TRANSPARENT ASSESSMENT:
How Learning Management Systems Improve Learning and Why

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ABSTRACT:
The balance between moral and academic development is an increasingly recognized challenge that has been a part of an educational philosophy debate for centuries. This review examines the development of educational assessment research ultimately examining the effectiveness of formative assessment to address the pressure of summative performance results and 21st century educational objectives.

Research and technological innovations are combining to provide newer collaborative and empowering opportunities for key stakeholders in a learning community. The paper focuses on the needs of one particular international school in Stuttgart Germany that is about to implement one such innovation: a new database and Learning Management System (LMS).

Using research that gleans sources from doctoral dissertations, educational peer-reviewed articles, other periodical sources and literature published for educational professionals and broader, mainstream audiences, this essay addresses the impact of Learning Management Systems (LMS) on student achievement because of the need to study evidence that online collaboration and communication acts as a catalyst for the development of more frequent formative guidance and classroom engagement in order to help a school understand why transparent assessment promotes effective student-centered learning.
INTRODUCTION

In 2009 Dan Pink wrote a New York Times bestseller *Drive*, a fascinating study on motivation and among other things, the three principals of autonomy, mastery and purpose. He wrote at a time when the world was entering one of the more significant economic crises in recent years. At this same moment, there was a spike in educational studies on the latest results of the controversial *No Child Left Behind* initiative begun in 2001. Americans were growing worried that the policy, based on standards based education reform and the measurable outcomes movement was not improving performance in the Program for International Student Assessment (PISA). The United States was not alone in its concern. Germany, the UK and many other western industrialized nations with standards-based, externally moderated assessments were similarly disappointed. With the world in economic uncertainty, and the performance of national school systems in question, the role of education returned to the spotlight. Popular non-fiction literature extolled the need for more global understanding. Books on 21st century outcomes and educational analysis proliferated at an uncanny rate. So too, did the growth of the International Baccalaureate Organization schools which has ballooned over 44% in the past five years alone. The world seems to be seeking a curriculum that might combine the standardized needs of various nation states while also incorporating more holistic or newer brain researched best practice in education. In the United Kingdom, the venerable Cambridge exams are being reviewed and revised while in Germany, there are various state re-organizations that have revised their infamous tracking system in favor of the “gemeinschaftschulen” (continual schooling in one location).

2009 was also an interesting year for the International School of Stuttgart. For the first time, the school’s IB Diploma results fell below accepted standards and the school, in the middle of its self-study for re-accreditation with the Council of International Schools, the New England Association of Schools and Colleges and the International Baccalaureate Organization, focused on this challenge. Discussions on externally moderated examinations, more modern teaching methods and mission driven assessment and appraisal resulted in a comprehensive and specific Strategic Plan that revolved around a
greater need for transparent and effective communication between essential stakeholders including the student, the teacher and the family. Coupled with an additional initiative to re-implement a school wide database, the school envisioned a combined School Information System and Learning Management System. This would put administrative and demographic data in the same location as learning and academic data, effectively promoting a more efficient and transparent online learning community.

Like the rest of the world, the school finds itself at the crossroads. With research on educational theory more available, and more students committing to higher education that to date, still requires competitive external assessment, the search is on as to how best to motivate our students to love learning for the rest of their lives while at the same time increase their academic performance levels.

The challenge to balance these objectives is not new.

John Dewey, the iconic educator at the turn of the 20th century believed that “the aim of education is the development of individuals to the utmost of their potential.” (Need, p. 202) Michel de Montaigne, an important philosopher in the sixteenth century, had been even more direct mentioning that “Teachers are forever bawling into our ears as though pouring knowledge down through a funnel…the tutor should sometimes prepare the way for the boy, sometimes let him do it all on his own.” (Montaigne, p. 169) Today, schools are not only looking at their particular curriculum to address the conundrum, but how they can address the fundamental relationship in education; the teacher and student. And they are finding that the traditional authoritarian approach is not the way of the future. As Pink noted in 2009, along with frequent educational research literature thereafter, developing student autonomy with qualitative feedback assessment on clearer expectations and outcomes has the greatest success factor for improving learning. So, feedback and assessment evolution has moved to the forefront of educational research.

