



Henry Ford Community College

Technology Investment Fund

Progress Summary

NAME OF PROJECT DIRECTOR		DEPARTMENT/DIVISION
Deborah Zopf		Math
CURRENT DATE	SEMESTER GRANT AWARDED	PROGRESS REPORT STATUS
Fall 2012	Winter 2011	[] Interim [X] Final

PROJECT DESCRIPTION: *A brief summary of the project.*

In this proposal, the Mathematics Division is responding to the call to integrate technology and learner-centered teaching strategies throughout mathematics classes in the teacher education programs (Ertmer, 2005; Parker, 1997) by developing a Teaching through Engagement, Active-learning, Collaboration, and High-technology (TEACH) classroom. This TEACH classroom will permit the use of technology used in K-8 classrooms such as smart boards and imaging capture systems to enhance pre-service teachers' learning of mathematics through the use of interactive teaching styles and technology for the purpose of teaching. The requested technology and classroom furniture will improve the learning and teaching environment and annually affect more than 1100 students and their full-time or part-time instructors. The goal of the classroom layout is to improve student learning by facilitating the evolution of professional learning communities allowing more collaboration and group work, enhancing opportunities for creative and critical thinking.

Improved use of technological tools such as a smart board, imaging capture system, and huddle boards will facilitate pre-service teachers' exposure to and use of this technology.

The use of Huddleboards supports active learning. Huddleboards allow students and the instructor to collaboratively develop solutions and ideas, document them on a class viewable medium, display them to the class, and capture them using the Copy Cam for future use.

Additionally, the use of a smart board and an imaging capture system allows lecture material to be recorded and saved for future use, such as for responding to students' questions, for beginning the next lecture from the previous stopping point, and/or for uploading the lecture to a website for student use.

Newer projector technology will improve presentation quality, especially with updated classroom lighting. Also, three projectors are necessary for use of the smart board and two additional viewing stations.

ITEMS PURCHASED: *Please indicate how you spent the funds allocated to you. Where are items purchased currently being used? (Attach separate sheet if necessary.)*

Please see attachment.

OUTCOMES EXPECTED: *What were the outcomes/goals expected from the project as listed in your original proposal?*

Please see attached.

PROJECT EVALUATION: *Please summarize how the project was evaluated and the result of that evaluation. What evidence do you have that the outcomes/goals were or were not met? Please include data collected--questionnaire results, etc. Were there any benefits you may not have expected? Any liabilities? Please share any strengths and weaknesses of the proposed project--your honesty will be of help to others.*

Please see attached.

ITEMS PURCHASED:

H-217 (or the College-assigned space) is to be outfitted with the following:

- Teacher work station and storage
- 5 sets of tables to enable collaboration among students
- 33 cachet chairs (to be paid with Divisional funds)
- Cabinets
- 1 ENO Interactive White Board
- All ENO support software, Extron equipment switcher, cables, and wall-mounting kits
- 1 Imaging Capture System (Copy Cam)
- 5 packages of 5 Huddleboards (2-sided markerboard, 32" x 42")
- 1 package 5 Huddleboards (markerboard/Photo display)
- Wall-mounted 96" rails for the Huddleboards
- Wall blocking for rail installation.
- 3 LCD projectors
- 2 projector screens
- 3 sets of security mounts and cabling
- 3 Markerboards (two 144" x 48" and one 288" x 48") (white)
- Electrical support (including updated lighting that will work with the projector system and floor-mounted outlets to bring power to the tables)
- Construction support for Huddleboards and Copy Cam

EXPECTED OUTCOMES

Objectives for teaching:

The proposed classroom design has been developed to provide projection of class work at three points of the room enabling students to interact with their peers, the instructor, and class materials. The smart board and two other projector/screen combinations allow students to see the material from all areas of the room. Proposed table placement allows the instructor to walk among the students to view their work, respond to questions, and guide their learning.

Objectives for learning:

As a result of this project students will:

Have greater opportunities to collaborate on mathematics explorations and problem solving

- Learn how to use classroom technology through the use of this technology for their learning:
 - Smart boards and imaging capture systems for presentation and preservation of class work

- Huddleboards for in-the-moment creation of mathematical work, efficient presentation and preservation of class work
- o Access data that instructors choose to capture from lecture and post on a website, make available for download, etc.

PROJECT EVALUATION:

The TEACH classroom was partially completed Fall 2011. At that time, the cabinets, projectors, data camera, and computer were installed. Tables and chairs were configured so that students sat in groups of eight. White boards and chalkboards were installed; huddle boards were available. Assessment of the project was delayed until the interactive white board (ENO board) and CopyCam were installed. This work was completed January 2012.

Eight mathematics instructors taught classes in H 217 during the Winter 2012 semester. All eight received surveys requesting feedback on the usefulness of the classroom. Four instructors submitted responses.

