation Test* (OGT) is given one of five ratings depending on the scaled score of the student: limited, basic, proficient, accelerated, or advanced. The Performance Index (PI) is a calculation that measures OGT test performance based on the numbers of students at each performance level. The Performance Index was an important measure in this study for two reasons: (1) it included all five subject areas of the OGT rather than only reading or math, and (2) it indicated school effectiveness by reflecting a school's percentage of students at the higher levels.

5.9 Data Collection

In the beginning of August, a letter of solicitation was sent to each superintendent in Region 12 requesting that his or her district participate in the study. This letter and all subsequent communication were in compliance with the requirements of West Virginia University's Internal Review Board (IRB). A follow-up

reminder was sent to Superintendents who had not responded by mid August. Superintendents that agree to participate received a formal letter of consent to be signed and returned. The individual high school principals of the participating districts were contacted by email with the *Principal's Letter of Participation*. This letter contained much of the same information as the superintendent's first letter providing the details of the study. Two additional reminder emails were sent to the high school principals throughout September.

Teachers were contacted by the researcher with an email forwarded through their building principal and provided a *Letter of Informed Consent*. Participating teachers accessed the PIMRS via a URL provided by an email forwarded to staff through the building principal. There were three identical forms of the PIMRS denoted as Forms A, B and C. Teachers from low achieving schools completed Form A, teachers from medium achieving schools completed Form B and teachers from high achieving schools completed Form C. There was absolutely no way to identify teacher responses with specific high schools. Teacher responses were identifiable only to the student achievement group of which their high school is a member (high, medium or low). This alleviated teacher concerns about completing a survey forwarded from their supervisor.

The URL link to the Survey Monkey page containing the PIMRS Monitoring Student Progress subscale contained a brief section requesting certain demographic information from the teacher completing it. The demographic section asked for the following information:

1. Years, at the end of this school year, that the respondent has worked with the current principal; and
2. Years of experience as a teacher at the end of this school year.

5.10 Data Analyses

Completed surveys were accessed via *SurveyMonkey*.

The research question examined the relationship between teacher's perceptions of high school principal's instructional leadership behaviors in the domain of Monitoring Student Progress and student achievement. An ANOVA was used to examine this relationship by measuring the variance within and between three groups of schools. The groups were determined by rating each school according to the Performance Index from the 2010-2011 school year. As the rating scale data were collected from the teachers, results were entered into the appropriate group according to where the school ranked on each measure. The variance was then examined within each group and between each group.

Teachers were asked to respond to five questions rating the degree to which their building principal engaged in certain behaviors. The research question asks, "Is there a relationship between teacher perceptions of high school principals monitoring student progress and student achievement as measured by the Performance Index score on Ohio's local report card data?" In order to answer the research question, descriptive statistics such as means (M) and standard deviations (SD) for teacher responses were calculated for each of the 5 items of the *Monitoring Student Progress* (MSP) subscale of the *Principal Instructional Management Rating Scale* (PIMRS).

6 Findings and Discussion

This section of the study provides a summary of the results. Teachers were asked to respond to five questions rating the degree to which their building principal engaged in certain behaviors. The research question asks, "Is there a relationship between teacher perceptions of high school principals monitoring student progress and student achievement as measured by the Performance Index score on Ohio's local report card data?" In order to answer the research question, descriptive statistics such as means (M) and standard deviations (SD) for teacher responses were calculated for each of the 5 items of the *Monitoring Student Progress* (MSP) subscale of the *Principal Instructional Management Rating Scale* (PIMRS). These statistics are reported in Table 3.

Table 3
PIMRS Teacher Response Means

Low PI	Q1	Q2	Q3	Q4	Q5
Group *M*	3.08	3.61	3.86	3.84	3.31
Group *SD*	1.11	0.92	0.87	1.04	1.18
Medium PI					
Group *M*	3.28	4.04	4.34	4.35	3.84
Group *SD*	1.26	0.95	0.86	0.96	1.15
High PI					
Group *M*	3.09	3.81	4.33	4.26	3.95
Group *SD*	.87	1.03	0.92	1.11	0.82

6.1 Meet Individually with Teachers to Discuss Student Progress

Item 1 of the survey asked teachers, "To what extent does your principal meet individually with teachers to discuss student progress?" Table 4 shows that Analysis of Variance detected no statistically significant difference when comparing mean responses to this item across the three Performance Index categories (F=0.694; df=2, p=0.501).