This was one of the reasons the International School of Stuttgart (ISS) implemented an entirely new way to communicate educational accountability and assessment through its
new School Information and Learning Management System. This paper will therefore address the impact of Learning Management Systems (LMS) on student achievement because of the need to study evidence that online collaboration and communication acts as a catalyst for the development of more frequent formative guidance and classroom engagement in order to help the ISS community understand why transparent assessment promotes effective student-centered learning.

**LITERATURE REVIEW**

*The Evolution Of Assessment Practice:*

Standards based education reforms, particularly in the United States with NCLB, were supposed to rely on scientifically based research for programs and teaching methods. But it has become increasingly clear that attaching school revenue to test performance was going to emphasize results on externally moderated summative assessments. Testing is too often the priority and in an exhaustive report by the Center on Education Policy (CEP) in 2009, it was clear that many goals were not being reached. Among other results, many states were showing diminishing progress among high school students at the advanced achievement level and achievement gains were smaller, on average, for high school students than for 4th and 8th graders. At the advanced achievement level, high school trends for subgroups were less positive, especially in English language arts; and gaps between subgroups of high school students generally narrowed at the proficiency level. (Kober and McMurrer, 2011) While there was some improvement, particularly in reading, U.S. Secretary of Education Arne Duncan remarked, "Being average in reading and science—and below average in math—is not nearly good enough in a knowledge economy where scientific and technological literacy is so central to sustaining innovation and international competitiveness," (Marion, 2011 p.1)

As pressure mounted, educational researchers started to focus on assessment as a motivator for student performance. Since the implementation of NCLB in 2002, there had been a growing discussion of how best to provide support for external evaluative assessments and with the increasing popularity of sociologist Howard Gardner’s definition of multiple intelligences, these same researchers grappled with the fact that
learning was becoming increasingly more complicated to assess. In 2012 an all encompassing work by Dawn Flanagan and others compiled a current and comprehensive overview of intellectual and cognitive assessment entitled *Contemporary Intellectual Assessment: Theories, Tests and Issues*. It was a third edition with a focus on practical applications and it is clear that the foundation for the subject began earlier in the 70’s.

One example is curriculum expert Joseph Schwab who analyzed how the implementation of too much educational theory confuses outcomes and curriculum (Schwab, 1970). It is also worth reviewing Thomas Guskeys subsequent work a decade later on “mastery learning” because he addressed the same concerns through an approach based on formative testing to give the student feedback and correction. He advocated mastery learning as an effective way to individualize instruction in a mainstreamed setting.

(Guskey, 1985)

Carol Dweck started to analyze motivational research in the 90’s starting with the importance of ‘self-theory” (Dweck, 1999) and the relation of emotional well-being to achievement. This proved to be a later foundation for her work on “mindsets” where she studied the reality that since challenges are ubiquitous, resilience is essential for success in school and in life. (Dweck and Yeager, 2012) This coincided with many other researchers like Elliott Eisner who focused more on teaching objectives arguing in his theory of connoisseurship, that teachers must illuminate, interpret, and appraise the qualities contained within a learning experience. (Eisner, 2005) At the turn of the millennium educators had returned to what both Dewey and Montaigne had emphasized centuries before; educating the person, not delivering the subject, will achieve the mastery learning objectives described by both Guskey and Pink.

By 2005, studies of assessment had become a world-wide pursuit. There is ample literature of similar studies in the United Kingdom and one of the leading researchers Eleanore Hargreaves “surveyed teachers in the UK to find out what their conceptions of “assessment for learning” consisted of. She found six main themes or definitions commonly used for this concept which are: monitoring pupils’ performance against targets or objectives; using assessment information to inform next steps in teaching and
learning; teachers providing feedback for student improvement; teachers learning about students’ learning; students taking control of their own learning and assessment; and turning assessment into a learning event.” (Nash, 2007) Around the same time, American researchers like Charlotte Danielson began to utilize the term “formative learning” as an extrapolation of Hargreaves “assessment for learning” to indicate that the purpose of assessing ‘formative’ learning is not to certify mastery of content by students, but to provide information to both students and teachers as to what has not yet been learned and to guide next steps. (Danielson, 2007)

