Analysis of Technology Innovation in the Classroom

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Overview

For this school year, Bendle Middle School required that all teachers create four quarterly assessments for their students to take at the end of each marking period. These quarterly assessments had to be MEAP-like by using released MEAP questions when possible, and had to be directly correlated with the curriculum being taught in the classroom and the state standards. It was required that each question be labeled with the state standard it was assessing, and that there was a constructed response portion to the exam. The technological and educational innovation I am reviewing is that it has been suggested that we use the computer program Microsoft Class Server, to host our quarterly exams on.

The Problem of Practice: A Need or an Opportunity

There are many needs being addressed by the above innovation. First, when reviewing the purpose of the quarterly exams, it will provide important information for administrators, teachers, and students in regards to what content matter and specific standards have and have not been met. This will be vital information for the teachers because they can use this information to restructure their curriculums, target certain students, and re-teach the certain standards that the class performed poorly in. Administrators will find what teachers are struggling with teaching certain standards, and could provide feedback, support, and advice to help them with this task. Students would be able to use this information to find out what topics they need to study in more depth before taking the MEAP. Secondly, using the Microsoft Class Server program will provide an easy method of collecting data for the administration and teachers at the school district. It will also automatically grade all of the multiple choice portions of the tests and (with an added script from another school district) will provide item analysis data by each standard.
The Setting

The teacher will need to create a quarterly exam using sample MEAP-like questions found on the Department of Education’s website, textbook publisher questions, or from the Assessment Connection software extension to the program. The teacher will then need to use a computer with the “Teacher Class Server” program installed to input all of the questions and answers. Lastly, the teacher would need to type in each standard for the questions (using the provided script), and would need to “assign” the quarterly to all of the students in the class. The learner in this assignment would need to take the exam using Class Server using his/her prior knowledge from the course. After taking the assignment, the student would be presented with a detailed report of the answers he or she got wrong. The learner in this case would need to note the areas that he or she struggled in, and use this information as a study guide before taking the MEAP test. The subject matter will be addressed in the test, and all graphs, charts, and images will need to be embedded within the questions. The requirements for this setting are that the teacher would need the teacher version of the software to design and assign the quarterly for the students to take. This software would also be used to gather the scores and item analysis after the students have taken the test. Students would all need a login and password to get into the system, and would need a computer/laptop to go to the Class Server website to take the test on.

Technology-Integrated Solution

The problem is that the district wants an efficient and accurate method to collect data that would provide information to help guide teaching and MEAP preparation practices. The use of Microsoft Class Server would serve as a solution to this problem because it would automatically grade the students’ multiple-choice questions, eliminate the use and cost of paper in the classroom for this task, and the data would be hosted on a server in which administration could easily use to access the information for all of the teachers in the district. With the additional script from the Eastern Upper Peninsula School District,
this would provide teachers and administrators item analysis data and create numerous graphs and reports of student performance information.

Microsoft’s Class Server application, and the quarterly reports generated by the software, will provide a meaningful educational opportunity because it addresses many of the 12 principles identified in Jere Brophy’s research. The first principle, “A supportive classroom environment”, is addressed through this project because if the quarterly exam is used as a pre and post test, teachers will be more in-touch with their students’ prior knowledge, which they can then use to connect and build on throughout the school year. Due to the rigorous nature of the project and the strict alignment of the standards to the tests, the principle, “opportunity to learn” is met because all of the time in the classroom will be spent on curriculum-based learning and higher level thinking to prepare the students to take the test. Since these quarterly exams are based on state standards, the principle, “curricular alignment” is obviously met because the teachers’ goal is to teach the content in a broad manner related to the standards so that students can apply the information and analyze graphs, charts, and diagrams to answer questions on the quarterly. If the quarterly is used as a pre-test, “learning orientations” will be established indirectly because students will be able to see what they will be learning throughout the course of each marking period, and what the learning expectations will be.

Students and teachers will be able to monitor their learning goals through the quarterly exams by viewing the students’ overall scores and the score breakdown by standard. Because there are four quarterly exams given throughout the school year, students’ learning goals and their progress with these goals can be easily monitored and addressed. Lastly, Brophy’s principle, “achievement expectations” is being met through this project because as the teachers receive the students’ scores on each quarterly, they will be encouraged to re-teach the content that each child struggled in and make sure that all of the students in the classroom are learning to their maximum ability by providing numerous enrichment opportunities, expanding resources used in the classroom, and raising expectations.
Due to the analysis and reflection of student scores, teachers will force themselves in the years to follow to adjust their own teaching to create more “coherent content”, provide more “thoughtful discourse”, provide more practice and application activities, and will more closely monitor student progress and implement interventions earlier to help improve student learning. Teachers will be able to use this information to evaluate their own teaching and assess what teaching techniques are working best to present the information to the students (i.e. hands-on, technology based, visual, auditory, etc.). These strategies will be enforced because teachers will naturally want to increase their student scores, and to do this, they will need to improve the students’ basic understanding of the content and their own thinking processes. The only Brophy principle that I cannot see a correlation with in regards to this Class Server project is the cooperative learning principle.