Table 4
ANOVA Item 1 from PIMRS

	Sum of Squares	Df	Mean Square	F	Sig
Between Groups	1.731	2	.866	.694	.501
Within Groups	245.769	197	1.248		
Total	247.500	199			

In comparison to the other items, teachers perceived their principals to engage in this behavior less than the four other behaviors contained in the survey. Teachers in each of the Performance Index groups rated their principals lowest on this item. In a study by The Education Trust (2005), researchers compared practices of high impact and low impact high schools. All schools in the study had access to assessment data, but principals at high impact schools met with teachers to discuss student progress. One principal at a high impact school met individually with each teacher and had them write a plan on how to improve on weaknesses revealed in the data. Conversely, one average impact principal in the same study stated that she made copies of the data and placed them in faculty mailboxes with the expectations that they would discuss the data in their next departmental meeting.

In light of the existing research, this finding was surprising. This research would suggest that principals are more likely to meet with groups of teachers than they are to meet with teachers individually. Meeting

with the teachers individually would allow the principal to develop a dialogue with the teachers about their results and what next steps might seem logical.

6.2 Discuss Academic Performance Results with Faculty to Identify Curricular Strengths

The second item of the survey asked teachers, "To what extent does your principal discuss academic performance results with faculty to identify curricular strengths?" Analysis of Variance detected a statistically significant difference when comparing responses to this item across the three Performance Index categories ($F=3.911$; $df=2$; $p < 0.023$). Bonferroni and Scheffe post-hoc comparisons indicate the significance to be based on the difference between the Low performing group and the Medium performing group.

Table 5
ANOVA Item 2 PIMRS

	Sum of Squares	Df	Mean Square	F	Sig
Between Groups	7.114	2	3.557	3.911	.022
Within Groups	178.243	196	.909		
Total	185.357	198			

Once again, the medium PI teachers perceived their principals to be more active in this behavior than the high PI teachers, although the difference was not statistically significant. The difference between the low and medium PI groups is supported in the principal leadership literature. Fullan (2008) cites the importance of the principal leading discussions with school staff about the progress of the school toward the school's goals. Marzano, Waters & McNulty (2005) concluded from their meta-analysis that monitoring the effectiveness of the school's curricular, instructional and assessment practices are part of the behaviors associated with effective school leadership.

This item follows the pattern of the medium Performance Index teachers rating their principal more active in monitoring student progress than the high PI group. Once again, it is interesting to note that the medium PI teachers perceived their principals to engage in this behavior "frequently" while they rated principal activity in the first item close to "sometimes". This is an example of the likelihood that principals are meeting more with teachers in a group rather than individually.

6.3 Use Tests and Other Performance Measures to Assess Progress Toward School Goals

Item 3 of the survey asked teachers, "To what extent does your principal use tests and other performance measures to assess progress toward school goals?" Analysis of Variance detected a statistically significant difference when comparing responses to this item across the three Performance Index categories ($F=7.030$; $df=2$; $p<0.002$). Bonferroni and Scheffe post-hoc comparisons showed the significance to be based on the differences between the Low performing group and the Medium and High performing groups. No significant difference was detected between the Medium and High performing groups.

Table 6
ANOVA Item 3 PIMRS

	Sum of Squares	Df	Mean Square	F	Sig
Between Groups	10.833	2	5.417	7.030	.001
Within Groups	151.026	196	.771		
Total	161.859	198			

Leithwood et al. (2004) found that the systematic use of student testing data for district planning was identified as a characteristic of academically effective school districts. Using tests and other performance measures is not only important in evaluating pupil, class and school levels of performance and progress (Southworth, 2002) but should also be used to identify and celebrate successes (Cotton, 2003).