In the meantime, educators also began develop a universal reference for final evaluative reports. Many began to refer to these events as “summative assessment” which occurs at the end of an instructional episode and does not provide the opportunity for learners to improve their work or understanding. Rather, summative assessment ends with a judgment as to whether the student has mastered the material or not, and instruction proceeds regardless of the results (Popham, 2008; Shavelson et al., 2008). Prof. Richard Stiggins seems to have clarified the difference between formative and summative learning best by simply by noting that the need for assessment changes for learning were formative. Assessments of learning were summative and Prof. Stiggins felt it was essential for students to know where they are going, where they were in the process of learning and how they could improve. (Stiggins 2002) A year later, Judith Arter also “contended that a positive reaction to test results will most likely occur if the assessments themselves provide the students with a sense of control and choice, a challenge in a non-threatening, low risk context, and if it encourages self-assessment and reflection. When students feel that they are in control of the testing situation as well as their own learning, they will experience increased confidence and desire to do well (Arter, 2003)

It was becoming increasingly clear that formative assessment relied upon qualitative feedback or as Susan Brookhart argued both in 2008 and 2010; effective feedback consists of the elements of focus, comparison, function, valence, clarity, specify, tone, timing, amount, mode, and audience and that effective FAs are varied, in both formal and informal ways (Brookhart, 2008, 2010)
Once again, it was time to look back into the future. Schwab had written that unfortunately, in her time, there had been no research on what pedagogical strategies can be used with authentic formative assessment, and no research to show how authentic formative assessment could be a viable alternative to a standardized formative assessment process. (Schwab, 1978) But today curriculum research has begun to delve deeply into the relationship between the teacher and “the student curriculum studies literature supports the notion of authentic formative assessment as teachers and students can collaboratively make decisions about learning based on the unfolding of classroom learning activities contained within formative assessment processes.” (Brookhart, 2010, p. 10)

The term of “authentic assessment” seems to have first appeared in educational literature in the late 80’s and some claim that the earliest reference to authentic testing was in a book written by Doug Archbald and Fred Newman who were critical of standardized testing. They argued that schools should promote assessment centered on meaningful real world problems or tasks instead. Others noted that assessment is authentic when it measures products or performances that “have meaning or value beyond success in school” (Newman, Brandt & Wiggins, 1998, p.19). But Bruce Frey comprehensively chronicles the development of the term in his article in the electronic journal *Practical Assessment, Research and Assessment*, “Since the early 90’s, teacher educators, theorists and researchers have flocked to support authentic assessment as a more valid and productive approach towards student evaluation.” (Frey, 2010, p. 4) Frey goes on to note that, “in education, of course, it is not uncommon for best practices or “hot” or innovative topics or methods to suffer from a confusion of understanding and a lack of consistent use of terms or definitions. The conceptual overlap between performance assessment, formative assessment and authentic assessment clouds the waters if one wishes to provide objective criteria (or, at least, criteria approaching objectivity) for judging the authenticity of an assessment.” (Frey, 2010, p. 5) He sounded like Schwab in the 70’s.
At the International School of Stuttgart, similar assessment confusion was developing at the same time the curriculum was being reviewed and it became immediately apparent that the school needed to develop a common sense of understanding. Pedagogical leaders of the three IBO programs, the Primary Years Program (PYP) Coordinator, The Middle Years Program Coordinator, the IB Diploma Years Coordinator and the Director of Academics therefore developed an Assessment Handbook that incorporated some of the IB assessment criteria and one of the other strategic points of emphasis for the school, international mindedness. This Academic Council believed that “If we value international-mindedness, then it follows that we must assess the concepts, skills, knowledge and attitudes that define it. While many IB educators are using assessment in this way, making it explicit that we are assessing for international-mindedness and global citizenship will strengthen the curriculum in this area.” (Assessment Handbook, 2011, p. 3) The group went further to align itself with the strategic initiative with a new School Information System because they believed that assessment of international-mindedness will improve as we develop our tools “with the type of products and performances that match our times” (Hayes Jacobs 2009: 25)

