

Transparency in Assessment through Web-Based Communication: A Study of Changes in Communication About Assessment and Teachers' Perceptions of Assessment and Student Motivation for Learning

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BOSTON COLLEGE
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TRANSPARENCY IN ASSESSMENT THROUGH WEB-BASED
COMMUNICATION: A STUDY OF CHANGES IN
COMMUNICATION ABOUT ASSESSMENT AND TEACHERS'
PERCEPTIONS OF ASSESSMENT AND STUDENT MOTIVATION
FOR LEARNING

Dissertation
by

SARA E. AHERN

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ABSTRACT

Public and private schools are adopting new technological software to manage student information in a web-based format. These programs have the capability to provide students and parents with on-line access to grades and higher quality assessment information with the hope that students take information about their grades and use it formatively to improve in the classroom. Teachers, however, have historically kept their grade books private and increasing transparency into grading represents a major change in teachers' communication of student achievement.

This qualitative case study examines the impact of increasing transparency in assessment by providing parents and students access to web-based grading information on teachers' perceptions of the quality and effectiveness of communication with parents and students, teachers' perceptions of student motivation, teachers' application of the program, and teachers' perceptions of their communication with each other. Seven teachers participated in this research study over the course of one semester at a large, suburban New England high school. The data from this study showed that increasing transparency in assessment to students and parents resulted in changes in the

nature and substance of communication between teachers, parents and students. Teachers reported changing their use of the program over the course of the semester in order to provide greater clarity of assessment data to students and parents and, as a result, students were able to use it formatively to improve student learning. Teachers reported that the greatest impact of this program was in improved communication with students leading to increased student effort and a sense of student ownership over grades. Teachers also felt that increasing transparency in assessment influenced communication and collaboration among teachers. The findings of this research study provide implications for educational practice, policy, future research and leadership.

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CHAPTER ONE

Overview of the Study

Introduction

This case study was designed to assess the effect of increasing transparency in classroom grading by piloting PowerSchool parent and student access involving grade 10 students and their parent(s)/ guardian(s) at a large, public, suburban, New England high school. PowerSchool is a web-based tool, produced by Pearson Inc., that allows administrators, teachers, parents, and students to access student information such as attendance, grades, demographic information, teacher comments, and school bulletins. The program had been in use by administrators and teachers since the 2005-2006 school year and the faculty had engaged in training and professional development to develop their capacity in using the program internally while simultaneously focusing on assessment strategies and grading practices. The next step in the implementation of this communication tool was to provide students and parents access to teacher gradebooks, with individual assignments listed, and teacher comments improving upon traditional paper-based methods of reporting student progress through traditional, averaged grades at the end of the quarter, as report cards, and mid-way through the term, as progress reports.

During the pilot stage of this project, all teachers in this school opened their grade books for on-line viewing during the term by grade 10 students and their parents. A small group of teachers, seven volunteers representing different departments, served as the sample to study assessment and student motivation

at a deeper level. The sample was used to assess the impact of transparency in grading using PowerSchool in five areas: teachers' perceptions of the effectiveness of this form of communication, teachers' perceptions of PowerSchool's influence on the quality of communication between teachers and students and teachers and parents about student achievement, teachers' application of PowerSchool, communication among teachers about the use of PowerSchool and its influence on the quality of assessment feedback, and teachers' perceptions of the effect on student motivation for learning.

The administration of this school anticipated that, while the teachers were technically prepared for parent and student access, the implementation of parent and student access represented an adaptive change in the school's culture around assessment of students, grading practices, and communication among teachers, students and parents. It was hoped that increasing transparency in grading provides a forum for improved communication among teachers, students and parents about student achievement, improved understanding about the quality of assessment feedback, improved confidence among teachers in their ability to influence student motivation for learning through higher-quality feedback about student achievement, and improved teacher communication about communicating through PowerSchool.

Focus of the Study

Communication Among Teachers, Students, and Parents

Technology has changed the way in which teachers, parents and students communicate about learning. Many teachers and parents maintained regular communication through e-mail, in place of traditional methods such as parent-teacher conferences and telephone calls. Most often, teachers would respond reactively to parent inquiries about student performance and grades. These e-mails often focused on simple questions inquiring about missing work or the parent wanting to know the student's mark on a recent quiz or test. Teachers rarely communicated proactively with a parent unless there is a problem or concern about a student. Yet parents wanted to be involved with their child's education. Parents felt as if they are pestering the teacher with their e-mail inquiries and would ask administrators how frequently they should contact the teachers. Teachers felt overwhelmed with the quantity of individual e-mail inquiries from parents. There was general dissatisfaction and confusion among parents and teachers around communication expectations.

E-mails between parents and teachers often omit the student from the conversation about learning. Teachers provide feedback to students within class but parents have little knowledge of the substance of these communications. Access to PowerSchool could provide parents and students with access to a greater amount of assessment information. Parents and students can then engage in a conversation at home about the information provided through this web-site and parents can work with students to improve their learning. It was

anticipated that inquiries about student achievement would shift from parents wanting to know the most factual information about missing work or a student's score to more substantive questions on how to help the student learn. This study examined how the nature and substance of communication between teachers and students and between teachers and parents changed as a result of increased transparency in grading.

Quality Assessment Feedback

Many teachers place great value on computerized grading programs as objective tools in determining grades that reflect a student's achievement. Grading, however, remains a subjective enterprise where the teacher plays a central role in assessing what a student knows and is able to do (Guskey, 2002a; Johnston et al., 1995). With greater transparency, in providing students and parents with on-line access to teacher grade books, comes heightened scrutiny of assessment practices as students and parents examine how individual assignments contribute to a final letter grade.

Measuring students' academic performance through assessments and providing ranking scores to summarize overall achievement has a long tradition in American education (Marzano, 2001). In over 3100 high schools surveyed by the College Board (1998), 91% used letter grades A through F to report on student achievement. Averaging student scores through a term serves a variety of purposes including administrative uses, feedback on student performance, guidance for future course placement, instructional planning, and motivation

(Airasian, 1994). Of these purposes, research supports that providing students with specific information about their progress towards meeting specific learning objectives increases academic achievement (Hattie, 1992). Reporting practices with overall, or averaged, student achievement communicated through traditional letter grades during the middle and end of a term fail to provide parents and students with specific feedback about progress towards meeting specific learning goals (Guskey, 1996; Marzano, 2001).

The use of standards-based report cards has increased as a method to report student achievement on specific learning objectives; many elementary and middle schools use standards-based report cards to communicate student achievement to parents and students (Marzano, 2001). High schools lag behind elementary and middle schools in modifying current reporting practices because of the unique way in which high school grades are used for administrative and guidance purposes (Marzano, 2001). At the high school level, letter and percentile grades factor into grade point average, honor roll, class rank and are used as placement mechanisms for advanced courses and college acceptance. The purpose of education for social mobility has increased the focus on the accumulation of credentials such as grades as an exchange for social opportunities (Larabee, 1997). Since traditional letter grades serve these varied purposes, many high school educators are reluctant to change current grade reporting systems from traditional averaged letter grades to standards-based reporting (Marzano, 2001).

New technological mechanisms for collecting, storing, and communicating data on student achievement, however, provide a potential mechanism for improving the frequency and specificity in communicating how traditional letter grades represent progress towards meeting specific learning objectives. Furthermore, parents and students will come to expect more information about expectations and student progress towards meeting the standards since standards-based reporting is used in many elementary and middle schools, including those of this district. This study examined how, with heightened scrutiny of grading practices from students and parents, teachers reflected on their assessment strategies and whether or not they made changes to include assessment feedback that is of higher quality and more closely linked to strategies that produce increased student learning.

Assessment Feedback and Student Motivation

Greater transparency through an efficient medium also provides an opportunity for teachers to examine assessment in an effort to view feedback about student achievement as a motivating feature of student learning rather than a punitive way of sorting and ranking students based on credentials or numbers. The web-based program, PowerSchool, provides data-entry fields for links to curriculum standards, assignment clarification and expectations, teacher comments about student performance, and active web links to rubrics and exemplars in addition to individual assignment scores and student averages.

High school teachers exhibit broad discretion when grading their students using a traditional model of averaged scores. Teachers in this school expressed their apprehension and fear that their individual autonomy is being questioned and threatened through the increased transparency of classroom grading brought about through the use of PowerSchool. This study examined how teachers, as professionals, dialogue about assessment within and across departments as they learn to use this tool as a means for communicating with parents and students about student achievement. This study examined teacher perceptions of their confidence in their ability to influence student motivation through providing assessment feedback in a more proactive way.

Adaptive Change in School Culture

The PowerSchool project contained elements of both technical and adaptive challenges. Most problems contain elements that are both technical and adaptive (Heifetz & Linsky, 2004). The training of teachers to use the software represented a technical challenge. The use of the program to improve student learning, however, represented an adaptive challenge that required the examination of existing practices, every day classroom innovations, and espoused beliefs. The examination of the validity of grades and their social consequences, assessment practices and their effect on student motivation, the rationale teachers use to calculate grades, increased transparency with parents as a form of communication, and the conflicts that arise among the conflicting roles

of teachers, parents, and students is adaptive work. There are no prescriptions or easy answers on how to implement the PowerSchool pilot project.

This study examined the process, in addition to the outcomes, of implementing PowerSchool web-based reporting to parents and students. It was anticipated that the process of providing a forum for teachers to dialogue about assessment and their experiences with the program would lead to learning among the participants resulting in innovations in practice that are tied to research supporting improved student learning.

Research Questions

The following research questions will guide the study:

How did increasing transparency of grading to students and parents impact:

- 1. teachers' perceptions of the effectiveness of communication with students and parents about student achievement?**
- 2. teachers' perceptions of PowerSchool's influence on the quality of assessment feedback provided to students and parents?**
- 3. teachers' confidence in their ability to influence student motivation for learning?**
- 4. teachers' application of PowerSchool?**
- 5. communication among teachers about the use of PowerSchool?**

It was anticipated that increasing the transparency of grading to students and parents would change the content and quality of communication between the classroom and home about student achievement. With greater access to individual, graded assignments and how these assignments contribute to a final

average, parents and students would engage in more meaningful conversations with teachers about why a grade reflects what a student knows and is able to do. Examining why a student receives a particular grade would open opportunities for students to improve not only their grade but also their learning. Increased dialogue about student achievement would provide opportunities for teachers to examine and modify their assessment practices to clarify the criteria against which the student is being measured, to explain how the student's work compared against measurement criteria, to provide suggestions for improvement, and to involve more strategies that motivate students to focus on improving their learning.

Participation in the project involved teachers from different disciplines working in a group to examine the communication of assessment practices and student achievement through a web-based program that parents and students viewed during a term. It was expected that this dialogue would uncover new understanding among participants strengthening the communication of assessment practices and developing teachers' confidence in impacting student motivation for learning.

Theoretical Rationale

Technology and Assessment

Recent technological advances provide teachers and school districts with efficient software with which to manage student data. Many schools have adopted web-based programs that can be used to communicate grading

information with parents through an Internet website. As a result, parents and students can access up-to-date grading information from home or school.

PowerSchool is one on-line product whose website claims that the product has positive influences on student learning by improving communication between the home and school and by providing teachers with a forum to efficiently execute effective grading practices.

Web-based communication about grades provides additional information not normally contained on traditional progress reports and report cards that summarize a student's achievement in one, averaged grade in a course over the course of a term. PowerSchool notes how teachers can use the system with more progressive grading practices such as, "the creation of formative, summative, and diagnostic assignments, and multiple measures of central tendencies (mean, median, mode). It's designed to allow educators to assess their students' progress from many different angles in order to maximize student achievement" (<http://www.powerschool.com/new/teacher/>). Web-based programs have the capacity to expand reporting to include a greater amount of information including course and assignment descriptions and narrative comments from the teacher that augment letter grades. Additionally, teachers may use these programs to alert students and parents to anticipated assignments. Assignments may be entered in advance and linked to web-based resources such as supplementary materials, assignment rubrics, and examples of student work.

Many programs calculate student grades from a list of assessment scores and weighting criteria that the teacher enters. Many teachers assume that with

the precision of the program completing the calculation and treating all students the same that the grades automatically and fairly represent a student's level of proficiency. Although these technological software programs simplify the process of calculating grades, teachers need to consider their grading practices carefully in reporting accurate and informative feedback to parents and students about a student's achievement toward meeting specific content and performance standards (Guskey, 2002a).

There is also a concern about increased technology use and the destruction of the teacher-student relationship. Jaasma and Koper (1999) describe how students' perceptions of teacher empathy, credibility, competence, and trust are positively correlated with student satisfaction. Atamian and DeMerville (1998) argue, however, that increased use in technology leads to a reduction in perceived immediacy and trustworthiness on the part of the teacher. They assert that ineffective implementation of technology in the classroom impedes the development of positive student-teacher relationships.

Teachers remain central to assessment even with the advent of on-line gradebooks. Guskey warns, however, that numerical precision that comes from computerized grading functions is not the same as the evaluative honesty that a teacher must have when grading students and that these computerized grading features do not "lessen the challenge involved in assigning grades that accurately and honestly reflect students' level of performance" (Guskey, 2002a, p. 776). "Each teacher still must decide what information goes into the calculation, what

weight will be attached to each source of information, and what method will be used to tally and summarize that information.” (Guskey, 2002a, p. 780).

Research demonstrates that students who spend time self-monitoring their achievement through a web-based program demonstrated greater motivation and improved learning over the course of a school year (Zappe, Sonak, Hunter & Suen, 2002). This research study also demonstrated that parents reported perceptions of increased student responsibility, a direct impact on their student’s grades, increased organization, and an increase in parent involvement in schoolwork (Zappe et al., 2002).

Assessment and Student Motivation

Traditional models of assessment in education served to rank students. The most motivated students performed well and occupied high ranks; students with low motivation performed poorly and occupied low ranks. Schools served a purpose of ranking students and feeding them into social and economic ranks accordingly (Stiggins, 1999). The advent of education reform, however, has changed the expectations of schools: all students are expected to meet high academic standards. Educators are now faced with the challenge of motivating all students, not just those who would have traditionally succeeded (Stiggins, 1999).

The practices that teachers employ to evaluate student learning is one of the most influential components driving student motivation (Ames, 1992). When grades alone are used to communicate achievement, an unintended

outcome of social comparison (ranking) among peers results (Butler, 1987). Students often view grades as a reflection on their ability more than of their effort. A meta-analysis of over 40 research studies by Black and Wiliam (1998) demonstrates that “if pupils are given only marks or grades, they do not benefit from the feedback on their work”. Persistently low marks perpetuate a feeling in the student of futility and expectations of low performance in subsequent assessments. The research supports that teachers and students come to a shared belief that the student lacks the ability to succeed (Black & Wiliam, 1998). Students, however, need not only the cognitive skills but also motivation in order to retain, understand and actively use knowledge (Perkins, 1992).

Social cognitive models of motivation characterize student motivation as a dynamic and complex process that is situated, contextual, and domain-specific (Linnenbrink & Pintrich, 2002). Previous models had assumed that students could be characterized at one of two extremes: “motivated” or “not motivated”. Recent research on motivation suggests that motivation is not a stable trait but rather it is changeable and dependent on context. Feedback regulates motivation, in that external feedback influences how students feel about themselves as learners (Dweck, 1999). Implicit theories of intelligence suggest that individuals hold that intelligence is incremental and changeable (incremental theory) or fixed and innate (entity theory) (e.g. Henderson & Dweck, 1990). Students who come to adopt an incremental theory of intelligence are better able to self-regulate their learning and believe that effort leads to improved performance (Dweck, 1986; Dweck, 1999). Additionally, feedback is regulated by motivation: a student’s

beliefs as a learner impact the interpretation of the meaning of the feedback messages (Garcia, 1995). This suggests that educators, through carefully crafted instructional design and assessment practices, can make significant changes in improving (or stifling) student motivation (Linnenbrink & Pintrich, 2002).

Standards, criteria, methods of grading, the frequency of assessment and the content of a teacher's evaluations have been demonstrated through research to be influential in motivating student learning (Epstein & Mac Iver, 1990). Effective communication about assessment includes educating students about the specific learning target they should strive to achieve, along with providing examples of strong and poor attempts to meet the target. Armed with this information, students are more likely to have an optimistic response to their own attempt at meeting the learning objective. By teaching students how to improve towards meeting the target and monitoring their performance over time, assessment for learning helps students close the gap between their current performance and the expected demonstration of meeting the learning objective (Stiggins & Chapuis, 2005).

Students who adopt learning goals believe that effort leads to success and that improvement results from a change in strategy (McCoombs, 1984). Research demonstrates that when students focus on improvement rather than on social comparisons with their peers, they demonstrate better recall of information (Graham & Golan, 1991). Although factual recall represents the most superficial level of learning and the assessment tool used to examine student outcomes limits the research, that focusing on improvement helped students succeed in

memorization tasks, combined with other data, suggests that if educators seek ways to focus on improvement of learning on a variety of tasks, including those that require more complex cognitive processes such as application, synthesis, and evaluation, then students should demonstrate increased achievement.

Formative assessment, sometimes called “assessment for learning”, refers to feedback on student achievement that is designed specifically to provide timely information designed to improve student learning and inform instructional practice (Sadler, 1998). Previous approaches to instructional improvement and student achievement involved placing assessment data in the hands of administrators and teachers who interpreted this data and modified future instruction and assessment. Newer approaches in formative assessment expand the amount of information students have about the specific learning standards against which they are being measured and their performance data from a variety of assessments that are designed to measure progress towards mastery of learning objectives. When consistently applied within a school, assessment for learning leads to improvement in academic performance, particularly for low-achieving students (Bloom, 1984; Black & Wiliam, 1998; Meisels, Atkins-Burnett, Xue & Bickel, 2003; Rodriguez, 2004).

Studies from higher education suggest that formative assessment develops self-regulating learning strategies in students (Nicol & Macfarlane-Dick, 2006). Student self-regulating learning behaviors include the setting of and orientation towards learning goals, effort exerted on a task, strategies used in completing a task, the management of resources, and reactions to feedback from

external sources (Nicol & Macfarlane-Dick, 2006). Students who are more effective at self-regulation are better able to generate their own feedback (self-assessment) or use the feedback that they receive (from peers and teachers) to monitor their progress towards meeting learning goals (Butler & Winne, 1995).

According to Black and Wiliam (1998), "Underlying the various approaches [to improving classroom assessment], are assumptions about what makes for effective learning – in particular that students have to be actively involved [in the assessment process]." (p.5). We can involve students in the assessment, record-keeping, and communication process to improve student learning through assessment (Stiggins, 1999).

Parent Involvement and Student Learning

Research supports the importance of parent involvement in learning. Epstein (2001) and Hiatt-Michael (2001) both found that teachers' efforts to involve families in student learning led to better student attendance, lower high school dropout rates, less retention in the same grade, increased parent and student satisfaction with school, improved achievement on standardized reading and math tests, and more appropriate referrals to special education services. Although research supports parent involvement in improving student learning, teachers receive little formal training, particularly at the high school level, in working with parents and families (Epstein, 2001).

The best predictors of parent involvement in school and student learning are the specific programs, supports, education and training that schools and

teachers put into place to encourage parent involvement and guide parents with specific information on how to help their child succeed (Leler, 1983; Morton-Williams, 1964). Two areas emerge related this leadership project from Epstein's (2001) framework of six types of parent involvement: communicating and learning at home. According to Epstein (2001), communicating ought to involve effective forms of home-school communication that include regular notices that help students learn at home. Information sent home ought to include ideas for parents on how to help their children with homework and organization around planning as well as student goal-setting. An online web-program presents new opportunities to improve the content of communication about student expectations and achievement with parents and students.

Some critics argue that on-line access to sites such as PowerSchool promote the over-involvement of parents in students' school life; the parents' ability to track grades moment to moment undermines students taking responsibility for their learning. Students in many schools around the country express their frustration in feeling that their parents are "snooping" and invading their privacy (Hoffman, 2008). One parent likened the use of PowerSchool to checking his stock portfolio (Hoffman, 2008). Madeliene Levine, a child psychologist, asserts, "the creativity and flexibility required to become a true learner is inhibited by excessive focus on every inch of progress, or lack thereof" (Levine, 2006, p.28). Hoffman (2008) suggests that districts conduct education programs for parents on acceptable and appropriate uses of the information and specific ways to help their children succeed.

Changing the Culture about Assessment

In their grading practices, schools and teachers encourage individual interests and ways of thinking for the purpose of social mobility and social efficiency which is at odds with the purpose school for democratic equality, requiring that students meet societal standards of knowing, doing and thinking (Larabee, 1997; Neill, 1997). As a result, classroom teachers walk a rope of tension between the meaning of grades as representing learning and the social consequences these grades carry (Johnston et al., 1995). This conflict places the teacher in incompatible, dual roles as both judge and advocate (Bishop, 1992; Brookhart, 1993). As a result, educators must ask critical questions about what grades should include and reflect about student achievement. Often, educators are doing this in isolation and with broad discretion (Brookhart, 1999).

When a solution to a problem examines values, beliefs or behavior, it is adaptive work (Heifetz, 1994). Adaptive work involves confronting, rather than avoiding, conflicting values and beliefs and the manifestation of these beliefs in behavior (Heifetz, 1994). In this study, the examination and discussion of grading practices, expanded transparency into grading practices, consideration of the purpose and value of grades, and the conflicts the teacher is managing as both judge and advocate of students, was adaptive work. Johnston et al. (1995) concludes, "assessment involves complex, and often conflicting, personal and institutional belief systems that are embedded in interpersonal relationships. Assessment is always more social than technical" (p. 370).

The examination of the validity of grades and their social consequences, assessment practices and their effect on student motivation, the rationale teachers use to calculate grades, increased transparency with parents as a form of communication, and the conflicts that arise among the conflicting roles of teachers, parents, and students is adaptive work. There are no prescriptions or easy answers on how to implement the PowerSchool pilot project.

Significance of the Study

There have been a few previous studies of on-line communication about assessment (Zappe et. al., 2002; Moran, 2007). Zappe et. al. focused specifically on the attitudes and perceptions of middle school students and parents about communication and student motivation but did not consider the impact of this program on teachers' perceptions about communication with parents and students and their confidence in influencing student motivation for learning. Moran (2007) examined the effect of increasing the transparency in grades to parents of students at an all-male private school in Massachusetts. His research questions focused on teachers' perceptions about communication and what, if any, changes would be made by the teachers with the heightened scrutiny of parents. The purpose of this research study was to extend the research body by examining, in a public high school setting, the effect of increased transparency in assessment through PowerSchool on teachers' perceptions of the effectiveness and quality of communication between teachers and students and teachers and parents about student achievement, teachers' application of PowerSchool,

teachers' perceptions of PowerSchool's influence on communication among teachers, and PowerSchool's influence on teachers' confidence in impacting student motivation for learning.

Hundreds of schools across the United States are using web-based programs to manage student information yet most of the evidence on the effectiveness of these programs has been anecdotal (Hoffman, 2008). The outcomes of this study add to the scholarly literature around the use of technology and assessment and inform other schools who may choose to proceed with their own plans for parent and student access to on-line gradebooks.

Research Design

This study was designed as an evaluative case study, situated in a large suburban New England high school, which examined the changes in communication about student achievement between teachers and students and parents as a result of the implementation of a web-based grading program aimed at increasing the transparency of student assessment. A case study was employed because it provided answers to the research questions and was most appropriate for, "investigating complex social units consisting of multiple variables of potential importance," (Merriam, 1998, p. 41). Furthermore, a case study was appropriate in considering the outcomes of the study since the local context was taken into account (Miles & Huberman, 1994).

An evaluative case study was well-suited to address this study's research questions. This study aimed to analyze the initiation of web-based

communication between the school and students and their parents. The main purpose of using a qualitative case study was to understand the perspectives of teacher participants as a result of opening up web-based grade books to on-line viewing by parents and students and to identify the emergent patterns.

Evaluative case studies are descriptive, aim to answer questions through explanation, and are suitable in making judgments (Merriam, 1998). Evaluative case studies provide information that can be used in planning for the future of a program (Merriam, 1998). The judgments drawn from this evaluation inform future actions in institutionalizing the process of communicating on-line grading information to students and their parents.

Qualitative data as collected in this evaluative case study since this form of data uncovered the meaning participants have constructed as a result of their participation (Merriam, 1998). Qualitative data provided “thick description” that was “grounded, is holistic and lifelike, and simplifies the data to be considered by the reader, illuminates meanings, and communicates tacit knowledge,” (Merriam, 1998, p. 39). The researcher was the primary instrument for data collection through her fieldwork with teacher participants.

Six instruments were used to collect qualitative data in this study: questionnaires of teacher participants before and after the implementation of the web-based grading program; teacher journals of interactions with students and parents about student achievement during the project; individual and focus group interviews with teacher participants during the project to assess their perceptions; the researcher’s leadership journal of the project’s progress; and

assessment artifacts. The various sources were used to assess the perceptions and understandings of the teachers in the sample about the effect of greater transparency in grading and its effect on the quality of assessment feedback and the quality of communication among parents, students and teachers. Multiple instruments were used to address the research questions in an effort to triangulate data (Merriam, 1998). Triangulating data served to reinforce the conclusions made from emergent themes and patterns, reduced the effects of researcher bias, and provided reliability to the study.

Data was analyzed according to the process described by Miles and Huberman (1994) including a reduction of the data, displaying the data, and drawing and verifying conclusions from the data. Data reduction is the process of “simplifying, abstracting, and transforming the data that appear in written-up field notes and transcriptions,” (Miles & Huberman, 1994, p.10). In this study, data reduction included all steps taken to organize the data and the coding of emergent themes and patterns in light of the conceptual framework of the study. A data display is an, “organized, compressed assembly of information that permits conclusion drawing and action,” (Miles & Huberman, 1994, p.11). In this report, descriptive text and, where appropriate, charts and diagrams were used to display the data. According to Miles and Huberman (1994), drawing conclusions occurs as the researcher collects data. The conclusions are held lightly until verified by further data collection. Drawing conclusions and having them verified was the final step in data analysis.

Limitations of the Study

This study occurred in a unique, high-performing high school in a large, upper-middle class suburban New England town. Results from this study may not be generalized to other locations.

The school operated a separate assessment committee that has been examining the assessment of student work against the schools mission and expectations for student learning. In addition, the middle school adopted a standards based reporting system. Many teachers were wondering how the PowerSchool grade-reporting project aligned with what they felt was a push from district leaders to have standards-based grading at the high school. These factors represent a threat to internal validity of “history” that was occurring within the context of this school system and may have influenced the findings and the ability to generalize these to other settings.

The researcher served as the primary instrument for data collection in this study and, therefore, this study was limited by researcher bias. To overcome the bias presented by the researcher, methods for triangulating the data were employed to ensure that conclusions that were drawn have sufficient support from multiple sources of data.

Since the researcher was an assistant principal in this school, the role of the researcher may have influenced the answers that participants contributed. They may have felt compelled to provide answers that they thought that the researcher wanted to hear. This presents a limitation to this study. To overcome this limitation, the researcher explained the importance of candid feedback in

recruiting teacher volunteers and prior to the application of collection instruments. Additionally, participation was voluntary, participants were not compensated for their inclusion, participants were not evaluated in their professional roles as part of inclusion in the study, and participants were permitted to drop out at any time.

The participants in this study, as volunteers, were invested in knowing the results of the study. Since there are only seven participants and they were invested in the program's use, their perceptions may not be generalized to the larger faculty and may not represent the range of opinions and perceptions about the application of the program and student achievement. This sample of seven, however, represented different academic disciplines and different proficiency and comfort levels with the software in an effort to gather a diverse range of perceptions.

The sample had been selected to represent different departments including teachers of both required courses for graduation and electives. Participation was voluntary and participants were permitted to drop out at any time. Any mortality in the sample threatened the validity of the results and could have limited the ability to address the research questions through a rich description from multiple different perspectives.

This study examined access of grade 10 students and their parents to PowerSchool in its initial phase and was used to inform the policies and practices of teachers when fully implemented. As a result, the data collected may not be

reliable about the project when fully implemented to all students and their parents.

This study collected data over the course of one semester, a short period of time. This limits the conclusions made as a result of this project to only those immediate responses that occurred in the initial phase of the PowerSchool project. Although this study occurred over the course of one semester, the high school experienced four grade-reporting periods (two mid-quarter progress reports and two quarters) which provided four time periods for interaction between teachers, students, and parents about assessment.

Definition of Terms

Pearson Education Inc. provides two software packages that will be described in this study. PowerSchool is a web-based student information management program that collects student demographic data, attendance, discipline records, and term grades. Administrators, teachers, students, and parents have access to different components of PowerSchool via a log-in and password. Students and parents may view their demographic data, attendance, current and historical grades, teacher comments, and the school bulletin of daily announcements. Administrators and teachers have access to a broader set of information for each student including cumulative information on class rank and GPA, discipline log entries, and fee payments.

PowerGrade is a grading software program used by teachers on their school-issued computers that synchronizes with the PowerSchool server and

allows the PowerSchool website to display grade information. All teachers were required to use the program as a gradebook, which, at a minimum, documented individual assignment grades and calculated a final, averaged letter and numerical grade. Teachers were also required to include comments, on report cards, about student performance. They chose comments to include from a list. Teachers were required to update the on-line gradebooks approximately every four to five weeks, at the mid-quarter and at the end of the quarter/semester. Teachers were permitted, at their discretion, to update their on-line gradebook more frequently. Teachers were permitted to use the program's more advanced features depending on their proficiency levels. The district provided teachers with professional development to improve their technical use of the program. As a result, many teachers were capable of using some of the more advanced features such as creating personal notes for parents and students, embedding weblinks that link assignments to supplemental resources, providing descriptions of a course, and descriptions of each assignment. The program allowed teachers to provide web links to their professional web-pages that could provide the student with additional assignment information and rubrics. The teachers who were involved in this study were self-described as proficient or advanced so that the advanced features of PowerSchool could be explored in providing additional information about assessment to students and parents.

The researcher in this study had no affiliation with Pearson Inc. or any other company that produces student information management software.

Conclusion

This dissertation is broken down into five chapters. This chapter described the overview of this proposed research study. Chapter Two, the Review of the Literature, expands on the theoretical rationale undergirding the proposal and focuses on four areas: technology and assessment, assessment and student motivation, parent involvement in education, and changing school culture. Chapter Three presents a more comprehensive description of the intended research methodology, research sample, research questions, data collection and its analysis. Chapter Four presents the research findings. The last chapter, Chapter Five, presents the research findings in light of the literature review, and presents the implications for policy, practice, future research and leadership. The last chapter also reviews the limitations of the study.

CHAPTER TWO

Review of Related Literature

Introduction

This chapter presents an overview of the relevant literature pertaining to this research study of the PowerSchool parent and student access pilot. Four themes are presented to inform this research study. The theme, **Technology and Assessment**, examines various ways in which technology is used in classroom assessment and how technology influences student achievement. The PowerSchool on-line student information systems program is described specifically. **Assessment and Student Motivation for Learning**, examines classroom assessment practices, including the quantification of learning as end-of-term grades, and presents literature that highlights how effective assessment practices contribute to student motivation for learning. The third theme, **Parent Involvement and Student Achievement** presents a conceptual framework for considering types of parental involvement and examines how parent involvement at all levels, including high school, is correlated to increased student achievement. Lastly, **Changing School Culture**, examines the literature about the complexity of change in school culture in an effort to inform a discussion of the process of the PowerSchool parent and student access pilot project. The implications from this literature review informed this research study and its implications for policy, practice, future research, and leadership, as discussed in Chapter Five.

Technology and Assessment

Recent technological advances provide teachers and school districts with new software for managing student data. Marzano (2000) asserts that improvements in traditional grading will require the use of advanced software programs that can more efficiently track student grades and more effectively calculate overall scores based on more sophisticated mathematical formulas than through a straight mean average. Many schools have adopted web-based programs that can be used to communicate grading information with parents through an Internet website. PowerSchool is one on-line product whose website claims that the product has positive influences on student learning by improving communication between the home and school and by providing teachers with a forum to efficiently execute effective grading practices.

Web-based communication about grades provides additional information not normally contained on traditional progress reports and report cards that summarize a student's achievement in one, averaged grade in a course over the course of a term. PowerSchool notes how teachers can use the system with more progressive grading practices such as, "the creation of formative, summative, and diagnostic assignments, and multiple measures of central tendencies (mean, median, mode). It's designed to allow educators to assess their students' progress from many different angles in order to maximize student achievement" (<http://www.powerschool.com/new/teacher/>). The PowerSchool website also contains video highlights of parents, students and teachers commending PowerSchool and advertising the positive influences on student learning.

Teachers enter student assignments and grades into their web-based gradebooks and the computer program calculates course grades based on the data. Teachers may input assignment information after the student has completed the assignment as a means of feedback, or the teacher may post information in advance of the assignment as a way to prepare students and parents for upcoming assessments. The teacher may add descriptions of their course to their gradebook, providing users with ready access to information, such as grading policies, normally contained in a course syllabus. Each assignment may be described through an assignment description. In this area, teachers may use the program to describe the assignment and, for example, how it aligns to state or local learning standards. Web-links may be embedded in each assignment that links the assignment to a teacher's webpage where the teacher may publish instructions for the assignment, resources for the student to use, assessment rubrics, and exemplars of student work (http://web.pasd.us/powerschool/powergrade_help/toc.html).

In addition to communicating grades, teachers may use multiple features of the program to post narrative comments or announcements. Formative assessments may be included that, instead of providing a summarizing grade, include narrative feedback on the student's work. Teachers may use the course and assignment description sections to communicate global messages to all students and parents. Alternatively, teachers may use the parent note or private note page to communicate directly with an individual parent or student. Narrative comments may be added to traditional course or assignment grades to

provide further meaning and clarification

(http://web.pasd.us/powerschool/powergrade_help/toc.html). The purpose of additional assessment information is to equip stakeholders with additional information that provide access to student's strengths, weaknesses, and, therefore, opportunities for growth and improvement. According to Pearson Education, PowerSchool's manufacturer, PowerSchool is, "an innovative, award-winning, easy-to-use student information system. Millions of stakeholders rely on PowerSchool to access student data and make insight-driven decisions that increase student learning" (<http://www.powerschool.com/product/>).

PowerSchool commissioned an independent research organization to study over 1,550 parents nationwide to assess the consumers' interest and need for web-based communication solutions. Although this data is biased due to PowerSchool's involvement in the data collection, the results are presented here, since this information is advertised on PowerSchool's website. Of the parents surveyed, 94% indicated an interest in using the Internet to access academic information and 34% of respondents indicated that they were provided access by their school districts. Eighty-five percent of parents indicated that they would welcome more frequent updates from the school than currently experienced through parent-teacher conferences, the primary way they received information. Respondents expressed the desire to keep up with both grades (52%) and homework (23%) and nearly 50% of the parents indicated that at some point they had been surprised by a grade their child received on a report card (Loring & Engle, 2006).

Some critics argue that on-line access to sites such as PowerSchool promote the over-involvement of parents in students' school life; the parents' ability to track grades moment to moment undermines students taking responsibility for their learning. Madeleine Levine, a clinical child psychologist, cites the dangers of being able to check grades twenty-four hours a day, seven days a week: "the creativity and flexibility required to become a true learner is inhibited by excessive focus on every inch of progress, or lack thereof" (Levine, 2006, p. 28). A recent *New York Times* article examining the effect of parents accessing grades on-line summarizes both sides:

At best, the programs can be the Internet's bright light into the bottomless backpack, an antidote to freshman forgetfulness, an early warning system and a lie detector. But sometimes there is collateral damage: exacerbated stress about daily grades and increased family tension (Hoffman, 2008).

Providing an increased amount of assessment information has both benefits and also drawbacks.

One way to overcome drawbacks is to educate parents on how to use the programs. Hoffman (2008) reports, however, that many districts fail to teach parents about the program's purpose and how best to help their children with the information given. Joyce Epstein comments, "family involvement is not about serving parents. It's about mobilizing all the resources that support student success. These technologies can hurt or help, depending on how they are done" (Hoffman, 2008). Epstein concludes that interpersonal relationships are

required to extend the connection between home and school beyond the impersonal computer site (Hoffman, 2008).

The implementation of on-line gradebooks by districts across the country can inform schools seeking to adopt technology and assessment. In August 2005, Miami-Dade became the largest school district to adopt the Pinnacle on-line gradebook (Pinzur, 2005). The results, however, were disappointing. Teachers blamed the software program for changing grades since the district, in adopting on-line gradebooks, forced teachers to grade using the district's authoritarian, official grading formula (Pinzur, 2006).

Evidence from other districts that have implemented web-based access by parents to student information is more positive in demonstrating improvement for students. At Westside Community Schools in Omaha, Nebraska, since the implementation of parent access to the PowerSchool student information system (SIS), pupil attendance has improved, discipline referrals have been reduced, and test scores are among the highest in the state in contrast to other schools with the same demographics (Sturgeon, 2006). According to Ken Bird, the Superintendent in this district, communication through a web-based SIS provides a wealth of benefits that are tied to greater parental involvement. The program provides parents with an easily available channel of more meaningful and complete information. He notes that one major outcome of Westside's implementation has been more meaningful parent-teacher conferences where the conversation is less about what the student has done and at what level and more substantive about helping the child improve his/her learning (Sturgeon, 2006). Bird (2006)

summarized the responses to PowerSchool in approximately 7, 000 schools and districts across the country. Responses were similar across schools:

when parents and schools join up, teachers become more aware of the needs and perspectives of their students, while parents become more familiar with teachers and the day-to-day realities of school life, and are thus better equipped to make educational decisions (Bird, 2006).

The success of the implementation of PowerSchool in Westside Community School District is attributed to teachers having led the major learning improvements in using the program. Teachers shared their ideas on improving communication about expectations and achievement with parents and students through the on-line website (Bird, 2006). Bird (2006) notes that the teachers took it upon themselves to standardize their grading methods and reporting. Additionally, according to Bird, “they held discussions about the role of school and the value of grades” (Pearson School Systems, 2006, p.4). As a result of these discussions and the more effective application of grading practices, students know the expectations and are better able to take responsibility for their learning (Pearson School Systems, 2006).

Some critics might argue that access through on-line sites serves to further involvement of wealthy parents who can afford computer access and to send students to schools using this software. The Somerton School District in Arizona, however, reports that although 100 percent of families qualify for free or reduced lunch and 95 percent were migrant, over half of these families were using the online SIS to track student progress (Bird, 2006).