This aspect of principals monitoring student progress fits in well with what building leaders are expected to do in the Ohio Improvement Process (OIP). The OIP is the planning framework that districts in school improvement status must utilize as part of Ohio's Differentiated Accountability Model. The medium and high PI groups had virtually identical ratings on this item with teachers from both categories perceiving that their principals were engaging in this type of behavior "frequently". This is encouraging data for those interested in what impact the Ohio Improvement Process is having on principal leadership.

6.4 Inform Teachers of the School's Performance Results in Written Form

The fourth item of the survey asked teachers, "To what extent does your principal inform teachers of the school's performance results in written form?" Analysis of Variance detected a statistically significant difference when comparing responses to this item across the three Performance Index categories ($F=5.335$; $df=2$; $p < 0.007$). Bonferroni and Scheffe post-hoc comparisons indicated the significance to be based on the difference between the Low performing group and the Medium performing group.

Table 7
ANOVA Item 4 PIMRS

	Sum of Squares	Df	Mean Square	F	Sig
Between Groups	11.296	2	5.648	5.335	.006
Within Groups	207.488	196	1.059		
Total	218.784	198			

Principal-led, school wide examination of data has been found to be associated with a significant influence on student achievement (Robinson, 2007). *The Education Trust* (2005) also found that high impact administrators communicated test score information more formally than average impact administrators. Hallinger & Murphy (1985) found that an important aspect of instructional leadership included school leaders presenting written reports of school assessment results in a timely fashion.

The researcher found significant difference between the low and medium PI groups on this item interesting. It points out the trend that the principals from the low Performance Index schools weren't really doing much in the way of monitoring student progress. Informing teachers in writing of the school's performance results is not a difficult, time intensive or particularly invasive thing to do. In other words, if you are not doing this as a building principal, what are you doing?

6.5 Inform Students of the School's Academic Progress

Item 5 of the survey asked teachers, "To what extent does your principal inform students of the school's academic progress?" Analysis of Variance detected a statistically significant difference when comparing responses to this item across the three Performance Index categories ($F=7.030$; $df=2$; $p<0.002$). Bonferroni and Scheffe post-hoc comparisons showed the significance to be based on the differences between the Low performing group and the Medium and High performing groups. No significant difference was detected between the Medium and High performing groups.

Table 8
ANOVA Item 5 PIMRS

	Sum of Squares	Df	Mean Square	F	Sig
Between Groups	16.338	2	8.169	6.700	.002
Within Groups	237.748	195	1.219		
Total	254.086	197			

This finding is not surprising as previous research has suggested that principals who maintain a student-centered focus are perceived by teachers and supervisors as the strongest instructional leaders (Hallinger & Murphy, 1985). Also lending support in the literature is Hamilton et al. (2009). This work suggested that teaching secondary school students to use their own achievement data to monitor their progress can lead to increased student motivation.

This item represents an opportunity for future research. The trend for this item reflected the tendency for frequency of principal behavior on this item to increase as student achievement increased. As the only item, where the high Performance Index teachers rated their principals higher than the high PI teachers and with significant differences between the low group and both the medium and high PI groups, this item might be fertile ground for future investigation.

In summary, Analysis of Variance detected a statistically significant difference in four of the five items when comparing responses across the three Performance Index categories. See Table 9 for a list of the items, whether they are significant at the .05 level and the corresponding p value.

Table 9
Significant Differences Comparison

PIMRS Item To what extent does your principal...	Significant Difference?	p Value
Meet individually with teachers to discuss student progress?	No	.501
Discuss academic performance results with faculty to identify curricular strengths and weaknesses?	Yes	.022
Use tests and other performance measures to assess progress toward school goals?	Yes	.001
Inform teachers of the school's performance results in written form.	Yes	.006
Inform students of the school's academic progress	Yes	.002

7 Conclusion and Reflection

This study examined the relationship between teachers' perceptions of principals' monitoring student progress and student achievement. Several patterns emerged from the data that should be of great interest to those interested in improving student outcomes by increasing the effectiveness of principal leadership. First, all three groups rated their principals lowest in the area of meeting individually with teachers to discuss student progress. While the results of this study did not indicate that this behavior was associated with higher student achievement, it is a practice that is supported in the literature and makes intuitive sense to practitioners. This practice would take more time than meeting with all of staff in one setting, which might explain why this item was rated so low across the three groups.