A decision was made at that time to combine “authentic” and “formative” assessment nomenclature into just formative assessment. The goal was to evaluate the balance between the use of formative and summative assessment throughout the IB programs at the school, particularly in the High School. Once this evaluation was complete, the Academic Council would then begin to educate the teaching community as to effectiveness of the Cycle of Learning pictured below:
TABLE 1: International School of Stuttgart Cycle of Learning

The Academic Council further developed essential understandings of Assessment through a faculty retreat understanding the following key principals:

- Assessment is integral to planning, teaching and learning.
- The assessment system and assessment practices are made clear to students and parents.
- There is a balance between formative and summative assessment.
- Opportunities for peer and self-assessment are planned for.
- Opportunities for students to reflect on their own learning are planned for.
- Students’ current knowledge and experience are assessed before embarking on new learning.
- Students are provided with feedback as a basis for future learning.
- Reporting to parents is meaningful.
- Assessment data is analysed to provide information about the teaching and learning, and the needs of individual students.
- Assessment is used to evaluate the effectiveness of the curriculum.
Lastly, the group whittled down all of the aspects of assessment into two definitions that will be used throughout the remainder of this paper:

*Formative Assessment* (Assessment FOR and AS Learning)
Formative assessment provides information that is used in order to plan the next stage in learning. It is interwoven with learning, and helps teachers and students to find out what the students already know and can do, as well as what additional learning will help students to approach summative assessment tasks with confidence. Formative assessments occur frequently and in an ongoing manner during instruction, while students are still gaining knowledge and practicing skills. Teachers use the information that is gathered to monitor students’ progress towards achieving the overall and specific objectives, so that teachers can provide timely and specific descriptive feedback to students, scaffold next steps, and differentiate instruction and assessment in response to student needs. Additionally, students can use formative assessments to monitor their own progress towards achieving their learning goals (self-assessment), make adjustments in their learning approaches, reflect on their learning, and set individual goals for learning.

*Summative Assessment* (Assessment OF Learning)
Summative assessment occurs at or near the end of a period of learning. Summative Assessment is the culmination of the teaching and learning process and gives the students opportunities to demonstrate what has been learned. Summative assessment aims to give teachers and students a clear insight into students’ understanding and skills that have developed over a period of time. Teachers use the information that is gathered to summarize learning at a given point in time. This summary is used to make judgments about the quality of student learning on the basis of established criteria and to support the communication of information about achievement to students themselves, parents, teachers, and others. (Academic Council, 2011)
**Autonomy, Student Perspective And Self-Assessment**

It is necessary for 21st century schools grappling with national system requirements and modern educational aspirations to balance the demands of standardized, external assessment—the more summative approach—with formative assessment techniques that not only assess academic progress, but influence students’ decisions about how much they want and are able to learn. That is, students’ motivation to learn and be successful in school can be changed, for better or for worse, by the use of assessments (Arter, 2003).

In his study in a school located in a suburb outside of Cleveland Ohio, practicing teacher Bryan Drost quoted one of his students as saying “When I take control of what I’m learning, I tend to learn better. Don’t get me wrong, I still hate Spanish, but because I have to make decisions about the learning, my grade is higher than in my favorite class.” (Drost, 2012 p. 120)

Students want to be involved in the shaping of their own learning and there is an increasing need to provide more holistic motivation and relevance to what is being assessed. For example, more and more schools are adding character development into their curriculum. One of the leading Charter schools in New York City for example, the Kipp Infinity School has developed a series of key core values they call the 7 Highly Predictive Character strengths. The question is how is this assessed? At Kipp Infinity School, students “shout out” observations of their peers serving the core. Teachers evaluate actions similarly through an accounting system they call “the paycheck” and an internal “character scorecard.” It is in fact the local community that assesses the school’s success in developing their own sense of character. But in today’s world, the community has expanded internationally. How then does one assess international mindedness? The International School of Stuttgart Academic Council responded to this question by writing, “if we value international-mindedness, then it follows that we must assess the concepts, skills, knowledge and attitudes that define it…making it explicit that we are assessing for…global citizenship.”(Academic Council, Assessment Handbook, p.6)