Research studies from higher education support technology use for assessment. McGuire (2005) investigated the effects of implementing an assessment system involving cell phones and the Internet on undergraduate students at 10 universities across the United Kingdom. The goal of the eVIVA project was to use technology to support assessment practices that kept the classroom instructor vital and relevant. In developing the eVIVA software, “our aim was to design an assessment system tool that served the purpose of internal fairness, placing the pupil at the centre of the system rather than the teacher and the emphasis on formative rather than summative assessment” (McGuire, 2005, p. 268). While the eVIVA program contained applications beyond the scope of PowerSchool, some results are relevant.

McGuire (2005) found that teachers reported increased motivation and self-esteem of pupils and students taking responsibility for their own learning and an increased sense of independence. One teacher reported that, “students have considered the details of assessment more closely” (McGuire, 2005, p.272). Teachers also noted that the system encouraged a greater dialogue between teacher and student. Another teacher noted that, “eVIVA has allowed pupils to be more involved in self-assessment and target setting” (McGuire, 2005, p.273). Students reported that they “valued the feedback” provided by the eVIVA system (McGuire, 2005, p. 271).

Additional studies in both higher education and in middle schools demonstrate that on-line technology has facilitated students taking responsibility for their learning. In colleges, students are often using WebCT as a course

management tool. One of the components considered most useful to students included access to grade information and students reported that access to their grade information prompted them to take action (Freeman & Field, 2004). A research study involving middle-school students demonstrated that students who spent time self-monitoring their achievement through a web-based program demonstrated greater motivation and improved learning over the course of a school year (Zappe, Sonak, Hunter & Suen, 2002). This research study also demonstrated that parents reported perceptions of increased student responsibility, a direct impact on their student's grades, increased organization, and an increase in parent involvement in schoolwork (Zappe et al., 2002).

There is a concern, however, about increased technology use and the destruction of the teacher-student relationship. Jaasma and Koper (1999) describe how students' perceptions of teacher empathy, credibility, competence, and trust are positively correlated with student satisfaction. Atamian and DeMerville (1998) argue, however, that increased use in technology leads to a reduction in perceived immediacy and trustworthiness on the part of the teacher. They assert that ineffective implementation of technology in the classroom impedes the development of positive student-teacher relationships.

Teachers remain central to assessment even with the advent of on-line gradebooks. Guskey (2002a) examines computerized gradebooks and the implications for the ways in which teachers use them. Computerized gradebooks are appealing software packages for teachers since they simplify record keeping which can be a daunting challenge at the middle and high school

levels where teachers are often responsible for over 100 students. The programs also give teachers a variety of options that can be customized to individual teachers' grading strategies. A CDW Government Inc. 2005 survey assessed teachers' perceptions about technology use in the classroom. Of 301 respondents who reported using the Internet to post grades online, 79% found this method to be somewhat or very effective (Crystal, 2005).

Guskey (2002a) notes some major disadvantages to computerized grading programs including teachers' beliefs that the mathematical precision of using the computer to determine grades brings greater objectivity and fairness to grading. Guskey warns, however, that numerical precision that comes from computerized grading functions is not the same as the evaluative honesty that a teacher must have when grading students and that these computerized grading features do not "lessen the challenge involved in assigning grades that accurately and honestly reflect students' level of performance" (Guskey, 2002a, p. 776). To meet his professional and ethical responsibilities around student assessment, "each teacher still must decide what information goes into the calculation, what weight will be attached to each source of information, and what method will be used to tally and summarize that information." (Guskey, 2002a, p. 780).

Many programs calculate student grades from a list of assessment scores and weighting criteria that the teacher enters. Many teachers assume that with the precision of the program completing the calculation and treating all students the same that the grades automatically and fairly represent a student's level of proficiency. Although these technological software programs simplify the

process of calculating grades, teachers need to consider their grading practices carefully in reporting accurate and informative feedback to parents and students about a student's achievement toward meeting specific content and performance standards (Guskey, 2002a).

Assessment and Student Motivation for Learning

Traditional models of assessment in education served to rank students. The most motivated students performed well and occupied high ranks; students with low motivation performed poorly and occupied low ranks. Schools served the purpose of ranking students and feeding them into social and economic ranks accordingly (Stiggins, 1999). The advent of education reform, however, has changed the expectations of schools: educational opportunity has been expanded for all students who are now expected to meet high academic standards. Educators are now faced with the challenge of motivating all students, not just those who would have traditionally succeeded (Stiggins, 1999).

Education reform calls for expanded access to education to a wider array of students in order to provide these students with a wider range of opportunities in society. The Massachusetts Education Reform Act (1993) cites:

it is hereby declared that a paramount goal of the commonwealth to provide a public education system of sufficient quality to extend to all children...the opportunity to reach their full potential and to lead lives as participants in the political and social life of the commonwealth *and as contributors to its economy* (italics added).

The federal government explains the purpose of the No Child Left Behind Act (2001): “to ensure that all children have a fair, equal, and significant opportunity...”.

Social mobility, according to Larabee (1997), has emerged as the primary goal of education. In this construct, consumers of education (students and parents) expect a “stratified structure of opportunities...which offers each child the chance to become clearly distinguished” (p. 29). These consumers demand high school tracks offering courses in individual subjects but at varying levels and they insist upon traditional letter grades rather than verbal comments and descriptions of progress (Larabee, 1997). These expectations, according to Larabee, exert pressure on schools from consumers on the middle and lower end of the social structure for a chance to move up and from those on the high end of the social structure to maintain their status.

A major impact of education as a means to social mobility is that it “treats education as a form of exchange value” (Larabee, 1997, p. 31). The value of education is transformed from something intrinsic to something extrinsic that can be exchanged for a more substantial position in the social structure. As a result, Larabee (1997) argues, credentials “come to take a life of their own” (p. 31) deriving their value not from the learning they symbolize but rather for what social position they can be exchanged. The push for credentials, however, undermines the value of student learning in favor of social exchange (Larabee, 1997).

Larabee (1997) notes the detrimental effect this has had on education. Students learn, in this system, to value not the knowledge they gain in schools but rather the credentials they acquire, including grades. Form is emphasized over content, according to Larabee (1997), and the educational system rewards students for formal compliance rather than demonstrating operational knowledge. The resulting structure is “an ideal environment for fostering interpersonal competition and individual achievement” (Larabee, 1997, p. 33). Larabee concludes that the emphasis on social mobility is manifested in the stress on evaluation and a belief of knowledge as private property, measured in the currency of credentials.

Grades as Feedback on Learning

The practice of grading students is fraught with conflict and tension. Traditional grading, i.e. ranking students compared with each other through systems such as class rank, promotes the goals and values of the social efficiency purpose of education (Larabee, 1997; Stiggins, 1999). Grades, and the grade point average and honor roll that result from them, and their exchange value also reflect the inherent values of the social mobility goal of education: accumulation of credentials for their societal exchange value (Larabee, 1997). In their grading practices, schools encourage individual interests and ways of thinking for the purpose of social mobility and social efficiency which is at odds with requiring that students meet societal standards of knowing, doing and thinking (Larabee, 1997; Neill, 1997). As a result, classroom teachers walk a rope of tension between

the meaning of grades as representing learning and the social consequences these grades carry (Johnston, Guice, Baker, Malone & Michelson, 1995). This conflict places the teacher in incompatible, dual roles as both judge and advocate (Bishop, 1992; Brookhart, 1993). It is paramount that educators ask critical questions about what grades should include and symbolize about student achievement.

Grades as valid measures of student achievement depend on two factors: the quality of assessment information on which grades are based and the procedures used to derive a grade from various sources of information (Brookhart, 1999; Allen, 2005). Combining assessment results must consider the weight of each assignment as it relates to the intended weight of instruction and also the informational value to the students (Brookhart, 1999). Teachers perpetuate the assignment of invalid grades to students because of unsettled feelings regarding grading and because of teachers' own experiences with grades from their education (Brookhart, 1993; Johnston et. al., 1995; Allen, 2005). Brookhart (1999) calls for more professional development for teachers that instruct them on how to assign grades that maximize the validity and reliability of report card grades and also includes instruction on providing assessment feedback in ways other than the use of traditional grades.

Classroom grades are complex communication devices that may be derived from three facets. First, grades may represent a reference to a relative (norm-referenced) or an absolute (criterion-referenced) standard. Second, grades may represent growth in achievement over time (individual-referenced) or they

may indicate the status of achievement at a certain point in time (i.e. end of quarter). The third facet considers the extent to which academic achievement accounts for a grade and the extent to which a teacher considers non-academic achievement factors (e.g. participation, effort, attendance, neatness) (Ebel & Frisbie, 1991; Mehrens & Lehmann, 1991). The numerous possibilities of ways in which a grade may be calculated from the above three facets creates an environment for potential misinterpretation of the learning that a singular grade represents (Guskey, 1996) and this misinterpretation can have serious personal and social consequences for the student.

Measurement specialists agree on the best practices in deriving a grade. Thomas Guskey (1996) synthesized a centuries' worth of research to summarize important lessons about classroom grading. He draws five conclusions:

- Grading and reporting are not essential to instruction.
- No one method of grading and reporting serves all purposes well.
- Grading and reporting will always involve some degree of subjectivity.
- Grades have some value as rewards, but no value as punishments.
- Grading and reporting should always be done in reference to learning criteria, never 'on the curve'

Grading and Reporting are not Essential to Instruction

Guskey (1996) asserts that grading and reporting are not essential to instruction. Teachers frequently "check on" students as they are learning in an informal, formative way that is never recorded or reported. According to

Guskey (1996), this type of assessment is formative, diagnostic and prescriptive; it identifies strengths and weaknesses and informs further instruction. Grading and reporting of student scores involves, however, a summative judgment made about student progress at a specific point in time. This type of assessment is descriptive and evaluative (Bloom, Madaus & Hastings, 1981).

These descriptions of assessment, however, define the assessments themselves as being *either* formative *or* summative rather than focusing on the functions of these assessments. According to Wiliam and Black (1996), this conceptualization of assessment leaves teachers to consider formative and summative assessments as two polar opposites resulting in teachers feeling as if they are operating in two separate assessment systems: ungraded (formative) and graded (summative). According to Marzano (2000), "This scenario creates the unfortunate situation in which a single assessment must be used to make judgments about a given student's proficiency in a given trait," (p.18). Marzano (2000) concedes that, within the practical setting of the classroom, teachers are administering formative assessments throughout a period of instruction and assigning grades as a form of feedback to students relative to their progress.

Wiliam and Black (1996) clarify the distinction between formative and summative assessment in an effort to make the distinction more practical for teachers. They assert that early distinctions between formative and summative stressed that the terms apply not to the assessments themselves but rather to the functions that specific assessments served. The formative function of assessment is to provide "information about the gap between the actual level and the

reference level of a system parameter which is used to alter the gap in some way" (Ramaprasad, 1983, p. 4). Therefore, formative functions of assessment serve to alter the gap. According to Ramaprasad (1983), if the information is simply coded, recorded, and passed to a third party who lacks the ability to alter the gap, then the data serves a summative purpose and cannot be used as feedback that informs learning. According to Wiliam and Black (1996), the validity of formative functions of assessment come not from the fact that these assessments might be ungraded, but rather from the actions taken to close a gap in learning based on the assessment feedback.

Wiliam and Black (1996) point out that "significant tensions are created when the same assessments are required to serve both formative and summative functions" (p. 545). Wiliam and Black (1996) argue that two responses to this tension exist. One response would be that the two functions would be completely separate; evidence of student learning would serve as *either* formative *or* summative as Guskey (1996) describes. When formative functions are considered, the shared meaning of the evidence beyond the immediate classroom setting is less important than the action taken based on the feedback. When summative functions are considered, the shared meaning of the evidence becomes much more important (Wiliam & Black, 1996). Wiliam and Black summarize this contrast, "when formative functions are paramount, meanings are validated by consequences, and when summative functions are paramount, consequences are validated by meanings" (1996, p. 544). One possible outcome of this response would be that teachers would be operating within two separate

assessment systems. Another possible outcome is that the teacher is relegated to a role of formative assessor and summative evaluation is limited to external agencies. Wiliam and Black (1996) offer a second response to the dilemma.

Wiliam and Black (1996) explore the possibility that the two functions of assessment, formative and summative, can be regarded as two ends of a continuum and that there may be some common ground. The definitions of formative and summative functions of assessments have implications for both the interpretation and meaning of the evidence and also the consequential action. All assessments can serve summative functions but need not if the consequential action to remedy a gap in learning is of utmost importance (Wiliam & Black, 1996). Not all assessments, however, can serve a formative function.

Assessments taken at the end of the term would not provide useful formative data and would serve a strictly summative function. According to Wiliam and Black (1996), any assessment produces evidence of student performance that can be interpreted and, therefore, serves a summative function even if the interpretation is invalid. "All assessments can be summative...but only some have the additional capability of serving formative functions"(Wiliam & Black, 1996, p. 543). To Wiliam and Black (1996), the question is not whether an assessment can serve both functions but rather to what extent does serving one function impair the ability for it to serve the other function.

In the context of classroom grading, assessments can serve both formative and summative purposes, focusing on both the learning of the student as well as a credential in the form of a grade. Along the continuum between

assessments used for a strictly formative purpose, such as informal questioning during a class period, and those used for a strictly summative purpose, such as an end of term exam, lie a multitude of assessments that can serve both formative and summative functions. For example, an essay in an English class can serve both a formative function, as students prepare drafts, get feedback and use that feedback to improve their writing, and a summative function when the final paper is turned in for an evaluative grade. In this scenario, only the teacher who knows the student and the context of the student's work is in a position to provide meaning out of a grade in light of the consequential action that is intended (William & Black, 1996).

There is an interplay of both formative and summative functions of assessment in the classroom rather than the false dichotomy between strictly formative and strictly summative assessments. While grading might not be important for instruction, there is an expectation that students will receive grades (Larabee, 1997). Viewing grading as an opportunity both for formative and summative feedback may provide a strategy from which to reconcile the tension between intrinsic learning and extrinsic accumulation of credentials.

Grades, although considered as prime examples of unreliable measures of student achievement, have a powerful influence on students' attitudes, behaviors, and motivation to learn (Brookhart, 1991; Brookhart, 1993; Brookhart, 2004; McMillan, 2001; Stiggins, Frisbie & Griswold, 1989). Since grades play a major role in high-stakes educational decisions such as college admissions, many students work to attain high grades for college placement while poor grades are

often cited as a primary factor in a student deciding to drop out of school (Smith, 2003; Goldschmidt & Wang, 1999; Lee & Burkham, 2003). According to Guskey (2004), however, “ideally grades provide students with formative information that they can use in efforts to improve their performance” (p. 2).

Previous research studies demonstrated that the first grade a student received at the beginning of an academic term was highly predictive of grades received on subsequent assessments (Page, 1958; Stewart & White, 1976). Page (1958) showed, however, that if, in addition to the grade, comments were included that showed students how to improve their work, grades on subsequent assessments significantly improved.

Guskey (2004) extended Page’s work to examine its relevance in contemporary classrooms and to determine if grades on initial assignments were predictive not only of grades on subsequent assessments but also predictive of overall achievement as reflected in final course grades. Guskey (2004) examined grading records of over 8000 high school students from five large Midwestern high schools to determine the relationships between the first achievement grade assigned during an academic term and their final course grades. The results from Guskey’s study (2004) showed that final course grades correlated to first achievement grades demonstrating remarkable stability over the course of a year ($r=+0.54$, $d=1.28$). According to Guskey (2004), teachers do not seem familiar with the findings of previous research studies (e.g. Page, 1958) and do not make use of simple strategies around grading that influence student attitudes, behaviors, and motivation.

Guskey (2004) stresses how noteworthy the correlation results are, as the first grade given in a term was based on a relatively brief assignment such as a quiz and overall final grades included numerous academic assignments and non-academic factors such as effort, behavior, and participation. His research, however, did not extend into examining putative reasons for this observation.

Central to the idea that grades can serve formative purposes is that the recipients of assessment information share an understanding of their meaning and are equipped to take action, within and outside of the classroom, to improve student learning (Ramaprasad, 1983). Reconciling the tension by combining assessments for both formative and summative purposes into a single letter grade is simplistic. According to Marzano (2000), averaging formative and summative assessments into a student's grade presents a biased estimate of the student's achievement, assuming that learning occurs during the term. Calculation methods alternative to averaging, however, may provide some strategies for deriving grades that better reflect student achievement and technical software programs may help given their greater grade tracking and computational abilities (Guskey, 1996; Stiggins, 1999; Marzano, 2000; Guskey, 2002a). Additional ways of providing students with more information, such as comments on how to improve, increases the chance of improvement during the term (Page, 1958).

No One Method Serves all Purposes Well

In Guskey's 1996 analysis of the history of grading and reporting practices, he asserts that researchers agree that no one method of grading or reporting serves all purposes well. He summarizes five different purposes of grading:

- Communicate the achievement status of students to parents and others.
- Provide information that students can use for self-evaluation.
- Select, identify, or group students for certain educational paths or programs.
- Provide incentives to learn.
- Evaluate the effectiveness of instructional programs. (Feldmesser, 1971; Frisbie and Waltman 1992; Airaisan, 1994).

According to Bailey and McTighe (1996), "the primary purpose of secondary level grades [is] to communicate student achievement," (p. 120). A single report card grade in each academic subject is the primary method of communication of achievement in high schools (Bailey & McTighe, 1996). In over 3100 high schools surveyed by the College Board (1998), 91% used letter grades A through F as a method to report student achievement. Measuring students' academic performance through assessments and providing ranking scores to summarize overall achievement has a long tradition in American education (e.g. Marzano, 2001). Averaging a grade into a number or symbol requires a large amount of material to be condensed into a single communication device. Indeed, "letter grades lack the richness of other more detailed reporting methods, such as

narratives or checklists of learning outcomes” (Guskey, 1996, p. 36), and therefore may not be suited to fulfilling all of the above purposes listed above. Averaging student’s grades fall short of providing an accurate picture of the level at which a student performs and, according to Marzano (2001), “grades are so imprecise that they are almost meaningless,” (p. 1).

Of these purposes, research supports that providing students with specific information for self-evaluation of progress towards meeting specific learning objectives increases academic achievement (Hattie, 1992). The use of standards-based report cards has increased as a method to report student achievement on specific learning objectives and many elementary and middle schools use standards-based report cards to communicate student achievement to parents and students (Marzano, 2001). High schools lag behind elementary and middle schools in modifying current reporting practices because of the unique way in which high school grades are used for administrative and guidance purposes (Marzano, 2001). At the high school level, letter and percentile grades factor into grade point average, honor roll, class rank and are used as placement mechanisms for advanced courses and college acceptance. Since these credentials serve these varied purposes, which are often leveraged and exchanged for future opportunities, many educators, students, and parents are reluctant to change current grade reporting systems from traditional averaged letter grades to standards-based reporting (Larabee, 1997; Marzano, 2001).

Guskey suggests using the median of a set of scores or examining the most recent set of grades to determine what grade provides the most accurate

depiction of what a student has learned (Guskey, 1996; Guskey, 2002a). Marzano (2000) argues that more valid scores would result from using a calculation method derived from a power function that takes into account student achievement as a function of time. Even using different calculation methods, the reported grade communicates a single fact about the student and the reader of the student's grade report does not know the factors that were included and how they were weighted (Allen, 2005). According to Allen (2005), "if a multidimensional view of the student is desired, then a multidimensional system of reporting is required," (p. 220). Allen (2005) calls for additional forms of reporting the factors that contribute to students' grades. Both Allen (2005) and Stiggins (1999) call for a reform of the traditional report card in order to separate achievement from non-achievement factors in student grades and for providing a richer description of student achievement over time.

Grading Remains a Subjective Enterprise

The third conclusion in Guskey's (1996) analysis notes that grading, despite teacher beliefs to the contrary, remains a subjective enterprise regardless of the method used to determine grades (Ornstein, 1994; Guskey, 1996; Guskey, 2002a). Subjectivity, however, is not inherently unacceptable. Teachers know their students and develop relationships with them over the course of one or more school years and see a student's progress through a body of work. The perceptions of the teachers may be very accurate in communicating what students have learned (Brookhart, 1993; O'Donnell & Woolfolk, 1991).

Subjectivity, however, can translate into bias such as holding different expectations for different students and/or disproportionate referrals to special education, depending on the child's background (Brookhart, 1993; Harris-Murri, King & Rostenberg, 2006; Reschly & Hosp, 2004; Scruggs & Mastropieri, 2002).

Brookhart (1993) studied 84 teachers, 40 with and 44 without instruction in classroom measurement, to determine the meanings these teachers associated with grades, the value judgments made when assigning grades, and if meanings and/or values differed based on a masters level course in classroom assessment. Brookhart (1993) found teacher statements about grades rife with value statements about students. This qualitative study highlights the problems with subjectivity. Brookhart (1993) noted that a double-standard existed among these teachers. When grading average or above-average performing students, the teachers perceived that the students were getting the mark that they deserved; a below-average student was considered to be getting a break if there was way for the teacher to justify it. Bishop (1992) suggests that teachers resolve the conflict of their dual role as judge and advocate by lowering expectations, by hiding a student's failure with charitable comments, or by sacrificing close, supportive relationships with students in an effort to maintain high standards at all costs. Teachers mix the role of judge and advocate differently for students of perceived different abilities, which is a value-laden act (Brookhart, 1993). Furthermore, results in this study did not differ between teachers with and without measurement instruction (Brookhart, 1993).

A study by Johnston et al. (1995), examined elementary school teachers and assessment in “literature-based” classrooms and observed how teachers’ deeply held beliefs and values manifest in assessing student work. By talking to teachers in various schools about assessment of student literacy, these researchers found that teachers constantly assess student work and the success of their own teaching through two frameworks. One frame is personal history: teachers bring their personal history to classroom assessment and these values and beliefs manifest in student grades. The other frame is institutional context: the culture of the school in which these teachers worked mattered in terms of how they viewed student learning and the success of their teaching (Johnston et al., 1995).

Johnston et. al. (1995) describe how the teachers were in conflict. The teachers’ belief systems did not always coincide with existing institutional structures around assessment. They found teachers had “very powerful feelings of being overwhelmed, and of insecurity, guilt, frustration, and anger” related to assessment of students (Johnston et. al., 1995, p. 359). They found that schools with high levels of administrative control through student assessment were characterized by adversarial relationships among stakeholders and an approach to assessment focusing on blame rather than problem-solving; equity and bias concerns emerged. In these situations, teachers’ assessments of children’s difficulties focused on factors related to the child such as special education status, home life, and perceived cultural or language inadequacies (Johnston et

al., 1995). Teachers in supportive school contexts, they found, were less likely to make these attributions.

Grades as a subjective enterprise highlights the values and beliefs that individual teachers bring to the grading process. The reports from both Brookhart (1993) and Johnston et al. (1995) demonstrate how teachers assign grades with great sensitivity to the social consequences that grades carry. In some cases, this resulted in lowering of expectations, reinforcing a mentality that stresses form over content.

Grades Have Some Value as Rewards

Researchers agree that not all motivation is intrinsic; grades and other reporting mechanisms do influence student effort (Cameron & Pierce, 1994; Chastain, 1990; Ebel, 1979). Some students are motivated to earn grades as credentials due to their exchange value (Larabee, 1997). Many students recognize high grades as rewards for their success; no studies, however, support the use of grades as punishment since low grades cause students to withdraw from learning (William & Black, 1998). There are teachers who use grades as a means of classroom discipline but such practices have no educational value and undermine the relationship between the student and the teacher (Guskey, 1996; Brookhart, 1999; Allen, 2005).

Teachers, likewise, view grades as a reward. In her study, Brookhart (1993) found that teachers tended to associate grades as payment for work done. She found that teachers viewed grades as a reward system for ability and effort.

In viewing grades as a reward, the teachers in Brookhart's study(1993) demonstrated beliefs about fairness when assigning grades, also viewing grades as a punishment. For these teachers, if a student was missing work, teacher comments reflected beliefs about treating students fairly and holding the student accountable for missing work (Brookhart, 1993). Although teachers use zeros to hold students accountable for missed work, researchers point out that zeros averaged into a score serve to punish students and miscommunicate students' learning (Guskey, 1996; Brookhart, 1999). When teachers deviated from grading on a straight average, however, they tended to invoke the social consequences for the grade when assigning a student a grade. Teacher comments reflected concerns with social consequences beyond school. The two largest categories of school consequences considered were changes in student effort and attitude (Brookhart, 1993).

The grading practices that teachers employ to evaluate student learning is one of the most influential components driving student motivation (Ames, 1992). When grades alone are used to communicate achievement, an unintended outcome of social comparison (ranking) among peers results (Butler, 1987). Social comparison leads to less motivation, "when teachers make high-stakes judgments about student achievement, students are thrown into a zero-sum competition with each other...we should not be surprised when most of them decide not to compete" (Bishop, 1992, p. 16). Students often view grades as a reflection on their ability more than of their effort. A meta-analysis of over 40 research studies by Black and Wiliam (1998) demonstrates that "if pupils are

given only marks or grades, they do not benefit from the feedback on their work". Persistently low marks perpetuate a feeling in the student of futility and expectations of low performance in subsequent assessments. The research supports that teachers and students come to a shared belief that the student lacks the ability to succeed (Black & Wiliam, 1998). Students, however, need not only the cognitive skills but also motivation in order to retain, understand and actively use knowledge (Perkins, 1992).

Social-cognitive models of motivation characterize student motivation as a dynamic and complex process that is situated, contextual, and domain-specific (Linnenbrink & Pintrich, 2002). Previous models had assumed that students could be characterized at one of two extremes: "motivated" or "not motivated". Motivated students were presumed to be high-performing and low-performing students could be characterized as not motivated. Recent research on motivation suggests that motivation is not a stable trait but rather it is malleable and dependent on context. Adaptive and maladaptive motivational patterns are related to the students' pursuit of goals (learning vs. performance) and their beliefs about intelligence (Dweck, 1986).

Achievement motivation involves students' pursuit of learning and performance goals. According to Dweck (1986), *learning goals* are those, "in which individuals seek to increase their competence, to understand or master something new," (p. 1040) and *performance goals* are those, "in which individuals seek to gain favorable judgments," (p. 1040). Learning goals focus on effort whereas performance goals focus on ability. Children who believe that

intelligence is fixed tend to pursue performance goals, however challenging or easy, that will result in a favorable judgment; children who believe that intelligence is malleable, tend to orient towards developing intelligence through learning new skills by mastering learning goals (Dweck, 1986). Students who pursue learning goals are more likely to seek ways to challenge themselves than those students who are preoccupied with receiving a favorable judgment; in the face of adversity, students pursuing performance goals are more likely to withdraw from the task and students pursuing learning goals are more likely to increase their effort on the task (Dweck, 1986).

Students who adopt learning goals believe that effort leads to success and that improvement results from a change in strategy (McCoombs, 1984; Dweck 1986). Research demonstrates that when students focus on improvement rather than on social comparisons with their peers, they demonstrate better recall of information (Graham & Golan, 1991). Additionally, Farrell and Dweck (as cited in Dweck, 1986) have shown that students who pursue learning goals have been shown to have greater transfer of knowledge from one task to another. Although factual recall represents the most superficial level of learning and the assessment tool used to examine student outcomes limited this research, that focusing on improvement helped students succeed in memorization tasks, combined with other data, suggests that if educators seek ways to focus on improvement of learning on a variety of tasks, including those that require more complex cognitive processes such as application, synthesis, and evaluation, then students should demonstrate increased achievement.

Implicit theories of intelligence suggest that individuals hold that intelligence is incremental and changeable (incremental theory) or fixed and innate (entity theory) (e.g. Henderson & Dweck, 1990). Students with beliefs of incremental intelligence are more likely to focus on learning goals that are aimed at increasing ability, believe that effort builds further intelligence, attribute struggle or failure to low-effort rather than a helpless sense of low-ability, and display strategies toward mastering more challenging tasks than students with entity beliefs (e.g. Blackwell, Trzesniewski, & Dweck, 2007). Most studies investigating the impact of intelligence theories on student achievement were limited to one assessment in time. Blackwell, Trzesniewski, and Dweck (2007) recently conducted a longitudinal study of 373 middle school students over two years to examine whether or not students' intelligence theories are related to an achievement trajectory over time and why students' intelligence theories are related to grades. Indeed, the students in this study who held incremental beliefs about their intelligence outperformed their peers over a two-year time period. According to Blackwell, Trzesniewski, and Dweck (2007), "their motivational patterns mediated this relation such that students with an incremental orientation had more positive motivational beliefs, which in turn were related to increasing grades," (p. 253). The motivational beliefs that mediated success were: affirmation of learning goals, believed in the necessity of working hard, fewer ability-based attributions of helplessness when faced with setbacks, less likely to attribute success or failure to ability, and more likely to suggest increased effort or change in strategy (Blackwell, Trzesniewski, & Dweck, 2007).

Blackwell, Trzesniewski, and Dweck (2007) conducted a second study to examine if explicitly teaching an incremental theory has an added benefit over traditional academic interventions and, if so, what consequences did this have in classroom behavior. Ninety-nine middle school students were involved in this study and an experimental group received instruction in the brain and incremental intelligence; the key message of an eight-week intervention was “learning changes the brain by forming new connections, and that students are in charge of this process” (Blackwell, Trzesniewski, & Dweck, 2007, p. 254). A downward trajectory in math grades, often seen in middle school as academic expectations increase, was experienced by the control group over the two-year study. However, within a few months of the intervention, the experimental group halted the downward trajectory of their math grades and then began to see improvements in their grades (Blackwell, Trzesniewski, & Dweck, 2007).

As learning challenges increase in middle and secondary grades, students’ beliefs about themselves as learners become even more important in helping students succeed. Adolescence is a time of growing autonomy from support networks such as parents amidst increasing competition, social comparison, and ability self-assessment in a time of greater focus on the developing self (Blackwell, Trzesniewski, & Dweck, 2007). Maladaptive motivation tendencies may emerge strongly among students facing new obstacles at higher grade levels through the avoidance of challenging courses of study, dropping out of courses that pose failure, and impairment of performance under difficulty. The consequences of impaired performance could be significant as the consequential

decisions that are made from grades at the high school level may influence students' future choices (Dweck, 1986). Educators can influence motivation in an effort to provide all students with challenging learning opportunities.

Students who come to adopt an incremental theory of intelligence are better able to self-regulate their learning and believe that effort leads to improved performance (see Blackwell, Trzesniewski, & Dweck 2007). Feedback regulates motivation; external feedback influences how students feel about themselves as learners (Dweck, 1999). Additionally, feedback is regulated by motivation: a student's beliefs as a learner impact the interpretation of the meaning of the feedback messages (Garcia, 1995). This suggests that educators, through carefully crafted instructional design and assessment practices, can make significant changes in improving (or inhibiting) student motivation (Linnenbrink & Pintrich, 2002; Blackwell, Trzesniewski, & Dweck, 2007).

The standards, criteria, methods of grading, the frequency of assessment and the content of a teacher's evaluations have been demonstrated through research to be influential in motivating student learning (Epstein & Mac Iver, 1990) in addition to the explicitly teaching of incremental theory of intelligence to students (Blackwell, Trzesniewski, & Dweck, 2007). Effective communication about assessment includes educating students about the specific learning target they should strive to achieve, along with providing examples of strong and poor attempts to meet the target. Armed with this information, students are more likely to have an optimistic response to their own attempt at meeting the learning objective. By teaching students how to improve towards meeting the target and

monitoring their performance over time, assessment for learning helps students close the gap between their current performance and the expected demonstration of meeting the learning objective (Stiggins & Chapuis, 2005).

Previous approaches to school improvement and student achievement involved placing assessment data in the hands of administrators and teachers who interpreted this data and modified future instruction and assessment (Marzano, 2001). Newer approaches in assessment expand the amount of information students have about the specific learning standards against which they are being measured and their performance data from a variety of assessments that are designed to measure progress towards mastery of learning objectives. When consistently applied within a school, assessment for learning leads to improvement in academic performance, particularly for low-achieving students (Bloom, 1984; Black & Wiliam, 1998; Meisels, Atkins-Burnett, Xue & Bickel, 2003; Rodriguez, 2004).

The content of a teacher's evaluations sends important messages to students. According to Dweck (2007), "many educators have hoped to maximize students' confidence in their abilities, their enjoyment of learning, and their ability to thrive in school by praising their intelligence," (p. 36). Dweck (2007) argues, however, that praising for intelligence fosters a fixed-intelligence mindset which provides the student with a brief burst of pride followed by negative consequences including anxiety, withdrawal from the task, avoidance of challenge, and decreased enjoyment. She calls on educators to praise students for effort, instead, to develop in students a growth mind-set of incremental

intelligence (Dweck, 2007). According to Dweck (2007), “adolescents often see school as a place where they perform for teachers who then judge them. The growth mind-set changes that perspective and makes school a place where students vigorously engage in learning for their own benefit,” (p. 38).

Studies from higher education suggest that formative assessment develops self-regulating learning strategies in students (Nicol & Macfarlane-Dick, 2006). Student self-regulating learning behaviors include the setting of and orientation towards learning goals, effort exerted on a task, strategies used in completing a task, the management of resources, and reactions to feedback from external sources (Nicol & Macfarlane-Dick, 2006). Students who are more effective at self-regulation are better able to generate their own feedback (self-assessment) or use the feedback that they receive (from peers and teachers) to monitor their progress towards meeting learning goals (Butler & Winne, 1995). According to Black and Wiliam (1998), “Underlying the various approaches [to improving classroom assessment], are assumptions about what makes for effective learning – in particular that students have to be actively involved [in the assessment process]”. Students ought to be involved in the assessment, record-keeping, and communication process in order to improve student learning (Stiggins, 1999).

Grading in Reference to Absolute Learning Criteria

The final conclusion in Guskey’s (1996) synthesis of research on grading is that grading should always be done in reference to absolute learning criteria.

Relative criteria, “grading on the curve”, does not communicate what students know and are able to do. Furthermore, it ranks students against each other and leads to comparisons; social comparison leads to less motivation, “when teachers make high-stakes judgments about student achievement, students are thrown into a zero-sum competition with each other...we should not be surprised when most of them decide not to compete” (Bishop, 1992, p. 16).

A research study involving 575 students, grades seven through 12, examined students’ perceptions of fairness in systems of criterion-referenced, norm-referenced, and individual-referenced grading (Dalbert, Schneidewind, & Saalbach, 2006). Students were presented with vignettes of different grading scenarios and asked to complete a survey about their thoughts. Students rated criterion-referenced grading as the most just practice, individual-referenced grading (based on individual student improvement) as almost just, and norm-referenced grading as almost unjust. The higher-performing students were more likely to rate criterion-referenced grading as a just practice.

In defining absolute learning criteria, Guskey (1996) distinguishes among product, process, and progress criteria. He argues that teachers should use *product criteria*, a measurement of what a student knows and is able to do at a specific point in time, to determine a student’s grade. Including *process criteria* such as homework completion, regular classroom quizzes, participation, or measurements of improvement (*progress criteria*) opens up the already subjective enterprise of grading to bias and inequity (Guskey 1996).

Conclusions by Stiggins et. al. (1989) support Guskey's approach. Grades should reflect a student's status towards meeting the standard at a specific point in time, not a measurement of the student's growth over time, a grade should be based solely on academic achievement and that non-academic achievement factors, if communicated, should be communicated separately (Allen, 2005; Stiggins et. al., 1989).

Brookhart's (1993) study highlights the tension of grading against absolute criteria in a credentials-focused society. She found that teachers without measurement instruction were more likely to discuss a grade with a self-referenced meaning of individual growth or improvement. These teachers were also more likely to talk about evidence other than student academic performance in determining the grade. Both teachers with and without measurement instruction, however, similarly considered both the interpretation of a grade and the use of the grade and the school or social consequences in the application of their grading practices (Brookhart, 1993). Furthermore, Brookhart (1993) found that the lack of measurement training was not enough to explain the discrepancies between recommended and actual grading practices in the classrooms of these teachers. She asserts that teachers do not follow recommended practices because there is a conflict between the meaning of the grade and concerns with the use/ social consequences of the grade. According to Brookhart (1993), "recommended practices that would limit grades to measures of achievement would make more sense if teachers could guarantee that grades

would only be used as measures of achievement and they cannot do this” (p. 139).

Best Practices and Classroom Grading

Despite decades of research on classroom grading, traditional methods of grading and reporting persist. Few teachers receive adequate training in grading and reporting and districts fail to provide adequate direction to ensure consistency in grading and reporting practices (Guskey, 1996; Brookhart, 1999; Allen, 2005). Researchers suggest some different reasons for the discrepancy between research-supported practices and teacher implementation. Stiggins et al. (1989) offer several reasons why teachers fail to employ the most effective practices in classroom assessment. These authors assert that teachers may perceive best practices to be matters of opinion, that recommended practices do not take into account the practical aspects of teaching, and that teachers lack the training and the expertise to employ these strategies (Stiggins et al., 1989). Studies also point to teachers feeling uncomfortable with grading (Barnes, 1985; Brookhart, 1993; Brookhart, 1991). When changes are made, however, teachers’ grading practices evolve slowly as their knowledge and experience develops (Frisbie & Waltman, 1992).

The results from the two qualitative studies, however, point to a need for more than an examination of the technical training of teachers in assessment and classroom grading (Brookhart, 1993; Johnston et al., 1995). Teachers’ experiences with grades as students themselves influence their grading practices and

perpetuate ineffective assessment methods (Allen, 2005). Johnston et al. (1995) assert, “the classroom teacher is also an interpretive mirror through which children represent their own performance” (p. 369). The teacher is an assessment instrument. Students develop a construct through the feedback they receive from their teacher, which holds the key in determining if students activate on learning (Johnston et al., 1995). Teachers are seen as holding the central role in assessment. To these researchers, “improving assessment means changing understandings about...learning *and* changing the situation in which assessment takes place” (emphasis original) (Johnston et al., 1995, p. 369).

According to Johnston et al. (1995), teacher development efforts must help both teachers and their schools and districts become more reflective about the significance of personal beliefs and the context of the school culture on student assessment. Studies support that there is a lack of shared meaning about grades among students, parents and the education community (Baron, 2000; Guskey, 2002b). Even within one school, different teachers hold a different belief about the purpose of grades and there is little communication among teachers about grading (Kain, 1996). According to Allen (2005), “teachers often work independently and are left to figure out their own grading policies, gradually adhering to the school’s norms,” (p. 219). Allen (2005) further argues that a major initiative needs to occur in which teachers are guided in making better decisions about grading and their own grading practices. Brookart (1999), similarly argues that teacher professional judgment needs careful consideration in teacher preparation programs since, “even mechanically computer grades are

not judgment free, since a teacher plans what instruction and assessments to use for reasons that involve educational judgment," (p. 9).