Another pattern was teachers in the medium PI group perceived their principals to be engaging in four of the five behaviors more frequently than the high PI principals with "informing students of the school's academic progress" as the lone exception. The reader must take into consideration that there were no significant differences between the medium and high Performance Index groups, so statistically speaking they were the same.

At the local level, principals, superintendents, and school boards must engage teachers and other stakeholders in intense dialogue in order to gain understanding. Only when leaders have the proper understanding can they ask the questions that lead to the best possible solutions. The same can be said of leaders and policy makers at the state and national levels.

The willingness to conduct autopsies without blame will be crucial to any school or district attempting to create a culture where the current reality can be faced with brutal honesty. Perhaps the teachers participating in this study from the medium Performance Index group felt more defensive about their current reality than the teachers from the high Performance Index group, and that influenced the ratings of their building principals. In other words, the high PI group knew they were getting good results so they were more willing to rate their principal more rigorously than the medium PI group.

The main implication of this study is that the results suggest a relationship does exist between teachers' perceptions of principals' monitoring student progress and student achievement. In four of the five items, there was a statistically significant difference in teachers' perception of principals' monitoring student progress behavior between the low Performance Index group and the medium Performance Index group. The low PI group differed significantly from the high PI group in two of the five survey items. These results can provide a guide to school districts and building leaders who are struggling with improving student achievement. At least four of the five principal behaviors on this list might be a good start for a principal in charge of a low performing school. The good news about this research is behaviors found to be important can be adopted by any principal and would cost close to nothing to put into place. A principal could immediately use tests and other performance measures to assess progress toward school goals.

The federal Race to the Top Grant requires participating districts to have *Instructional Information Systems* that will provide data to monitor the progress of all students. In the state of Ohio, evaluation systems are addressing the degree to which the principal creates systems where data is used to improve instruction. The results of this study provide direction for principals struggling to effectively use data to monitor the progress of all students and to make instructional decisions based on the results of that data.

One recommendation for future research is to revise or replicate the PIMRS (Hallinger, 1983) and to replace the five descriptors (*almost never, seldom, sometimes, frequently,* and *almost always*) with quantifiable anchors with values determined by the participants such as daily, weekly, or monthly. This would allow researchers to see if there is a difference in the way people perceive these descriptors. These data would provide insight into what these descriptors mean to each Performance Index level.

Another future question might be around the increasingly distributed nature of school leadership. In other words, is someone other than the principal doing these instructional leadership behaviors? This line of questioning would be appropriate in Ohio as the Ohio Improvement Process is a planning framework designed with the intention to help districts increase their capacity in distributed leadership.

This research and the supporting literature provide several important recommendations for those interested in building the capacity of the building principal as instructional leader. First, the results of this

research support the notion that teacher perceptions of the instructional leadership, specifically monitoring student progress, are related to student achievement in a positive way. A great first step for a principal struggling with instructional leadership in the domain of monitoring student progress would do well to focus on enacting the five behaviors described in the *Monitor Student Progress* subscale of the PIMRS. This does not provide the solution for all the challenges that a high school principal faces, but it does provide a tangible, actionable, and inexpensive start to building capacity in instructional leadership.

The second recommendation would be to create a culture where principal monitoring student progress is viewed as a way to build systems that allow teachers to do the best job they can possibly do with as much information as they can possess. To build a culture that values collaboration requires the system to provide protected time for that collaboration to occur. Principals must promote and participate in this collaboration using the behaviors in the *Monitor Student Progress* subscale as a guide.

In light of recommendations one and two, the third recommendation is to use these five items as a starting point for a coaching model that could be implemented on a regional level. This could be used as the starting point for a framework of building capacity in the principal leadership domain of monitoring student progress. If principals engage in these types of monitoring student progress behaviors, they will improve as instructional leaders. There is also a danger in underestimating the complexity of building a high school principal's capacity to perform instructional leadership responsibilities. This research can provide the starting point for a coaching, training, and preparation model to help principals in high schools with a low Performance Index build their instructional leadership capacity—a strategy which previous research, and the research from this study, suggests is associated with higher student achievement.

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