Concepts, skills, knowledge and attitude have varying degrees of difficulty to measure. The challenge is even greater when you add these objectives to Tony Wagner’s list of 21st
educational outcomes (*The Global Achievement Gap*) Wagner developed his list from interviews with corporate leaders and he prioritized oral and written communication development as one of them. Luckily for educational programs verbal and written communication skills are relatively easier to measure. But others, such as collaboration, agility and adaptation are more conceptual and can only be addressed through some of the team building curricula we are seeing in more and more 21st century schools. Similarly Wagner’s “Curiosity, Imagination and entrepreneurialism” are attitudinal developments that can be positively influenced by more autonomous assessment practices. But researchers like Dan Pink warn educators to be careful with definitions; “autonomy is different from independence…it means acting with choice.” (Pink, 2009, p. 90) Many educational researchers would agree, and would qualify the word “choice” with something like ‘informed’ choice.

One significant way to inform the students is to work with peer or self-assessment. Many studies have demonstrated that asking students to assess their performance, without further training, contributes to higher self-efficacy, greater intrinsic motivation, and stronger achievement (Hughes, Sullivan, & Mosley, 1985; Schunk, 1996; Sparks, 1991) Research suggests that one of the reasons that this form of assessment promotes Pink’s idea of the success of autonomous learning is the willingness of teachers to share control of assessment which constitutes an “inviting message”; i.e., information that the teacher perceives students to be able and responsible, an important source of positive efficacy information (Usher & Pajares, 2005). In 2010, a seminal study concurred, indicating that, “teachers should incorporate peer feedback into their formative assessment processes as peer assessment tends to be “high in terms of reliability and validity” (Topping, p. 72).

However, Professor John Ross, cautions educators that the benefits of self-assessment are more likely to occur when three conditions are met: teacher and students negotiate self-assessment criteria, teacher-student dialogue focuses on evidence for judgments, and self-assessments contribute to a grade (by students alone or in collaboration with teachers). (Ross, 2006) Further studies show that student self-assessments are generally higher than teacher ratings, although exceptions have been reported. Over-estimates are more likely
to be found if the self-assessments contribute to the student’s grade in a course (Boud & Falchikov, 1989).

The point is that schools must make time for training and help all stakeholders understand that the judicious use of self-assessment must augment other formative and summative tasks to effectively share in the collaboration of learning. And when teachers are asked why they consider self-assessment fruitful, they frequently claim that involving students in the assessment of their work, especially giving them opportunities to contribute to the criteria on which that work will be judged, increases student engagement in assessment tasks. (Ross, 2006) Students begin to believe in the process and those who perceive themselves to have been successful on the current task (i.e., who recognize it as a mastery experience) are more likely to believe that they will be successful in the future (Bandura, 1997).

Formative assessments that promote autonomy are already a built-in component of the International Baccalaureate assessment approach; personal projects and the extended essay, for example. In addition, more and more public schools, particularly in the United States, are experimenting with other new methods of student empowerment. This is apparent in the exponential growth of the Charter School movement where there is greater freedom to develop curriculum and to assess in an innovative manner. The Avenue School in Manhattan, for example has included assessment of their project oriented Mastery Program and like the International School of Stuttgart, they have adapted a Learning Management Platform that allows for electronic collaboration and formative assessment and collaborative feedback outside the classroom. From a student perspective, this ‘transparency’ allows them to participate in their own development and they like it, “when you are allowed to be responsible for your learning, you get a chance to actually learn and can do better.” (Drost, 2011, p. 102) Responses like this are heavily documented throughout many schools and this has given rise to increasing research on the value of frequent feedback, and variety of formative and self-assessment tasks.
Learning Management Systems: Transparency, Variety and Engagement