The teacher, central to assessment, plays two roles in traditional grading systems. The teacher serves as a judge of student learning when measuring student's achievement against a standard. The teacher also serves in a conflicting role of student advocate when the teacher gives a grade considering the consequences of these grades on the student's self-esteem, future course placement, other credentials, and college acceptance (Brookhart, 1993).

According to Brookhart (1993), "the grading process, as currently practiced, leaves teachers to work out the compromises they must make in their dual role as both judge and advocate for their students" (p. 141). And since grading remains necessarily subjective, ultimately, "each teacher still must decide what information goes into the calculation, what weight will be attached to each source of information, and what method will be used to tally and summarize this information" (Guskey, 2002a, p. 777).

Brookhart (1993) further argues that recommended grading practices leave no room for compromises or a solution to the tension inherent in the teacher serving as both judge and advocate. As a result, teachers rarely employ "best practices" in sound assessment. As mentioned previously, Wiliam and Black (1996) proposed an assessment solution that separated formative from summative functions completely assigning formative functions to teachers and summative functions to external agencies. On the one hand, this could resolve the tension between teacher as judge and teacher as advocate: if a teacher were to

assess student work in a simply formative way, he serves in the role as student advocate as the student strives to meet an external standard and the external agency acts as judge. Johnston et al. (1995) caution, however, that external accountability from states through high-stakes testing threatens to create an authoritarian environment where teachers assess students in ways that undermine the intentions of reform. An authoritarian environment could lead to further blame rather than problem-solving (Johnston et al., 1995). Johnston et al. (1995) conclude, “assessment involves complex, and often conflicting, personal and institutional belief systems that are embedded in interpersonal relationships. Assessment is always more social than technical” (p. 370).

Brookhart (1993) suggests that the discrepancy between recommended grading practices and actual grading practices, combined with teachers’ discomfort in grading, reflects a problem of validity. Messick (1989) defines validity as “an integrated evaluative judgment of the degree to which empirical evidence and theoretical rationales support the *adequacy* and *appropriateness* of *inferences* and *actions* based on test scores or other modes of assessment” (emphasis original) (p. 5). Messick notes, then, that validity is an evaluative judgment of both the empirical evidence for and the actual and potential consequences of a grade’s interpretation and use. Brookhart (1993) concludes, “teachers’ grading practices reflect teachers’ consideration of the consequences of grades, sometimes at the expense of considering the interpretability of grades” (p. 124). In grading, the distinction between interpretation and use is more blurred than for most educational measures; the use of the grade drives its

interpretation (Brookhart, 1993). She argues that the distinction between empirical and consequential sources of justification become most significant.

High-stakes testing and the focus of policy on external accountability assumes that test results will translate into changes in classroom instruction providing more equitable educational opportunities for today's students (Mass. Ed. Reform Act, 1993; NCLB, 2001). Yet, research highlights the teacher's role in assessment and their classroom assessment practices as central to improving student learning (Guskey, 1996; Johnston et al., 1995; Stiggins, 1999). According to Stiggins (1999), "if assessment is not working effectively in our classrooms every day, then assessment at all other levels (district, state, national, or international) represents a complete waste of time and money" (p. 193). He argues that it is now time to invest in classroom assessment practices to ensure that teachers are gathering reliable information and using it in ways to benefit student learning; the day-to-day classroom assessments currently used "motivate learners to believe in or lose faith in and reject their own academic potential" (Stiggins, 1999, p. 193).

Parent Involvement and Student Achievement

Education reform recognizes the importance of parental involvement in schools and mandates that schools organize programs of parental involvement. Epstein (2005) summarizes the sociological principles of the No Child Left Behind Act (2001) that represent a major paradigm shift in thought around parental involvement. Parental involvement is recognized in the law as an

essential component of school improvement because of the effects on student learning. She writes that parental involvement requires multilevel leadership including not only state leaders but also, more directly, leaders within schools. Importantly, the law stresses that parental involvement requires a shared responsibility of educators and families for student learning and success. The law also requires that parent involvement must not be limited to those who are easiest to reach; parental involvement programs must include all families (Epstein, 2005).

Social science research, in general, supports the significance of parent involvement in student achievement. Epstein (2001) and Hiatt-Michael (2001) both describe how teachers' efforts to involve families in student learning leads to better student attendance, lower high school dropout rates, less retention in the same grade, increased parent and student satisfaction with school, improved achievement on standardized reading and math tests, and more appropriate referrals to special education services. In addition to academic improvement, parental involvement is linked to positive changes in students' social and emotional well being including increased student motivation, improved self-esteem, lower rates of suspension, decreased use of drugs and alcohol, and fewer instances of violent behavior and negative discipline reports (Epstein, 2001; Hiatt-Michael, 2001; Michigan Department of Education, 2002).

Family involvement is twice as predictive of students' academic success as socioeconomic status (Walberg, 1984). White (1982) conducted a meta-analysis of 101 reports to examine correlations. Depending on how SES was defined, the

correlation between SES and student achievement varied widely. His study demonstrated that the home atmosphere had the strongest relationship with student achievement when compared to factors such as parental education level, occupation, or income. The activities most likely to influence student academic achievement are those that help parents change the home environment to facilitate learning; data shows that parents need specific information on how to help and what to do (Leler, H., 1983). According to Marzano (2003), the home atmosphere is comprised of three elements: communication, supervision, and parental expectations. This summary is consistent with Epstein's framework for parental involvement and two areas emerge related to this leadership project: learning at home (supervision and expectations) and communication.

Epstein (2001; Epstein et. al., 2002) organizes parental involvement into six types: parenting, communicating, volunteering, learning at home, decision making, and collaborating with the community. She stresses the importance of family involvement in schools: "when schools organize high-quality programs to inform and engage all families, many more parents feel welcome at school and valued by educators and become involved because of school and classroom partnership practices" (Epstein, 2005, p. 180).

Powerful parent perceptions influence why parents become involved in school. Hoover-Dempsey and Sandler (1997) reviewed the literature around parental involvement and identified three major constructs as central to parents' decisions to become involved. According to Hoover-Dempsey and Sandler (1997), parental role construction "defines parents' beliefs about what they are

supposed to do...and appears to establish the basic range of activities” believed to be “important, necessary, and permissible” (p. 3). Parents’ sense of efficacy in helping their children in school “focuses on the extent to which parents believe that through their involvement they can exert positive influence” on the outcomes of their child’s education (Hoover-Dempsey & Sandler, 1997, p. 3). Central to the idea of parents’ sense of efficacy is the extent to which parents attribute learning success to their child’s ability or to their child’s effort and the beliefs the parents hold about intelligence as fixed or incremental (Hoover-Dempsey & Sandler, 1997). The third factor influencing parental involvement, according to Hoover-Dempsey and Sander (1997), is the way in which the school and the child invite the parent to be involved. Parents who perceive that the school and their child want them to be involved are more likely to initiate involvement in school-related matters.

The best predictors of parent involvement in school and student learning are the specific programs, supports, education and training that schools and teachers put into place to encourage parent involvement and guide parents with specific information on how to help their child succeed (Leler, 1983; Morton-Williams, 1964; Dauber & Epstein, 1983). Hoover-Dempsey and Sandler (1997) caution, however, that “well-designed school programs inviting involvement will meet with only limited success if they do not address issues of parental role construction and parental sense of efficacy for helping children succeed in school” (p. 3). In designing interventions to promote parental involvement, educators should pay attention to the ways in which they work with parents on

how to help their child succeed, including the ways in which the school communicates the necessary and permissible actions a parent should take through their involvement with the school.

High expectations of students, communicated by parents, have the strongest association with enhanced student achievement (Marzano, 2003). Marzano (2003) notes that the student's perceptions of parental expectations may be more important than the expectations themselves. The most consistent predictors of a student's academic achievement and social well-being were parental expectations for a child's academic success and the parent's satisfaction with the school (Reynolds et. al. as cited in Michigan Department of Education). Parents of high-achieving students set higher expectations than parents of low-achieving students (Clark, 1990). Supervision refers to "the extent to which parents monitor and control their children's behavior to optimize academic achievement" (Marzano, 2003, p. 128). Holding high expectations and supervising their child's work are key actions a parent can take to be involved in their child's education that promote greater achievement.

In addition to expectations for a child's success, the attributions parents make about the child's success has major implications for future school work. According to Hoover-Dempsey and Sandler (1997), parental attributions to their child's effort are often correlated with better school performance. Parental attributions to ability or luck are often associated with poorer school performance. Descriptive, qualitative studies comparing the involvement of parents in China and Japan to parents in the United States suggested that U.S.

parents held lower standards for their children and overestimated their child's abilities. The U.S. parents communicated satisfaction with their child's current level of performance. The authors suggested that children received the message from their parents that further effort was not needed. The authors felt that the U.S. parents placed a greater emphasis on innate ability and the parents deemphasized the importance of effort (Stevenson, Lee, Chen, Lummis, et. al., 1990; Stevenson, Lee, Chen, Stigler, et. al., 1990). Hoover-Dempsey and Sandler (1997) note that the significance of these studies lie in the suggestion that U.S. parents consider ability, often conceived of as a fixed trait, to be significant in a child's achievement.

Implicit theories of intelligence suggest that individuals believe that intelligence is incremental and changeable (incremental theory) or fixed and innate (entity theory) (e.g. Henderson & Dweck, 1990). According to Hoover-Dempsey and Sandler (1997), parents who hold an incremental theory of intelligence are more likely to have higher beliefs of self-efficacy in helping their children in school as well as higher beliefs of efficacy of their children through increased effort in school. Alternatively, parents who are at risk for low or less productive involvement with their child's education are likely to hold an entity theory of intelligence along with beliefs of their own low efficacy to engage meaningfully in their child's education.

Educators can influence the home environment through partnerships with parents to improve student achievement. Hoover-Dempsey and Sandler (1997) conclude that the invitations to parents by schools have power to make a

difference in whether or not the parents engage meaningfully with the school and their child's education. According to Hoover-Dempsey and Sandler (1997):

Well-designed invitations hold this power because role construction and efficacy are both, to an important extent, socially constructed. Invitations to involvement...create opportunities for the social construction – by parents, teachers, schools, and children – of parental roles that include involvement and an enhanced sense of efficacy. (p. 34)

Parental involvement reinforces to the student that home and school are connected and that school is an integral part of their whole life (Marzano, 2003). According to Hoover-Dempsey and Sandler (1997), “across the elementary and secondary age span, it appears that such variables as children's developmental levels, performance patterns, qualities of personality, and learning style may function as important influences on parental decisions about involvement” (p. 29). The majority of students, even high school students, want their parents to be involved in their education. According to Epstein (1995), students, including high school students, want their families to be knowledgeable about school and these students are willing to take active roles in facilitating home-school communication.

According to Marzano (2003) communication refers to “parents' interest in and communication about schoolwork of their children” (p.128). Effective communication is critical so that students, parents and teachers all interpret grades with the same meaning and so that the intended recipient, the students and the parents, can take appropriate action to help improve student learning.

According to Epstein (2001), communicating ought to involve effective forms of home-school communication that include regular notices that help students learn at home. Information sent home ought to include ideas for parents on how to help their children with homework and organization around planning as well as student goal-setting (Epstein, 2001).

According to Waltman and Frisbie (1994), if communication between the home and school is poor, a grade, as valid as it might be to indicate student achievement, means little if the intended recipient cannot interpret its meaning. They call for a reform of the report card suggesting that interpretive aids should be built into the report card to assist children and their parents in making meaning of letter grades. They also suggest a modified report card that separates achievement and non-achievement factors.

Some studies of parental involvement, however, point to negative correlations with some aspects of parent involvement including close supervision of homework and after school activities, frequent contacts with school and parent teacher conferences, and frequent talks with children about school (Milne, Meyers, Rosenthal, Ginsburg, 1986; Muller & Kerbow, 1993; Lee, 1994; Astone & McLanahan, 1991). Researchers interpret these negative correlations as indicative of the additional efforts of parents' who seek to help children with low-academic performance or behavioral problems (Catsambis, 1998). An alternative explanation to increased parental involvement comes from emerging literature around over-involved parents.

In The Price of Privilege (2006), Madeline Levine attributes the increasing mental health concerns of affluent, wealthy children as the result of excessive parental pressure and a culture of consumerism. She points to parents who, ready to intervene on behalf of their children, destroy a child's sense of autonomy, competence and ability to develop meaningful interpersonal relationships. She notes that two meaningful patterns emerge that contribute to the alarming cases of mental health concerns among wealthy children: achievement pressure and isolation from parents. According to Levine (2006), "parents anxiety about school performance leads to children who are pressured and anxious" (p.29) which can lead to other problems like maladaptive perfectionism that impairs a child's functioning. Levine warns that "intrusion and over-involvement prevent the development of the skills that children need to be successful" (p. 139).

Levine (2006) and Marzano (2003) examine parenting styles and one style in particular in which parents can connect with their children more meaningfully. Authoritative parents set limits and high expectations yet combine high expectations with high support in encouraging their children to meet high expectations (Marzano, 2003; Levine, 2006). They focus on effort and improvement rather than achievement at all cost; praise is communicated carefully so that the child does not come to believe that love and acceptance are conditional on top performance (Levine, 2006).

Although research supports parent involvement in improving student learning, teachers receive little formal training, particularly at the high school

level, in working with parents and families (Epstein, 2001; Hiatt-Michael, 2002). In a survey sent to department chairs of public and private schools with teacher preparation programs, seven of 96 respondents reported that parental involvement topics were not included in any course. Twenty-two respondents reported that a course in parental involvement was offered as an elective but not required for prospective K-12 teachers. Ninety-three percent of respondents reported that parental involvement was included as topics in existing courses in special education, reading methods, instructional methods, and early childhood education, consistent with findings reported elsewhere that attention to parental involvement is disproportionately represented in special education and early childhood education teacher preparation (Epstein, 2001). The most frequent topic addressed in parental involvement topics is parent conferences and few programs addressed more interactive forms of involvement such as homework with parents, conducting parent workshops, and producing class newsletters (Hiatt-Michael, 2001). As a result, teachers possess minimal knowledge and skills to work with parents (Hiatt-Michael, 2002).

Teacher preparation programs that address parental involvement issues impact classroom practice. Katz and Bauch (1999) assessed the impact of parent involvement training on graduates from Peabody College at Vanderbilt University. Their study indicated that, as a result of their training, these new teacher felt prepared and therefore engaged in a diverse number of parent involvement practices when they entered their classrooms.

There is a belief among teachers that high school parents and parents of low socioeconomic status will not or cannot participate in their child's education (Epstein, 1984; Clark, 1990). Yet, teachers believe that working with parents is important to positive outcomes in school (Epstein, 2001). Teachers entering the classroom, many of whom are teaching students of different cultures, are urging teacher education programs to involve parent involvement preparation (Hiatt-Michael, 2002). Formal opportunities for teachers who did not receive training through their preparation program, however, are limited (Hiatt-Michael, 2002).

Changing School Culture

State and federal policies for high-stakes accountability assumed increases in teacher motivation, improvements in the organizational development of schools, and instructional change in classrooms (Mintrop, 2003 as cited in Fullan, 2005). Many schools, however, improved only on the surface and meaningful change was elusive. Mintrop (2003) asserts that high-stakes policies, "insufficiently tapped into teachers' personal sense of responsibility for performance" (as cited in Fullan, 2005). Teachers felt singled out for poor student performance and externalized the causes for student failure (Mintrop, 2003 as cited in Fullan, 2005). Fullan (2005) asserts that, within education, what is required is a shift away from high-stakes accountability towards an emphasis on capacity building. Fullan (2005) defines capacity building as the "developments that increase the collective power in the school in terms of new knowledge and competencies, increased motivation to engage in improvement

actions, and additional resources” (p. 175). Improving capacity provides the greatest chance at success in school improvement (Fullan, 2005). The challenge of change in education, according to Fullan (2001), is to replace superficial changes with coherence and meaning. He writes, “the real value for student learning is when *shared* meaning is achieved across a group of people working in concert” (Fullan, 2001, p. 46).

Meaning is central to lasting change because it provides order and leads to personal satisfaction and motivation (Sergiovanni, 2001). According to Fullan, attempts at educational change have neglected to consider anxiety and mastery associated with change. Yet, he asserts, “the anxieties of uncertainty and the joys of mastery are central to the subjective meaning of change” (Fullan, 2001, p. 32). Fullan (2001) notes that a primary problem is the way in which most educational change is introduced; traditional change efforts fail to provide teachers with the opportunity to question the change and invest in sustained learning. The secret to change is making sure everyone has the support and the capacity to implement the change successfully (Elmore, 2005). Trust is an important part of the process; people need to be assured that mistakes will be accepted and support will be provided (Sergiovanni, 2005). Meaningful change requires new processes and cultures in schools that engage teachers in developing new understandings and deep meaning about teaching and learning (Fullan, 2001).

Meaning is required for behavioral changes: “Behavior changes once meaning is known and enhanced” (Sergiovanni, 2001, p. 21). According to Sergiovanni (2001), “...sense and meaning are necessary to unlock the capacity

for people to stretch themselves and for authentic learning to take place” (p. 21). Real change, then, involves changes in role behavior and practice (Fullan, 2001). It is possible, however, to engage in surface-level changes of behavior and practice by mimicking expected actions without fully understanding the underlying principles and justification for change (Fullan, 2001). To go beyond superficial changes towards lasting reform requires an understanding of the values and beliefs that drive behavior and can mean a change in people’s values and beliefs when these values do not align with the expected behavior. Change in practice, however, precedes changes in beliefs (Fullan, 2001; Elmore, 2005) as, “people in schools primarily learn values and expectations through practice; they do not learn new practices as a consequence of learning new values and expectations” (Elmore, 2005, p. 141). Emphasizing purposing and cultivating shared values provide the glue that connects people in meaningful ways.

One of the ways leaders develop a shared commitment to following values is through purposing. Purposing provides a sense of meaning and clarity for what schools do (Sergiovanni, 1992). Purposing allows educators to give reasons and a rationale for what is done, not only to others outside of the school, but also to themselves (Sergiovanni, 1992). Through purposing, stakeholders see the connection between behavior and actions and the larger purpose. The key to successful purposing is when the leader promotes and protects something worth following, namely the shared ideas, values, and commitments of the organization (Sergiovanni, 1992).

According to Elmore (2005), the leader's behavior models the commitment to the shared values through engagement in instructional practices and values collective over individual results. Other educators internalize their responsibility for student learning and examine their practice and change their methods in order to be aligned with the shared values (Elmore, 2005). This process of improvement involves individual and collective learning of new knowledge and skills rather than relying on the application of existing methods to solve problems (Elmore, 2005). According to Sergiovanni (2001), the problems facing educators are too complex to assume that predetermined solutions exist. Connecting people to each other, their work, and their responsibilities mobilize them to develop and meaningful change through new solutions matched to the particulars of a specific, complex problems within the context of an individual organization (Sergiovanni, 2001).

Problems to which predetermined solutions may be applied can be considered *technical challenges* (Heifetz, 1994; Heifetz & Linsky, 2004). Although these problems may be complex, solutions are known and experts may be called in to assist in the solution. *Adaptive challenges* are different. According to Heifetz (1994), "an adaptive challenge is a...problem where the gap cannot be closed by the current technical know-how or routine behavior" (p. 35). Solutions to adaptive challenges reside not in technical answers but rather in changing "people's values, beliefs, habits, ways of working, or ways of life" (Heifetz & Linsky, 2004, p. 35). Adaptive work involves the learning required to confront, rather than avoid, conflicting values and beliefs and the manifestation of these

beliefs in behavior (Heifetz, 1994). These confrontations and changes are accompanied by loss, making the change process difficult (Heifetz, 1994; Fullan, 2001).

Learning is necessarily a social task and new meanings depend on whether or not the teachers are working as individuals or in groups, helping each other learn and learning from each other (Fullan, 2001). Heifetz (1994) clarifies that this learning is not simply conceptual but it is also emotional. The leader has to engage the parties in acknowledging their fear, pain, and loss in order for the organization to learn (Heifetz, 1994; Fullan, 2001). The key is to “give the work back to the people without abandoning them” (Heifetz, 1994, p. 251). These people must adapt and the leader mobilizes them to do so through learning.

Traditional examination of innovations that involve change in schools ignores the fact that most teachers do innovate (Fullan, 2001). The literature on school change “misses the thousands of small innovations that individual and small groups of teachers engage in every day” (Fullan, 2001, p. 59). Yet, educators often operate in isolation due to cultural norms of autonomy (Fullan, 2001; Heifetz & Linsky, 1994). Improvement projects with specific definition and more specific support strategies have been shown to lead to improved student learning (Fullan, 2001). Purpose, shared values, alignment of practices and learning lead to improvement. “When schools establish professional learning communities, teachers constantly search for new ways of making improvements” (Fullan, 2001, p. 60).

Most problems contain elements that are both technical and adaptive (Heifitz & Linsky, 2004). The PowerSchool project contains elements of both technical and adaptive challenges. The training of teachers to use the software represents a technical challenge. The use of the program to improve student learning, however, represents an adaptive challenge that requires the examination of existing practices, every day classroom innovations, and espoused beliefs.

While the literature on best practices in grading highlight important points about assessment and student achievement, a gap persists between research on effective practices and the implementation in the classroom (Guskey, 1996; Brookhart, 1993). With traditional grading practices, many schools and teachers encourage individual interests and individual achievement which is at odds with requiring that students meet societal standards of knowing, doing and thinking (Larabee, 1997; Neill, 1997). Traditional reporting methods struggle to fulfill all purposes of assigning grades (Guskey, 1996). Classroom teachers walk a rope of tension between the meaning of grades as representing learning and the social consequences these grades carry (Johnston et al., 1995). This conflict places the teacher in incompatible, dual roles as both judge and advocate (Bishop, 1992; Brookhart, 1993). As a result, educators must ask critical questions about what grades should include and symbolize about student achievement. Parent involvement can be misapplied without instructive ways in which parents can become involved with their children's achievement in healthy ways (Levine,

2006). The implementation of on-line gradebooks has occurred with varying degrees of success in districts across the country.

The examination of the validity of grades and their social consequences, assessment practices and their effect on student motivation, the rationale teachers use to calculate grades, increased transparency with parents as a form of communication, and the conflicts that arise among the conflicting roles of teachers, parents, and students is adaptive work. There were no prescriptions or easy answers on how to implement the PowerSchool pilot project.

Conclusion

This chapter reviewed the literature informing the study in four areas: technology and assessment, assessment and student motivation for learning, parental involvement and student achievement, and changing school culture.

PowerSchool presents opportunities for teachers to provide parents and students with a multi-dimensional view of student achievement, improving the quality of assessment feedback that traditionally occurs through averaged grades on report cards. Armed with additional information, students may be more responsible and motivated to improve and parents may be better equipped to help their children improve. This alternate form of reporting, however, cannot replace the interpersonal relationships between students and teachers; teachers, and the decisions they make regarding student evaluation, remain central to assessment.

Grades, although unreliable measures of student achievement, have serious personal and social consequences for students, particularly at the high school level. Grades greatly impact student behavior, attitudes and motivation. The strategies teachers use to derive grades are extremely important in orienting students towards a growth mindset; students improve if they know what to do with assessment information in order to improve their learning. PowerSchool promises that greater transparency illuminates the practices teachers use to assess students and provides teachers with an opportunity to foster grades as a formative source of information that students may use to improve.

The use of PowerSchool to communicate assessment information has elements of both technical and adaptive challenges. Teachers may be trained to implement the software program but how this translates into a change in practice represents an adaptive challenge. Teachers have to confront multiple values and beliefs around grading which makes this type of challenge particularly difficult. This study examined both the outcomes of PowerSchool on communication and assessment, as well as the process of implementing PowerSchool parent and student access from the perspective of changing school culture.

The next chapter, Chapter Three, describes the proposed research study including the focus, the research questions, the research methodology and rationale, the methods of data collection, the methods of data analysis, and the methods of displaying the data that is collected, a framework for discussing the research findings, and the limitations of this study.

CHAPTER THREE

Design of the Study

Introduction

This chapter presents the design of the research study aimed to describe the effect of increasing transparency of grades to students and parents on teachers' perceptions of communication, assessment practices, and student motivation. First, the research design and rationale are presented. The research questions and hypothesis around which the study is designed follow. The research methodology is presented describing the methods aimed to answer the research questions. The study site and sample of teacher participants is described in detail including the rationale for the design of the sample. Instruments used are described in detail along with the methods for pilot testing the instruments and the data gathering procedures. The methods of data analysis are described along with measures taken to overcome the limitations of the proposed research design. Formats for reporting the data are discussed along with the framework for discussing the findings. The chapter concludes with a description of the limitations inherent in a qualitative, evaluative case study and also specific limitations as a result of the local context in which this study takes place.

Research Design

This study was designed as a case study based on generic qualitative data (from interviews, journals, questionnaires, and observations) that sought to

understand and describe the recurring patterns and themes of the perceptions of participants going through the process of opening gradebooks online to parent and student access. This research study extended beyond a basic, descriptive case study by evaluating the process and outcomes of the PowerSchool project to inform policy and practice. This study extends the body of research (technology and assessment, assessment practices and student motivation, parent involvement, and changing school culture) that was presented in the literature review.

There are several types of qualitative research, however, a case study was best suited to study this project and its research questions. Case studies allow the researcher, “to gain an in-depth understanding and meaning of the situation for those involved” (Merriam, 1998, p.19). A case study is bounded to a particular event, program, or group (Merriam, 1998). Case studies are, “particularly suited to situations in which it is impossible to separate the phenomenon’s variables from their context” (Merriam, 1998, p.29). A case study was employed because it provided answers to the research questions and was most appropriate for, “investigating complex social units consisting of multiple variables of potential importance,” (Merriam, 1998, p.41). Furthermore, a case study was appropriate because the local context was considered (Miles & Huberman, 1994).

Case studies can be purely descriptive, interpretive, or evaluative, according to Merriam (1998). Descriptive case studies present detailed accounts of the study and are useful in providing basic information in areas for which little research has been done; they often contribute to a larger database for future

comparison (Merriam, 1998). Interpretive case studies analyze descriptive data to challenge assumed theory (Merriam, 1998). This research study did not intend to challenge existing theories of student motivation and success attribution or theories about effective assessment.

This study was an evaluative case study, situated in a large suburban New England high school, which examined teachers' perceptions of changes in the quality of communication about student achievement among teachers, students and parents as a result of the implementation of a web-based grading program that increased transparency of student assessment. The impact of PowerSchool on teachers' perceptions of the quality of assessment feedback and confidence in influencing student motivation was also examined. In addition to judging the outcomes of a study, an evaluative, qualitative case study may also examine the process of how or why something happened in addition to understanding what happened and the meaning derived from the outcome to those involved (Merriam, 1998). Judgments drawn from this evaluation informed actions in institutionalizing the process of communicating on-line grading information to students and their parents within the study site and may inform other schools.

Research Questions and Hypotheses

Research Questions

The following research questions will guide the study:

How did increasing transparency of grading to students and parents impact

- 1. teachers' perceptions of the effectiveness of communication with**

students and parents about student achievement?

- 2. teachers' perceptions of PowerSchool's influence on the quality of assessment feedback provided to students and parents?**
- 3. teachers' confidence in their ability to influence student motivation for learning?**
- 4. communication among teachers about the use of PowerSchool?**
- 5. teachers' application of PowerSchool?**

Research Hypotheses

It was anticipated that increasing the transparency of grading to students and parents would change teachers' perceptions of the quality of communication between the classroom and home about student achievement. With greater access to individual, graded assignments and how these assignments contribute to a final average, parents and students can engage in more meaningful conversations with teachers about why a grade reflects what a student knows and is able to do. Examining why a student receives a particular grade opens opportunities for students to improve their grade and also their learning.

It was also anticipated that teachers' application of the program would expand, exploring features that provide additional opportunities for learning and student motivation to improve. It was anticipated that teachers would perceive PowerSchool to positively influence the quality of assessment feedback as teachers use the more advanced features of the program. It was anticipated that teachers would discuss their experience in using PowerSchool with other teachers thereby expanding their confidence and skill in their application of PowerSchool. It was anticipated that increased dialogue about communicating

student achievement would provide opportunities for teachers to examine and modify their assessment practices to involve more strategies that motivate students to focus on improving their learning.

Research Methodology

Qualitative data was collected in this evaluative case study since this form of data uncovers the meaning participants have constructed as a result of their participation (Merriam, 1998). Compared to quantitative research that reduces a phenomenon into its component parts, qualitative research allows for the consideration of how the individual component parts come together as a whole (Merriam, 1998). Qualitative data provides “thick description” that is “grounded, is holistic and lifelike, and simplifies the data to be considered by the reader, illuminates meanings, and communicates tacit knowledge,” (Merriam, 1998, p.39). The meaning derived from the participants’ experiences is mediated through the researchers own perceptions, though the researcher must be careful to uncover meaning from the participants’ experiences, not her own (Merriam, 1998; Miles & Huberman, 1994).

Six instruments were used to collect data in this study: pre- and post-surveys, a focus group interview, individual interviews between participants and the researcher, teacher journals, the researcher’s journal, and assessment artifacts (course syllabi). Although these six instruments were used in this qualitative study, the researcher, an assistant principal at the school, served as the primary instrument for data collection from the participants.

The researcher is the primary instrument for data collection in a qualitative study (Merriam, 1998; Miles & Huberman, 1994). The researcher, as a data instrument, differs from other instruments, such as surveys and journals, in important ways. The researcher can adapt to the context of the study, process data immediately, can clarify and summarize through the course of the study, and can adapt to circumstances in considering the total context (Guba & Lincoln, 1981). According to Merriam (1998), “the design of the qualitative study is emergent and flexible, responsive to changing conditions of the study in progress” (p.8).

The method of data collection by the researcher in this study involved fieldwork where the researcher engaged with the participants in the study within their environment(s) (Merriam, 1998). Data analysis included the identification of themes and patterns that explain the outcomes (Merriam, 1998). The researcher may isolate themes and patterns, however, data materials, “should be maintained in their original forms throughout the study” (Miles & Huberman, 1994, p.6). Therefore, direct quotations and observations were used as examples of emergent themes (Merriam, 1998). What resulted is a rich description of words and pictures, rather than numbers, to explain a phenomenon (Merriam, 1998). These words, “may be organized to permit the researcher to contrast, compare, analyze, and bestow patterns upon them” (Miles & Huberman, 1994, p.7).

The data instruments, method of data collection, data analysis, the framework for presenting the research findings, and the limitations of the study are presented in more detail later in this chapter.

Description of the Study Site

During the course of the study, the school population was approximately 1600 students and 140 faculty, staff, and administrators. The population of the town in the 2000 census was 31,640 with an estimated population for July 2006 of 33,262 residents (www.city-data.com). The estimated median family income was \$74,500 in 2005 and 46.1% of adults in this town have earned at least a Bachelor's degree. The town operated its own cable television company that provided cable Internet at a lower municipal rate. As a result, 84% of households were cable subscribers with access to the Internet. To accommodate parents and students who may not have computer access at home, the high school ran an open computer lab for the community two nights a week.

Students from this school perform well on state standardized tests and the vast majority of students pursue post-secondary education. Ninety-nine percent of students passed the mathematics portion of the 2007 Massachusetts Comprehensive Assessment System (MCAS) with 91% scoring in the advanced or proficient categories. One hundred percent of students passed the 2007 English MCAS test with 93% scoring in the advanced or proficient categories. In the graduating class of 2007, 94% of students matriculated into a post-secondary

education; eighty-three percent of the graduating class enrolled at four-year colleges.

Description of the Sample and Rationale for the Sample

The sample in a qualitative study is usually nonrandom, purposive and small rather than random and large as in a quantitative case study and the context of the sample is taken into consideration (Merriam, 1998). The study group was comprised of seven teachers, recruited from a teaching faculty of 113 at a suburban New England high school, who volunteered to participate in this study. The teachers were recruited through conversations with the researcher because of the subjects they teach, their years of teaching experience, and their self-described levels of proficiency with the PowerSchool program making this a purposive sample. Participants were provided with a letter describing the research questions and data collection instruments. All participants signed an informed consent form that indicated that participation was voluntary, that there was no compensation for their participation, that they would not be professionally evaluated on the basis of their participation, and that they could drop out of the study at any time.

This sample involved teachers from different academic disciplines (science, English, math, foreign language, family and consumer science, and social sciences) in order to examine how opening the web-based grading program to students and parents affects teachers' perceptions of communication, the quality of assessment feedback, and confidence in influencing student

motivation (Table 1). Math, science, English, and social studies are graduation requirements and students enrolled in these classes must pass in order to graduate. While foreign language is not a graduation requirement, most students at this school take at least two years in order to meet the entrance requirement of state colleges. Teacher participants in this study were required to have sophomores in their classes since this was the piloted group. Consistent with the teaching assignments of all teachers in this high school, all of the participants in this sample taught low-performing as well as high-performing students. Students who perform at different levels and whether or not the course is a graduation requirement were two variables under consideration because they may have influenced perceptions of student motivation and the outcomes of this study.

The study group was narrowed to involve teachers who had at least three but not more than 25 years of experience with classroom teaching who were still developing their teaching practices. These teachers had been selected so that changes that occur in practices could be attributed to participation in this project rather than as a result of the rapid professional growth that occurs within a teacher's first few years of teaching.

All teachers at this school had been using the web-based program to record student achievement for two years, however, the participants self-reported differing levels of proficiency and comfort with the program's use (Table 1). All teachers in this sample reported being intermediate or advanced users of the PowerSchool program, meaning that all teachers were using more

features of the program than basic computation of grades as described in Chapter One. This selection controlled for technical proficiency and removed the consideration of technical limitations of beginning users from the study. All teachers had participated in several training workshops in order to use the program. An initial three-hour training workshop was held in the fall of 2005 when the program was adopted. A second three-hour training workshop was held prior to the 2006-2007 school year. One teacher with excellent technical skills served as an “expert”, helping to train others informally within her department. All teachers had been given written manuals for the program’s use in the fall of 2005 and an updated version in the fall of 2007. Teachers who felt the need for additional training attended one of two one-hour workshops in the fall of 2007 to refresh their skills in using the program.

Table 1

Description of Teacher Participants *Names have been changed

Participant	Department	Years of Experience	Course Levels & Grades	Professional Development on PowerGrade	Self-Reported Proficiency with PowerGrade
Pam*	Science	3	Honors, College Prep. 9-12	Two formal trainings (six hours)	Advanced
Lisa	Math	13	Honors, College Prep. 9-11	Two formal trainings (six hours) Department "expert"	Advanced
Kelly	English	3	Honors, College Prep. 10, 12	One formal trainings (three hours)	Advanced
Ellen	Social studies	3	College Prep. 9-10	One formal trainings (three hours)	Intermediate
Sydney	Foreign Language	10	College Prep., Honors 9-12	One formal trainings (three hours)	Intermediate
Judy	Science	8	College Prep. 9-12	Two formal trainings (six hours)	Advanced
Sharon	Family & Consumer Science	3	College Prep. 9-12	One formal trainings (three hours)	Intermediate

Data Gathering Procedures

Six instruments were used to collect qualitative data: surveys of teacher participants before and after the implementation of the web-based grading program; teacher journals of interactions with students and parents about student achievement during the project; a focus group and individual interviews with teacher participants during the project to assess their perceptions; observations in the researcher's journal. Additionally, assessment artifacts (course syllabi) will be examined. Multiple instruments were used to address the research questions in an effort to triangulate data. Triangulating data serves to reinforce the conclusions made from emergent themes and patterns, reduces the effects of researcher bias, and provides validity and reliability to the study (Merriam, 1998).

Surveys

Teacher participants were surveyed both before and after the implementation of the web-based gradebook to parent and student access to assess how PowerSchool influenced (if at all), their communication with students, parents and colleagues about student achievement, their application of PowerSchool and their confidence in influencing student motivation. Questions were both closed-ended and open-ended and allowed participants to answer selected questions in an expanded way. Participants accessed survey questions using their school-issued laptop or personal computer through a web-based

program (SurveyMonkey) that collected the data and summarized the most common answers to the researcher.

Teacher Journals

Participants in the study maintained journal reflections from their interactions with students and parents as a result of implementing the web-based grading program. Prompts were provided to focus participants on pertinent research questions aimed at assessing changes (if any) in the quality of communication with students and parents about student achievement and teachers' reflections on changes they considered in their use of PowerSchool to enhance the quality of assessment feedback. Journal reflections were made during the two weeks after grades were posted on-line to parents and students. Participants were permitted to submit either electronic or on paper reflections to the researcher's office (all participants chose to submit electronic reflections). Journals were collected three times over the course of the project during the study, at the end of each marking term after grades were posted on-line.

Interview with Teacher Participants as a Focus Group

A focus group interview with teacher participants allowed the researcher to engage participants with meaningful questions about their personal experiences with the web-based grading program and their perceptions about its effect (if any) on communication about student achievement with students parents, and colleagues, on their application of assessments and the quality of

assessment feedback, and the influence on student motivation. It was intended that open-ended questions would prompt teachers to engage in a dialogue about their perceptions and learn from each other's experiences.

The focus group interview occurred once during the project, after three grading periods had passed (two progress reports and one report card). The interviews lasted approximately 45 minutes and were recorded using a voice recorder. The researcher transcribed the tapes. Teacher participants were provided with a written transcript of the interview and were provided with the opportunity to review the transcript for clarity and accuracy.

Interviews with Individual Teacher Participants

Interviews with teacher participants allowed the researcher to probe individual participants with deeper and more meaningful questions about their personal experiences with the web-based grading program and their perceptions about its effect on the nature and substance of communication about student achievement with students and parents. Interviews assessed teachers' perceptions of changes (if any) in the quality of communication about student achievement with students, parents and colleagues as a result of PowerSchool. Interviews also assessed teachers' application, and changes (if any) in use, of PowerSchool and changes (if any) in teachers' confidence in their ability to affect student motivation through the quality of assessment feedback as a result of PowerSchool. Questions asked in the interview were open-ended to allow for in-depth explanation by the participant.

Interviews occurred after four grading periods had passed (two progress reports and two report cards) so that participants had experienced parent and student use of the PowerSchool program for approximately 16 weeks.

Interviews were conducted in teachers' department conference room so that teachers could be more comfortable in the questioning environment than in the researcher's office. Interviews lasted from 30-45 minutes and were recorded using a voice recorder. The researcher transcribed the tapes. Teacher participants were provided with a written copy of the interview and were provided with the opportunity to review the transcript for clarity and accuracy.