The logistics of this project are that the teachers will need about a year to develop their quarterly exams by gathering and researching good MEAP-like questions that cover their particular curriculum. The second year should be provided to allow time for teachers to input the exams into the Class Server Program and allow students to start taking the exams using the software. This tool will be used throughout each school year and students will take an exam for all of their subjects at the end of each marking period (four times a year). Due to Bendle Middle School’s participation in the Freedom to Learn program, students will use the laptops in the classroom that all have a wireless connection when taking the exams. Students will use the program to take the test, teachers will use the program to create the test and review the scores, administrators will use this program to review scores and parents will be able to log in to see their child’s scores on each of the tests.

The resources needed to initiate this project will be student access to computers, the Microsoft Class Server Program, an Internet connection, the script for item analysis installed (from Eastern UP School District), and training for teachers on how to use the Class Server program. Additional resources that are not required but would be helpful are: to provide training for teachers on how to write quarterly exams and how to write MEAP-like questions, install Assessment Connection expansion software to the
Class Server program on all teacher computers (provides sample MEAP-like questions organized by standard), and the use of Class Server for other activities in the classroom so that they can get comfortable with the program before taking the tests.

**Benefits of this Solution**

Bendle Middle School is in the early stages of implementing this program. Teachers have all created four quarterly exams for each of their curriculums, and students have spent the last school year taking these exams (some on paper and some online). Starting next year, all teachers will be required to put their tests into Class Server so that their students can take them online. The benefit I have found so far from this is that I know what my students are struggling in so that I can re-teach the information to them before they go on to the next grade. I can also find out what my students mainly understand which helps me to move quickly on to more topics that they are struggling with. I have found that I can target students by developing enrichment opportunities for those students who are struggling with a particular standard. It also provides me information about the ability level of a child. For example, if a child is failing my class, but scores at the top of the class for this assessment, I will know that the child is capable of the work and should be receiving a higher grade.

I have already begun to restructure my curriculum to focus on the state standards that are most difficult for my students, and change certain aspects of my lesson plans and pacing to best fit these needs. The evidence I have found is that by the end of the school year, my students performed better on these tests and when taking the “Terra Nova Standardized Test” my students told me that it was fairly easy due to the large amount of practice they had over the year. These students scored higher on this test than in most previous years. I also found that my students seem to have a better understanding of the purpose for learning the material in the first place, and seem to have more experience answering higher-level, MEAP-like questions.

I think that this program, if implemented correctly, would help most schools in the state of Michigan. Due to the reasons stated above, this would help them re-align their curriculums, find “holes”
in their programs, re-adjust their teaching strategies, and help students/parents prepare for the MEAP. Another school district, the Eastern Upper Peninsula (http://www.eup.k12.mi.us/eup/site/default.asp), has initiated this same program and also developed the script to use in Class Server for item analysis. They presented sample quarterly exams from their teachers and detailed reports of student/teacher scores at my school. They have found this information to be very useful and since using this, have also found their teachers are more effective in the ways they teach, and they have had an increase in their own MEAP scores.

**Implications**

From this project, I have learned that technology can be used as a quick, cheap, and easy method of assigning and grading a large number of tests on a large scale. This technology also allows instant feedback to students and can provide more detailed information than just the traditional final grade can provide. It also helps to provide detailed information for teachers, which is presented in an easy to read and analyze layout in the form of charts and graphs. Lastly, it provides a way for students to take the test in a simple, visually organized manner that is different from the traditional paper/pencil exam setting. I have also learned that because of this, in addition to the students’ basic respect of technology, students seem more motivated to complete the exam, and are more likely to spend extra time reading and thinking about the questions. Finally, I have also learned from this project that it is very important for a school district to provide adequate training on using the technology ahead of time so that teachers are ready, and all of their questions are answered prior to implementation.

Because my district is requiring it, I have already begun to implement this project in my own setting. Due to the very distinct sciences I teach throughout the school year, I have decided that I will give each quarterly exam at the start of the unit as a pre-test. This is not a requirement from my district but I feel that this will give me more information that can help guide my teaching throughout the school year. I may also encourage my school district to look at other learning management systems (LMS) that may work, in the event that my district runs out of funding, and are not able to continue paying for the
Class Server program license, or if some other issues are found later in the stages of implementation.

Some of the other computer programs I would like to suggest to my district are: Prentice Hall ExamView, Moodle, and Blackboard. These web applications might also be preferable because I have found a few negatives with the Class Server program. One negative is that there is no easy way to copy the questions into the program. Teachers at my school, including myself, have previously encountered difficulties taking the questions from various media types (.doc, .pdf, Prentice Hall ExamView tests, etc.) and copying them, along with their images, into the program. The only way to get around this is to work in the web editor of the software, and try to copy and paste the whole question into the program. The problem with this is that the file can easily become corrupted, and the scoring of some questions may be changed without notification which would affect the overall final student scores. Another disadvantage is that the program does not allow a way to individually print either the students’ responses or just the short answer responses; the only option is to print the entire test (which wastes about 5 pages of paper per student). Overall though, I do feel that the positives outweigh the negatives, in regards to using the Class Server program, at least for the present.