By 2005, the computer age had moved even further into the cloud and students, more than ever, were spending time on the world-wide-web. In addition, of the more than 21 million of teens going on-line, 78% (about 16 million students) said they used the Web at school. This translates to approximately 68% of all teens, up from 47% in 2000. Surveys also found that most teens believed that the Web helped them do better in school; 86% of teens, 88% of on-line teens. (North Central Regional Educational Lab, 2005). There was no longer any question that technology had, to paraphrase author Clayton Christensen in his book *Disrupting Class*, become a significantly disruptive innovation in education, “and when used appropriately, can help teachers collect data used to make informed decisions regarding instructional practices. When equipped with more accurate and timely information, teachers may adapt instruction in ways that promote student learning.” (Shirley, 2009)

Many schools began to turn to web-based Student Information Systems that have the ability to provide students and parents real-time access to student demographic information, student progress, grades, school information, course history, attendance and tardiness, class content and more (Pearson School Systems, 2012). Student information systems can help to open the lines of communication, and any meaningful communication between parents and schools can be a benefit (Garrow, 2009). Students immediately recognized the opportunity to collaborate with teachers instead of waiting for them to stingily reveal the contents of the formerly inaccessible grade-book. And they enjoyed the collaboration and how the accessible data provided real information for conversation “It makes me feel valued when you share your thoughts on how our learning is going, like it reaffirms what I’m doing and what you’re doing, because it isn’t one-sided, like you don’t get to just know what we’re thinking and we know nothing about your thinking . . . it keeps it real. Sometimes you say things like—the majority of you need work with conjugating a stem-changing verb and here’s what we’ll do to fix that—this is helpful because it shows me that I’m not the only one struggling and that you’re probably going to work on it in class.” (Drost, 2012, p. 112) Building confidence, as noted by Carol Dweck and others, comes from “keeping students focused on their
progress, even in the face of occasional setbacks. The goal of assessment for learning is not to eliminate failures, but rather to keep failure from becoming chronic and thus inevitable in the mind of the learner.” (Stiggins, 2007) Leanne Fried, an Australian researcher concurred noting that student engagement is an important contributor to school success, yet high school students routinely describe themselves as disengaged. Her study identified that factors that alter (increase) engagement is a key aspect of improving support for student achievement. She investigated students' perceptions of autonomy, teacher connection, and academic competence as predictors of changes in student engagement within the classroom from the start to the end of a course. The results from a cross-lagged model demonstrated that students who perceived their classrooms as allowing and encouraging their own autonomy in the first few weeks increased their engagement throughout the entire course, rather than the typical decline in engagement that was demonstrated by students in other classrooms. (Fried, 2012)

Student Information Systems provide greater access of learning data that only keeps students engaged in the process of their development, but is equally accessible to the teacher. And at the heart of the data was the notion that the students' role is to strive to understand what success looks like, to use feedback from each assessment to discover where they are now in relation to where they want to be, and to determine how to do better the next time (Stiggins, 2007). Now students had a choice in how they responded to curricular challenge because technology was finally providing the kind of feedback that Terence Crooks and D. Royce Sadler discussed in the late 80’s. Sadler clarified that the best feedback for students needs to be one that tells them what they are doing well, where they should be at, and some tips for improvement. Crooks went even further by determining that formative assessment must be an in-class process that also needs to be coupled with systematic feedback for students. (Crooks, 1988)

Autonomous evaluation of a variety of formative assessments was empowering students more than ever. However, the expansion of the learning environment invited the involvement of another important stakeholder, the parent. Initially, there was a fear that this development would strain the relationship between the authority of the teacher and
the family. Research is showing otherwise illustrating that student-centered transparent assessment, with clear and consistent communication home, has improved student summative performance.

Supporting Learning Relationships Between Key Stakeholders

The evolution in public schools in the United State illustrates an attempt to redefine assessment in the context of more 21st century curricula. Independent and International schools are feeling similar pressures from more corporate or global expectations. But all these schools also face external assessment pressure, be it the Regents, AP, SAT or of course, NCLB. International systems, such as the IB or Cambridge also feature external moderation and require both summative and formative assessment. But according to Doug Lemov in his recent book, Practice Perfect, both types of assessment can and must work together. For example Lemov believes that you can unlock creativity with appropriate repetition. He calls it ‘automacity” arguing that, “if you automate skills (you) free participants cognition to be more creative.” (Lemov, p. 40) He also cites the great basketball coach John Wooden who said that when it comes to practice “no error should go uncorrected…only correction, doing it over again right, trains people to succeed.” (Lemov, p. 52) Formative assessment ultimately needs to inspire as much as it corrects and if the balance is achieved, summative success is sure to follow. For in the end, assessment of all kinds is not about the numbers. Its about the human relationships and expectations that build an attitude of life-long learning that is increasingly necessary to be able to adapt in an ever developing global community.