Researcher's Journal

The researcher, as a participant-observer, facilitated the implementation of the pilot and its study. She recorded observations from focus group interviews, individual interviews, and the researcher's reflections on questionnaire responses and journal entries. The observations were used to examine the study as it unfolded and informed the direction of the study.

Assessment Artifacts

Teachers submitted their course syllabi and any other communications with parents and students that included written descriptions of PowerSchool to parents and students. Assessment artifacts were turned in to the researcher's office or submitted electronically through e-mail or on-line through

PowerSchool. Assessment artifacts were collected twice during the research study, at the beginning and at the individual interviews.

Data was stored in a secure, locked closet accessible only to the assistant principal at this school. Data remained confidential and the identities of the participants were protected.

Pilot Test

The surveys, prompts for the teacher journal, and interview protocols were tested ahead of time in an expert review process. The researchers' colleagues and professors reviewed each instrument for clarity, validity, and reliability to ensure that each instrument was designed to collect data addressed at answering the research questions. Additionally, four teachers at the study site who were using PowerSchool to communicate on-line grades, but who were not part of the sample, served as a pilot group to test each instrument. Their feedback assisted the researcher in modifying and improving the questions and prompts to strengthen the validity and reliability of the research instruments.

Fellow doctoral students, a mentor, two professors, and teachers at the study suite provided feedback on several instruments including the pre- and post-surveys, prompts for teacher journals, and individual and focus group interview questions. As a result of feedback from these parties, questions on the surveys were modified for clarity and to ensure that questions on the post-survey match the pre-survey carefully. The teachers from the study site piloted

the pre-survey. Feedback from these teachers indicated technical difficulties in the survey's completion due to the format on the website, SurveyMonkey.com. The researcher modified the survey so that all questions appear within the browser's window as appropriate and participants will be able to navigate the pages easily. Teacher journal prompts were changed in order to facilitate teacher participants' thinking about the experiences and interactions with students and parents as a result of increased transparency. The teachers reviewed the journal prompts and have indicated that it is clear in its direction and the researcher made no changes. Individual and focus group interview questions were examined and changed for clarity. Questions were revised so that each question asks for only one response; compound questions were split into two or more separate questions.

Method of Data Analysis

Data was analyzed according to the process described by Miles and Huberman (1994) including a reduction of the data, displaying the data, and drawing and verifying conclusions from the data. Data reduction is the process of "simplifying, abstracting, and transforming the data that appear in written-up field notes and transcriptions," (Miles & Huberman, 1994, p. 10). In this study, data reduction included all steps taken to organize the data and the coding of emergent themes and patterns in light of the conceptual framework of the study. A data display is an, "organized, compressed assembly of information that permits conclusion drawing and action," (Miles & Huberman, 1995, p. 11). In

this report, descriptive text and, where appropriate, tables will be used display the data. According to Miles and Huberman (1994), drawing conclusions occurs as the researcher collects data. The conclusions are held lightly until verified by further data collection. Drawing conclusions and having them verified is the final step in data analysis.

Data was collected at the office of the researcher in various forms: e-mails, electronic surveys, written or electronic journals, written field notes, written assessment artifacts, and tape-recorded interviews and meetings. All documents were converted to paper copies through printing from a computer (for e-mails and electronic copies) or transcription (from tape-recordings). Transcribed recordings were supplied to participants for their review for accuracy. Electronic files of data, where possible, were stored on the researcher's computer as a backup to the paper files. Data was backed up from the computer's hard drive to CD or to an external hard drive.

Data was organized according to the research question being assessed, then by instrument type and then by date gathered. For instruments that were designed to address more than one research question, the instrument was duplicated using a copy machine so that a second copy of the data can be organized to address additional research questions. Teacher journals were arranged chronologically so that the researcher could compare participant's perceptions of the PowerSchool project over the course of data collection.

Data was coded to reduce the data and to identify emergent themes and patterns. The researcher examined the data for changes in teachers' perceptions

of the quality of communication with parents, students, and colleagues about student achievement using this web-based grading program. The researcher examined teachers' use of PowerSchool and their perceptions of PowerSchool's influence on the quality of assessment information provided to students and parents. The researcher also examined the data to assess teachers' confidence in their ability to influence student motivation and whether or not this changed as a result of their experiences in using PowerSchool and participating in the pilot.

The researcher compared the analysis to the research questions to ensure that the data collected answers the research questions and provided enough data to support the conclusions.

The steps taken to organize and analyze the data were documented in the researcher's journal.

Formats for Reporting the Data

Where possible, data was noted in a visual display in a table to identify changes (if any) in teachers' perceptions as a result of the research project. Narrative descriptions of participants' responses were also included as a method for reporting the data. Direct quotes were included, as applicable, to substantiate the analysis of the data and emergent themes.

The teachers' perceptions of how PowerSchool impacted the effectiveness and quality of communication with students and parents about student achievement is reported with both tables and in narrative form, highlighting relevant sources of data in a written description.

Teachers' confidence in their ability to influence student motivation through PowerSchool was reported in a table and in narrative form. This descriptive narration compares teacher's initial ideas about assessment feedback and student motivation to the teacher's understanding and confidence in their ability to effect student motivation through high-quality feedback as a result of participation in this project.

The communication among teachers about the use of PowerSchool is reported through both tables and a narrative that describes relevant sources of data that examined the extent to which teachers learned from each other as a result of sharing their applications of PowerSchool and their experiences during the pilot.

Teachers' application of PowerSchool to deliver assessment feedback before and after the project is described in a narrative description.

Frameworks for Discussing the Findings

The major ideas from the literature review inform and frame this dissertation: technology and assessment, assessment feedback and student motivation for learning, parent involvement and student learning, and changing school culture. Among other things, the findings of this study, its themes and emergent patterns, are discussed in light of the literature presented in Chapter Two and the implications for policy, practice, future research and leadership. The findings of this dissertation contribute to the body of research in these three

areas and extend two previous studies that examined web-based communication of grades (Zappe et. al., 2002; Moran, 2007).

Limitations of this Study

Case studies are limited in that they may “oversimplify or exaggerate a situation, leading the reader to erroneous conclusions” (Guba & Lincoln, 1982, p. 377). Readers are cautioned and reminded that a case study is “a slice of life” (Guba & Lincoln, 1982, p. 377). Qualitative case studies are also limited by both the perceptiveness and intellectual honesty of the researcher who acts as a participant-observer (Merriam, 1998). Both the reader and the researcher are cautioned to be aware of potential bias.

This study occurred in a unique, high-performing high school in a large, upper-middle class suburban New England town. Results from this study may not be able to be generalized to other locations.

The school operated a separate assessment committee that had been examining the assessment of student work against the school’s mission and expectations for student learning. In addition, the middle school adopted a standards-based reporting system. Many teachers were wondering how the PowerSchool grade-reporting project aligns with what they felt was a push from district leaders to have standards-based grading at the high school. These factors represent a threat to internal validity, “history”, that was occurring within the context of this school system and may have influenced the findings and the ability to generalize these to other settings.

The researcher served as the primary instrument for data collection in this study and, therefore, this study was limited by researcher bias. To overcome the bias presented by the researcher, methods for triangulating the data were employed to ensure that conclusions that were drawn had sufficient support from multiple sources of data.

Since the researcher was an assistant principal in this school, the role of the researcher may have influenced the answers that participants contributed. They may have felt compelled to provide answers that they thought the researcher wanted to hear. This presents a limitation to this study. To overcome this limitation, the researcher explained the importance of candid feedback prior to the application of collection instruments. Additionally, participation was voluntary, participants were not compensated for their inclusion, and participants were permitted to drop out at any time.

The participants in this study, as volunteers, were invested in knowing the results of the study. Since there were only seven participants and they were invested in the program's use, their perceptions may not be generalized to the larger faculty and may not represent the range of opinions and perceptions about the application of the program and student achievement. This sample of seven, however, represented different academic disciplines in an effort to gather a diverse range of perceptions.

The sample had been selected to represent different departments including electives. Participation was voluntary and participants could drop out at any time. Any mortality in the sample threatens the validity of the results and

could limit the ability to address the research questions through a rich description from multiple different perspectives. No participants dropped out during the course of this study.

This study examined access of grade 10 students and their parents to PowerSchool in its initial phase and was used to inform the policies and practices at this study site when fully implemented. As a result, the data collected may not be reliable when the project is fully implemented on a wider scale from one grade level to all student and their parents.

This study collected data over the course of one semester, which is a short period of time. This limits the conclusions made as a result of this project to only those immediate responses that occurred in the initial phase of the PowerSchool project. Although this study occurred over the course of one semester, the high school experienced four grade-reporting periods that provided four time periods for interaction between teachers, students, and parents about assessment.

The following threats to validity were not pertinent to this study: instrumentation, maturation, regression, and testing.

Maturation, in this study, was controlled in the purposive selection of the sample. New teachers were not used as participants in this study because it is assumed that their teaching practices will change in a semester as a consequence of being new to the profession making the attribution of change due to the intervention impossible.

Conclusion

This chapter described the research design employed when studying the effect of increasing transparency in grading by opening access to PowerSchool by tenth grade students and parents. Chapter Four is a presentation of the data and Chapter Five discusses the findings and implications of this research study on policy, practice, future research and leadership.

CHAPTER FOUR

Presentation of the Research Findings

Introduction

Chapter One presented an introduction to this qualitative research study on the influence of increasing transparency in grading by piloting parent and student web access to the on-line grading program PowerSchool, Chapter Two presented the theoretical framework and literature review guiding the research study, and Chapter Three explained the research design and its rationale. This chapter, Chapter Four, presents the findings of the research study. The next chapter, Chapter Five, will discuss the research findings in light of the literature review, the limitations to the research study, the implications for practice and policy, suggestions for future research, as well as implications for leadership.

The Leadership Project

Web access to PowerSchool, an on-line student information management program, was provided to sophomore students in the spring of 2008 over four marking terms. Teachers had been trained on the program's use in several professional development programs over the first three years of the program's adoption, when the program was used internally as a grade and attendance reporting mechanism. In advance of the pilot, all teachers began using PowerSchool as a computerized gradebook so that all assessments, not just end of term grades, would be reported on-line. Union leaders and administrators drafted expectations for teachers on use of the program. The agreement outlined

key expectations pertinent to this study: 1) teachers would be expected to update their on-line gradebooks minimally every four to five weeks, though teachers would be permitted to update more frequently; 2) administration would provide on-going training for teachers in using the program; and 3) administration would not force teachers to change their current grading practices.

Prior to parent and student web access in the spring of 2008, parents and students received training on their expected use of the program through an orientation by school administrators and users signed an Acceptable Use Policy prior to obtaining their secure login and password information. The Acceptable Use Policy, developed by teachers and administrators, defined the expected actions parents and students would take as a result of on-line access. Parents were asked to communicate first with their child and then with the teacher when seeking information about student achievement. Parents were asked to encourage their children to approach the teacher with questions about improvement. A steering committee, the PART (Parent Access Rollout Team), comprised of teachers from different departments, union representatives, guidance counselors, and administrators planned and guided the implementation of parents and student access during the pilot.

The Study

The study of the leadership project (an evaluative, qualitative case study) was designed to examine the effects of increased transparency of grades on the nature and substance of communication with parents and students, teachers'

confidence in influencing student motivation, teachers' communication with each other, and teachers' application of PowerSchool. Data instruments were used to address the following research questions:

How did increasing transparency of grading to students and parents impact

- 1. Teachers' perceptions of the effectiveness of communication with students and parents about student achievement?**
- 2. Teachers' perceptions of PowerSchool's influence on the quality of assessment feedback provided to students and parents?**
- 3. Teachers' confidence in their ability to influence student motivation for learning?**
- 4. Teachers' perceptions of PowerSchool's influence on communication among teachers about the use of PowerSchool?**
- 5. Teachers' application of PowerSchool?**

Seven teachers, representing different departments, volunteered to participate in this research study. These teachers teach in the English, math, science, foreign language, family and consumer science/health education, and social studies departments; each teacher teaches a range of grade levels and courses (college preparatory, honors and Advanced Placement). The names of the teachers have been changed to protect their identities. The study took place in a large, New England, suburban high school. Students from this school typically perform at very high levels on state and national standardized tests. Most students pursue post-secondary education at four-year schools and some enroll in two-year schools.

Six instruments were used to collect data to answer the research questions: pre- and post-surveys administered to teachers before and after the PowerSchool

pilot, a focus group interview during the pilot, three teacher journal entries collected during the pilot, individual interviews with teacher participants during the pilot, assessment artifacts (course syllabi) collected before and after the pilot, and the researcher's journal that was maintained before, during and after the pilot. Although a second focus group interview was planned, parent and student access was forced to close in order to provide teachers with the opportunity to learn new technical skills required by the software upgrade; therefore, a second focus group interview was not conducted. Following data collection, the researcher analyzed the data according to research questions and identified the emergent themes and patterns that are presented in this chapter.

Summary of Emergent Themes

Data on teachers' perceptions of the effectiveness of communication through PowerSchool present several emerging themes. The findings in this section examine *changes in the frequency* of communication with parents and students and *changes in the methods used* to communicate assessment information with parents and students.

Data on teachers' perceptions of PowerSchool's influence on the quality of assessment feedback provided to parents and students centers on three themes. Overall perceptions in *whether or not PowerSchool improved communication* between teachers and parents, between teachers and students, and between parents and students will be presented. Other emerging themes in this section are *the clarity of information* provided to parents and students through PowerSchool and the

impact of the information in PowerSchool *on the behavior* of parents and students as a result of having this assessment information.

Data on teachers' confidence in influencing student motivation will examine respondents' perceptions of grades and student motivation before the PowerSchool pilot and their perceptions of PowerSchool's *influence on student motivation* following the project. The *roles* of parents, students and teachers in using information from PowerSchool will be discussed. The students', *responsibility and ownership of grades* and *pressure on students* are emergent themes that will also be discussed in this section.

Respondents were also asked to report on how PowerSchool influenced communication among teachers as a result of increased transparency of grading. Respondents reported on PowerSchool's *influence on collegiality*. One unexpected theme emerged related to this research question: teachers *own use of increased information* in PowerSchool to learn more about the school-wide achievement of children in their classes.

Participants reported on their application of PowerSchool and how their *application of PowerSchool changed over time*. Respondents discussed their changes in use of the program prior to the initial pilot in anticipation of increased transparency of grading to students and parents. Findings will also be presented that demonstrate how teachers plan to further modify their application of PowerSchool in preparation for full implementation of parent and student access to parents and students in all grades. The findings will also present how some

respondents considered the impact of communicating to parents and students through PowerSchool in light of the *requirements of their job*.

Presentation of the Findings

Question One: How did increasing transparency of grading to students and parents impact teachers' perceptions of the effectiveness of communication with students and parents about student achievement?

Emergent themes from the data instruments used to collect information about the effectiveness of communication were identified. The themes include changes in the frequency of communication between teachers and parents, changes in the frequency of communication between teachers and students, changes in the methods of communication between teachers and parents, and changes in the methods of communication between teachers and students. A fifth theme, effectiveness of communicating through PowerSchool in light of teacher workload, emerged as pertinent to this research question. This theme will be addressed at the end of the chapter as it also relates to the quality of assessment information provided through PowerSchool (question two), the influence of PowerSchool on student motivation (question three), the influence of PowerSchool and communication among teachers (question four), and it directly impacts teachers' planned use of the program when fully implemented (question five).

The data addressing this research question demonstrated that the frequency of parent inquiries into student achievement decreased as a result of

the PowerSchool pilot. Teachers also reported that student inquiries increased. An examination of the methods teachers use to communicate with parents showed that methods changed as a result of PowerSchool with teachers reporting fewer e-mails, telephone conversations and conferences. Teachers reported increasing the use of written feedback to students as a communication tool with parents. Fewer changes were seen in the methods teachers use to communicate with students as a result of the PowerSchool pilot, though there was a modest increase in the use of e-mail and telephone conversations and a decrease in reported conferences. Teachers also reported using printed grade reports less frequently with both students and parents.

Statistics on parent and student access.

Parent and student access was opened at the beginning of the semester and continued through four marking terms, approximately five weeks apart (two mid-quarter reports and two end of quarter report cards). Of the 386 students in the sophomore class, 250 students and parents requested access following the in-school (for students) and evening (for parents) orientation sessions. All of the teacher participants taught multiple classes that involved sophomore students (see Chapter Three for description of teachers' assignments). The researcher monitored student and parent access during the course of the term through the administrative portal of PowerSchool. Parents and students accumulated tens of thousands of "logon" hits over the course of the semester, indicating that they were, indeed, using the system (researcher journal).

Frequency of communication with parents.

Data results demonstrate that teachers felt that parental inquiries into student grades decreased as a result of parent and student access to PowerSchool.

Since the researcher sensed concerns among the faculty over increased inquiries from parents as a result of parent and student access to PowerSchool, participants were asked for their perceptions of how the frequency communication with parents would change prior to the opening of the parent and student portals. Initial survey responses are summarized in Table 2. Data in the table shows that teachers anticipated that parental inquiries would increase as a result of parent access to on-line grades.

Table 2

Respondents' perceptions of the potential of PowerSchool to increase parental inquiries about student grades

	Strongly Disagree	Disagree	Agree	Strongly Agree
<i>Number of Respondents (Pre-survey)</i>	0	1	4	2

Table 2 summarizes survey results of teachers' perceptions of the potential of opening parent access to PowerSchool to increase the frequency with which parents inquire about students' grades. Prior to the opening of PowerSchool, six out of seven participants agreed or strongly agreed that opening the web portal

would increase the frequency of parental inquiries about student achievement. Only one participant disagreed, indicating the parental inquiries would not increase.

After the pilot, teachers were surveyed for their perceptions of whether or not PowerSchool increased the frequency with which parents inquired about student grades. Results are summarized in Table 3. The data in this table shows that teachers' perceptions about parental inquiries had changed as a result of the pilot; teachers did not feel that parental inquiries increased as a result of parent access to on-line grades through PowerSchool.

Table 3

Respondents' perceptions of whether or not parental inquiries increased as a result of PowerSchool

	Strongly Disagree	Disagree	Agree	Strongly Agree
<i>Number of Respondents (Post-survey)</i>	0	5	2	0

Table 3 presents survey results of teachers' perceptions of parent inquiries after PowerSchool access. After parent access to PowerSchool was piloted, five teachers disagreed; the frequency of parental inquiries did not increase as a result of providing parents with on-line information about student grades. Two teachers agreed that parental inquiries increased. Of the individual respondents, six participants reported a change in their perception. Five of these teachers

initially expected inquiries to increase and then disagreed after the pilot. The one teacher who disagreed initially later agreed that parental inquiries increased as a result of PowerSchool access. One participant's perceptions did not change; she agreed both before and after the pilot that parent and student access to PowerSchool increased parental inquiries.

Teacher responses to journal entries support a pattern of decreased communication between teachers and parents about student achievement after the PowerSchool pilot; given initial perceptions presented in the pre-survey, some teachers reported being surprised by this trend. All seven teachers reported, in their first journal entries, no increase in interactions with parents as a result of PowerSchool, and some witnessed a decrease. Judy wrote, "I have not seen any change in my interactions with...parents as a result of opening up PowerSchool. In the weeks since the roll out, not one parent has called or e-mailed me about their child's grades...." Sydney's comments were similar to Judy's. "I have not had any interaction with parents...who are part of the PowerSchool access at this point." Sharon wrote, "I am surprised by the lack of communication that has been initiated by parents to myself since PowerGrade was opened to the 10th grade parents. Although I have not had an extreme number of parents contacting me about grades in the past, it seems evident that the number (of parent contacts) has decreased." Lisa wrote, "I feel as though nothing has changed for me in my communication with the exception of one parent who was contacting me more often before having access to PowerSchool. She hardly contacts me now." Pam wrote, "I fully expected PowerSchool parent

and student access to change my interactions with both parties [parents and students]. In all honesty, so far, it hasn't changed my interactions much at all. I haven't received any of the frantic e-mails from parents demanding [an] explanation behind every grade that is entered in PowerSchool. I still receive about the same amount of parent e-mails checking in on the same core group of students."

At both the first and second journal entry, Ellen had yet to hear from any parents with access to PowerSchool with questions about their child's grades. Sharon expanded on her thoughts from her first journal entry with her second entry, recorded about four weeks later:

After looking back on quarter three and mid-quarter four grades, it is clear to me that there is less communication with parents now than there has been in the past. Last year after grades came out, I had more e-mails and phone calls concerning grades and why a student received a certain grade. Since access was granted to sophomores and their parents, I have not received phone calls or e-mails about their grades.

In her second journal prompt, Kelly wrote, "Throughout the course of the PowerSchool pilot, I have noticed very little changes in my communication with parents.... The few parents who contact me now about their students' grades were the same that contacted me throughout the year." Pam's second journal prompt echoed the first:

At midquarter, I have not seen much of a change since the end of quarter three, in that I have had little to no change in the interactions I've had

with...parents. I have yet to receive any communication that directly cites PowerSchool or the information contained within.

Judy reported no interaction with parents around PowerSchool at mid-quarter of quarter four, roughly two months (and two grading periods) into the PowerSchool pilot.

Four participants did not complete the final journal entry. The researcher speculated that this was due to the timing of the final journal prompt occurring at the end of the school year (researcher's journal). All three participants who submitted a final reflection (Judy, Sydney and Ellen) reported no additional parent inquiries at the close of the school year and the end of the PowerSchool pilot.

Responses from the focus group interview support a decrease of parental contact. Sharon reported, "I pretty much have had no communication with parents...". Ellen repeated her experience from her journal entries, "I haven't had any interaction with parents...". Judy reported, "I have about 35 sophomores and I have had no interactions with...parents about access." Pam cited a decrease with one specific parent:

I have a student...and I used to get e-mails from his mom maybe every other week...and she hasn't e-mailed me for a really long time.... I miss the little e-mails back and forth and touching base with her and she was just looking it up in PowerSchool and using that instead.

Frequency of communication with students.

Data results demonstrated that teachers felt that student inquiries into their grades increased as a result of parent and student access to PowerSchool.

Because it did not appear to be an initial concern, participants were not asked in the pre-survey to predict whether or not student inquiries into their grades would increase as a result of PowerSchool. Teacher participants were asked, however, in the post-survey to report their perceptions of whether or not student inquiries increased as a result of parent or student access to PowerSchool. Results are summarized in Table 4. The data presented show that teachers felt that parent and student access to PowerSchool increased student inquiries about student achievement.

Table 4

The perception of the study participants on the extent to which they agreed that parent and student access to PowerSchool increased student inquiries about their achievement

	Strongly Disagree	Disagree	Agree	Strongly Agree
<i>Number of Teacher Participants (Post-survey)</i>	0	1	6	0

Table 4 presents participants' perceptions of whether or not student inquiries increased as a result of parent and student access to PowerSchool. Six teacher participants agreed that opening parent and student access to PowerSchool led to an increase in student inquiries about their achievement while one teacher disagreed with this statement.

Narrative responses to the post-survey support a pattern of increased communication with students about grades as a result of PowerSchool. Sharon wrote, "I had more communication with students about grades than I had in the past." Kelly wrote, "Students kept tabs on themselves more frequently." Ellen wrote, "I had students come to me after they saw their grades on PowerSchool." Sydney wrote, "Even in the limited sample that I had last year, there were students who came to see me.... These students had seen their grades on PowerSchool and realized they were not doing as well as they had thought." Both Pam and Lisa reported instances of student inquiries because of PowerSchool. Judy was the only teacher who, in the post-survey narrative reported, "There was little, if any, change. Students were not using it much...and it did not impact my communications with them."

Although five teachers reported no interactions with students about grades in responding to the first journal prompt (collected after four weeks of PowerSchool access being opened), five out of seven teachers shared examples of interactions with students in the second and third journal prompts (collected eight and 12 weeks after the beginning of the pilot, respectively). Sharon, Lisa, Pam, and Ellen reported interactions with students seeking clarification of grades in the second journal entry. In her third journal entry, Ellen reported several interactions with students who were, "...taking more responsibility for their grades." Sydney reflected on a positive interaction with a struggling student who sought advice on how to improve in Spanish (the detail of this interaction will be presented again addressing question two and three regarding the quality

of information provided in PowerSchool and the teacher's influence on student motivation). Sydney noted, "I feel that in this particular case, PowerSchool helped us all avoid a tough situation." She felt that without PowerSchool, the student would not have approached her about a poor project grade. Judy reported no interaction with students through the pilot and in her three journal responses.

Teacher participants also spoke of interactions with students due to parent and student access to PowerSchool in the focus group interview. Ellen cited interactions with students who were, "...trying to improve their grade, or they were trying to figure something out, or to clarify something." Kelly reported, "I've found that most of my kids are checking as a preventative to warn their parents." Sydney shared her experience with the struggling student with the focus group participants.

Individual interviews between the researcher and teacher participants provided an opportunity for teachers to speak more openly about their communication with parents and students. Teachers' responses will be presented as related to question two and three as responses contained additional information that included teachers' perceptions of both the quality of information and the influence on student motivation as a result of parent and student access to PowerSchool.

Teachers seeking feedback.

One unexpected result pertaining to communication with parents and student through PowerSchool resulted because teachers experienced less feedback than they had originally expected. In the focus group interviews, individual interviews, and journal entries, all seven teachers reported that they had informally polled students during classes or parents at parents' night to get informal feedback about their experiences with the program.

Methods of communicating with parents.

Data collected supports the finding that teachers' methods of communication with parents changed as a result of PowerSchool access to parents. The biggest changes in teachers' reported methods of communication with parents are the increased use of written feedback provided to students and a decreased use of e-mails, telephone conversations, individual conferences, and printed reports generated by PowerSchool.

Teachers were asked, in the surveys before and after the pilot, if they felt that opening PowerSchool parent and student access would change or had changed the methods teachers use to communicate with parents. Responses are summarized in Table 5. The data in this table shows that teachers felt, both before and after the pilot, that PowerSchool would or did change their methods of communication with parents about a student's grades. Respondents felt more strongly after the pilot that PowerSchool changed their methods of communicating with parents.

Table 5

Comparison of teachers' perceptions of whether or not parent access to PowerSchool would or did impact the methods teachers use to communicate with parents about a student's grades

	Strongly Disagree	Disagree	Agree	Strongly Agree
<i>Number of respondents Pre-Survey</i>	0	3	2	2
<i>Number of respondents Post-survey</i>	0	1	5	1

Table 5 summarizes teachers' perceptions of how parent access to student grades through PowerSchool impacted the methods teachers use to communicate information about student achievement with parents changed as a result of PowerSchool. Prior to the PowerSchool pilot, four out of seven teachers agreed or strongly agreed that the parent portal would change the methods teachers use, while three teachers disagreed. After the PowerSchool pilot, six teachers agreed or strongly agreed that opening on-line access to parents to communicate student grades changed the methods teachers use to communicate data about student achievement with parents while one disagreed.

The pre- and post- survey asked respondents to indicate how frequently they use one of five methods to communicate with parents. Pre- and post-survey results were compared and analyzed; differences in reporting were noted as decreased use, no change in use, or increased use. Responses are summarized

in Table 6. The data in this table demonstrate a trend toward decreased use of many traditional methods of communication with parents as a result of parent access to PowerSchool. One exception to this trend is an increased use of written feedback provided to students as a method of communicating with parents following the PowerSchool pilot.

Table 6

Changes in teachers' methods of communicating with parents about student achievement after the PowerSchool pilot

	Decrease	No Change	Increase
E-mail	2	5	0
Telephone Conversations	4	3	0
Written feedback provided to students	2	0	5
Individual Conferences	3	3	1
PowerSchool Reports (printed)	6	1	0

Table 6 summarizes a comparison of teachers' responses of the frequency with which they used specific methods to communicate with parents before and after the PowerSchool pilot. All teachers initially reported using e-mail "often" as a communication method with parents. After the pilot, however, two teachers reported using e-mail less frequently, one "sometimes" and one "infrequently",

as a communication tool following parent access to on-line grades. Five teachers reported no change and continue to use e-mail “often”. Four teachers reported a decline in the frequency with which they use telephone conferences with parents as a means of communicating about student achievement. Before the pilot, six teachers reported using telephone conversations “sometimes”, one reported using it “often” and one, “infrequently”. After the pilot, four teachers reported using the telephone less frequently and the others reported no change. Five teachers reported an increased use of written feedback given to students as a means of communicating with parents about student achievement. Three teachers reported as “never” using it previously. Following the pilot, two of these three reported using it “infrequently” and one, “sometimes”. Two teachers reported “infrequent” use initially, and later, “sometimes” using written feedback issued to students following the PowerSchool pilot. Two teachers reported decreased use of individual conferences following the PowerSchool pilot, once using face-to-face conferences “sometimes” and now relying on infrequent use. One teacher reported an increase in the use of face-to-face conferences. Six teachers reported decreased use of printed PowerSchool reports following the pilot and one teacher reported no change.

Methods of communicating with students.

Data collected supports the finding that teachers perceived that their methods of communication with students changed as a result of PowerSchool access to parents and students. The biggest change in teachers’ reported methods of communication with students is the decreased use of printed

PowerSchool reports. Many methods remain unchanged in use; however, some teachers also reported increased use of e-mail, telephone conversations and written feedback with students.

Teachers were asked, in the pre- and post- surveys before and after the pilot, if they felt that opening PowerSchool parent and student access would change the methods teachers use to communicate with students. Responses are summarized in Table 7. The data in this table demonstrates that most teachers anticipated that PowerSchool would change the methods teachers to communicate with students. After the PowerSchool pilot, teachers felt that the methods of communicating with students had changed.

Table 7

Comparison of teachers' perceptions of how parent and student access to PowerSchool would or did change the methods teachers use to communicate with students about a student's grades

	Strongly Disagree	Disagree	Agree	Strongly Agree
<i>Number of Respondents Pre-survey</i>	0	3	2	2
<i>Number of Respondents Post-Survey</i>	0	2	5	0

Table 7 summarizes the pre- and post-survey results of the extent to which teachers agreed that PowerSchool would or did change the methods teachers use

to communicate with students. Four out of seven teachers agreed or strongly agreed, prior to the implementation of PowerSchool parent and student access that PowerSchool would change the method with which teachers communicate with students. After the pilot, five teachers agreed that PowerSchool did influence the method with which they communicate with students while two disagreed. Of the teachers who strongly agreed that PowerSchool would influence their methods of communicating with students, two agreed following the pilot and one disagreed that PowerSchool changed the methods of communicating with students.

Teachers were asked in the pre-survey and the post-survey to report on the methods they use to communicate with students about their achievement. Responses were compared to determine if any changes occurred as a result of PowerSchool. Differences in reporting were noted as decreased use, no change in use, or increased use. Responses are summarized in Table 8. The data in this table demonstrate a trend toward a slight increase in use of some methods (e-mail, telephone conversations, written feedback) of communicating with students, although many teachers reported no change. Teachers reported a decreased use of individual conferences and printed PowerSchool reports.

Table 8

Number of reported changes in teachers' methods of communicating with students about student achievement after the PowerSchool pilot

	Decrease	No Change	Increase
E-mail	1	4	2
Telephone Conversations	0	6	1
Written feedback provided to students	0	6	1
Individual Conferences	3	4	0
PowerSchool Reports (Printed)	4	2	1

Table 8 summarizes the changes of teachers' methods of communicating with students about achievement in five methods before and after the PowerSchool pilot. Prior to the PowerSchool pilot, five teachers reported using e-mail "infrequently" to communicate with students and two teachers reported using it "sometimes". After the PowerSchool pilot, one teacher reported using e-mail "often", two reported using it "sometimes" and four reported "infrequently" using e-mail to communicate with students about their achievement. All participants reported "never" or "infrequently" using telephone conversations as a means of communicating about achievement with students, both before and after the PowerSchool pilot. Five teachers report using

written feedback “often” before the pilot and five teachers report using written feedback “often” after the pilot and one teacher reports using it “sometimes”. Two teachers reported using written feedback “infrequently” before the PowerSchool pilot and one teacher uses it “infrequently” after the pilot. Six teachers reported using individual conferences “sometimes” or “often” before the pilot and six teachers report “sometimes” or “often” using individual student conferences after the pilot to report to students about their achievement. The most significant change as a result of PowerSchool was the use of printed PowerSchool grade summary reports. Four teachers report decreased use, two reported no change, and one reported an increased use of printed reports. After the pilot, four teachers reported using these reports “infrequently” and three reported using them “sometimes”. No participant reported using them “often” even though two respondents reported using printed PowerSchool reports “often” prior to the pilot.

Teachers commented about their decreased use of printed PowerSchool reports in their journal entries, individual interviews, or survey responses. Pam wrote in her post-survey response, “I attempted to increase motivation to access PowerSchool by no longer providing printouts from PowerGrade at mid-quarter and quarter like I had done previously.”

The data addressing research question one examined teachers’ perceptions of the frequency and methods of communication with parents and students. Data addressing the research question two examines the substance of

communication between teachers, parents, and students and presents teachers' perceptions of the impact of PowerSchool on the quality of assessment information provided to students and parents.

Question Two: How did increasing transparency of grading to students and parents impact teachers' perceptions of PowerSchool's influence on the quality of assessment feedback provided to students and parents?

Teachers' perceptions from before and after the pilot on PowerSchool's ability to improve communication between teachers and parents, between teachers and students, and between parents and students will be presented first.

The quality of assessment information hinges on the interpretability of information and the ability of recipients of the information to use it to alter a gap in learning (Guskey, 2004). Emerging themes in this section, therefore, are the clarity and interpretability of information provided to parents and students through PowerSchool and the subsequent impact of the information in PowerSchool to influence the behavior of parents and students as a result of having this assessment information. The roles of parents, students, and teachers in using information from PowerSchool will also be discussed.

Perceptions of improvement in communication.

Teachers were surveyed before parent and student access to PowerSchool and asked for their initial perceptions of whether or not access to PowerSchool would improve communication between teachers and parents, teachers and

students, and parents and students. Results are summarized in Table 9. Data presented in this table supports a trend that teachers expected improved communication among all parties. Teachers felt most strongly about the potential for improved communication between teachers and parents and between students and parents.

Table 9

Number of participants indicating whether they felt PowerSchool would improve communication (Pre-survey results)

<i>Improve communication...</i>	Strongly Disagree	Disagree	Agree	Strongly Agree
<i>between teachers and parents</i>	0	0	5	2
<i>between teachers and students</i>	0	2	3	2
<i>between parents and students</i>	0	0	3	4

Table 9 presents the perceptions of respondents and the extent to which they agreed, prior to the PowerSchool pilot, that parent and student access to PowerSchool would improve communication among teachers, parents and students. Respondents felt most strongly that access to PowerSchool would improve communication between parents and students with four respondents strongly agreeing and three agreeing. Respondents also agreed (five agreed, two strongly agreed) that parent access would improve communication between teachers and parents. Five teachers agreed or strongly agreed that access to

PowerSchool would improve communication between teachers and students while two disagreed.

Narrative comments from the pre-survey allowed teachers to elaborate on their initial expectations. These elaborations highlight the areas in which teachers anticipated, both optimistically and with some reservations, improved communication: clarity and interpretability of assessment information and changes in student and parent behavior as a result of having information in a different format. Teachers anticipated that PowerSchool would provide additional information to help parents and students understand grades, providing all parties with a better foundation for discussion of student achievement. Teacher responses reflect anxiety about some over-bearing parents but they also felt these parents would be in the minority. Teachers also anticipated greater parent and student involvement and a greater sense of student responsibility over grades.

Sydney reported:

I do have a few reservations simply because I do think we will all encounter a few difficult parents, but I think it is worth it. So many students see assessment scores but do not put the whole picture together and are surprised when they see their grade.... I also think that it will help parents stay involved in their child's education, and not just at report card time.

Pam, like Sydney, responded optimistically to opening parent and student access to PowerSchool:

...I have high hopes for opening parent and student access. I already print out students' current grade breakdowns from PowerGrade several times a semester, so students better understand where their grades are coming from. I hope that this shifts their thinking from, 'My teacher GAVE me a particular grade' to 'I EARNED a particular grade.' I think that being able to access this information should help make that shift even more effective across the board. I think the response of parents causes a bit more anxiety for some because there is no telling how they will use this information (to bug the teachers more? To bug their students more? Both?), but I hope that this will be just another great tool to increase communication between school and home and within the home itself, while increasing the students' feeling of accountability. I guess I am optimistic!

Lisa responded:

I believe opening access will greatly help students to see how much different areas (such as homework, classwork, projects, etc.) will affect their grade. Parents will also find it helpful to see every item...instead of one grade at progress report and report card time. It will give the parents a better understanding of how the child does on tests, quizzes, and completing homework individually and as a whole. And it should get students speaking to parents more about their grades and why they are the way they are...and have a visual to really understand.

Kelly similarly spoke to the quality of information contained in PowerSchool and her anticipation for improved communication:

I believe it will help parents better understand their children's strengths and weaknesses. Students will be able to better monitor their own progress and take more ownership of their academics.... Above all, it gives all three groups a more informed, solid foundation for discussion on each student's academics.

Judy and Ellen's responses elaborated on the impact they felt opening PowerSchool would have on communication with parents, in particular. In reference to her communication with students, Judy wrote, "I don't feel students having access to their grades will significantly change how I communicate with them. I do think it might trigger additional conversations about missed assignments...". Regarding parents, students and teachers, Judy added, "I think the biggest impact will be on parents and how they communicate with their child and their child's teacher. It will give parents a strong tool to use when they work with their child to improve achievement."

Ellen responded, "I think it will limit those e-mails that we get from parents asking how their child is doing or what assignments are missing."

The post-survey asked the teachers for their perceptions, following the PowerSchool pilot, on whether or not PowerSchool led to improved communication between teachers, parents, and students. Responses are summarized in Table 10. Data in this table demonstrate that teachers perceived

improved communication between teachers and parents, between teachers and students, and between parents and students. Teachers felt most strongly that communication increased between parents and students.

Table 10

Number of participants indicating whether they felt PowerSchool improved communication (Post-survey results)

<i>Improve communication...</i>	Strongly Disagree	Disagree	Agree	Strongly Agree
<i>between teachers and parents</i>	0	2	4	1
<i>between teachers and students</i>	0	1	4	2
<i>between parents and students</i>	0	0	7	0

Table 10 summarizes participants' perceptions of the improvement of communication among teachers, parents and students as a result of parent and student access to PowerSchool during the pilot. All seven teachers agreed that providing on-line access to PowerSchool improved communication between parents and students. Five participants agreed or strongly agreed that PowerSchool improved communication between teachers and parents and six teachers agreed or strongly agreed that PowerSchool improved communication between teachers and students. Two teachers disagreed and did not feel that PowerSchool improved teacher communication with parents; one teacher

similarly disagreed and did not feel PowerSchool improved communication with students.

In general, survey results after the pilot were similar to pre-survey results with data tending towards teachers' feeling that communication improved. Teachers were extremely optimistic prior to opening parent and student access but appeared slightly less optimistic following their experiences. Individual teachers' perceptions from the pre-survey and post-survey were compared and are presented in Table 11 in order to examine how individual participants' perceptions changed as a result of the PowerSchool pilot.

The data in Table 11 shows each participant's response before the pilot and following the pilot. The data is broken down by participant so that the reader may get a sense of each participant's perceptions; their narrative comments will be presented later in this section. Considering the investment of the teachers in PowerSchool and the anticipation of full implementation, it is important to consider the teacher's initial expectations and compare these to final perceptions. The data demonstrate that teachers felt less confident in PowerSchool's ability to improve communication between teachers and parents and between parents and students, due to the reduced amount of feedback teachers received from parents as a result of communication through PowerSchool (data presented for research question one). Teachers tended towards being more convinced at PowerSchool's ability to improve communication between teachers and students. Teachers' overall perceptions, however, tend towards improved communication among all parties.

Table 11

Changes in individual teachers' perceptions of the influence of PowerSchool to improve communication

	<i>Between teachers and parents</i>		<i>Between teachers and students</i>		<i>Between parents and students</i>	
	<i>Pre-survey</i>	<i>Post-survey</i>	<i>Pre-survey</i>	<i>Post-survey</i>	<i>Pre-survey</i>	<i>Post-survey</i>
<i>Lisa</i>	Strongly Agree	Agree	Strongly Agree	Disagree	Strongly Agree	Agree
<i>Sharon</i>	Agree	Disagree	Disagree	Agree	Agree	Agree
<i>Pam</i>	Agree	Strongly Agree	Agree	Strongly Agree	Strongly Agree	Agree
<i>Ellen</i>	Agree	Disagree	Agree	Strongly Agree	Strongly Agree	Agree
<i>Sydney</i>	Strongly Agree	Agree	Strongly Agree	Agree	Strongly Agree	Agree
<i>Judy</i>	Agree	Agree	Disagree	Agree	Agree	Agree
<i>Kelly</i>	Agree	Agree	Agree	Agree	Agree	Agree

Table 11 presents the individual teachers' responses when asked about PowerSchool's ability to improve communication among all parties. Five teachers reported a change in perception on the ability of PowerSchool to improve communication between teachers and parents; four of these participants felt less strongly about PowerSchool's influence in improving communication between teachers and parents. Two teachers, Lisa and Sydney, initially strongly

agreed at PowerSchool's ability to improve this communication and later agreed after the pilot. Two teachers, Sharon and Ellen, agreed before the pilot that PowerSchool would improve communication between teachers and parents but later disagreed after their experience with parent access. One teacher, Pam, initially agreed and later strongly agreed that PowerSchool improved communication between teachers and parents. Two teachers, Judy and Kelly, did not have a change in their perception.

Six teachers reported a change in perception on the ability of PowerSchool to improve communication between teachers and students. Four teachers reported a more positive perception after their experience with the PowerSchool pilot. Two teachers, Sharon and Judy, initially disagreed and did not think PowerSchool would improve communication between teachers and students and later agreed that PowerSchool did improve communication between teachers and students. Two teachers, Pam and Ellen, initially agreed and later strongly agreed that PowerSchool improved communication between teachers and students. Two teachers reported feeling less strongly about PowerSchool's influence in improving communication between teachers and students. One teacher, Sydney, initially strongly agreed and later agreed that PowerSchool improved communication between teachers and students. One teacher, Lisa, initially strongly agreed that PowerSchool would improve communication between teachers and students and later disagreed. One teacher reported no change in perception as a result of the pilot.

Four teachers reported a change in perception of the ability of PowerSchool to improve communication between parents and students. These four teachers initially strongly agreed that PowerSchool would improve communication between parents and students and later agreed that this occurred as a result of the PowerSchool pilot. Teachers cited a lack of evidence when making this claim as they considered PowerSchool's influence on improving communication between parents and students; as a result, they reported feeling less strongly about this improvement.

The nature of improved communication.

Teachers' initial expectations of how PowerSchool would improve communication were previously presented and data demonstrated that teachers felt, following the pilot, that PowerSchool did improve communication among all parties. The nature of this improved communication will be explored next.

Teachers elaborated on their perceptions of how PowerSchool resulted in improved communication between teachers and parents, teachers and students, and parents and students during the post-survey, focus group interview, and individual interviews. Their comments reflected that teachers worked with the PowerSchool application to improve the clarity and interpretation of assessment information, and that this allowed some parents and students to change behavior to improve student achievement. Teacher comments also reflect a perception that there had been a shift in responsibility over grades from the teacher to parents and students. Teachers also discussed the role of parents and students in

using assessment information; in general, teachers felt that parties used PowerSchool appropriately but teachers continue to display apprehension over potential misuse in the future, particularly by parents.

Influence on student/parent behavior.

The focus group allowed teachers to share initial experiences during the pilot. Mid-way through the pilot, two teachers shared positive experiences in communicating through PowerSchool with students and two teachers shared negative experiences in communicating with parents that stressed the importance of clarity in communication. By the end of the pilot, teachers concluded that PowerSchool allowed for a higher quality of information being provided to parents and students and participants discussed the implications of this on student and parent behavior to improve student achievement. Consistent with their perceptions of improved communication with students in the survey results, teachers reported a greater impact in terms of communication with students than with parents. Teachers felt that PowerSchool allowed students and parents to see the “big picture” and, in some cases, students made changes in their approach to their coursework. Responses from the individual interviews and post-survey questions reflected this more general experience of improved communication.

Sydney cited one interaction with a student during the focus group interview and explained how she was able to use PowerSchool to communicate with a student who then took action to improve in the class:

I did have one student come to me the other day and say, she's not doing well, she hasn't been doing well, she's not really into the class because it is her second time taking it, because last year she failed, well she barely passed but the teacher didn't want her to go on, so she's mad that she's retaking it.... She hasn't been doing well and she did a terrible job on a project but came to me and said, 'I just saw my grade on PowerSchool last night, in fact my parents saw my grade on PowerSchool last night and I don't understand why it was so bad....' So we had the chance to talk about it and she re-did a section of [the project] and it helped her whole average improve and I think it helped us to communicate in a way that wouldn't have otherwise because she probably would have waited until the next progress report or report card and then seen this terrible grade and not known how much that one project had affected her whole average. So she definitely saw her grade and was able to do something about it.

During the focus group interview, Kelly cited an example of her work with a student in helping the student interpret assessment feedback and she referenced helping the student communicate with parents at home:

I had one student come to me today, she didn't have access but her mother did and her mother's concerned about her grade and so we were able to sit down and look at PowerSchool and say, 'Look, you can bring this screen up and show your mom and see that in the first half of this quarter you slacked off, you didn't turn in a homework assignment, you

had a couple of really low quiz grades and so it's pulled your grade down. But look, from this point forward, you've been very consistent so I'm seeing a lot of improvement. So while your overall quarter grade isn't where you would like it to be and your parents would like it to be, I am seeing improvement that shows up on those individual things that wouldn't necessarily show up in the final letter grade that they see.' So I showed her how to use it as a tool to have a better conversation with her parents.

Two teachers cited an initial decrease in the quality of communication about assessments with parents in the focus group interview. Sharon noted:

The only negative part about this is the lack of communication between the parents and the teachers. I witnessed in a student meeting where they were talking about potentially getting this person on an IEP or 504 plan and they were talking about the grades and the mom, in the middle of the meeting said, 'Well, you know, I went on to PowerSchool and you have this, this and this.' And so finally when the teacher said, 'Actually I put an AB [for absent] and it comes up as a zero, but if she turns it in, she can still get credit for it.' So here this mom was furious with the child when really all she needed was an explanation but because, had it been an e-mail, maybe she would have said, 'Can you explain to me why?' Whereas it turned into, 'You're slacking, you have a zero,' and it really didn't need to be that.

Pam, in the focus group interview, expressed her concern with the decrease in communication between parents and teachers following the opening of PowerSchool:

I have a student and...I used to get e-mails from his mom maybe every other week. It wasn't like a set day or anything but we have a pretty good relationship with just touching base every now and then and updating and asking questions and things like that. She hasn't e-mailed me for a really long time. And he recently just took a test where he's just kind of checking out for the year and rushed through the test and so I e-mailed the mom just to touch base and say, 'You know, I think he's on a downward slope.' And she e-mailed back, 'Oh yeah, I've been looking up his grades on PowerSchool and I've been watching him and have been on him and trying to keep him motivated.' So she stopped e-mailing me. I kind of enjoyed touching base with her every now and again.... I miss the little e-mails back and forth and touching base with her and she was just looking it up in PowerSchool and using that instead.

While teachers cited positive examples of communicating with students and negative examples of communicating with parents in the focus groups, post-survey comments and individual interview statements reflected a more general sense of the positive influence of PowerSchool in communicating, particularly with students. Comments reflected that PowerSchool provided additional information ("all grades", "a pattern over time", "the big picture", "one fell

swoop”) that could be interpreted and understood by parents and students. Many teachers witnessed changes in student behavior as a result of PowerSchool and, of those who didn’t, one attributed it to the already good work habits exhibited by her students. Since grading at the high school level continues to be a relatively individual experience for teachers, the holistic response of each individual teacher is presented below.

Sydney saw improved and higher quality communication with both parents and students. In the post-survey narrative, Sydney wrote, “I...realize that not all parents will use their access, but those who do will not need to e-mail teachers as often because the information they are looking for is right there for them.” Sydney cited how PowerSchool helped her communicate with students:

Instead of waiting for the end of the quarter or mid-quarter, students can monitor grades along the way. This will show them how their daily decisions (doing homework and studying for quizzes) affect their grades and how they have the power to make changes.

In the post-survey, Sydney referenced some examples of changes in student behavior as a result of PowerSchool, “Last year there were a couple of students who came to me wanting suggestions to improve their grades. These students had seen their grades on PowerSchool and realized that they were not doing as well as they had thought.”

She reported in the individual interview that communication:

...was enhanced because the parents already had a big heads up on what was going on with the student in class. So when you contacted the parent or if they contacted you...they already had an idea of what was going on.

She also noted that the information allowed action to be taken. To her a benefit was, "The parent being able to understand what's going on so that they can not only know but also at home say, 'Hey, your Spanish grade is low right now, what are we going to do?'"

Sydney elaborated on what she meant by seeing the scores, because students often receive individual assessment scores in class from teachers already:

This tool allows them to see that in a different way. They all get their papers back and their grades back, but, again, it doesn't really show how it fits in the big picture as much.... [PowerSchool] just seems to be different than when you hand it back in class.

In the individual interview, Sydney reflected on the struggling student she discussed in the focus group interview who had used PowerSchool as a tool to approach her about re-working a project.:

It proves to me that for those students who are going to get it, it is going to help them so much.... I think, had I told her, which I probably did, how important it is to keep up on things...and had her parents said that to her, it goes in one ear and out the other. But when you see it and you're

able to go home and think about it, and look at it yourself...I think it just meant something different to her.

Sydney concluded, "Not every student will take it that far, but if we can reach however many more, it's still worth it."

Kelly, in the post-survey, wrote about a higher quality of communication with parents, "It gave us more focused discussions (as opposed to 'what is wrong?' conversations)." Regarding students, Kelly wrote in the post-survey, "Students kept tabs on themselves more frequently."

Kelly noted, in the individual interview, how the quality of communication had improved. Kelly described what she perceived to be a shift in thinking between student and parents:

I think [parents] being able to see the different grades and see that it's not just, 'My student has a B and wants an A but they have a B because they've been doing poorly on vocabulary quizzes so now we have a game plan.' That's something that I could have told them, but they were able to access the information more quickly and without my help. It's something that would have come out in lengthy e-mails that I would send during my prep time or conversations with the student after school or parent conferences or whatnot. I feel that they would get the information one way or the other, but this way they were able to find it on their own and independently come through a lot of steps. I know I had parents tell me, 'Well, it was so helpful, we've been working on vocabulary now because

we're seeing now that that's the pattern.' Where I didn't even have to say anything. They just saw it.

Kelly also explained how her use of the program helped her improve communication and provides more information to students and parents than before:

I usually throw all my assignments, at least the ones that I've planned out, that I know are consistent like vocabulary quizzes and I'll throw them up there at the beginning of the quarter and I tell the kids this.... But from what I've heard from the parents, basically, they seemed to enjoy seeing that so, 'OK, this is the midquarter grade and this is these grades,' and they are going to look at how many more they are going to be doing between now and then.

In the individual interview, Kelly reported a lot of feedback from both parents and students with the use of the program. In reference to a reduced frequency in communicating with parents, Kelly added that quality improved:

Communication with PowerSchool was more focused. I don't want to say it was less per se, but before the portal was open, I had a lot of parent e-mails and concerns, 'Why is my student getting a C on his progress report?' or, 'How is my student doing, could you give me the updates?' Once the portal was open, there were more focused questions. The parents had a conversation and 'We don't understand why he got this grade,' 'So and so looked at their grade and wants more help in this area.' There were fewer questions because I think they were able to answer their

own questions. And the questions I did get were more focused.... There was more understanding behind the question.

In relation to students, Kelly explained her experience and her perceptions of how PowerSchool influenced the quality of assessment feedback, “The students were anxious to check their grades.... They were anxious for the big things...checking their GPA or checking their overall average for the quarter, did it go up or down with each assignment?”

For Kelly, a big part of her perceived success with the program was in the timeliness of feedback, “I do think [PowerSchool] was more efficient. I was able to update those grades more regularly than once a month, and so it became effective...in that way.”

Pam strongly agreed that access improved communication between parents and teachers and wrote, in the post-survey, “I think it has the potential to significantly increase the amount of communication, as well as the ease of doing so. I welcome the ‘open door’ that the access provides.”

Pam’s reflection on the improvement of communication with PowerSchool similarly reflects the increased amount of data that can be shared with parents and students. In the individual interview, she said, “I love the communication piece that it’s never a mystery where a grade comes from...that there’s more data behind it.... And hopefully the students will take the information and then figure out what they need to change.” She added:

If they have a B+ on homework and classwork but then they have a C average on quizzes, that's the thing they should be focusing on if they want their grade to improve. And that's what I want them to look at, 'What's my weakness, what are my strengths, how can I tie the two together to make myself do better?'

Sharon reported decreased communication with parents in the post-survey; she reflected on this and speculated why in the individual interview, commenting that she felt parent inquiries decreased as a result of the substance of communication through PowerSchool, "I realized, if they can look at the grades...then it may be taking away some of their questions.... I guess the fact that they could see the numbers right in front of them probably answered a lot of...questions." Sharon also commented on clarity of information in the post-survey response, "When all the facts are right in front of you, there is no question as to why a grade is where it is."

Sharon also reported seeing changes in student behavior that she attributed to PowerSchool during the individual interview:

All of a sudden, it seemed, 'I know I need to study more for that test that's coming up,' and 'I need to do my homework in that class because that teacher checks it.'.... Whereas before it might be, 'Oh, I'm not going to do that tonight.' I feel like a lot of the times I would hear kids say, 'Oh, I'm not going to do that tonight,' or, 'Oh, it's just five points, it's no big deal.' Then all of a sudden, kids were saying, 'I know I have to do that,' and 'If I

have five zeroes in a row, my parents are going to kill me.' ...So maybe it put more pressure on the kids but it did hold them more responsible.

Lisa was eagerly anticipating improved communication as a result of PowerSchool. Her comments, while generally positive, may be tempered by her disappointment in PowerSchool. Lisa had limited interactions with parents as a result of parent access and explained how PowerSchool influenced one interaction in her post-survey narrative. "Only one [parent] communicated with me a few times about their child's grade. With that parent, it helped with the understanding of my grading policies." Lisa's post-survey comment about interactions with students reflected what she saw as a technical limitation of the program with which she was concerned through the entire pilot (researcher's journal). "[PowerSchool] did help to get clarification, to see all homework grades together. It would have been beneficial to see the category grades."

The individual interview allowed Lisa to elaborate on her perceptions of PowerSchool and she spoke about the clarification the PowerSchool provides:

I think it probably helped some parents for clarification. I can tell you of one student who said, 'Why is this this?' and I said, 'Go back and look at the description for the assignment that was in PowerSchool.' And he went back...and he came back the next day and said, 'You know, I understand.' So...it does provide some clarification.

Later in the interview, Lisa echoed Sydney's remarks about the "big picture", before PowerSchool, "It [was] all these grades coming at them from different

times and they don't know how to put them together. Where at least now, they can see it in one fell swoop."

In both the post-survey and individual interview, Lisa expressed that she did not feel it impacted student behavior. She expressed disappointment, "[PowerSchool] did not necessarily help with improving the students' grades, overall, once it was open." She added, "The only thing it did was make them more aware of why their grade was that, so instead of getting all the questions at the end of the quarter, 'Well why is it this?' I didn't have that."

Ellen commented, in the post-survey, "I received absolutely no e-mails from parents concerning the students' grades or specific assignments...this [is] ideal; less e-mails to teachers because the parents can see the grade and assignments on PowerSchool." Consistent with other remarks about seeing a greater impact in terms of communicating with students, Ellen reflected on her interactions with students:

I had a few students come to me after they saw their grades on PowerSchool seeing how they could get a better grade, or coming to make up an assignment that they missed. Since they were actually able to see the assignments and grades, they knew what work they had to make-up.

Judy explained, in the post-survey, her perceptions about improved communication with students, "I...see some positive potential in the future.... I

believe it may prompt more discussions between teachers and students about student performance.”

In the individual interview, Judy commented on her limited interaction with parents, “I didn’t get a lot of feedback from parents as far as them using it.” She elaborated on the benefits in her communication with students, “I think with kids it was nice for them because they had to take some ownership of it, instead of ‘well how and I doing?’ they could go and look.” She continued:

...they can see more of a pattern of their own work habits. And to the good, because they can see ‘oh, did I pass in all my homework?’ or ‘I didn’t do great on that test.’ I just think that them having access is in the long run for the students a real positive thing.

Later she added, “I do think it gives [students] more immediate feedback. Grades become a more transparent process. ‘This is why you got what you got. Here it is, right in front of you,’ good or bad.”

Judy noted, in the individual interview, that she didn’t see any changes in the behavior of her students but she also attributed it to the already good work habits they had displayed, “There wasn’t any difference in their academics...but again it was three honors bio classes so...very few of them aren’t doing their work.... They [were] pretty much already doing it, with very rare exceptions...they were kind of already there....”

Parent, student, and teacher roles.

The last theme in this section addresses the development of parent, student, and (to a lesser extent) teacher roles in communicating through PowerSchool. The teacher's role will be explored to a greater extent addressing research question five and changes in the teachers' application of PowerSchool. The intention of PowerSchool was to provide additional information that could be interpreted by parents and students prompting action on the part of recipients to lead to student improvement. The data presented thus far show greater influence on PowerSchool in communication between teachers and students and some teachers have expressed concern over an overall decrease in communication with parents. The researcher asked individual participants, in the individual interviews, to discuss whether or not parents and students understood their role in using PowerSchool and what steps teachers might take to reinforce expectations of use.

In the individual interviews, teachers spoke about the role parents and students took or can take as a result of access to PowerSchool. Administration at the study site conducted orientation programs for students and parents and explained expectations for use of the system. While teachers did not attend parent orientation sessions, teachers were informed of the content parents received through administrative communications to teachers. Teachers were present for student trainings, as the student orientations were broadcast through the school's television studio during homeroom. All teachers received copies of the parent and student Acceptable Use Policies that informed parties, in writing,

of the purpose of PowerSchool access and the protocol for use. The Acceptable Use Policies reinforced the expectation that parents would involve their children in addressing assessment concerns. While parents were not discouraged from contacting the teacher directly, parents were reminded that students receive much assessment information within the classroom and parents were reminded of the developing independence of high school students.

During the pilot, a New York Times article (Hoffmann, 2008) was published that highlighted some of the concerns about parent involvement and pressure on students. Teacher comments about parents' and students' use of the PowerSchool system reflect consideration of increasing parent involvement and the effect of parent involvement on students. Pre- and post-survey responses, journal prompts, and individual interview responses highlight participants' concerns and interest in using PowerSchool wisely to communicate assessment information.

Three teachers anticipated PowerSchool's influence on parent involvement in the pre-survey. Sharon wrote, "There is always the risk that parents or students will become overly obsessive in either high achieving or resignation attitudes. This, however, has been the extreme exception in my experience." She also wrote, "I also feel that the parents who are going to be using this will tend to be the parents that are invested in their child(ren)'s education anyway." Kelly wrote, "Parents can much more easily monitor progress and see results, both positive and negative, hopefully making their job as mom/dad easier also." Judy wrote:

I know many parents of high school students are 'in the dark' regarding their child's day-to-day progress as teenagers tend not to talk about school as much as younger students. Some parents will micro-manage their child's progress and some will never even look at the grades, but I think most will use it appropriately and in moderation.

Sydney reflected on the influence in parent involvement in the post-survey. She wrote:

I realize that not all parents will use their access, but those who do will not need to e-mail teacher as often because the information they are looking for is right there for them. I feel fairly confident that we will have minimal abuse from parents since they have to go through a training ahead of time.

Two teachers reflected on parents' use in their journals. Judy wrote, "I think the vast majority of parents will use this appropriately (or not at all, for some) and once the few 'abusers' are straightened out it will be a positive resource for teacher, parents and students...." Kelly wrote a long journal entry, considering the negative consequences parental involvement can have for students:

In reading a newspaper article on PowerSchool and having checked out the anti-PowerSchool Facebook groups myself, it is clear that PowerSchool can easily lead to an outbreak of 'helicopter parents.' ...I am concerned that because PowerSchool allows parents to see these specifics, we will see increased push for perfectionism. I think that this magnifying glass is

much needed for students whose grades are slipping or in cases where students have been deceitful about preparation for a test or project and the truth can be discovered more quickly. This is also more important in 9th and 10th grade when parent involvement is still fairly high. But it also runs the risk of pushing high achieving kids over the edge. Having been through those pressures myself in my middle and high school years, I know the potential it can have on a student's emotions and well-being. I worry that some parents do not know how to differentiate between slipping grades and an occasional extenuating circumstance. And perhaps the parents who truly maximize on PowerSchool mainly have students who fall into that category.

Based on all of the above reflection, I am confident that we need to remain strong in maintaining a 'once a month' update policy for our teachers. ...This sets the message, hopefully, that PowerSchool access is an expanded report card explanation rather than a Big Brother type monitoring system.

The researcher asked participants in the individual interviews if they felt that parents understood their role. Because the frequency of inquiries from parents went down, teachers had a difficult time answering this question (researcher's journal). Sydney responded, "I don't know because I had mostly students be spokespeople for their parents." Later, Sydney added:

However it was communicated to the parents seems to have sent the message that, 'This is not a reason for you to go badgering teachers. It's to

show you what's going on and it's your responsibility and your student's responsibility to work with it.'

Regarding whether or not parents understood their role, Lisa responded, "I can't say anything about that because I didn't have a lot of interaction." Sharon reported:

To me they [understood their role]. But I did hear throughout the school that there were some parents that were calling or e-mailing every other day or every week.... So I think there were parents who understood it, and took their role and enjoyed it. And I think there were others who took advantage of what they did have.

Several participants elaborated on parent involvement as a result of PowerSchool. Judy remarked:

I would think that parents would enjoy access, especially when the kids are younger, underclassmen.... What I hear from parents all the time is, 'Well you know Suzy doesn't like to tell me what's going on in school.' And I think that's natural for teenagers.

Judy continued, elaborating on her perception of students, "[Students] want to be a little more in charge of their own affairs." She spoke of the tension between parents and students as well:

Parents sometimes don't know whether to let go or to push for information and I think it is a hard line for them to walk. They want their kid to be more independent but [PowerSchool access] is a way that they can be a little more involved without hovering over the kids.

She added, about the students' relationship with their parents, "I will say that the kids that did come, they were a little uncomfortable with their parents being able to access it. They weren't sure they liked the idea."

Sydney, independently, engaged some students in a dialogue about PowerSchool access and shared the results in her individual interview. She asked some students, "'Did it make a difference for you?'" A student responded to her, "Well, yeah, actually I didn't mind it." She also asked, "'Did your parents get on it without you knowing? What was it like?'" She reported:

The student said, 'Yeah, you know my mom could check things out and I think it kind of helped me stay on top of things.' So I think from their perspective, as well as from mine, it might not be used by every student and parent...but for those who take advantage of it, I feel like the benefits are huge.

Later in the interview, she added, "This is a way for [parents] to connect with their student, their kids, and when their student shows them on-line I just feel like it helps the two of them connect in a way, too, that wouldn't happen otherwise."

Sharon felt that PowerSchool fostered communication at home and reflected on how the teacher was taken out of the communication loop:

I was actually surprised that I didn't get as much feedback...it does make sense if they can see right in front of them, 'clearly you didn't do well on this test,' and they could ask their kids. It does kind of take out the

teacher and it does kind of foster that communication [between] the parents [and the students].

Later, she added, "I think it is positive in terms of the parents and the students talking." She also elaborated on how she felt as a teacher, being taken out of the loop. "Progress reports would go out, report cards would go out...for some of the students that I felt I should be getting feedback from their parents and I never got anything, and I thought that was kind of negative." She concluded, "But if they can see the numbers and they sat their kids down and asked, 'Why did you get this, this and this?' and the kids gave them the answer, then they didn't necessarily have to come to me."

Kelly did not feel that PowerSchool involved parents who otherwise would not have been involved. "I think that the parents who were already involved...were staying involved. I don't think it made parents become more involved from what I saw.... It continued to help give them good feedback." In the focus group, Kelly spoke about her role as a teacher in facilitating use between a specific student and her parents, "I showed her how to use it as a tool to have better conversations with her parents."

Data addressing research question two examined the substance of communication through PowerSchool and the influence of PowerSchool to provide greater clarity of information that can be interpreted by students and their parents to take action to improve student achievement. The next research question examines teachers' perceptions of the influence of PowerSchool on

student effort and student motivation and examines how teachers' perceptions of student motivation changed as a result of parent and student access to PowerSchool.

Question Three: How did increasing transparency of grading to students and parents impact teachers' confidence in their ability to influence student motivation for learning?

First, findings are presented from the pre- and post-surveys that indicate teachers' perceptions of how parent and student access to PowerSchool influenced student effort and student motivation. Additional research findings in this section center on three themes: teachers' perceptions of PowerSchool's influence on the students' and parents' responsibility and ownership over grades, teachers' perceptions of PowerSchool's influence of pressure on students, and teachers' perceptions of communicating assessment feedback through PowerSchool and student motivation. Narrative comments from individual interviews and focus group interviews allowed teachers to elaborate on these perceptions.

Participants' perceptions of student motivation.

Questions in the pre-survey were designed to determine teachers' perceptions about grades and student motivation prior to opening PowerSchool access to parents and students. All teacher participants agreed (5) or strongly agreed (2), prior to opening PowerSchool access to parents and students, that

grades are important in motivating students to learn. When asked about ability and effort as factors in student achievement, all seven (7) participants indicated that they agreed (4) or strongly agreed (3) that effort is significant in influencing student achievement. Five teachers agreed (5) that natural ability is significant in influencing student achievement and two (2) disagreed. These questions were asked in order to ascertain teachers' initial perceptions about student motivation and the influence of grades, effort and ability, which informs the analysis of subsequent data.

Teachers were also asked in the pre- and post surveys about whether or not they believed students can be characterized as "motivated" and "unmotivated." Responses are presented in Table 12. The data presented in this table demonstrates that teachers, before PowerSchool, did not view students as either "motivated" or "unmotivated". After the PowerSchool pilot, however, participants' perceptions had changed and more teachers were inclined to view motivation as a fixed trait.

Table 12

Number of respondents indicating that students are either "motivated" or "unmotivated"

	Strongly Disagree	Disagree	Agree	Strongly Agree
<i>Number of respondents pre-survey</i>	1	5	1	0
<i>Number of respondents post-survey</i>	1	2	3	1

Prior to providing access to PowerSchool to parents and students, six teachers disagreed (five) or strongly disagreed (one) that students can be characterized as “motivated” or “unmotivated”. After PowerSchool access, three teachers disagreed (two) or strongly disagreed (one) that students can be characterized as “motivated” or “unmotivated” while four teachers agreed (three) or strongly agreed (one) that students can be characterized according to these terms. The perceptions of three teachers changed between the pre- and post-surveys. All three initially disagreed before the pilot and, after the pilot, two agreed and one strongly agreed that students can be characterized as either “motivated” or “unmotivated”.

Teachers were also asked, in the surveys, to report their perceptions of how PowerSchool may have changed student motivation as a result of parents and students having greater access to assessment information. Results are summarized, from the pre and the post surveys, in Tables 13 and 14.

Data in Table 13 demonstrate that teachers expected, prior to the PowerSchool pilot, that parent access would help motivate students to achieve at higher levels. Teachers felt even more strongly, after the pilot, that parent access influenced student motivation.

Table 13

Number of respondents indicating that parent access will or did help motivate students to achieve at higher levels

	Strongly Disagree	Disagree	Agree	Strongly Agree
<i>Number of respondents pre-survey</i>	0	2	5	0
<i>Number of respondents post-survey</i>	0	1	4	2

Six teachers agreed (four) or strongly agreed (two) that opening PowerSchool access to parents increased student motivation while one disagreed with that statement, indicating a slight change from the pre-survey prediction. Prior to opening parent access to PowerSchool, five teachers anticipated a positive influence on student motivation and two did not. The results indicate that teachers feel strongly that parent involvement influences student motivation. This will be explored further when the teachers' narrative comments are presented.

Data in Table 14 demonstrate that teachers expected student access to grades in PowerSchool to motivate students to achieve at higher levels. Participants reported similar perceptions following the PowerSchool pilot on student access to PowerSchool's ability to influence student motivation.

Table 14

Number of respondents indicating that student access will or did help to motivate students to achieve at higher levels

	Strongly Disagree	Disagree	Agree	Strongly Agree
<i>Number of respondents pre-survey</i>	0	2	5	0
<i>Number of respondents post-survey</i>	0	2	5	0

With respect to student access, post-survey results were consistent with the pre-survey predictions. Five teachers agreed that using PowerSchool as a communication tool with students enabled them to positively influence student motivation for learning while two teachers disagreed.

When asked, in a separate pre-survey question, about a teacher’s influence on student motivation, five teachers strongly disagreed (one) or disagreed (four), that a teacher can do little to motivate unmotivated students. Two participants agreed that a teacher has little influence over student motivation. A post-survey question asked for teachers’ perceptions of PowerSchool’s influence on student effort. Five teacher participants agreed that opening PowerSchool to parents and students led to increased student effort while two teacher participants disagreed with this statement. The five teachers who agreed also believe that teachers can take actions to motivate students. The two teachers who disagreed (Judy and Lisa) that parent and student access did not lead to greater student motivation or improve student effort were the same teachers who agreed that teachers can do

little to motivate students who are unmotivated. Thus, PowerSchool did not seem to influence these two teachers' beliefs about a teacher's role in influencing student motivation. In conclusion, however, the data show that more teachers (five) felt that PowerSchool improves student effort and motivation.

Concerned that poor grades might serve as a negative influence on student motivation, teachers were asked whether or not PowerSchool access led to a decrease in student motivation. In responding to a post-survey question, all teachers disagreed (six) or strongly disagreed (one) that opening PowerSchool access to students or parents reduced motivation for students.

Teachers' comments from the pre-survey and the post-survey and individual interviews clarify teacher participants' perceptions about PowerSchool and its influence over student motivation and reflect many of the nuances of student motivation. Some teachers felt that students being able to see their grades motivated them to take action to improve. Comments are consistent with survey results where teachers felt that parent access to PowerSchool was a greater influence than student access on student motivation and put pressure on students to improve in their classes. Teacher responses also indicate that many teachers considered the contextual nature of student motivation and recognized PowerSchool's limitations in influencing student motivation. Teacher comments also reflect some general beliefs that motivation is a fixed trait.

Ellen wrote in the pre-survey that, through PowerSchool, "Students can see their grades on their own time." She felt that this would motivate them to work harder. According to Ellen, in the post-survey"

Because students can actually see their grades before report cards, they can see what they need to work on before it is too late, therefore the students are more motivated to get good grades. They are especially motivated because they are aware that their parents can also see their grades on a regular basis.

In reference to her interactions with students, Ellen reflected in her individual interview, "It would definitely be a way to motivate them. If they see their grade, they know what they need to do better in."

Sharon felt, in the pre-survey, that students see their grades in class anyway, so opening PowerSchool would not influence them much to work harder. She did feel that parent access would have a larger impact, "I do think that once parents can see just what their child(ren) is or is not doing and/or how they are doing, there may be a major change in progress." Sharon's post-survey statements reflect a consistent perception, "I think that for some students, opening the 'gradebook' to their parents was a huge motivating factor." She later added that she felt some students continued to be unmotivated, "I think that there were other students who were not as motivated by the opening of PowerSchool because either the student just did not care, the parents did not care, or the access was not used."

Sydney's pre-survey comments reflect the diversity of students that teachers are seeking to reach. She wrote:

Some are highly motivated but do not have a great deal of natural ability, others are just the opposite. And there are others that are everything in

between. Each student, and each parent, works differently and in their own way. I'd like to think that opening access to PowerSchool will help all types in their own way.

Sydney commented during the individual interview, in reference to the struggling student who used PowerSchool as a device to communicate over poor performance on a project, "[PowerSchool] was a positive thing and I think she felt kind of empowered by that and she said that her parents were definitely on her more because of it, because of having the access." In the post-survey response she added, "I think seeing her grade on-line motivated her and gave her the responsibility and, therefore, the power to take control of her own learning."

Prior to PowerSchool opening to parents and students, Pam expressed, "Assessment feedback, especially if it is meaningful and timely, can have large impacts on student motivation." She cited PowerSchool's ability to influence student motivation in showing, "...the pieces that go into that grade on a daily basis, and how their grade is impacted by even a few assignments, they will potentially be more motivated to stay on top of their work and maintain motivation." She did feel, however, "There will still be students who never bother to look up their grades, or students who remain unmotivated even when they do look up their grades."

Kelly expressed reservations in the pre-survey about opening PowerSchool and using it as a tool to influence student motivation. She

commented about competition and comparison, “[Students] all fall prey to comparisons and high expectations.” She feared that:

High achieving students may see PowerSchool access as a way to obsess over becoming better than others. It may motivate them to do well all the time so their parents never see a single bad grade.... They see assessment feedback as a way to make sure they stay on top to make their parents happy, to help them advance to the next level...and hopefully to feel a sense of self-satisfaction and accomplishment.

She contrasted this with her view of lower-performing students:

Students who are not high achievers may see this detailed feedback as constant reminders as to why they are ‘failing’. For some, this discouragement can come from low or failing grades. For some students, a B+ on one assignment might be enough to cause this.

Kelly also wrote, “I believe that we have to be careful about open access to numbers-only feedback and make sure to balance it with qualitative feedback and efforts to increase intrinsic motivation to learn.” Kelly commented in the post-survey, “Some students are more motivated, either from their own drive and the increased information given to them. Others are more motivated now that their parents are more informed.” Kelly also elaborated about the parents of “unmotivated” students, “There are still those students who either have parents who choose not to get involved or who simply don’t care.” Kelly’s comments also reflect the context of student motivation, “Student motivation will change

from subject to subject and from type of assessment to different type (or from many other factors, including their mood, etc.).”

Lisa felt, prior to opening PowerSchool, that there are factors beyond the teachers’ control impacting the ability of a teacher to impact student motivation. In the pre-survey she writes about PowerSchool and student motivation, “Opening parent access will not help to motivate students to achieve at higher levels, but it will help to open the communication between teachers, parents and students.” After PowerSchool access was open, she identified student behavior as “grade robbing”. Lisa wrote, “Two students tried to be grade robbers when looking at their grades, but [many] students had no change in their motivation.”

Judy also discussed the context of motivation in the pre-survey, “I...believe that certain subjects or teachers or topics can turn unmotivated students into motivated ones.” Prior to PowerSchool she reported:

I am doubtful that opening PowerSchool to students will significantly change their achievement levels. I think the grade-conscious students and those who care about grades at all, would use it to see how they are doing but I don’t think unmotivated students will change their habits simply because they can see their grades.

She concluded, “I’d like to be wrong about this but I don’t see how it will change their attitude about school in a positive way.”

After PowerSchool access to parents and students, Judy felt that the pilot could not present enough information for her to feel confident in PowerSchool influencing student motivation. She wrote in the post-survey results, “There has

simply not been enough time or feedback to ascertain the full impact opening PowerSchool will have. Significant changes might result but there is also the possibility that it will have minimal impact on student motivation.” In the individual interview, she noted that she felt it might be a better motivator when used at home, “On the home front, it might be [a motivator] but I don’t see it being a huge motivator in the classroom, as a teacher.” Although multiple sources of data report that Judy felt that teachers could do little to motivate unmotivated students including using PowerSchool, she did speculate, in reference to students taking on more responsibility, “It will give [teachers] another tool in the tool box.... I view it as a natural progression of the technology that we have.”

Responsibility over student achievement.

Teacher participants remarked that they felt that providing students and parents with access to grades through PowerSchool shifted responsibility of student achievement from the teacher to students and parents. Pre- and post-survey responses, focus group interview responses, and individual interview responses reflected this perception.

Pam’s responses captured the perceptions of several teacher participants. Pam wrote in the pre-survey:

I think any time students are part of the communication loop, they will be more apt to be held accountable for their actions on a daily basis and will

therefore be more aware of how these actions affect their performance in school.

She responded in the post-survey that she hopes, "...that [PowerSchool] shifts their thinking from 'My teacher GAVE me a particular grade,' to, 'I EARNED a particular grade.' I think that being able to access this information should help make that shift even more effective across the board." She concluded, "I think [PowerSchool] provides an opportunity for increased responsibility on the students' (and parents') part."

Ellen reflected on what she experienced with specific students and responsibility in the individual interview. She said, "[Students] started to take responsibility of their grades because they are right there in front of them.... They can see the grade whenever they want and, therefore, I think they are taking responsibility for it." She noted that students assumed responsibility because grades were available at any time, not just at the end of the quarter. She remarked:

'I can get this C up to a B,' whereas maybe at mid-quarter or quarter, how much time do [students] actually have left to get that grade up? So, I think they took a lot more responsibility for their grades, in that sense.