Human relationships, in the educational context usually focuses on the teacher and the student. But increasingly, to borrow Hilary Clinton’s cliché, “it takes a village” and this has translated to increasing parental involvement in their child’s education. International Schools seem to have this involvement due to the community center nature of the school where a spouse who is not employed tends to stay near the cultural comfort of the schools international environment in a language they can understand. Independent schools have always worked with parents because of the notion of the tuition-paying client. But what is interesting to note that in the United States, public school parents were mandated to
become involved since included in the requirements of NCLB is the parent’s right to information about academic content. “Prior to the advent of student information systems, it was often up to the student to provide information to the parents about the details of school life, such as homework assignments. Today, the same parents who relied on fragmented, selectively edited explanations from the child can access this information, unabridged, on a daily basis from the SIS.” (Bird, 2006, p. 8)

For the first time, parents paying no tuition had a communicative advantage over independent or international school families although the international schools seem to be catching up. It is easy to see why in Ken Bird’s fascinating study of a public school in Westside Nebraska in 2006. There are countless other similar experiences throughout the world but for the purpose of this paper, Dr. Bird’s study will be the primary exemplar.

Even before in depth study of the affects on student academic performance, other ancillary benefits of a SIS were noticed such as improved attendance, decreasing discipline reports, and, instead of declining test scores that are common in schools with similar demographics, test scores were consistently above the national average and among the highest in the state of Nebraska. (Bird, 2006) One significant factor was the changing relationship between the adults in the educational equation. Parents and teachers were working together based on the same, simultaneous information. One middle school parent wrote to the district: “I want to share my excitement about PowerSchool. This tool is nothing short of revolutionary! The connectivity it affords parents with the teachers, with the assignments and curriculum, and with the individual progress of the student in ‘real-time’ is extraordinary.” (Bird, 2006 p. 4) Bird’s study also showed that regularly scheduled parent-teacher meetings had become more meaningful because parents were already caught up on the basic facts about their child’s progress. Discussions had begun to focus on furthering the child’s learning.

The research is growing conclusive that family involvement is essential in student performance and engagement. In a review of 66 studies, Nancy Berla and Ann Henderson (1994) reported that the family made critical contribution to student achievement from
the earliest childhood years through high school. Dr. Henderson also gathered a collection of studies (2002) that included a review of 51 studies all related to the benefits of family involvement. Many other researchers have also followed up with similar findings (Bal & Goc, 1999; Bird, 2006; Cotton, 1999; Epstein, 2004; Epstein & Sanders, 2006; Epstein, 2007; Furger, 2006; Lunenburg & Irby, 2002; Machen, Notar, & Wilson 2005; Stewart, 2008; Tonn, 2005). Another meta-analysis in 1999 by Xitao Chen and Michael Fan also determined that parent involvement had a positive effect on student achievement. Findings showed that the effect of parent involvement on student achievement was “noticeable and apparent,” with a positive impact on GPA. The one major caveat to all this was that parents generally become less involved as their children grow older for several reasons: schools are larger, the curriculum is more sophisticated, students’ have more teachers, parents of older students are more likely to be employed, and students are establishing some sense of separation and independence from their parents (Henderson & Mapp, 2002).