Ellen felt that the shift in responsibility was the biggest benefit of providing on-line access to grades:

I think the students taking responsibility for their grades. It's right there in front of them and they, if they see it, maybe it becomes a reality to them

and then they see what they need to work on. So they can see what they need to do in order to be successful in class.

Sydney reflected on student and parent responsibility during the post-survey and individual interview. In the post-survey, Sydney wrote:

I think PowerSchool access is a tremendous help when communicating with parents.... Normally I have to go through my rosters and contact many parents just to make sure they are aware of their son or daughter's grades. With PowerSchool access, although I'm sure I will still contact some parents personally, the responsibility falls more on the parents because they can check the grades themselves. There are no excuses for surprises about grades.

Sydney also wrote, in the post-survey:

PowerSchool access puts more of the responsibility on the students, which I think is so important these days. Many students like to say they didn't know their grades were so low but with access to PowerSchool there are no excuses. I also think many students will feel empowered by having access.

Sydney remarked, in the individual interview, "It feels like it almost takes the pressure off the teacher and puts the onus on the student. It's the grade that the student is earning and you can watch the grade change based on their scores...." In the interview, Sydney reflected on the student who re-worked a project grade and she commented about responsibility:

When she could see it and she was able to go home and think about it, and look at it herself and see 'Wow, she put that quiz grade in and looked what happened,' I think it meant something different...and it gave her more of the responsibility.

She also said:

For the majority of students...it's going to have them feel like they are in more control and take initiative and be more motivated.... It's not going to reach everybody but it's going to reach a lot of them and in a positive way.

In the post-survey, Sydney again remarked, "Hopefully, some students will realize that teachers don't 'give' grades, 'students' earn them." She views PowerSchool as a tool that allows students to, "...see how they're progressing, the scores they are earning. Again, putting it on the student." (Individual interview).

Sharon reflected on the change in responsibility during the focus group and in her individual interview. Sharon remarked during the focus group, "I do feel, in some ways, there is a little bit more responsibility on the kids now. And, to some extent, the parents, too, checking up on them." In the individual interview, she compared students' ownership of grades after PowerSchool to students' ownership before grades were available on-line:

I think that before it was easy for a student to go home and say, 'Well that teacher doesn't like me,' or, 'We had this test and I didn't do well, but no one did,' But when you have the numbers right in front of you...I

think it reflects things a little more honestly and I think the kids then realize, 'Well, you know, I can't make up an excuse.'

She later added, "Maybe it put more pressure on the kids but it did hold them more responsible."

For Judy, she saw students taking more responsibility and commented in the individual interview, "I think with kids it was nice for them because they had to take some ownership of it, instead of 'well how am I doing?' they could go and look." Her comments echoed Pam's, "I also think that kids become more of the process, instead of, 'My teacher gives me a grade,' by having [PowerSchool] it makes it more, 'This is a grade I earned,' and it's a subtle shift." She added, "[Students] will become more aware of their own role in their grade, whether they choose to do anything about that or not."

Data addressing research question three examined teachers' perceptions of student motivation as a result of PowerSchool. Teachers felt that parent involvement in using PowerSchool was an important influence in motivating students. Data addressing research question four will be presented next, exploring teachers' perceptions of changes in communication among teachers as a result of PowerSchool.

Question Four: How did increasing transparency of grading to students and parents impact teachers' perceptions of PowerSchool's influence on communication among teachers about the use of PowerSchool?

The research findings that address this question focus on teachers' perceptions of the influence of PowerSchool on communication among teachers. Three themes emerged in this area: communication among teachers on teachers' application of PowerSchool to communicate assessment information, communication among teachers about the influence of PowerSchool on assessment and instructional practices, and PowerSchool's influence on teachers' perceptions of collegiality within departments. One additional, unanticipated result emerged during data analysis. All teachers began using PowerSchool as an on-line gradebook in order to provide on-line access to students and parents. As a result, teachers could then view the details of a student's school-wide achievement. Three teachers reported improved communication with other teachers about the achievement of specific students in their classes.

After the PowerSchool pilot, the post-survey asked teachers to reflect on whether or not PowerSchool improved communication among teachers. The results are summarized in Table 15. The data presented in Table 14 shows that teachers had mixed perceptions of PowerSchool's ability to improve communication among teachers. Some teachers felt strongly that PowerSchool did improve communication but many felt that PowerSchool did not improve communication among teachers.

Table 15

Post survey results of participants' perceptions of PowerSchool's influence on improved communication among teachers

	Strongly Disagree	Disagree	Agree	Strongly Agree
<i>Number of Teacher Participants</i>	0	4	1	2

Table 15 summarizes the perceptions of participants when asked for their perceptions of the ability of PowerSchool to improve communication among teachers. Four participants disagreed, indicating that they did not feel that PowerSchool improved communication among colleagues. Three participants either agreed or strongly agreed that opening parent and student access to PowerSchool improved communication among colleagues.

Narrative responses from the survey, focus group interviews, journal entries, and individual interview responses allowed teachers to elaborate on their perceptions. Although 4 participants disagreed that PowerSchool did not improve communication, all participants indicated some degree of increased communication among colleagues and PowerSchool's influence on the substance of communication among teachers. Participants' reflections demonstrate influence in the areas of a) using PowerSchool to communicate assessment information, b) PowerSchool's influence on teachers' communication of assessment and instructional practices, and c) an unexpected theme of improved communication among teachers of the same student as a result of more

transparent assessment information. Finally, teachers' perceptions of the influence on collegiality will also be discussed.

Communication in using PowerSchool.

The findings of the data demonstrate that teachers communicated how to use the PowerSchool program to a greater extent. Many participants reflected a major concern over fairness to teachers, particularly around the issue of expectations of the frequency of updating the computer program.

Judy felt that communication in her department centered on "technical stuff". In the individual interview, she noted that, "There were e-mails about, 'Hey, do you know how to do this?'"

Pam responded in the post-survey, "I have learned a lot from my colleagues in regards to the usefulness of the PowerSchool program, from adding course descriptions to developing a system to communicate the information that grades are intended to communicate." Pam went on to describe the features of the program that enhanced and added to her communication such as the use of codes, comments, and assignment descriptions. "I learned these features mostly through playing with the program and asking my colleagues."

Kelly discussed concerns about fairness and the frequency of updating the PowerSchool program in the individual interview. She referenced conversations among colleagues, "I know we've talked about the fairness issue of, 'If I'm doing it but the teacher next door isn't,' or 'If other subject area teachers aren't doing it,' it becomes very difficult to handle parent complaints and fairness issues."

Sydney also commented, in the post-survey, that teachers had been communicating about the expectation of updating grades, “We talked about how often we update grades our on-line grades.” Sydney noted conversations in her department during the individual interview, “Well how often am I going to have to update? I’m still overwhelmed by the time grades close.” She pointed to the expectations agreed upon by union leaders and administration, “The fact that the pressure wasn’t put on them to have grades updated every third day or something crazy like that helped a lot.”

Judy also presented the concerns she has talked about with teachers during the individual interview, “What we’re very aware of is the pressure to hurry up and update grades. I think that’s something that we’re trying very hard to manage because I think it is a very legitimate concern.” She later said, “*The* [italics added] biggest concern among teachers about this isn’t parents micromanaging or students bugging them, it’s the expectation that they have to keep their grades up to date and being compared,” based on that.

Ellen reported during the individual interview, “I think a lot of teachers are worried about how often they have to update the gradebook. I think that’s one of the major concerns.... [That’s] what people are afraid about with comparisons.” Ellen reported that she did not experience much change in communication within her department, however, as a member of the school’s steering committee on parent and student access, Ellen was able to experience more communication:

Personally, I didn't experience much communication between teachers in my department, but as a member of the PART team, I did. It seemed that most teachers were concerned about how often we are going to be required to update the gradebook. They were also concerned that opening PowerSchool would result in more e-mails and phone calls from parents, which I actually experienced the opposite of.

Lisa felt that parent and student access did influence communication but did not increase communication among teachers. She wrote, in the post-survey, "It generated conversation about how it will impact teachers in the context of doing their job but it did not open up any new lines of conversation."

Communication about assessment and instruction.

Teachers have traditionally guarded their gradebooks and kept their contents secret (Kain, 1996). Prior to the PowerSchool pilot, the faculty had expressed fear that publishing gradebooks on-line would lead to an increase in parents comparing different teachers' grading practices and assessment strategies (researcher's journal). The researcher designed data collection instruments to determine whether or not, from the perspective of the 7 participants, teachers took initiative to discuss common assessment and instructional practices as a result of increased transparency, as seen in Westside Community Schools (Bird, 2006). Five teachers commented about PowerSchool's influence on teacher communication about assessment and classroom instruction. Some teachers felt that having common assessments and

instructional practices going into the PowerSchool pilot facilitated the process of increasing transparency. Some teachers felt that PowerSchool prompted more collegiality and consistency when common practices had not been in place. For most teachers, PowerSchool was a positive influence. For 1 participant, however, PowerSchool negatively added pressure on teachers to be “the same”.

Pam, a member of the science department already felt that the teachers are consistent with assessment and PowerSchool has not changed that. “A lot of the assignments that we do are consistent.... We share a lot and it helps I think with consistency both the climate and in the department as well.” In considering parents’ perceptions, she noted, “I think parents are supportive of the idea that teachers differ a little bit in the way they approach their course but generally follow the state guidelines for what to teach....” She feels that, “Part of the safety is having your grading practices clear...”.

Ellen, during the individual interview, similarly pointed to the already common practices in her department in comparisons of grading practices due to increased transparency, “We really try to collaborate a lot. We share ideas, we share lessons, and we’re kind of on the same page. I think that if the departments have that, it will make things a lot easier.” She also spoke about common assessments, “I know we have a common assessment every quarter, so we have to, essentially do the same lesson or the same test question so I would think that would help, too.”

Sydney wrote in the post-survey, “I found myself in numerous conversations with other teachers in my department regarding PowerSchool

access. We mostly discussed how we were grading the common assessments we give to make sure that we were all on the same page.” Sydney discussed the influence of PowerSchool on common assessments and instruction within her department. When asked, during the individual interview, if PowerSchool increased concerns over comparisons, she replied:

I think almost the opposite has happened. We are now saying, ‘If your student came into my class, they’re still going to be in the same position and not that we have to teach everything the same, and everything in the same way, but how are we assessing so that it is fair and common?’

She concluded, “We’ve had more conversations...to help us stay together than completely the opposite of them comparing [teachers].” She attributes these conversations to PowerSchool, “I think having the grades accessed by parents and students has...made a few of us...have conversations, ‘How are you grading this section of the test?’ That one section can be looked at in five different ways, so, ‘Are we consistent?’” She also discussed how these interactions result in conversations about classroom instruction, “When we talk about that section for a test that we know we’re going to give, we’re going to approach this so that ‘What have you done that’s worked?’ ...We’ve definitely collaborated in that way.”

Sharon relayed how teachers in her department began speaking about how homework, tests and quizzes comprise a final grade. She noted, during the individual interview:

There were some teachers in the department who were getting e-mails like, 'My son is taking health with this person and my daughter is taking health with you and why are their grades so different? They've always been about the same academically.' So that was a result of PowerSchool. She noted that the teachers in the department were thinking about moving towards a method of total points in an effort to be fair to students with different teachers.

Lisa displayed unease when discussing PowerSchool's influence on communication in her department around assessment (researcher journal). This came from several departmental initiatives related to assessment and a new focus on problem-solving. She saw this as critical of their current practice:

I think in the math department we are really thoughtful about when we do quizzes and tests...but now to try to put more stuff on top of that, I think we're finding it hard. What can we cut? I just don't feel we can, as far as the grading is concerned.

Lisa agreed, during the individual interview, that PowerSchool caused a bigger push in her department's approach to common assessments. She added:

Yes, a lot of us do share our tests and quizzes. But now that push is that it has to be more than just tests and quizzes. And a lot of us are feeling that we have to find other ways to assess them.

She added, "I just feel like it is more work put on top of us because now we have to make it look so much better for the parents to see it."

Communication about student achievement.

One unexpected result from the PowerSchool pilot was captured in Lisa and Judy's post-survey narratives about PowerSchool's impact on communication among teachers. They answered this question from the perspective of teachers having access to individual student's grades and achievement. With parent and student access, all teachers were required to keep an on-line gradebook. The researcher had anticipated that teachers would increase communication around assessment and the use of PowerSchool as a measure of their practice; these narratives, however, indicate that these two teachers also considered PowerSchool access from the perspective of teachers, likewise, having access to an individual student's academic record.

Lisa wrote in the post-survey:

I think having access to a student's entire academic performance had been more likely [than parent/student access] to spur e-mails/conversations between teachers than opening PowerSchool to parents/students. I know that I occasionally check to see how my students are doing in other classes and will sometimes contact the other teachers to get a reading on how that student is performing in that class.

Lisa also commented about being able to view a student's grades and describes reaching out, "For homeroom and stuff like that, I may say to a student who I have a good rapport with, 'I'm really concerned.'"

Judy responded during the post-survey:

Being able to use [PowerSchool] to view all grades for a particular student was extremely helpful. Many times I would look at grades to see how a student is doing overall...was [it] just a math problem or is he/she having difficulty everywhere? On a few occasions I contacted the other teachers to also check on behavior and if there was a common theme in all classes (grades/attitude). The teachers would then get guidance involved so there could be one meeting. Having one parent conference is much easier on everyone instead of having each teacher conferencing with the parent about the same issues.

Judy elaborated, in the individual interview, about being able to view individual student's grade:

It gives you a better feel for what is going with the student when you can see how a kid's doing and see other classes..... It just gives you more information for a parent conference, when e-mailing a parent or when talking to a student.

Judy also added, "Once in a while I would use it to e-mail a teacher who has the student that I have."

Pam agreed with Judy and Lisa that PowerSchool can be helpful to teachers in seeing a student's overall grades. In her individual interview, she remarked, "I have liked it in the fact that I can see how students are doing elsewhere and it helps a lot with course recommendations for courses next year.... Being able to see how they're doing across the board in school just helps fill in that picture as a whole person, not just who they are in your classroom."

The data from this study supports that PowerSchool has the potential to influence school culture through teacher communication. The researcher wrote in her journal, "At a steering committee meeting today, the union president commented, as we were leaving, that, 'This is really a change in school culture.'" Teacher comments reflected both positive and negative ways that increasing transparency in grading to parents and students influenced school culture.

In the post-survey, Pam wrote, "I think [teacher communication] has been the most valuable outcome of opening access thus far." She was one of two teachers who "strongly agreed" that PowerSchool improved communication among colleagues.

According to Sydney, she felt that PowerSchool increased the opportunities for collegiality. She wrote in the post-survey:

It is so important and helpful to have these discussions with colleagues. I would like to see us having these conversations during PD or department meetings time rather than random meetings in the hallway between classes when we are so rushed.

In the individual interview, Kelly discussed the impact of PowerSchool on her department:

I think, in some places, it has helped us to bring our department together as far as working to understand how to use the program, and I see more collaboration among teachers that may not have collaborated before. Just over curriculum and working to figure out strategies and helping each other, we do a lot of that in our department.

Kelly did not feel that work around curriculum and instruction was necessarily connected to PowerSchool but she did feel that PowerSchool provided more of an opportunity to learn from each other:

I've just noticed that there have been more chances and more people seeking out advice from each other and more communicating and strengthening the bonds of collegiality, because we're trying to figure this darn thing out, figure out the glitches, teaching each other how to use different things that we find.... It does give us an opportunity to strengthen those bonds and give appreciation for each other's talents and help.

Kelly concluded, in the post-survey, "Teachers worked collaboratively to make sure they understood how to use the system properly."

Lisa expressed concerns about PowerSchool and a mistrust of administration. "There are some teachers that are feeling that, just from the top, that it is going to become where everyone has to start grading the same way." She noted that teachers are saying this at lunch and at other times. Later, she added, about the pressure she is feeling from administration, "Now it's 'We're opening access to PowerSchool, now we have to start talking.'"

Concerned about fairness and expectations and the influence on the culture of the school, Judy pointed out the potential division comparisons of teachers' use of PowerSchool could have among a faculty:

It becomes divisive if it becomes a measuring stick and teachers were rated against each other and viewed as, 'Well you're more efficient than so

and so.’ That’s an area to tread very carefully. Subjects are very different, assessments are very different, and teachers’ styles are very different.”

Data addressing research question four examined teachers’ perceptions of PowerSchool’s influence on communication among teachers. Data addressing the last research question, question five, is presented next and examines changes in teachers’ application of PowerSchool before the pilot and as a result of their experiences with parent and student access.

Question Five: How did increasing transparency of grading to students and parents impact teachers’ application of PowerSchool?

The findings related to this research question consider changes teachers made in anticipation of parent and student access as well as planned changes in future use of the PowerSchool program, in anticipation of full implementation, based on their experiences during the pilot. Teacher responses to the pre-survey and individual interviews indicate a theme of reflection on their assessment strategies and communication methods in anticipating initial parent and student access. Due to their experiences during the PowerSchool pilot, teacher participants reflected on these experiences and offered the changes they plan to make in advance of full implementation during the teacher journal entries, post-survey results, and individual interviews.

Reflections in anticipation of PowerSchool pilot.

Individual interviews provided teacher participants with an opportunity to discuss what changes, if any, they made in their use of the PowerSchool program prior to or in the initial stages of the pilot when parents and students first gained access to grades on-line. Some teachers reported a change in their use of the program initially while others reported little, if any, change in the early stages of the pilot.

Ellen reported, during the individual interview, no change in her use of PowerSchool in approaching the pilot, "I have always updated on a regular basis, so I didn't change that, I've always done that."

Pam reported little change, initially, in her use of the program. But upon further reflection, she noted some changes where she added a greater amount of information to PowerSchool both to help students and parents and for her own record keeping. She reported an increased use of "score comments" and how she feels about increasing the amount of information she provided through PowerSchool:

I'm actually enjoying it more, now. I like to record if they don't pass [an assignment] in. I developed my own system...and I put that into my course description so [parents and students] know what they mean. I added my class website link which wasn't up there before and I added what the codes meant. And I kept close track of *why* [italics added] the assignment wasn't in.

She later explained what type of information can be found on her class website, "...homework assignments...upcoming big things...notices about tests... review sheets in a document form that they can download. Links to websites that they can use to review, a link to the safety contract, and a link to the syllabus."

When asked if she changed anything for the pilot, Judy replied, in the individual interview, "No."

Sydney reported that, prior to implementation, she reflected back on her assessment strategies. "I kind of stopped for a second and thought about this, 'OK, everybody's going to have access to this and am I on the ball?'" She felt that she could justify her assessment practices so she, "...kept doing things the way that I do them and it didn't stress me out at all, either. I found it much easier to use the technology to my advantage as a teacher...."

Lisa reported that she did not change anything based on knowing that, with the pilot, that there would be greater transparency in grading:

To me, I've not used Internet programs, but grading programs. It is something I feel I have been doing for years. I just feel like I am going to continue with it. It just means that now it is open to parents.

Sharon reported that the transparency of PowerSchool resulted in her reflecting about her use of the program, "a little bit." She added a comment related to the frequency with which she entered grades for feedback, "I found myself inputting things a lot faster.... If it improved their grade, they wanted their parents to see it. So it did wind up having an impact on me in ensuring that I updated the computer more regularly."

Kelly also discussed how the initial pilot resulted in reflection from the “the pressure to update more frequently.” She elaborated, “I didn’t feel pressure from the students or from the parents, I felt pressure from myself...so if they wanted to use it, I wanted the information to be there for them.” Regarding her grading practices, she reported, “I didn’t feel less comfortable about posting the grades or how I came to the students’ grades. The students already know that on paper. I’m very open about that on parents’ night. I didn’t feel I was being judged for how I graded their assignments or how I calculated their grades.”

Planned changes in use of PowerSchool.

The post-survey, journal prompts, and individual interviews were designed to examine teachers’ anticipated changes prior to full implementation of PowerSchool to all students and parents. Teachers reported that they did not plan to change assessment strategies, however, all teachers reported wanting to use advanced features of the PowerSchool program to provide additional, clarifying information to parents and students. Additionally, all teachers reported that they plan to encourage use of PowerSchool with parents and students when fully implemented. Some teachers also discussed their role in working with students and parents around appropriate use of the information in PowerSchool.

All teachers reported that they do not plan to change the way assessments contribute to a final overall grade as a result of parent and student access to PowerSchool (post-survey results). Some teachers did comment to clarify their

response. Lisa wrote, "I may make changes based on things the math department has implemented, but not because of access to PowerSchool." Judy reported, "I often re-evaluate units and courses and make revisions from year to year. This is not directly related to PowerSchool, however." Sydney also contributed, "Our program is pretty set. We know what assessments we give per chapter for each course."

Although teachers did not plan to change grading practices or their assessment strategies, all participants discussed changes they planned in communication with parents and students. Numerous teachers reported wanting to add additional information to PowerSchool to further clarify the grading information.

Pam wrote in the post-survey, "I plan to continue including as much information as possible on PowerSchool in regards to assignment descriptions, etc." Considering all that Pam had added to provide additional information to parents and students in the pilot, she still thought about adding more, in advance of future implementation. During the individual interview, she commented, "I do like the comments, the individual comments for an individual assignment. And I like keep in track of why that assignment isn't in.... "

In the post-survey Sydney reflected, "I want to start using the description section on PowerSchool so that parents can read more about the assignments, understand what the expectations were, and then better understand how their son/daughter did." Sydney reported that, following the pilot, she wanted to add

more information for the purpose of clarity. During the individual interview, she said:

I think the description of the assignments would be a very useful tool.... I think it is something that I will want to start using.... For projects and more open-ended things, it would be nice to be able to explain it so that the parent could see exactly, 'What was the expectation?'

Ellen reported, in the post-survey, "I plan to work on the time it takes me to correct assignments. I hope by opening PowerSchool up, it will force me to correct assignments at a quicker pace." During the individual interview, Ellen expanded on the changes she'd like to implement in advance of full-scale implementation:

After that presentation [by a faculty member] at one of our faculty meetings...I'll probably be more cautious about writing a description of what the assignments are...I'm going to have to start doing that more. I didn't do it last year because I didn't know how to do it, but then I saw her demonstration and I think, that's a good idea, a great idea.

She elaborated on the information she wanted to include in the assignment description, "I want the descriptions so that...if the kids are absent, they can go and look and say, 'Oh, that's what the assignment is.'" She also noted that a written description can give students an indication of "...how important it is, how much weight it has."

During the individual interview, Judy noted, that after the pilot, "For the first time, I started thinking about putting comments in for how I grade." She

explained her reasoning, "I said, 'Geez, if parents are going to be looking at this, I want them to have a little more information about what I do with my grades in my classes.'" In her final journal prompt, Judy elaborated on changes she plans to make, "I'd like to add descriptors about my grading policies and assessments."

Lisa agreed, during the individual interview, that PowerSchool is prompting her to reflect on what she's doing. She added, "I might be more diligent about, if a kid has a zero, putting a comment in about why they have a zero and you can do that for individual assignments.... I feel I have to cover [myself] more."

Sharon added, during the individual interview, that she has thought about adding descriptions to the computerized gradebook. "I have thought about it. The course description more than the assignment descriptions, more because I think that all the assignment descriptions could just take over my life...." She noted that she would add a category description for some of her classes in an effort to clarify criteria to parents:

It's more about working together and cooperative learning so I think that would be beneficial to putting like a category description just to say, 'you know your grade's not going to go down if you mess up the product or if you use the wrong ingredient.' That's not what I'm grading on; it's more on cooperation.

She repeated, in the post-survey response, that she “would like to get to know more of the ‘advanced’ features of PowerSchool so there can be descriptions of things (i.e. assignments, grades, etc.) that are posted.”

Through her experience with the pilot, Kelly modified her use of the program to add clarifying information, “I added in the class info, I added a description of how I come to my grades.” In advance of full implementation, Kelly did not anticipate any additional changes in her use, “I will keep the same pattern of updating as I grade.”

Teacher participants discussed how they plan to encourage students and parents to use PowerSchool. Some teachers also discussed how, in their role as teachers, they would help shape the role parents and students should take in using the program.

Judy hopes to encourage parent and student use. She wrote in her post-survey narrative:

I plan to ask parents prior to conferences or in depth conversations about their child to look at their overall performance on PowerSchool. I think this will make them more prepared and result in a more fruitful discussion about their child’s performance.

In the individual interview, Judy noted that for full implementation she would, “just mention it.” She noted that she wanted to “promote it more as a tool for the students.” “I want to say to kids, ‘You go on and check and see how you are doing. Don’t wait, you don’t have to come to me anymore.’” She concluded:

I would make it something that I would periodically talk about so that the students would know it is out there and encourage them to use it. And see if that makes them a little more likely to go and check it out.

With parents, Judy noted that she'd "probably mention it in parents' night, 'Oh, this may be a tool you would want to use.' I'd promote it as something that is available for both parents and students." She expressed concern over "...micromanaging parents, 'helicopter parents', you know the ones who are more grade conscious than their kids are." But she also felt that these parents were in the minority. She did say, "I would caveat it with, 'Please remember teachers aren't required to update this daily. Please don't immediately shoot off an e-mail to the teacher, talk to your son or daughter first.'"

Kelly plans to refer to the information in PowerSchool, as well. She wrote in the post-survey, "It would be much easier to reference reports or charts that parents have access to through PowerSchool rather than collect and send the data myself and then have the conversations later." With respect to parent roles, Kelly planned to reinforce the Acceptable Use Policy with parents. She added, in the individual interview, "We're going to have to be very clear about the purpose of access because I see [parents'] misunderstanding of the purpose of open access as being our biggest obstacle in the future."

Pam wrote in the post-survey, "I hope to continue to encourage students to access the system, perhaps by showing them what kinds of information can be accessed by looking at PowerSchool using a demo in class." In the individual interview, Pam commented on her rationale for this approach:

I want [students] to look it up on their own. I want to have them take responsibility for it on their own and not have me pass out the grade sheets.... I'd like to get them in the habit of looking stuff up on their own and I think it is a great thing and I want them to use it.

She discusses this in light of actions she would take, "I would take a few minutes out to explain to them how to do it...to have them do it more consistently."

Ellen reported during the individual interview, "[On] parents' night...I go through my website with [parents] and show them how to find homework. I can show them how to do that with PowerSchool, instead." She wrote in her final journal entry, "I will probably encourage the use of PowerSchool.... We need to somehow motivate students to start using it as a tool to help them succeed in high school."

Sharon did not feel that she would communicate anything to parents and students about using the program. She felt that "At the beginning of the semester, I give out my syllabus and I explain how things are graded, that I think it is pretty clear-cut."

Sydney wrote in the post-survey:

I plan to get the message out to students and parents that they should take advantage of this access. I will still provide feedback (both orally and in writing) during class and will still use e-mail as needed, but will encourage students and parents to use their access regularly.

During the individual interview, Sydney felt that one of the things a teacher could do in full implementation is "Encourage the kids to use it. Talk about it in

class. Mention it. Encourage them to see how their grade is broken down...because it's an opportunity for them to do better. Encourage them to look at it that way." Sydney also spoke to how she would approach parents:

What would be great is a simple letter or maybe even if you could send it via e-mail. Something simple that explains...what to expect and how it translates into a letter grade. And to encourage them, again, to look at it, with their son or daughter, together.

In her final journal prompt, Sydney remarked, "The first thing that comes to mind is encouraging students to use PowerSchool access to their advantage."

She added:

I like the idea of parents and students having access to grades. I don't feel pressure from it. I actually feel like some pressure is relieved because I can say 'Check out your child's grades on-line,' to parents of students who are struggling. It's up to them to keep checking and hopefully I'll only need to offer suggestions for how to study or prepare more effectively.

Data addressing research question five identified the changes teachers implemented as a result of increased transparency of grades through PowerSchool. A summary of the research findings concludes this chapter.

Summary

This chapter presented the research findings of this qualitative case study. Pre- and post-survey results, teacher journals, individual interviews, focus group interviews, and the researcher's journal provided the data that was analyzed and presented according to emergent themes within the five research questions.

Data demonstrated themes around the effectiveness of communication through PowerSchool (research question one). Teachers reported a decrease in parent inquiries into student grades, even though they anticipated an increase in parent inquiries prior to opening parent and student access on-line. Teachers reported an increase in student inquiries into student grades after access was granted to students and/or their parents through PowerSchool. Teachers, receiving little feedback about student and parent use of PowerSchool, report that they informally polled students and parents in order to gain greater information about whether or not the program was being used as intended.

Teachers reported changes in their methods of communicating with both students and their parents as a result of the PowerSchool pilot. The most significant changes in communicating with parents were an increased use of written feedback issued to students and a decrease in the use of printed reports generated from PowerSchool. Although teachers reported that their methods of communication with students changed as a result of PowerSchool, few changes were noted among the individual methods traditionally used by teachers to communicate with students. It is important to recognize, however, that providing parent and student access to on-line grades represents a new, more

transparent method of communicating grades with parents and students. The most significant change teachers reported was a decreased use of printed summary reports generated by PowerSchool being issued to both parents and students.

The data presented to address research question two addressed teachers' perceptions of the substance of communication between parents, students and teachers. Participants' initial expectations were very strong that PowerSchool would improve communication between teachers and parents and between students and parents. Their final perceptions were less strong that PowerSchool improved communication between teachers and parents and between parents and students, due to less feedback from parents to teachers than they had initially expected. Their responses indicate, however, a general feeling of improvement. Teachers initially felt that PowerSchool would improve communication between teachers and students and they felt even stronger, following the pilot, that this occurred.

The data presented to address research question two also demonstrated that improved communication meant that a greater amount of information was being provided to parents and students. Participants reported some dissatisfaction with decreased communication with parents and their responses stressed the need for greater clarity through PowerSchool. Participants felt most strongly that greater clarity allowed for improved communication between teachers and students and the greatest impact on this communication resulted in

changes in student behavior that led to students seeking ways to improve in their classes.

The last theme related to question two examined teachers' perceptions of the roles of parents and students in using PowerSchool. Respondents felt that both parents and students understood their roles, with students, "being the spokespeople for their parents." Respondents did not feel that parent involvement increased and some teachers reported feeling removed from the communication loop with parents. Respondents considered the potential for over-involvement of parents but felt that this, and parental abuse of the PowerSchool system, was relatively minor in comparison to parents who used the system appropriately. Participants cited the school's Acceptable Use Policy and orientation programs as being critical to the role development of parents and students.

Results that address research question three demonstrated patterns of perceptions about student motivation. After the PowerSchool pilot, more teachers reported perceptions of motivation as a fixed trait. However, participants felt that opening PowerSchool access, particularly to parents, resulted in increased student motivation and effort. Notably, two teacher participants did not feel that teachers can influence student motivation and these two participants did not feel that student motivation and effort changed as a result of PowerSchool. No participant reported feeling that PowerSchool decreased motivation for some students.

Data in this section (research question three) also explored the concept of responsibility and ownership of grades. All teachers reported that they felt that PowerSchool shifted responsibility and ownership over grades from the teacher to the parents and students. Many teachers remarked that they hoped that PowerSchool shifted thinking from “my teacher gives me a grade” to “I have earned this grade.” Some teachers expressed concern about the pressure this puts on students but felt, overall, that PowerSchool holds the student more accountable in a positive way.

The data addressing research question four demonstrated that PowerSchool influenced communication among teachers. While some teachers felt that PowerSchool improved communication, many teachers did not, though all participants discussed the influence of PowerSchool on communication among faculty members. Much of teachers’ communication around PowerSchool was around the technical features of the program and using it to communicate with parents and students. A major concern emerging from all respondents was the concern being shared among faculty of the pressure to update more frequently than the agreed upon expectation of once every four to five weeks. Several teachers remarked that conversations around PowerSchool reinforced the common practices in their department or sparked additional conversations about common assessments and instruction. While most people felt that this was a positive outcome, one teacher expressed discomfort and distrust of this process. Data in this section also supported a conclusion that teachers perceived PowerSchool as strengthening collegiality.

One unexpected result addressed this research question. Teachers reported additional communication with each other about specific students as a result of having an increased amount of assessment data about students in other classes. These teachers report using this information to help a student and to understand the student's strengths, weaknesses, and work habits in a larger context.

Data addressing research question five demonstrated that teachers examined their use of the program in advance of the pilot and as a result of their experiences during the pilot. Teachers reported that their assessment practices and grading policies did not and will not change as a result of parent and student access to PowerSchool. All teachers reported, however, changes in their use (either before the pilot, during the pilot, or as a result of the pilot) of the program as a communication tool. Notably, the changes involved the addition of more assessment information and comments that serve to clarify courses, assignments, and grading expectations to parents and students.

All teachers reported that they plan to take a more active role in encouraging parents and students to use the PowerSchool application in the future. Teachers identified ways that they plan to encourage use from presenting the program to parents, mentioning it to students, and changing the way they communicate with parents and students to prompt use of the program. The data also showed that teachers plan to take a role in reinforcing the Acceptable Use Policy to which students and parents have agreed.

The next chapter, Chapter Five, discusses the research findings as related to the literature presented in Chapter Two. Implications for practice and policy will also be presented. The limitations of this research study will be discussed and suggestions for further research will be offered. The chapter concludes with the researcher's reflection on her leadership as a result of the process and outcomes of the project and the study.

CHAPTER FIVE

Discussion of the Findings and Implications For Practice, Policy, Research and Leadership

Introduction

Chapter Five discusses the research findings of this qualitative research study. A summary will be presented first, summarizing the major findings presented in Chapter Four. A discussion of the findings will be presented and related to the literature that was presented in Chapter Two. Limitations of the study will follow the discussion of the findings. Three sections present implications of the research in practice and policy as well as suggestions for further research. The research study also presents implications for leadership. In this section, the researcher reflects on the planning and implementation of the project and summarizes her reflections. This chapter concludes with a final statement on the significance of the project and research study.

Summary of the Findings

This research study sought to examine the impact on the perceptions of teachers as a result of increasing transparency of grading students. By providing students and parents ready access to student grades through a web-based format, the researcher examined the effects on the following:

1. teachers' perceptions of communication of assessment information with parents and students

2. teachers' perceptions of the quality of assessment information communicated through PowerSchool
3. the impact of PowerSchool on teachers' confidence in influencing student motivation
4. teachers' perceptions of PowerSchool's influence on communication with colleagues
5. teachers' application of the web-based program, PowerSchool, in advance of the pilot and as a result of their experiences.

Web-based access to grades was provided to students and parents through the school department's student information management software program, PowerSchool. Access was provided in the spring of 2008 over the course of four marking terms when data was collected. The findings support that web-based access to grades using PowerSchool had the greatest impact on three main areas: communication between teachers and students, teachers collaboration around the use of PowerSchool, and teacher examination of their communication practices in order to provide greater clarity of assessment information to parents and students through this new medium. This section will summarize the research findings as related to the five research questions:

How did increasing transparency of grading to students and parents impact

- 1. Teachers' perceptions of the effectiveness of communication with students and parents about student achievement?**
- 2. Teachers' perceptions of PowerSchool's influence on the quality of assessment feedback provided to students and parents?**

3. **Teachers' confidence in their ability to influence student motivation for learning?**
4. **Teachers' perceptions of PowerSchool's influence on communication among teachers about the use of PowerSchool?**
5. **Teachers' application of PowerSchool?**

Effectiveness of Communication with Parents and Students

The first research question examined teachers' perceptions of the effectiveness of communication with parents and students through PowerSchool. The data explored effectiveness from the perspective of the frequency of inquiries about student achievement and what, if any, changes resulted in traditional methods of communication as a result of this new, web-based format. Approximately two-thirds (250, 65%) of parents and students in the sophomore class chose to gain on-line access to PowerSchool, a web-based program that allows teachers to communicate a greater amount of assessment information during a marking term. Teachers anticipated greater numbers of parental inquiries into student grades as a result of PowerSchool and, although many sophomores and their parents were using the system, teachers witnessed a decrease in parental inquiries. Teachers did witness, however, an increase in student inquiries into student grades after PowerSchool access was granted to students and parents. One unexpected result from this area emerged as a result: teachers, eager for feedback, reported that they informally polled students and parents to get a sense of who was using the system.

Teachers reported changes in traditional methods of communication with both parents and students. With both parents and students, teachers reported relying less frequently on printed versions of PowerSchool reports. With students, teachers reported relying less on printed reports as an incentive for students to use the system. Teachers reported decreased use of e-mail, telephone, and conferences with parents but reported increasing their use of written feedback issued to students when communicating with parents. Although teachers reported that their methods of communicating with students changed as a result of PowerSchool, few changes were noted among traditional forms of communication with students. It is important to note, however, that PowerSchool itself represents a new form of communication and the teachers recognized that providing assessment information through this on-line program inherently changed the way teachers viewed communication with parents and students. The next section summarizes changes in the substance of communication between teachers and parents, teachers and students, and parents and students and represents a summary of the findings of research question two.

The Quality of Assessment Feedback

The findings related to this research question explore teachers' perceptions of the quality of assessment information provided to parents and students through PowerSchool and PowerSchool's ability to improve communication among users (parents, teachers and students). Quality

assessment feedback is comprised of two facets: the clarity/interpretability of assessment data and the ability of the recipient of the data to make changes that lead to student improvement. Findings related to this research question demonstrate that teachers recognized the need and ability to provide greater clarity around assessment feedback to parents and students through PowerSchool. According to the teacher participants, the most significant change in behavior towards improved achievement was witnessed in students, not in parents.

Participants' expectations were very strong that PowerSchool would improve communication between teachers and parents and between students and parents. Teachers felt less strongly, after the pilot, that improvement occurred between teachers and parents and between students and parents, likely due to the limited feedback teachers had from parents about their use of the system. Teachers' responses indicate, however, a general feeling of improved communication following the pilot. Teachers initially felt that PowerSchool would improve communication between teachers and students and the participants felt even stronger, following the pilot, that PowerSchool positively improved communication between teachers and students.

The teachers shared individual experiences reflecting an initial dissatisfaction with parent access to PowerSchool and they recognized a need to provide a greater clarity so that parents correctly interpreted assessment information. After implementing changes to improve the information PowerSchool communicated, participants concluded strongly that PowerSchool

allowed for greater clarity in communication, particularly between teachers and students; teachers reported that students were then able to take this information and enact changes in their own behavior to improve in their classes.

Teacher participants felt that both parents and students understood their respective roles in using PowerSchool, with students acting as “the spokespeople for their parents.” Respondents did not sense that parent involvement increased and they also felt that over-involvement of intrusive parents was minimal. Participants cited the orientation programs led by school administration and the school’s Acceptable Use Policy as being critical to the development of the roles of parents and students. PowerSchool’s influence on responsibility over grades, student effort, and student motivation is presented further in the next section in a summary of the findings related to research question three.

Teachers’ Perceptions of Student Motivation

This research question was designed to examine how PowerSchool and the greater transparency of grades influenced teachers’ perceptions of student motivation and the teacher’s role in motivating students to learn. Consistent with the findings presented above, teachers reported that, as a result of PowerSchool access, students exhibited greater effort towards their learning. All teachers reported that they felt that PowerSchool shifted responsibility and ownership over grades from the teacher to the parents and the students and they welcomed this transition. Teachers perceived the increase in student effort, however, to be a result of parent access rather than due to the increased

communication between teacher and student as a result of student access to PowerSchool.

More teachers reported seeing motivation as a fixed trait following the PowerSchool pilot but many teachers reflected on the complexity of student motivation. Two teachers did not feel that they could do much to influence student motivation and these two teachers also did not feel that student effort changed much as a result of PowerSchool. No participant felt that PowerSchool decreased motivation for students.

Communication Among Teachers

Research question four was designed to examine the influence of parent and student access to PowerSchool on communication among teachers because increasing transparency of grading to students and parents opens up the gradebook, something teachers traditionally kept guarded and secret. While some teachers felt that PowerSchool improved communication among colleagues, many did not report feeling a sense of improvement. All teachers, however, reported that PowerSchool influenced communication among colleagues about communicating assessment information to parents and students, about communicating about assessment and instructional practices, and about a shared student's school-wide achievement.

Much of teachers' communication about PowerSchool was around the technical features of the program and the practices used to communicate with parents and students, as reported by the teacher participants. Union leaders and

administrators agreed that teachers would update grade books, minimally, every four to five weeks at midquarter and at the end of the quarter but many teachers updated more frequently. A major concern emerging in this area related to the concern of the faculty on expectations of frequency of updating the gradebook and comparisons/evaluations of teachers being based on that.

Overall, teachers reported a greater sense of collegiality among teachers as a result of parent and student access to PowerSchool. While several teachers pointed to common assessments and common practices making the transition to PowerSchool easier within their department, several teachers remarked that PowerSchool had prompted teachers in their departments to discuss assessment and instruction to have greater consistency and also to learn from each other. While many considered this a positive outcome, one teacher expressed distrust of this process and the influence of administration to, “from the top” pressure all teachers to grade the same. She reported feeling that there was a push for communication among teachers now that parents were seeing grades.

One unexpected result emerged related to teacher communication. Several teachers reported using PowerSchool to examine the school-wide achievement of students in their classes since teachers were now being asked to share assessment information with students and parents, it also became available to teachers. Teachers reported initiating conversations with each other, with the student and parents, and with guidance in order to gain a greater sense of the student in a school-wide context.

Teachers' Application of PowerSchool

Data collected to answer this research question was aimed at exploring how teachers' use changed in anticipation of greater transparency in grading before the pilot and then as a result of their experiences during the pilot. Research examined overall grading practices, teachers' application of the PowerSchool program as a communication tool, and the teachers' role in influencing student and parent use of the web-based program.

All teachers reported reflecting on their assessment practices, however, all indicated that they did not change and do not plan any changes in their overall grading practices as a result of parent and student access to PowerSchool.

Teachers reported changes in their use of the program, as a communication tool, in preparation for parent and student access and as a result of their experiences during the pilot. The changes involved teachers using more advanced features of the program to add comments that serve to clarify courses, assessments, scores, and grading expectations to students and parents.

All teachers reported that they plan to take a more active role in encouraging parent and student use of PowerSchool. Teachers identified ways they will encourage use including demonstrating the application to students and parents. Teachers also planned to change the way they communicate with students and parents to encourage use of the program if the parties are not using it. Teachers also plan to reinforce the school's Acceptable Use Policy in their communications with parents and students.

The research findings demonstrate that PowerSchool influenced the nature and the substance of communication between teachers and parents, teachers and students, and students and parents. The findings also show that PowerSchool influenced teachers' perceptions of student effort and motivation. Teachers communicated to a greater extent as a result of PowerSchool and PowerSchool influenced collegiality and professional practice. Teachers' examined their assessment and communication practices and identified ways to take a more active role in parent and student access as a result of the PowerSchool pilot. The next section of this chapter discusses these research findings as related to the literature review presented in Chapter Two.

Discussion of the Findings

The findings of this study support previous research in the areas of technology and assessment, assessment and student learning, parent involvement and student achievement, and changing school culture. Some findings, however, were different than what the literature would have predicted. The findings of this study, as related to the literature, provide implications for practice, policy, future research, and leadership.

Technology and Assessment

Research studies support the use of new technologies in order for teachers to more effectively assess students and report assessment feedback. Web-based communication about grades provides additional information not normally

contained on traditional progress reports and report cards that simply summarize a student's achievement in one, averaged grade over the course of a term. Teachers can use PowerSchool not only to enter quantitative assessment data but also to enter descriptions and comments to describe assignment expectations and to provide web-based resources and rubrics in order to provide clarifying information about each assignment. According to Pearson Inc., the parent company of PowerSchool, the web-based program is advantageous because it provides additional assessment information to stakeholders who can, "make insight-driven decisions that increase student learning" (<http://www.powerschool.com/product/>).

In addition to providing additional assessment information to demonstrate how a report card grade is calculated, PowerSchool can be used to update parents and students about student achievement more frequently, theoretically, as often as daily. In a survey commissioned by PowerSchool, 85% of parents indicated they would welcome more frequent updates from the school. Fifty-two percent of parents reported a desire to keep up with grades and 23% wanted to keep up with homework. Nearly 50% of the parents who responded indicated that they had, at some point, been surprised by a grade their child received on a report card (Loring & Engle, 2006).

Data from research studies of other web-based programs, implemented from middle school to college settings, demonstrated that stakeholders (teachers, parents and students) view these technologies as a tool that allows students to take greater responsibility over their learning. McGuire (2005) found that

teachers reported increased motivation and self-esteem of pupils and students taking greater responsibility for their own learning as a result of providing them with online access to their grades (through eVIVA). Teachers also noted that the system encouraged a greater dialogue between students and teachers (McGuire, 2005). Students reported that they valued the feedback that teachers provided through the program (McGuire, 2005). Students reported that viewing their grades through WebCT prompted them to take action in order to improve (Freeman & Field, 2004). Zappe et al., (2002) found that middle school students exhibited greater motivation and improved learning over the course of a school year when they were able to monitor grades through a web-based program. The parents of these students reported perceptions of increased student responsibility, a direct impact on student's grades, increased organization, and an increase in parent involvement in schoolwork (Zappe et al., 2002).

The findings of this research study demonstrate that the teachers at this study site also felt that PowerSchool allowed for a greater amount of assessment information to be communicated to parents and students. Teachers felt that this improved communication with parents and students because both parties could see how individual components factored into a final grade; parents and students could see patterns over time and get a sense of a child's strengths and weaknesses in the class. Since parent inquiries had decreased with parents using PowerSchool (rather than emailing teachers) as a primary source of information for how a child was performing, teachers recognized the need to add clarifying information to the program, increasing the interpretability of the information.

Increased interpretability, under ideal circumstances, should lead to a change in behavior on the part of stakeholders that leads to improved student achievement. Data from this study supports PowerSchool's claim that the program allows stakeholders to make data-driven decisions. In this case, teachers noticed that opening online access to parents and students led to changes in student behavior, namely increased student effort and increased student inquiries into their own achievement. As reported by parents in the study of middle school students (Zappe et al., 2002), teachers in this study reported a perception that ownership over grades shifted, as a result of PowerSchool, from the teacher to the student and parent. Teachers felt that the difference could be best characterized as a change from, "My teacher gives me a particular grade," to, "I earned a particular grade," in a class.

Evaluating the parents' perceptions and expectations of PowerSchool was beyond the scope of this research project so this study did not examine what specific information parents were seeking or how often they expected updated information. All teachers, however, reported feeling pressure (it is unclear if this pressure came from students, parents or the teachers themselves) to update their online gradebooks more frequently than the stated agreement between administration and the teachers' union of once every four-five weeks (at mid-quarter and end of quarter). Several participants reported updating more frequently in order to provide more timely feedback and also to manage their own professional time. Teachers reported that they felt that providing parent and student access to PowerSchool limits complaints of parties being surprised

by an overall, averaged grade being issued at the end of the term, either in a progress report or report card.

Districts across the country have adopted PowerSchool or similar technologies to provide parents and students with access to assessment information with the hope that stakeholders will be able to improve student learning based on having an increased amount of more transparent assessment information (Pinzur, 2005; Pinzur, 2006; Sturgeon, 2006). Westside Community Schools in Omaha, Nebraska, witnessed more meaningful parent-teacher conferences as a result of parents having assessment information prior to meeting with teachers (Sturgeon, 2006). In Miami-Dade, however, the success of PowerSchool in improving student learning was overshadowed by teacher concerns that administrative control led to the changing of students' grades when PowerSchool was used (Pinzur, 2006). PowerSchool had different levels of perceived success (by teachers) in these two districts (Miami-Dade and Westside Community Schools) based on how it was implemented. In Miami-Dade, there was much authoritarian control whereas in Westside Community Schools, teachers led the major learning improvements in using the program (Bird, 2006). The teachers in Westside took it upon themselves to standardize their grading methods and reporting and, as a result, students knew the expectations and were better able to take responsibility for their learning (Pearson School Systems, 2006).

Most teachers in this research study felt that their department either already had common practices around assessment or that PowerSchool

positively influenced interactions among peers and led them towards greater communication and consistency in assessing students. A few participants remarked that PowerSchool also led to increased communication not only about assessment but also about effective classroom instruction. Several teachers reported that they felt that PowerSchool, and the learning required of the teachers, led to a greater sense of collegiality. One teacher, however, feared top-down pressure forcing teachers to grade the same way as seen in Miami-Dade. Administrators, however, in this school agreed with the union that teachers could continue to grade as they had previously and no district- or school-based policy was enacted to force a specific system of grading. The response of teacher participants at this study site was similar to that of Westside Community Schools where the teachers took it upon themselves to initiate conversations with each other about their application of PowerSchool, communicating transparent assessment information to parents and students, and also, in some cases, communication about assessment and instruction in the classroom.

Computerized gradebooks are appealing to secondary educators who have to keep track of assessment information, often for over 100 students. The programs give teachers a variety of options that allow the program to be customized to personal grading strategies (Guskey, 2002a). Seventy-nine percent of teachers who used the Internet to post grades found this practice to be somewhat or very effective in communicating achievement (Crystal, 2005). Guskey notes that a disadvantage to using computerized gradebooks is that teachers believe that the mathematical precision of using the computer to

determine grades brings greater objectivity and fairness to grading. Guskey (2002a) warns that the numerical precision that comes from computerized grading functions is not the same as evaluative honesty that a teacher must have when grading students. Guskey (2002a) cautions that teachers remain central to the assessment process even with the advent of on-line gradebooks. Although these technological software programs simplify the process of calculating grades, teachers need to consider their grading practices carefully in reporting accurate and informative feedback to parents and students (Guseky, 2002a).

Data in this study supported Guskey's notion that teachers view computerized gradebooks as an objective source of justification for students' grades (pre-survey results). All teachers reported that PowerSchool enabled them to provide objective information about student achievement to parents and students and made it easier to justify grades (or "cover" themselves). The teachers in this study continued to apply their previously used grading practices and continued to summarize grades as an overall average. Teachers, however, reported that they reflected back on their grading practices and assessment strategies and felt more confident about their approaches. Data from this study demonstrated that teachers reflected on their grading practices but chose not to change them as a result of the computerized gradebook being available to parents and students; teachers did recognize, however, that changes may be made, not as a result of PowerSchool, but due to initiatives in their department or as a result of continual reflection on their practices.

Assessment and Student Motivation for Learning

Traditional grade reporting, as was done in this high school, involves issuing summarized grades at mid-quarter and end of quarter on printed progress reports and report cards (Bailey & McTighe, 1996; Marzano, 2001). Little additional information is provided in order to derive meaning from these grades yet grades, as complex communication devices, may represent student achievement against product criteria, student improvement against progress criteria, and student effort and work habits against process criteria (Ebel & Frisbie, 1991; Mehrens & Lehmann, 1991; Stiggins, 1999). The standards-based reporting environment of elementary schools and middle schools, however, measures student achievement against absolute learning standards, separating achievement from non-achievement factors, and does not average individual assignments into one overall score or letter. Because issuing term grades in high school serves many purposes, including college admittance, the use of averaged percent or letter grades in high school persists despite moves towards standards-based reporting in earlier grades (Marzano, 2001). Parents, students and educators continue to view high school letter grades as being important for students for they represent a currency that can be exchanged for future opportunities (Larabee, 1997). Traditional reporting of grades, however, has the potential for misinterpretation of the learning that a singular grade represents (Guskey, 1996).

According to Bailey and McTighe (1996), the primary purpose of grades in high school should be to communicate student achievement and the primary

method for communicating grades is through a single report card grade in each subject. Yet, grades also serve other purposes such as providing information so that the students can self-evaluate, identify students for certain educational programs, provide incentives to learn, and evaluate the effectiveness of instructional programs. Averaging a grade into a number or symbol requires a large amount of material to be condensed into a single communication device and may not be suited to fulfill all of the expected purposes of reporting on grading (Marzano, 2001). Indeed, "letter grades lack the richness of other more detailed reporting mechanisms..." (Guskey, 1996, p. 36). The singular report card grade communicates a single fact about the student and the reader of the student's grade report does not know the factors that were included and how they were weighted (Allen, 2005). According to Allen (2005), "if a multidimensional view of the student is desired, then a multidimensional system of reporting is required, (p. 220).

Reporting student achievement through PowerSchool no longer restricts teachers from communicating one, overall grade to parents and students in a progress report or report card. Data from this study showed that teachers appreciated the ability of PowerSchool to communicate all of the data that comprised a student's grade so that parents and students could see a "pattern over time" and "the big picture". The implementation of PowerSchool at this study site did not require teachers to separate product, progress and process criteria and teachers continued to include non-achievement factors and work habits into the final grade. Because PowerSchool, however, shows how the

summarized grade is broken down, these factors could be isolated. Teachers in this study reported that they felt that PowerSchool improved communication and grade reporting by allowing parents and students to see all of the assessment data contributing to a final grade. PowerSchool provides a multi-dimensional view of a student that cannot be seen in traditional progress reports and report cards. Indeed, teachers in this study reported using the system themselves to view the school-wide achievement of students in their classes and appreciated the more thorough view of students this reporting mechanism allowed.

According to Guskey (2004), “ideally grades provide students with formative information that they can use in efforts to improve their performance” (p. 2). If the information is simply coded, recorded and passed to a third party who lacks the ability to alter the gap, then the data serves a purely summative function. Ramprasad (1983) defined the formative function of an assessment as one that serves to alter a gap in learning. Marzano (2000) offers that, within the practical setting of the classroom teachers are administering formative assessments throughout a period of instruction and assigning grades as a form of feedback. William and Black (1996) suggested that formative and summative forms of assessment can be considered as two ends of a continuum with some common ground rather than the false dichotomy that assessments are either purely formative or purely summative.

Previous approaches to school improvement and student achievement involved placing assessment data in the hands of administrators and teachers who interpreted this data and modified future instruction and assessment

(Marzano, 2001). Newer approaches in assessment expand the amount of information students have about the specific learning standards against which they are being measured and their performance data from a variety of assessments that are designed to measure progress towards mastery of learning objectives. Students ought to be involved in the assessment, record-keeping, and communication process in order to improve student learning (Stiggins, 1999).

Page (1958) showed that when comments were included, in addition to the letter grade, grades on subsequent assessments significantly improved. By teaching students how to improve towards meeting the target and monitoring their performance over time, assessment for learning helps students close the gap between their current performance and the expected demonstration of meeting the learning objective (Stiggins & Chapuis, 2005).

The findings of this research study support the Guskey's (2004) idea that grades, ideally, provide students with information that they can interpret and use to make improvements in their learning. Although quantitative data of improved student achievement was beyond the scope of this research study, the findings demonstrated that teachers felt that students took the assessment information they received through PowerSchool and used it as an opportunity to improve in their classes. Teachers witnessed increased effort on the part of students. Critical to being able to do this is the ability of students (and parents) to be able to interpret assessment information. Teachers reported increasing their use of comments and descriptions in order to provide a higher quality of assessment information to parents and students that could then be used to alter a

gap in achievement. Although grades are often thought of as summative reports on student achievement, by providing students' scores over the course of a term to students and parents, the parties were able to use this information in a formative way and make changes in behavior in order to improve their grade before the end of the term.

Grades and other reporting mechanisms influence student effort (Cameron & Pierce, 1994; Chastain, 1990; Ebel, 1979) and teachers also view grades as a reward for ability and effort (Brookhart, 1993). Teachers often use zeros to hold students accountable for missed work that punish students and miscommunicate student learning (Guskey, 1996; Brookhart, 1999). Although many students recognize high grades as rewards for their success, low grades cause students to withdraw from learning (William & Black, 1998). The grading practices teachers use is one of the most important components driving student motivation (Ames, 1992).

The feedback students receive as learners regulates their motivation. When grades alone are used to communicate achievement, social comparison among peers results (Butler, 1987). Therefore, the feedback teachers use to report on student learning becomes extremely important in motivating students. Yet motivation is dynamic and complex and students cannot be characterized in a fixed way as "motivated" or "unmotivated". Rather, motivation is situational, contextual and domain-specific (Linnenbrink & Pintrich, 2002).

Achievement motivation involves students' pursuit of learning and performance goals. Research demonstrates that students that focus on learning

goals see success as a measure of their effort rather than those who focus on performance goals who see success as a measure of ability (Dweck, 1986). Students oriented towards performance goals are fixated on receiving a favorable judgment (Dweck, 1986). Students who adopt learning goals believe that effort leads to success and that improvement results from a change in strategy (McCoombs, 1984; Dweck, 1986). Research suggests that educators, through carefully crafted instructional design and assessment practices, can make significant changes in improving (or inhibiting) student motivation (Linnenbrink & Pintrich, 2002; Blackwell et al., 2007). The standards, criteria, methods of grading, the frequency of assessment, and the content of a teacher's evaluations have been demonstrated through research to be influential in motivation student learning (Epstein & McIver, 1990).

The data from this study demonstrated that the teacher participants reflected on their grading practices but made no changes in the methods used to derive grades. Changes were made, however, in the communication of feedback to parents and students through the use of PowerSchool. Teachers began the pilot believing that grades are important in motivating students. Teachers reported that students took more responsibility for their work as a result of PowerSchool, were more likely to complete homework, make up missed assignments, and study for tests.

Teachers commented on how PowerSchool could be likely to have students obsess over small changes in their grades over time. One teacher cautioned that it would be important to balance the quantitative feedback in

PowerSchool with qualitative feedback provided to students. PowerSchool, if providing simply numerical feedback, could reinforce achievement as seeking favorable judgment (performance goals). PowerSchool, in providing additional qualitative feedback that instructs students on how to improve, can reinforce achievement in the process of learning (learning goals). Teachers reported adding additional information to PowerSchool, either in advance of the pilot or in anticipation of full-implementation, in order to provide additional feedback around grades. Several teachers cited the need to explain zeros to parents and students. Teachers reported an increased use of written feedback being provided to students as a form of communication with parents as a result of PowerSchool.

Although teachers reported an increase in student effort and motivation as a result of PowerSchool, they viewed this increased motivation as coming primarily from parent access rather than as a result of actions the teachers took in directly communicating with students. More teachers concluded the pilot characterizing students as either “motivated” or “unmotivated”. From the narrative comments, the researcher speculated that teachers characterized “motivated” students as those teachers saw as using the PowerSchool program to improve their achievement and “unmotivated” students as those who did not care enough about their grades to obtain access or who had parents who did not obtain access (researcher’s journal). Parent involvement will be discussed further in a later section.

Guskey (1996) asserts that grading remains a subjective enterprise despite teacher beliefs to the contrary. Studies demonstrate that teachers feel

uncomfortable about grading (Brookhart, 1993; Johnston et al., 1995; Allen, 2005). Brookhart (1993) notes that teachers walk a fine line between judge and advocate when grading students and Bishop (1992) describes how these two roles are often incompatible. Teachers act as judge when considering the meaning of grades and as advocate when considering the social consequences the grades carry. “Even mechanically computer grades are not judgment free since a teacher plans what instruction and assessments to use for reasons that involve educational judgment,” (Brookhart, 1999, p. 9). According to Brookhart (1993), “Teachers’ grading practices reflect teachers’ consideration of the consequences of grades, sometimes at the expense of considering the interpretability of grades” (p. 124).

Johnston et al. (1995) assert that grading is conducted through two frames: personal history and institutional context. Teachers bring their personal history as students who received grades to the grading process. With respect to institutional context, studies showed that schools with high levels of administrative control of student assessment were characterized by adversarial relationships among stakeholders and an approach to assessment focusing on blame rather than problem-solving.

Changes in grading practices evolve slowly as teachers’ knowledge and experience develops (Frisbie & Waltman, 1992). Few teachers receive adequate training in grading and reporting and districts fail to provide adequate direction to ensure consistency in grading and reporting practices (Guskey, 1996; Brookhart, 1999; Allen, 2005). Allen (2005) argues that a major initiative needs to

occur in which teachers are guided in making better decisions about grading and their own grading practices.

The findings of this research study both support and also contradict the literature about how teachers view grading. Consistent with Guskey's (1996) research, teachers in this study viewed using the on-line gradebook as an objective way to report on student achievement. They did not see their use of assessment and instructional strategies as subjective as Brookhart (1999) would contend. In general, teacher comments focused on the use of PowerSchool as a way to justify the grades that students are earning in courses. Teachers' comments focused primarily on the interpretability of grades rather than the consequences of them. Only one teacher, however, spoke of how the grades were discussed in a meeting designed to determine eligibility for special education.

Another surprising result, inconsistent with the findings of Johnston et al. (1995), was that teachers, with one exception, did not discuss grades from a context of personal history. The one exception to this was Kelly who spoke about her life as a high-achieving student whose parents put a lot of pressure on her to succeed. Teachers did, however, remark frequently about the institutional context of their grading. Teachers reflected on the already common practices within their departments. All teachers in this study commented on the pressure they felt to update grades frequently and pointed to the agreement between the union and administration that the minimum expectation was once every four to

five weeks. One teacher also commented that she felt that administration was forcing teachers to collaborate in an effort to get everyone to grade the same way.

An authoritarian institutional approach to grading has shown negative outcomes (Johnston et al., 1995; Pinzur, 2006). In Miami-Dade, teachers blamed PowerSchool for changing the way they grade since the district forced an institutional grading policy when the program was enacted to provide on-line access to parents and students. Johnston et al. warns that an authoritarian approach leads to blame rather than problem-solving. In the case of this research study, responsibility over grades was reported to have shifted from the teachers to the parents and the students. Yet, there could be a fine line between responsibility and blame. Students who use the system were viewed as taking responsibility for their achievement, yet those who did not succeed could be blamed for not doing enough even when teachers' practices could have contributed to students' poor performance.

Parent Involvement and Student Achievement

Social science research demonstrates the significance of parent involvement for student achievement. Parent involvement reinforces to the student that home and school are connected and that school is an integral part of their whole life (Marzano, 2003). According to Epstein (1995), students, including high school students, want their families to be knowledgeable about school and that students are willing to take active roles in facilitating home-school communication. Epstein (2001) asserts that effective forms of

communication involve information that helps students learn at home.

According to Waltman & Frisie (1994), if communication between the home and school is poor, a grade, as valid as it might be to indicate student achievement, means little if the intended recipient cannot interpret its meaning. They call for interpretive aids to be added to report cards to assist children and their parents in making meaning of letter grades (Waltman & Frisbie, 1994).

The data from this research study showed teachers' perceptions of parent involvement. Teachers concluded that PowerSchool changed the nature and substance of their communications with parents about a child's learning. Teachers witnessed a decrease in their traditional forms of communication (e-mail, telephone conversations, individual conferences) with parents who used PowerSchool since parents relied on the web-based information to receive information about student achievement. Two teachers reported feeling concerned over this decrease in traditional communication and all teachers remarked that opening PowerSchool access to parents prompted them to add or consider adding additional information to their gradebook to facilitate the correct interpretation of a student's grade. Teachers also noted that they increased the use of narrative feedback to students as a communication device with parents. With additional information, teachers felt confident that parents had all the necessary information about their student's achievement and that PowerSchool represented an improvement in communication with parents.

Teachers' efforts to involve families in student learning leads to improved student achievement and positive changes in students' social and emotional

well-being and increased student motivation (Epstein, 2001; Hiatt-Michael 2001). The activities most likely to influence student academic achievement are those that help parents change the home environment to facilitate learning; data shows that parents need specific information on how to help and what to do (Leler, 1983).

The way in which the school and the child invite the parent to be involved is important in determining parental involvement (Hoover-Dempsey & Sandler, 1997). Parents who perceive that the school and their child want them to be involved are more likely to initiate involvement with school. According to Hoover-Dempsey and Sandler (1997), parental role construction is also important in encouraging parental involvement because it “defines parents’ beliefs about what they are supposed to do...and appears to establish the basic range of activities” believed to be “important, necessary, and permissible” (p. 3). The best predictors of parent involvement in school and student learning are the specific programs, supports, education and training that schools and teachers put into place to encourage parent involvement and guide parents with specific information on how to help their child succeed (Leler, 1983; Morton-Williams, 1964; Dauber & Epstein, 1983). Hoover-Dempsey and Sandler (1997) argue that the best programs at inviting parents to be involved create opportunities for the construction of parental roles -- by schools, by teachers, by students and by parents – that allow the parent to engage meaningfully in their child’s education.

Psychologist Madeline Levine warns of parents who, ready to intervene on behalf of their children, destroy a child’s sense of autonomy, competence and

ability to develop meaningful personal relationships. According to Levine (2006), “parents’ anxiety about school performance leads to children who are pressured and anxious,” (p. 29) which can lead to other problems like maladaptive perfectionism that impair a child’s functioning.

Teachers felt strongly that parent access to PowerSchool influenced students to exert greater effort in their classes. The primary method of communicating expected roles to parents, students and teachers came from the administration in this school through parent and student orientation programs and the development of the Acceptable Use Policy for students and parents (researcher’s journal). While these programs did not discourage parent use of PowerSchool, these programs actively encouraged parents to use the program to communicate with their children about their performance and encouraged the students to communicate with the teacher. The orientation programs also stressed that teachers would update their gradebooks approximately every four-five weeks and that the purpose of PowerSchool access was not to monitor minute changes in a student’s grade. Rather, it was to show performance over time and patterns of strengths and weaknesses. After some reflection, teachers felt that parents understood their role in their use of the program and some teachers pointed to the orientations and the Acceptable Use Policies as providing this critical information.

No teacher commented about providing parents with information, through PowerSchool, about how to help their child in class. Teachers, in general, felt that the data spoke for itself. One teacher commented about

demonstrating to a student how to use the tool to have more productive conversations with her parents. Teachers did comment, however, that they planned to do more to encourage parent involvement through the use of PowerSchool. Teachers also planned to reinforce the expectations of use with parents as outlined in the Acceptable Use Policy.

Several teachers commented about over-involved parents. Participants reported that they felt that over-bearing parents were in the minority and most parents used the system appropriately. One participant was specific in stating that the school needs to remain firm in its communication about the purpose of providing access to parents and students in maintaining appropriate use by parents.

Although research supports parent involvement in improving student learning, teachers receive little formal training, particularly at the high school level, in working with parents and families (Epstein, 2001; Hiatt-Michael, 2002). Teacher preparation programs rarely address interactive forms of parent involvement such as discussing homework with parents, conducting parent workshops, and producing class newsletters (Hiatt-Michael, 2001). Teachers possess minimal knowledge and skills to work with parents (Hiatt-Michael, 2002). Those teachers who receive training feel more prepared and engage in a more diverse set of parent involvement practices within their school. Professional development in working with parents and families for teachers who did not receive training as part of their pre-service program is limited (Hiatt-Michael, 2002).

The data highlighted the discomfort teachers had initially opening grading to parents. Teachers anticipated a high volume of parental inquiries into grades. This fear was not supported by evidence from the pilot and, in fact, teachers were so concerned with the lack of feedback from parents they informally polled students and parents to get a sense of whether or not the system was being used. At the end of the pilot, when teachers considered their role in the use of PowerSchool by parents and students, all participants reported that they would encourage its use, demonstrate its use to parents and students, and they would help to reinforce the Acceptable Use Policy should a parent or student violate the explicit expectations.

Changing School Culture

High-stakes testing and the focus of policy on external accountability assumed that test results translate into changes in the classroom (MERA, 1993; NCLB, 2001; Stiggins, 1999). Many schools improved only superficially and meaningful change was elusive (Mintrop, 2003 as cited in Fullan, 2005). Research highlights the teacher's role in assessment and their classroom assessment practices as central to improving student learning (Guskey, 1996; Johnston et al., 1995; Stiggins 1999). According to Stiggins (1999), now is the time to invest in classroom assessment practices to ensure that teachers are gathering reliable assessment information and using it in ways to benefit student learning.

Fullan (2005) asserts that what is required is a shift away from high-stakes accountability towards an emphasis on capacity building. Fullan (2005) defines

capacity building as the, “developments that increase the collective power in the school in terms of new knowledge and competencies, increased motivation to engage in improvement actions, and additional resources” (p.175). He also points out that attempts at educational change have neglected to consider the anxiety and mastery associated with change (Fullan, 2005).

Elmore (2005) asserts that leaders need to make sure that everyone has the support and capacity to implement the change successfully. Trust is an important part of the process; people need to be assured that mistakes will be accepted and support will be provided (Sergiovanni, 2005). Meaningful change requires new processes and cultures in schools that engage teachers in developing new understandings and deep meaning about teaching and learning (Fullan, 2001). Connecting people to each other, their work, and their responsibilities mobilize them to develop meaningful change through new solutions matched to the particulars of specific, complex problems within the context of an individual organization (Sergiovanni, 2001). Adaptive work involves the learning required to confront, rather than avoid, conflicting values and beliefs and the manifestation of these beliefs in behavior (Heifetz, 1994). Learning is necessarily a social task and new meanings depend on whether or not the teachers are working as individuals or in groups, helping each other learn and learning from each other (Fullan, 2001).

Union leaders recognized that increasing transparency in assessment through PowerSchool represented a change in school culture (researcher’s journal). The data from this research study demonstrated mixed results of the

teachers' perceptions of PowerSchool's influence on communication among teachers. Three teachers felt that PowerSchool improved communication while four did not. All teachers, however, recognized PowerSchool's influence on communication among colleagues. Some teachers cited their already common practices as facilitating the transition to greater transparency in assessment, which contributed to their conclusion that PowerSchool did not improve communication. Some teachers reported feeling very strongly that PowerSchool helped to bring the teachers together through shared learning and an appreciation of each other's strengths and talents; these teachers were those who felt PowerSchool improved communication among teachers. One teacher did not feel communication improved and she appeared to resent teacher collaboration, perceiving it to be an expectation from administration in an effort to make assessment "look so much better" to appease the parents. The data does demonstrate, however, PowerSchool's influence over the communication among teachers as the faculty wrestled with the new technology and the transparency of grading to students and parents.

Improvement projects with specific definition and more specific support strategies have been shown to lead to improved student learning (Fullan, 2001). In the context of the PowerSchool pilot, the administration carefully communicated the purpose of opening access to parents and students. In showing support to teachers engaging in the process of greater transparency in assessment, the administration promised ongoing technical training and established a team of teachers, counselors, and administrators to monitor the

progress of parent and student access. Administration stressed the Acceptable Use Policies with parents and students and reinforced the expected behaviors of use when parents or students violated expectations (researcher's journal). Data from the study showed that teachers felt supported by these administrative efforts and that roles were understood. The data showed that fears persist, however, that teachers will be expected to update more frequently and that teachers may be compared or evaluated against the frequency with which they update the computer program.

Limitations of the Study

There are many limitations to this qualitative research study.

The size of the sample, seven teachers from one school, limits the ability to generalize the research findings. The perceptions of the seven teachers may not reflect the general perceptions of the faculty of the study site. The study site, a large, public, suburban, high school in New England, also presents a limitation to the research findings. Implemented in another location, the research findings may not be applicable in another setting. Additionally, the study site operates a separate Assessment Committee that is examining assessment practices against the school's expectations for student learning. The work of this committee may have influenced teacher responses as related to assessment and student achievement. To minimize the effect of this limitation, none of the teacher participants in this research study served on the Assessment Committee.

Although the seven participants volunteered for this research study, the participants reported to an administrator, the researcher, and may have responded or behaved in a way to please the researcher, an authority figure. The seven participants, therefore, may not have shared their authentic perceptions as a result of their participation with the researcher. The researcher attempted to minimize this by collecting data from multiple measurement instruments in an effort to triangulate responses. Additionally, the researcher repeatedly reminded teachers to share their honest feelings throughout data collection. Transcripts of focus group and individual interviews were furnished to the participants so that they could review them for accuracy and provide clarification. No participant responded upon receipt of these transcripts. Teachers were neither compensated nor penalized for participation and their identities were concealed, to protect the participants as well as encourage honest reflections as a result of the PowerSchool pilot.

The researcher, as participant-observer, recognizes the tendency for researcher bias, which threatens the validity of the data. Additionally, the researcher generated all data collection instruments. In analysis, the researcher may have highlighted the positive aspects of the pilot while minimizing the negative outcomes. This was controlled in two ways. First, the research instruments were reviewed prior to data collection by peers in the doctoral program, professors, and teachers at the study site not affiliated with the research study. Changes were made in the research instruments as a result of feedback. Second, the researcher shared the data with individuals at the study

site to assist in the analysis of the data. The triangulation of data also serves to promote the reliability and validity of the data.

This research study collected data after the pilot stage of implementing parent and student access to PowerSchool over a short period of time (one semester). The results from this study may not reflect teacher perceptions after full-scale implementation of the program to all 1600 parents and students in this school over a greater length of time.

Implications for Practice

The findings from this research study, as related to the literature, present implications for educational practice. The implications center in the four areas of the literature review: implementation of new technologies as a communication tool, assessment feedback and student motivation, parent involvement, and school culture.

Implementing New Technology for Communication

Educators seeking to implement parent and student access to on-line gradebooks will want to consider several things about practice in light of this study as well as the research presented in the literature review. It appears that PowerSchool and other similar technologies have the capacity to improve communication by providing parents and students with additional assessment information. It does, however, represent a change in culture. The educational leader will want to carefully consider the purpose of such grade reporting,

recognizing that not all purposes of grade reporting can be accomplished through one mechanism, and also consider carefully how this purpose is conveyed to all participants.

In the case of this project, it was communicated to parents, students and teachers that the purpose of this grade reporting was to provide additional information with which parents and students could make sense of progress report and report card information. It was not designed to provide anyone with immediate and instantaneous feedback, nor would it replace the on-going assessment feedback students receive in the classroom. An orientation program, executed by administrators, was developed by both teachers and administrators to ensure that parents and students would hear the intended expectations for use. The major points of the orientation were reinforced in cases of violations of use. Few violations were experienced during the pilot (researcher's journal) and most parents used the system appropriately to have better conversations with teachers and with their children. Very few parents seemed interested in attacking teachers' classroom grading practices.

PowerSchool, like other web-based grading technologies, contains many functions and requires much learning on the part of the teacher for use. Educators considering the adoption of this type of grade reporting mechanism will want to consider providing on-going professional support and development of teachers in their use of the program. In this study site, the researcher provided much of the training for teachers but also enlisted several teachers to serve as trainers during professional development and faculty meeting time. In this way,

teachers were able to share their best practices in communicating with parents, developing greater capacity in the use of the system.

Assessment Feedback and Student Motivation

It appears that feedback provided by PowerSchool, and other on-line grade reporting mechanisms, can be used by parents and students as a formative tool to make changes and alter a gap in performance as long as the information contained within PowerSchool is clear and interpretable. As Guskey (1996) and Brookhart (1999) warn, however, computerized methods of reporting grading do not lessen the teacher's challenge at providing students with accurate information that represents their learning. Similarly, while PowerSchool may provide a microscope into ineffective grading practices, teachers will be reluctant to change their ineffective grading practices without guidance from administrators and each other. The development of professional learning communities, where educators are engaged in the practice of examining their work and learning from each other, forms the basis of this guidance that can transform classroom grading.

Educators seeking to adopt such a grade reporting mechanism will want to consider the initiatives required to transform classroom grading, particularly at the high school level where grading often remains the private realm of many high school teachers. One major challenge is doing this in a way that allows for the teachers to take the lead in undertaking major initiatives to improve grading practices. Teachers need the support of their administrators and each other to

share practices, share student work, and engage in deep meaningful conversations about instruction and assessment. While some teachers in this study took this upon themselves, participation in a true professional learning community cannot be left to invitation. Educational leaders should consider the ways in which they foster a school culture and climate where teachers engage in the difficult work of transforming their practice, but it should not be from an authoritarian position of mandated grading policies. Top-down grading policies have been shown to be met with resistance from teachers and teachers tend to then blame students and home situations for poor student performance (Johnston et al., 1995; Pinzur, 2006).

The research shows that, although teachers do not tend to employ best practices in classroom grading, teachers do make small changes in their practice regularly (Brookhart, 1999; Fullan, 2005). Providing parents and students access to grades on-line creates a very public environment, however, that could limit the willingness of teachers to make changes in their grading practices and could leave the teacher to feel that the changes they are being asked to make is in response to public perception rather than what is best for students. The educational leader who is seeking not only to provide higher quality information to parents and students through PowerSchool but is also seeking to transform classroom grading, will want to consider how to create a safe environment for teachers to engage in changes in their practice even under the scrutiny of the public. Educational leaders may want to acknowledge this to parents and students and will have to provide some protection to teachers from the scrutiny

of parents and students as teachers struggle to make changes in their practice that ultimately will benefit student learning.

The findings of this research study show that teachers are sensitive to being judged and evaluated based on their use of the PowerSchool system as well as the scrutiny that comes from their grading practices. The results of this study demonstrate that teachers are most concerned with expectations of the frequency of updates. Because the nature of assessments varies widely (e.g. short quiz versus long-range project, portfolio versus multiple-choice test), the researcher would not recommend a blanket policy of updating grades that applies to all teachers in all situations. Educational leaders, however, will want to consider the need for establishing norms and expected behaviors of use to which teachers, parents, students and administrators will abide. For example, educational leaders may want to have the teachers agree that timely feedback is critical for student learning. Teachers can identify ways, in their own practice, that they provide timely feedback. These leaders will want to consider not only the expectations up front, but will also want to monitor use over time and address concerns in a timely fashion in order to ensure that all parties are complying with expectations.