According to the Northwest Regional Educational Laboratory, effective parental involvement requires parents as partners in teaching and learning. Not only with their own children but with the other adults in the equation and, “developing partnerships with families requires “trust, respect, and willingness to compromise and, ultimately, to share power and responsibility” (Furger, 2006 p.3). And, there are other factors that influence parents’ motivations for involvement. “Parents are influenced by three variables: their sense of invitation from the school, teachers, and their own children; their perceptions of how effective their involvement will be; and their personal beliefs about how they should be involved” (Tonn, 2005, p. 30)

Partnership with the teachers seemed to be the initial challenge and schools were not particularly eager to “invite” them. This was certainly true in Westside where faculty had real concerns. To overcome them, the teachers were trained in PowerSchool in order to become efficient in creating, providing, and using the information. Eventually, Westside teachers found the technology easy to grasp. Westside High School Vice Principal Kent Kingston recalls, “The teachers quickly progressed from, ‘How do I use it?’ to ‘How did
I ever live without it?’” (Bird, 2006, p. 6). After overcoming their skepticism, teachers at Westside did have to coordinate the standardizing of their grading processes, because students’ grades became visible all the time, not just three times per year. Teachers also shared techniques on better communicating their expectations to students. Students have therefore gained a better understanding of what is expected of them and now take more responsibility for their own progress. (Bird, 2006)

Once the teachers saw how parents regarded the system—as a value-added service—they became much more excited about its timesaving benefits, and more consistent in sending grades and reports to parents. That the system was Web-based and cross-platform was also important to teachers as it made for easy access and a seamless transition process. Meetings were more effective and aside from the occasional exception, everyone recognized that “the system took away much of the guesswork in the equation...There is no more playing the teacher against the parents” (Hunt, 2008, p. 1) The primary caveat here, however, is that most systems rely on traditional or standard numerical assessments. This means that there is a bias in all of these studies towards upper grades. However, more and more systems are developing portfolio elements for younger students in where numerical grading is less utilized. This paper focused primarily on the Upper School (6-12) element due to the implementation plans of the International School of Stuttgart but it should be noted that development on a Lower School (K-5) system is well underway.

With more visible accountability for both students and teachers, more frequent and variable feedback, and increased engagement in the classroom, schools choosing to ignore the “disruptive innovation” of transparent assessment, do so at their peril. While research supports the contention that students who are involved in their own education perform better, the logic of it is clear. Too many schools are behind in this regard and given increasing pressure to provide performance in summative assessments all over the world, schools like the International School of Stuttgart must pursue self-assessment, formative assessment variety and they must include the student at the center of the learning journey.
The additional benefits of a Student Information System is the partnership with families, increasingly mentioned in school missions, but vastly underserved in most districts. Creating a community of learners working on the same set of data empowers the student, supports the process, and ultimately provides a significant value-added to the educational institution employing online collaboration and assessment transparency. In the end, this innovation will change a school culture from focusing on what teachers and parents demand, to what students need to be responsible lifelong learners in an ever-changing global society.

**CONCLUSION:**

My findings are that frequent and transparent assessment has proven to be a highly effective learning tool. Students find value in their autonomy and teachers find their classes to be more engaging which leads to greater mastery of learning that ultimately improves performance on summative assessments and greater relevance for character or personal development.

This is good news for those involved with systems that rely on external assessments but the challenge inherent to all of this is the evolving relationships between the student, the teacher and the family. Learning Management Systems both affect and reflect these changing relationships. The key is to evolve the type and frequency of assessment visible to all. If a school implements a LMS that relies on measuring traditional formative assessments, research shows that there will be improvement in summative results. Research also shows, however, that an LMS that expands or augments formative assessment to a more authentic assessment model that includes student self-assessment and autonomy will provide even greater performance results that will also support a culture of student-centered learning.
NEXT STEPS:
The next step for the International School of Stuttgart is to provide time for teachers to grow comfortable with the new LMS system. While this process is underway, applying different assessment techniques, particularly authentic and student self-assessment should be reviewed and discussed in the context with the current strategic emphasis on assessment understanding.

This will require delineating time and assigning leadership responsibility to a curriculum coordinator type position, a role that would lead the current Academic Council who have already established excellent assessment policies and expectations.

Next the school must train teachers and students on key elements of self-assessment through conversations and a collaborative development of the new LMS. Conversations with the students are essential here.

Train families as to the specific role they play in promoting student-centered learning prior to granting access to the LMS.

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