The results of this research study showed that teachers perceived that students increased effort as a result of parent and student access to PowerSchool. Not all students, however, participated in the pilot. More teachers felt that students could be characterized as “motivated” or “unmotivated” as a result of opening PowerSchool to parent and students. It is speculated that the teachers

view unmotivated students as those who did not use the system. Educators seeking to adopt a program such as PowerSchool will want to consider the incentives used to encourage students to use the program. Educators will also want to work with teachers around their perceptions of student motivation and the ways in which teachers can act to improve student motivation to learn. Professional development should be considered that addresses the complex nature of student motivation and how teachers can explicitly work with students in their classrooms, and through PowerSchool, to influence student motivation.

PowerSchool threatens to focus too much on quantitative, numerical feedback which can reinforce performance over learning goals. As cautioned by Kelly in this research study, teachers (as guided by educational leaders) will want to balance numerical feedback with the qualitative feedback being provided to students. As seen in this study, all teachers increased the use of written feedback to students as a result of PowerSchool.

The teachers in this study believed the use of PowerSchool resulted in a shift of responsibility over grades from teacher to student/parent. For high performing students, this shift is positive as they can claim ownership of their positive results. For low-performing students, however, the researcher raises cautions about teachers viewing the shift over grades from teacher to student/parent. It is possible that, as a result of this shift of thinking, responsibility of poor student performance leads to a situation of blame rather than one of problem-solving. The educational leader will want to examine ways

in which teachers, as student-advocates, provide opportunities for growth and improvement for struggling students.

Teachers in this study reported using PowerSchool to view the grades of students in other classes. In high schools, this type of communication is new where in middle schools, teams of teachers have been communicating regularly about shared students. It opens up the possibility for collaboration of teachers of similar students on how to best help the child in their learning. Again, the researcher cautions that poor performance of a student may be dismissed by the group of teachers who blame the student for performing badly in many courses. The educational leader will want to consider the types of communications teachers are having over shared students. Educational leaders will want to consider how to help teachers provide opportunities for growth and improvement for all students over time.

The researcher witnessed changes in student support services as a result of increased transparency to classroom grades (researcher's journal). Since teachers opened gradebooks to be viewed by parents and students, members of the Student Support Team (administrators, guidance counselors, Special Education director, school psychologists, the school resource officer, and school nurses) obtained access to a greater amount of student grade information during support team meetings (which occurred at this study site every Thursday). The nature of the communication of the support team meetings changed as a result of greater transparency. Support team members could more quickly identify students who were performing poorly and, by clicking on the student's grade,

obtain information about the assessments leading to the poor performance. The support team members used this information to target a series of interventions including (but not limited to) a conference with the student, a conference with the parents, soliciting more input from classroom teachers, connecting the student to peer tutoring programs, connecting the student to social work agencies, placement in an academic support class, and initiation of the pre-referral process for special education eligibility determination. While the support team had previously supported students with similar interventions, PowerSchool enabled the group to more quickly identify students who were struggling in order to more quickly target appropriate measures of support (researcher's journal). Educators seeking to increase transparency around assessment will also want to consider that support personnel will have an increased amount of information with which to help students and their learning. It will be important that support personnel who have access also share the same understanding as teachers, parents and students of the purpose of online access and what to do with the information when they view student grades.

Parent Involvement

The findings of this study show that teachers were concerned about increased parental inquiries into grades as well as over-bearing parents in advance of the PowerSchool pilot. While the data did not support increased parental inquiries, it was a natural fear for the participants when anticipating increased transparency to gradebooks. Educational leaders who are considering

adoption web-based communication with parents will likely face faculties with the same fear, and therefore, will want to acknowledge this fear, and establish policies that outline expectations for use (see below).

Teachers in this study did not feel that parental involvement increased as a result of PowerSchool. Educational leaders and teachers will want to consider how to promote parental involvement through PowerSchool. The researcher experienced some resistance from parents about attending an orientation session and parents seemed offended at the requirement (researcher's journal). Some parents refused to attend and, therefore, did not participate. The leader will want to consider how to invite parent to use the system while establishing the expected roles parents, students and teachers will take in its use.

Hoover-Dempsey and Sandler (1997) argued that parental role construction is critical for effective parent involvement. The administrators at this study site led the orientation programs aimed at developing parental role construction that defined expected and permissible actions for the parents to take when using PowerSchool. In this case, expected parental actions included talking more to their child about school and encouraging their child to seek out the teacher in order to improve. At the conclusion of the pilot, teachers identified ways in which they could be more involved in inviting parents and in developing expected parental roles. These teachers, however, displayed some confusion when asked for their role in the process (researcher's journal). Because teachers, especially high school teachers, are not trained in and are uncomfortable with involving parents, educational leaders will want to consider

the ways in which they develop and support teachers in their role inviting parents to use PowerSchool to help their children improve in the classroom and maintaining expected behaviors from parents in their involvement and use of PowerSchool.

The teachers in this study initially expected high levels of parent involvement and feedback but experienced reduced parental inquiries about student achievement. The teachers, not prompted by administrators, initiated informal polls to get some feedback from parents. Meanwhile, the researcher experienced much feedback from both parents and students, most of which was quite positive (researcher's journal). Because teachers are investing much time and effort as well as confronting their fears about transparency in the process of opening PowerSchool to parents and students, the educational leader will want to communicate positive feedback to the teachers in an effort to recognize, reward and celebrate their successes. Otherwise, the teachers, receiving little feedback, may feel unappreciated for their efforts.

By placing information in PowerSchool, teachers viewed this process as one where parents and students could view the information "on their own time". While this was generally seen as positive, some teachers expressed concern over hearing less from parents, particularly when a student was doing poorly. Teachers may need to be reminded that although PowerSchool puts all of the information out to parents and students, teachers may still need to reach out to specific parents and students when they are concerned about a student's performance.

School Culture

The results of this research study showed that PowerSchool influenced communication among teachers about both their use of the PowerSchool program and also their assessment and instructional practices. Education today is far too complex to leave teachers operating in isolation and collaboration is required for the shared learning that is required. Increasing transparency in assessment may provide a way to promote additional learning among faculty.

Some teachers in this study remarked at how they witnessed teachers in their departments collaborating to a greater extent, with the particular goal of greater consistency around grading practices. Greater consistency in grading among educators could be seen as a positive contribution to the teaching practice if the consistent practices are founded in sound practices shown to promote greater student learning. Consistency ensures that students, regardless of teacher, are experiencing similar educational opportunities. Greater consistency, however, is not necessarily a good thing when the consistent practices are not educationally sound. Additionally, all classes are unique and the learners in these classes, likewise, are unique. Ideally, collaboration among teachers would engage teachers in sharing a multitude of good practices they could then apply to the particular context of each class or each learner. Educational leaders will want to monitor the practices teachers are employing to ensure that these practices are likely to benefit student learning and promote the learning of all students.

At this study site, some common expectations were placed on teachers. However, teachers could also use PowerSchool according to their individual preferences and technical capacities. Grading and the communication of grades require the application of professional judgment. The teachers at this study site had a common core of training on the use of PowerSchool, yet some teachers were more comfortable with the program and began using more advanced features. Teachers collaborated around the use of the program, teaching and learning from each other. One could argue that the teachers should have learned all of the required skills prior to opening grades to the scrutiny of public access, however, much of the new learning required teachers to examine their use of PowerSchool in light of parent and student access. Teachers, therefore, were learning new strategies to use with PowerSchool through the course of the pilot and the data showed that teachers' use changed over time, even though public access had been granted. The administrators at this study site chose to implement parent and student access as a pilot, recognizing that learning would be required among educators. Although many school districts fully implement parent and student access at one time, the researcher would encourage districts considering adoption of the program to initiate parent and student access in a pilot to allow teachers a safer opportunity in which to learn new strategies.

It was clear in the comments of teachers that the differential applications of PowerSchool became an increasing concern over the course of the pilot, particularly when considering the frequency of updating grades. Educational leaders will have to weather the uncertainty and difficult emotions teachers

experience when learning to use the program designed to increase the transparency of grading. Educational leaders may want to consider the ways they are protecting teachers against intense scrutiny while also promoting the learning required to implement sound assessment practices. Sound assessment practices and the communication of grading is varied and a one-size-fits-all policy to assessment and updating frequency cannot possibly take into account the multitude of assessment and communication situations teachers face. Educational leaders, however, can help to shape a common understanding of what constitutes good assessment and communication and define, with teachers, what this looks like in practice. The learning required to confront old beliefs, habits, and ways of working requires teachers to go through a process of risk-taking, which brings about fear. The fear is compounded by the public nature of PowerSchool and the transparency of grades. The educational leader cannot ease the fear altogether, but can take a role in helping teachers tolerate the discomfort.

Implications for Policy

The findings of this research study provide few implications for national or state policy but do provide several implications for local policy. Educators seeking to adopt a web-based communication tool may want to consider the development of local policies on the use of PowerSchool (by teachers, by students, and by parents) as well as whether or not to implement local grading policies and what these policies would contain.

In the public schools, teachers' unions have been actively involved with district administrators in shaping local policies on expected use of web-based communication tools with parents and students. As experienced in other districts, the union of the study site was involved early in the development of the PowerSchool project. Prior to the PowerSchool pilot, administrators and union leaders discussed initial concerns. In response to initial concerns about the technical readiness of the school in providing parents and students with access to PowerSchool, administrators sought feedback from the faculty on the training individuals desired in order to begin using the program in not only reporting overall grades but also in using the on-line gradebook to keep all assessment records. Providing on-going training to faculty became a big part of the agreement between union leaders and administrators. Training provides the necessary support to teachers as they learn a new and required set of skills.

Once all teachers were using the on-line gradebook as intended, union leaders expressed concern over expectations of the frequency with which teachers would be asked to maintain their gradebooks. Experience from other districts had led union leaders to be wary. In neighboring districts, school committees had enacted policies with wide-ranging expectations. In one district, teachers were expected to update grades three days after an assessment was given. In one district, teachers were required to update grades every two weeks. In other districts, teachers were required to update grades less frequently. The district of the study site agreed with union leaders to an expectation of minimally

updating grades every four to five weeks, at the midquarter and end of quarter, as currently practiced by the teachers.

Union leaders also expressed concerns that the use of PowerSchool would result in administration forcing teachers to change the way they grade. It was agreed that teachers would continue to grade as they had been practicing. Teachers in this district had their grading policies approved by their department directors in the beginning of the school year and parents and students were informed of these practices in a course syllabus provided at the beginning of the semester.

Administration agreed to provide teachers with the required hardware in order to complete the expected grading tasks. The district provided teachers with laptop computers. Additionally, it was important that the teachers did not have to double their record-keeping efforts. Teachers were not required to keep separate, paper documents, but were encouraged to periodically print their computerized records in the event of a system crash. Technology support was provided to teachers, as well, as they navigated the new technology.

The final agreement between the union and administration was to develop a team of professionals (teachers from different departments including union representatives, administrators (the researcher) and guidance counselors) to act as a steering committee spearheading the parent and student access pilot. This committee oversaw the planning of the pilot including developing the content of the student and parent orientation sessions, parent and student Acceptable Use Policies, and the monitoring of use once the pilot was open.

Teacher representatives could collect feedback from their department members to share at steering committee meetings. After all of these concerns had been addressed, the district and the union agreed with a one-year side agreement to the teachers' contract.

Schools considering adopting parent and student access to a web-based grade reporting system would be encouraged to involve union leaders early in the development of policies around expectations between administration and teachers. Such involvement allows for the development of shared understanding of expectations and allows the educational leaders the opportunity to hear concerns, validate fears, and engage in collective problem-solving. The researcher in this study viewed the goals of both administrators and union leaders as being the same (researcher's journal). There were teachers who were vocal and enthusiastic about using the system, teachers who were vocally adamant about not using it, and many teachers in between those two extremes who had yet to decide. Both union leaders and administrators recognized that they were leading change amidst a diverse range of viewpoints. Ultimately, the policy that union leaders and administrators crafted recognized the need to move forward but in a gentle way so as not to lose talented, but scared, educators along the way.

The Acceptable Use Policies (for parents and students to sign), crafted by the steering committee, specifically outlined the expectations for use. To alleviate the fears of the teachers, administrators remained firm in their commitment to provide orientation sessions to parents and students that

outlined expectations for use and actions that would be taken for violations of the Acceptable Use Policy. Mandatory student orientation sessions were easier to conduct within an allotted homeroom period. Parent orientations presented some concerns. Some parents appeared resentful of having to attend an evening or morning orientation session (researcher's journal), but administrators upheld the requirement that parents had to attend in order to gain parent access.

The orientation sessions can be considered as invitations by the school community to participate in the PowerSchool pilot and they also give parents clear information about what to do with the information contained in PowerSchool to help their child. Concerned that teacher and parent communication would increase to such an extent that would leave the student alienated from his own learning, administrators stressed that parents should talk with their children first before seeking answers from the teacher. Parents were also asked to encourage their child to be the one to inquire about their achievement, hoping to empower students to take action towards improving and keeping the child at the center of communication about achievement. In light of the findings of this research study, the researcher would recommend that schools seeking to adopt this form of home-school communication would develop protocols and policies that keep the student in the center of the communication chain.

The Acceptable Use Policies also explained to parents the minimum expectations agreed upon by teachers and administration.

Lastly, schools considering adoption of this form of technological communication should consider whether or not to adopt or change their school or district grading policy. The study site school did not have an extensive school or district-wide grading policy in place and did not seek to enact one. The teachers at this school enjoyed the professional authority to make assessment decisions within their classrooms. Teachers established grading policies, communicated in their course syllabi, that were approved by their department directors prior to the start of the school year. Teachers enjoyed much latitude in what to include, as long as it met the director's approval. This approach took into account the nature of assessments in each content area, recognizing that assessments in different courses are, indeed, different. In recent years, and partly as a result of the PowerSchool project, teachers' grading policies within departments are starting to be closer to each other (course syllabi).

Based on the literature, a top-down school-wide grading policy could be seen as too authoritarian and could lead to ineffective practices that involve blaming the students and parents for poor performance rather than a focus on problem-solving. On the other hand, the literature also points to the need for district leaders to do more to develop effective grading practices among teachers (Allen, 2005). Based on the literature, however, this would be best done by focusing on the development of teachers' practices, through professional learning communities, rather than instituting a formal policy that restricts teachers from engaging as professionals. The researcher feels that this would be best accomplished through the high school's departments, related specifically to

the unique nature of the different content areas. Teachers, working within the context of their department in a professional learning community, can focus on being internally accountable to each other and their students. The literature reminds educational leaders that teachers remain extremely relevant to the process of grading and assessment (Johnston et al., 1995; Guskey, 2004) and that the high school department, rather than the school itself, is the unit of change (Elmore, 2003)

Implications for Future Research

The findings of this research study, and the limitations of it, suggest areas for further research.

This study examined the perspectives of teachers engaged in the pilot of parent and student access to the web-based gradebook, PowerSchool. Although other research studies have been done from the perspective of middle school parents and students, an area for further research would be to assess the impact of opening parent and student access to a web-based gradebook on high school parents and their students, who are seeking greater independence and autonomy.

This study was limited by the fact that parent and student access was in the early stages of implementation in the form of a pilot of only one grade of students. This study could be conducted at a later point in time, such as after full implementation, to gain a sense of teachers' perspectives after a long experience with parent and student access and with a larger population of users.

Parent and student participation in the pilot was voluntary. This may have influenced the research findings. The study could be replicated by providing all parents and students with account information to gain a sense of whether or not greater use of the system would occur and if this would change any of the findings.

The study was conducted in a specific research setting and may not be generalized to other settings. The study could be replicated in another study site such as a smaller school or in a different setting (urban or rural) to see if there are any commonalities among the findings.

The teacher participants in this study represented different content areas. In the high school setting, it has been argued that the unit of change is not the school but is, rather, the department (Elmore, 2003). One could replicate the study with teachers from the same department to gain a sense of whether or not there is a shared series of perceptions when focusing on one content area.

Implications for Leadership

The researcher reflected on her leadership throughout the course of the project and the study.

One advantage the researcher felt she had in initiating this research project was her experience as a classroom teacher in this school. Prior to her role as Assistant Principal, the researcher served as the Director of Science and Technology Education and taught two science classes per year. The last year of her classroom teaching was the first year of teachers using PowerSchool to

submit grades to administration. Therefore, the researcher has used the program not only as an administrator, but had experienced the initial adoption of the program as a classroom teacher and as a director, directly supervising the teachers in the department. She struggled to learn how to use the program as a gradebook. This experience helped her empathize with teachers' concerns three years later when the school moved towards parent and student access. She drew on this experience both as a source of seeking to understand what the teachers concerns were and as a way that she could generate trust between herself and the teachers. By truly understanding what their concerns were and by identifying them from her own use as a teacher, she felt she gained credibility and trust throughout the project and the study.

The researcher, however, became increasingly aware at the attempts of faculty members, especially those reluctant to use the on-line program PowerSchool with parents and students, to personalize the problem to the researcher. As the leader of this project, she came to embody, in the view of these teachers, the challenge they were facing. This manifested in two ways. First, the researcher noticed that teachers always assumed she wanted to talk about PowerSchool when initiating a conversation or when visiting classrooms. Second, the researcher noticed how other people talked about her or introduced her, identifying her role as administrator for PowerSchool despite the many other responsibilities she held. The researcher tried to overcome these identifications by gently correcting people when such behavior was exhibited and by making sure she remained relevant to teachers in other contexts. She also

dismissed the situation for what it was and tried not to take their attacks against PowerSchool personally.

One challenge that the researcher faced is that PowerSchool is not the easiest of programs to use. She recognized that she had to develop teachers' capacity in using the program but she had to be honest about its limitations. Her credibility would be threatened if she did not honestly accept and acknowledge that the program had some difficult features and could not be everything to everyone. The researcher sought to learn as much as she could about teachers' use of the program and the problems they were experiencing. She collected all of the information and would periodically issue "Frequently Asked Question" instruction sheets so that she could both acknowledge the problems users were experiencing and also provide some ways to trouble-shoot and overcome the problems, when possible. When this wasn't possible, the researcher also acknowledged this.

Another challenge the researcher faced when leading the project was incorporating her own learning through the process. Through the project and the study, and by the nature of researching and writing this dissertation, the leader's thinking about PowerSchool changed over time. She recognized that she could not go back and change things that had already happened. She worked hard not to erode the trust she felt she had developed but she had to, in some ways, recognize that the process of implementation had to change over time. The slow pace of implementation helped with this process and the researcher publicly acknowledged what she, herself, was learning as the project unfolded.

She tried to approach the project with humility and did not pretend to have all the answers; she also sought to recognize her mistakes and admit to things she would have done differently. While she recognized that this placed her in a vulnerable position, it felt most authentic to recognize that the leader herself was learning through the process and she could model this for teachers and other administrators.

At times, the researcher felt side-tracked by a seemingly never-ending list of requests from the union. The researcher implemented numerous trainings but the teachers wanted more. When this occurred, the researcher decided that a multi-modal approach was needed. She prepared documents, posted helpful hints on the website, she identified tutorials for the teachers to use, she met individually with the teachers struggling the most with the program, and she provided small group instruction during prep time and after school. She engaged faculty presenters, at times, to showcase different uses of the program at faculty meetings. When the union seemed satisfied with trainings, the concerns about parental misuse came up. The researcher felt frustrated that misuse was so prominent of a concern despite the anecdotal evidence provided from other schools that they had not experienced this. Yet, the researcher recognized the need to persist. She recognized the appropriateness of this fear and, with the steering committee, established the Acceptable Use Policies and a protocol for the teachers to use, bringing the attention of potential situations of misuse to the PART team and the high school leadership team. Persistence was an important part of the implementation of the leadership project.

As an Assistant Principal, there were times when the researcher felt frustrated at her lack of authority and there were other times where being a “second in command” gave her some advantages of leading without authority. As an assistant principal, she had to communicate upwards to her principal and to district administration and, at times, ask them to undertake leadership tasks that were most appropriate for their positions. At times, this felt extremely awkward. Since she was not in charge of the building or district, however, the researcher felt that there were some political advantages to this. Teachers seemed to trust her in this position and she could use her role to focus the attention of the principal on things when teachers seemed unable.

Emotions ran high at many times during the course of the project and study, especially during the steering committee meetings. Grading is such an individualized task and the researcher witnessed teachers making judgments about each other’s practices. One meeting, in particular, became quite contentious with two members losing their tempers, insulting each other, and one storming out of the room and, ultimately, resigning from the committee. The researcher regrets that this happened and wishes she had done more to intervene in the moment. It had been a while since the committee had taken a look at its norms of communication and the researcher wishes she had also been more consistent about revisiting these regularly as part of the committee meetings. The researcher, however, was satisfied with the resolution of the event. Both parties came to her separately to apologize and take responsibility for their behavior. The researcher was able to express her disappointment in their

behavior since the norms were violated. The parties agreed to sit down and apologize, with the researcher present, although the rift still exists today.

The researcher felt a sense of accomplishment as a leader in professional relationships, especially with union leaders, as a result of her experience with the PowerSchool project. The researcher engaged in, and later led, much of the dialogue between the union and administration both in formal negotiation sessions, during steering committee meetings, and also in informal ways in between formal meetings. One union leader admitted, publicly, her trust in the researcher. The union president, hearing concerns from faculty members after a misunderstanding, had communicated directly with the researcher to provide the researcher with the opportunity to clarify miscommunication rather than automatically assuming an adversarial stance. The researcher interpreted this as the union leader's confidence in the researcher's intent and ability to rectify the misunderstanding. The researcher feels most accomplished about the development of good professional relationships and the trust that she sensed developed especially with the teachers' union who, historically, could be adversarial and contentious.

Ultimately, the researcher feels the greatest sense of accomplishment from the results as presented in this study but also from the results she was able to witness separate from this research. It was apparent to the researcher, from comments students made to her, that the PowerSchool project made a difference for them in their achievement. When the school opened up parent and student access to a wider range of students the following year, the researcher witnessed

two students encouraging some reluctant, younger students to gain access. Although many were extremely reluctant to admit it in front of peers, students approached her with stories of how their grades improved as a result of PowerSchool and how their self-esteem had, likewise, improved.

Conclusion

PowerSchool represents a new form of communication between home and school that brings a greater amount of assessment data into the hands of students and parents who can then take a role in changing behavior to improve student achievement. The implementation of parent and student access to PowerSchool is far more than a technical solution to the problem of providing additional assessment information. Grading, by nature, is a subjective process and the teacher plays a central role as an assessment instrument. As Johnston et al. (1995) assert, assessment is more social than technical. Therefore, the implementation of PowerSchool represents an adaptive change within schools and has the power to transform communication between home and school so that grades can be used not only as summative reporting symbol, but also as formative information that can be used to close a gap in learning.

The focus in education has increasingly been on accountability. Educational reforms assumed that changes at the federal and state level would lead to changes in the classroom. Yet change remained superficial and researchers call for the focus on classroom assessment to make substantive changes in schools (Stiggins, 1999). Increasing transparency in classroom

grading has implications for accountability. It increases the accountability of teachers with grades being more transparent and it also increases the accountability of high school students who can take more ownership over their learning. PowerSchool is a promising form of technology that can influence the assessment in schools, the communication of assessment practices between home and school, and the communication of teachers about their practices and about their students.

APPENDIX A

Pre-Survey for Teachers (Before Pilot)

1. Indicate the extent to which you agree with the following statements

(Strongly Disagree / Disagree / Agree / Strongly Agree):

Opening parent and student access to PowerSchool will...

increase parent inquiries about student achievement

change methods teachers use to communicate with PARENTS

change methods teachers use to communicate with STUDENTS

improve communication between TEACHERS and PARENTS

improve communication between TEACHERS and STUDENTS

improve communication between PARENTS and STUDENTS

2. What other comments do you have about opening parent and student access to PowerSchool and its influence on communication with parents and students?

3. Indicate how frequently you use the following forms of communication with STUDENTS about their achievement

(Never / Infrequently / Sometimes / Often):

PowerGrade reports

E-mail

Telephone Conversations

Written feedback during class

Individual conferences

Other (Please specify)

4. Indicate how frequently you use the following forms of communication with PARENTS about their achievement

(Never / Infrequently / Sometimes / Often):

PowerGrade reports

E-mail

Telephone Conversations

Written feedback during class

Individual conferences

Other (Please specify)

5. Please rate your use of the following assessment practices

(Never / Infrequently / Sometimes / Often):

Student-set learning goals

Clear assignment expectations

Rubrics issued to students

Peer-assessment

Student self-assessment

“Re-takes” of assignments for improvement

Written feedback without a grade

Assignments posted on a website

Sending assignment information to parents

Displaying student work in the classroom

Sharing exemplars with students

Other (please specify)

6. Please explain why you use the assessment feedback strategies you rated as using "often":
7. Please explain why you do not use the assessment strategies you described as "never" or "infrequently" using:
8. Indicate the extent to which you agree with the following statements (Strongly Disagree / Disagree / Agree / Strongly Agree):
 - Grades are important in motivating students to learn.
 - Computerized gradebooks, by calculating averages from individual assignments, help teachers provide objective information about student achievement.
 - Grades provide students with a good sense of their ability compared to their peers.
 - Grades provide students with a good sense of their effort compared to their peers.
 - Students are either "motivated" or "unmotivated".
 - A teacher can do little to motivate a student who is unmotivated.
 - Natural ability is a significant factor in influencing a student's achievement.
 - Effort is a significant factor in influencing a student's achievement.
 - Opening STUDENT access to PowerSchool will help motivate students to achieve at higher levels.
 - Opening PARENT access to PowerSchool will help motivate students to achieve at higher levels.

9. What comments do you have about assessment feedback and student motivation?

APPENDIX B

Post-Survey for Teachers (After Pilot)

1. Indicate the extent to which you agree with the following statements
(Strongly Disagree / Disagree / Agree / Strongly Agree):

Opening parent and student access to PowerSchool has...

increased PARENT inquiries about student achievement

increased STUDENT inquiries into their own achievement

changed methods teachers use to communicate with PARENTS

changed methods teachers use to communicate with STUDENTS

improved communication between TEACHERS and PARENTS

improved communication between TEACHERS and STUDENTS

improved communication between PARENTS and STUDENTS

improved communication among TEACHERS

2. In what way(s), if any, did opening parent and student access to PowerSchool change (if at all) the substance of communication between teachers and parents about their student's achievement?
3. In what way(s), if any, did opening parent and student access to PowerSchool change (if at all) the substance of communication between teachers and students about the student's achievement?
4. In what way(s), if any, did opening parent and student access to PowerSchool change (if at all) the substance of communication among teachers?

5. Given there was greater transparency through the use of PowerSchool indicate how frequently you used the following forms of communication with STUDENTS about their achievement during the pilot (Never/Infrequently/Sometimes/Often)?

PowerGrade reports

E-mail

Telephone Conversations

Written feedback during class

Individual conferences

Other (Please specify)

6. Given there was greater transparency through the use of PowerSchool indicate how frequently you used the following forms of communication with PARENTS about their achievement during the pilot (Never/Infrequently/Sometimes/Often)?

PowerGrade reports

E-mail

Telephone Conversations

Written feedback during class

Individual conferences

Other (Please specify)

7. What changes occurred in the frequency and type of communication about assessment you used with the pilot of parent and student access to PowerSchool?

8. What changes (if any) do you plan to make in the frequency and type of communication about assessment when PowerSchool parent and student access is fully implemented?
9. Given that there was greater transparency in assessment through PowerSchool parent and student access, please indicate how frequently you use or plan to use the following assessment practices this year (Never / Infrequently / Sometimes / Often):
- Student-set learning goals
 - Clear assignment expectations
 - Rubrics issued to students
 - Peer-assessment
 - Student self-assessment
 - “Re-takes” of assignments for improvement
 - Written feedback without a grade
 - Assignments posted on a website
 - Sending assignment information to parents
 - Displaying student work in the classroom
 - Sharing exemplars with students
 - Other (please specify)
10. Do you plan to make changes in the contributions of assessments to a final, overall grade? Yes/No
- Feel free to elaborate.

11. Please describe your reasoning behind anticipated changes (if any) you plan to make in your assessment practices as a result of PowerSchool parent and student access:

12. Indicate the extent to which you agree with the following statements (Strongly Disagree/Disagree/Agree/Strongly Agree):

- Students are either "motivated" or "unmotivated".
- Opening PowerSchool access to students increased their motivation.
- Opening PowerSchool access to parents increased student motivation.
- Opening PowerSchool to parent and student access led to reduced motivation for some students.
- Opening PowerSchool student and parent access led to increased student effort.
- Through communication using PowerSchool, I was able to positively influence student motivation for learning.
- Please describe your experience with PowerSchool and its influence on student motivation.

APPENDIX C

Teacher Journal Prompts

First Journal Prompt (During Pilot)

Think about your interactions with students and parents you have had as a result of PowerSchool parent and student access.

Write a short reflection on how these interactions change the nature and substance of communication (if at all) you typically have with parents and students regarding student achievement.

Second Journal Prompt (During Pilot)

Think about your interactions with students and parents you have had as a result of PowerSchool parent and student access.

Write a short reflection on how these interactions change the nature and substance of communication (if at all) you typically have with parents and students regarding student achievement.

Final Journal Prompt (Conclusion of Pilot)

Think about your interactions with students and parents you have had as a result of PowerSchool parent and student access.

- Write a short reflection on how these interactions change the nature and substance (if at all) of communication you typically have with parents and students regarding student achievement.
- Write a short reflection about actions you have seen students take as a result of greater transparency of assessment information through PowerSchool (if any).
- Write a short reflection about actions you have taken as a result of greater transparency of assessment information through PowerSchool (if any).
- Write a short reflection about actions you plan to take next year as a result of greater transparency of assessment information through PowerSchool (if any).

APPENDIX D

Focus Group Interview Protocol

“We are going to have a brief, approximately 45 minute, discussion today so that you may share your experiences with each other now that we have experienced the pilot for three grading periods. Please share your honest reflections; all of your names will be changed in order to protect your identity. I will record your answers and transcribe them into a written document. You will be provided with a copy of this written document to review and you may make corrections or clarifications.”

1. Please share some examples of your communication with students that have been different or have changed as a result of PowerSchool, if at all?
2. Have you found PowerSchool influencing your conversations with colleagues around grading and assessment?
3. Have you found PowerSchool influencing conversations with colleagues around communication with parents and students?
4. Do you feel that PowerSchool is inhibiting your communication with parents and students?
5. Are there any things you anticipated doing to open next school year in advance of expanding PowerSchool access to more students or to new students?
6. Is anyone using some of the more advanced features of PowerSchool? If yes, what are they? If no, why not?

APPENDIX E

Individual Interview Protocol

“We are going to have a brief, approximately 30-40 minute, discussion so that you may share your experiences with me now that the PowerSchool pilot has concluded. Please share your honest reflections; your name will be changed in order to protect your identity. I will record your answers and transcribe them into a written document. You will be provided with a copy of this written document to review and you may make corrections or clarifications.”

1. In what ways, if any, has communication through PowerSchool been different from previous communications with parents and students?
2. In terms of what you had anticipated prior to opening PowerSchool access, how do you feel about your experiences with parents and students through the pilot?
3. What are the major benefits of using PowerSchool for communication?
4. What are the major drawbacks of using PowerSchool for communication?
5. What effect do you think PowerSchool has, if any, on students' motivation?
6. Did you witness any changes in students' approaches to the classroom?
7. When you first considered opening up your gradebook to online access by parents and students, did you examine the way you were using the program and change anything?
8. Do you feel that parents understood their role in using the program?

9. In planning for future implementation, would you approach it differently than you did prior to the pilot?
10. As a classroom teacher, do you think might communicate anything with home about their use of the PowerSchool program?
11. Have you explored any of the more advanced features of PowerSchool? If yes, why? If no, why not?
12. Do you feel that there has been any change in communication among teachers in your department as a result of PowerSchool?
13. Is there anything else you want to share regarding your experience with PowerSchool and communication with parents, students and teachers?

APPENDIX F

Acceptable Use Policy for Parents

PowerSchool Pilot

Acceptable Use Policy – Parent Access

Access to your child's grades and attendance through PowerSchool is being provided to you as we pilot this form of communication with teachers and administrators during the spring semester of the 2007-2008 school year. More importantly, it is to help all of us in our efforts to support your child's education. Please read these guidelines carefully and fill out the attached "Request for PowerSchool Access" form. Usernames and Passwords will be distributed following a brief orientation held by faculty.

Please read the following Acceptable Use Guidelines:

1. Username and passwords are to be kept confidential.
 - a. The district accepts no responsibility in the event the username and password is shared, given, stolen, or in any other way, becomes the possession of a person other than the parent/guardian.
 - b. In the event a username/password is compromised, the parent/guardian can contact the school to have the password changed.
 - c. If you forget your username and/or password, you will be required to fill out a written request for the school. Forms can be obtained in the office or downloaded from the school website.

2. Only **one** username and password will be issued per student when their signed agreement is returned to the school. It is your responsibility to determine which parent(s)/guardian(s) will be able to access records.
3. All concerns about parent access can be emailed to pstech@studysite.edu (name changed). Note: The school district does not provide support for your home/work computer system.
 - a. Users must realize that email and other communications via the Internet are not guaranteed to be private.
4. We will monitor parent/guardian access to PowerSchool. The Parent Access Log lists date of login, time accessed, and duration of login (in minutes).
5. You must adhere to the following protocol in the order listed for concerns regarding your child's grades:
 - a. Speak with your child first.
 - b. Have your child talk to their teacher for clarification.
 - c. Check teacher's grading policy described in his/her course syllabus.
 - d. Parent/guardian may send **ONE** email or call the teacher and expect a response in a timely manner.
 - e. Parent/guardian may request a meeting through the Guidance Department.
 - f. After all of the above, a parent/guardian may contact school administration by phone or by email.

6. Even though you will be able to check grades 24 hours a day / 7 days a week, teachers will be expected to update their gradebooks at mid-quarter and at the end of the quarter/semester.

Please be patient and do not contact teachers requesting a grade sooner than what is outlined above.

7. Final quarter grades will be posted on the day report cards are sent home.
8. Attendance concerns should be addressed by calling the school office at (508) 841-8809 or send an email to the attendance secretary, psattendance@studysite.edu (name changed). Attendance is accurate up to the close of the previous school day.

Terms of Use:

1. I understand that the school district is providing this access as a privilege, and if it is abused, my account will be suspended and/or terminated.
2. I understand that the Study Site Public Schools is not liable for any damages to my personal equipment incurred when connected to the PowerSchool System.
3. In consideration of using the Study Site Public School District network and having access to my child's grades and attendance, I hereby release the Study Site Public School District and its officers, employees, and agents from any claims and damages from my use of the system.
4. I understand that the school will continue to send progress reports and report cards home at the end of each term for the 2007-2008 school year.

Request for Access to PowerSchool Pilot 2007-2008

Fill out this form completely and return it to the Study Site High School. By signing this agreement, you acknowledge that you have read and agree to comply with the Acceptable Use Guidelines and Terms of Use.

I, _____, am the legal parent/ guardian of _____
_____, and wish to request electronic access to his/her grades and attendance. I have read the Acceptable Use Guidelines and Terms of Use with my student. My student and I agree to adhere to these guidelines and terms. We understand that any violation of these Acceptable Use Guidelines and Terms of Use will result in suspension and/or termination of my account.

APPENDIX G

Acceptable Use Policy for Students

PowerSchool Pilot

Acceptable Use Policy – Student Access

Access to your grades and attendance through PowerSchool is being provided to you during the spring semester of 2007-2008 as a form of communication with teachers and administrators. Most importantly, it is to help provide you with information to take greater responsibility for your learning and, therefore, to improve your achievement. After a period of time, your parents will also be given access to your grades and attendance to help support your learning.

Information about student records/temporary records can be found on page 11 of the Study Site High School Student/Parent Handbook.

Please read these guidelines carefully and fill out the attached “Request for PowerSchool Access” form. Usernames and Passwords will be distributed following a brief orientation.

Please read the following Acceptable Use Guidelines:

1. Username and passwords are to be kept confidential.
 - a. The district accepts no responsibility in the event the username and password is shared, given, stolen, or in any other way, becomes the possession of a person other than the student.

- b. In the event a username/password is shared, the student can contact ITAMS to have the password changed. Do not contact your teacher.
 - c. If you forget your username and/or password, you will be required to fill out a written request for the school. Forms can be obtained in the office or downloaded from the school website.
2. Only **one** username and password will be issued per student when their signed agreement is returned to the school.
3. All concerns about your access can be emailed to pstech@studysite.edu (name changed). Note: The school district does not provide support for your home/work computer system.
 - a. Users must realize that email and other communications via the Internet are not guaranteed to be private.
4. You must adhere to the following procedure to address concerns about your grade:
 - a. Review assignments that have been handed back to you by your teacher.
 - b. Check your teacher's grading policy posted on his/her course syllabus.
 - c. Talk to your teacher after school for clarification.
5. We will monitor Student Access to PowerSchool. The Student Access Log lists date of login, time accessed, and duration of login (in minutes).

Accessing PowerSchool during class time will be considered inappropriate use.

6. Even though you will be able to check grades 24 hours a day / 7 days a week, teachers will be expected to update their gradebooks at mid-quarter and at the end of the quarter.

Please be patient and do not contact teachers requesting an online update sooner than what is outlined above.

7. Final quarter grades will be posted on the day report cards are sent home.
8. Attendance concerns should be addressed by coming to the attendance office. Attendance is accurate up to the close of the previous school day.

Terms of Use:

9. I understand that the school district is providing this access as a privilege, and if it is abused, my account will be suspended and/or terminated.
10. I understand that the Study Site Public Schools is not liable for any damages to my personal equipment incurred when connected to the PowerSchool System.
11. In consideration of using the Study Site Public School District network and having access to my grades and attendance, I hereby release the Study Site Public School District and its officers, employees, and agents from any claims and damages from my use of the system.
12. I understand that the school will continue to send progress reports and report cards home at the end of each term for the 2007-2008 school year.

Request for Access to PowerSchool Pilot 2007-2008

Fill out this form completely and return it to the Study Site High School. By signing this agreement, you acknowledge that you have read and agree to comply with the Acceptable Use Guidelines and Terms of Use.

I, _____, wish to request electronic access to my grades and attendance. I have read the Acceptable Use Guidelines and I agree to adhere to these guidelines and terms. I understand that any violation of these Acceptable Use Guidelines and Terms of Use will result in suspension and/or termination of my account.

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