Room Arrangement

Respondents agreed that the room arrangement was conducive to an interactive teaching / learning environment with an average rating of 2 – agree for this question. Positive comments captured the usefulness for student engagement. One respondent found the arrangement “ideal for having students work in groups. Another remarked that the arrangement was “awesome for assigning groups of four to a problem.” A second positive aspect of the arrangement was ease of mobility among students. A third positive aspect was the mobility of the tables when alternative arrangements were necessary. Negative comments included behavior management issues. Respondents found that they had to adjust their management techniques and that some students were “chatty” at times when they should not be.

Writing Surfaces

Respondents were mixed about their preference of white and chalk boards in the room with an average rating 2.25. Two respondents noted that they prefer all white boards. One respondent noted that black boards were helpful for some types of work; however the white boards supported the use of color that supported visibility of some concepts. One challenge of the white boards was the inconsistent cleaning of the boards. One respondent noted that, “When boards are not cleaned well, work on them was not as visible as it should have been.”

Interactive White Board

Respondents conveyed that they did not use the interactive white board with an average rating of 4.75. Although one respondent used the board and found it “great for Jeopardy,” respondents noted that they needed more training time. A second concern was the time needed to get the board ready for use.

CopyCam

Respondents conveyed that they did not use the CopyCam with an average rating of 4.25. The respondent who did use the image capturing system found two issues: it was difficult to get the system running with eight minutes in between classes to get the system running and the system does not save images if there is a problem with the College network. Respondents noted that the short training period was insufficient.

Huddleboards

Respondents used the Huddleboards *sometimes* with an average response of 3.5. Two respondents used the boards frequently and two respondents did not use the boards. One respondent noted that the

boards were “great for sharing out work. When students work on them, I see them looking at their own work, critiquing, and editing.” Another respondent noted that the boards are “good for reporting back when students do group work.” One respondent noted that although interested, there needed to be some instruction about ways to use the boards.

Summary

The TEACH classroom was designed to encourage interactive teaching and learning. Instructors who engage in interactive methods reported that they used the white boards and Huddleboards for instruction. Instructors did not use the interactive white board and the copycam for the following reasons:

- Lack of instruction on how to use the equipment
- Lack of time to set up the equipment for a class session.

Along with the use of technology, instructors found the furnishings and room arrangement conducive to group work, circulating among students, and proximity to projected information.

Suggestions that might facilitate greater use of the technology are:

- Scheduling instructors who request the room or express interest in teaching with more interactive teaching/learning styles;
- Scheduling instructors to teach consecutive classes in the room to prevent the need to reboot the computer;
- Providing professional development on the use of the technology for teaching that goes well beyond the steps to turn on the equipment.
- Having instructors work in pairs or small groups to learn the technology and ways to incorporate the use of technology into their teaching.

The group of instructors who submitted this proposal would like to thank members of the TIF committee who supported this project and look forward to continued development of ways to use the equipment.

Mathematics Division
H-217 Technology Use Survey
Winter 2012

During the Winter 2011 semester, the Mathematics Division received a Technology Investment Fund Grant to create a TEACH classroom in H 217. The installation of the copy cam and the interactive features of the Eno board were not completed until January 2012. Because you are teaching in H 217, would you please take a few minutes to answer a few questions so that I am able to report to the TIF Committee the ways this room has enhanced teaching and learning?

For each statement, please indicate the level at which you agree or disagree with the statement. Please use the rating scale: 1 (strongly agree), 2 (agree), 3 (neither agree nor disagree), 4 (disagree), and 5 (strongly disagree).

Statement	Rating
<p>1. The TEACH classroom is furnished with tables arranged so that students sit in groups of 8. I found this room arrangement conducive to teaching.</p>	<p>1 (2) 2 (1) 3 4 (1) 5 average of 2</p>
<p>Comments on room arrangement:</p> <p>*room arrangement is ideal for having students work in groups, but it took some time to learn how to adjust my classroom management skills for students sitting with their back to me.</p> <p>*This is awesome for assigning groups of 4 to a problem and having them use the huddle boards to report out. One group was a little chatty but they were interacting in and out of class so overall learning was probably up for them too.</p> <p>*I found the room very usable. I could move around students easily. Students were close to any screen in the room when information was projected up. Group work was facilitated by the arrangement and the tables. Movable tables were great</p>	
<p>2. The TEACH classroom is equipped with white boards and chalk boards. I found having both kinds of board useful for teaching math classes.</p>	<p>1 (2) 2 3 (1) 4 (1) 5 average of 2.25</p>
<p>Comments on black boards and white boards:</p> <p>*I prefer all white boards, but they are not always cleaned well.</p> <p>*I like white boards.</p> <p>*For some work the black boards were helpful. The white boards were excellent when I used color to make ideas more visible. When the white boards are not cleaned well, work on them was not as visible as it should have been.</p>	
<p>3. The TEACH classroom is equipped with an interactive ENO board. I used this board: 1 often, 2 frequently, 3 sometimes, 4 rarely, 5 never</p>	<p>4 (1) 5 (3) Average 4.75</p>
<p>Comments on ENO board:</p> <p>*The short training that was provided was not enough for me to feel comfortable experimenting during my limited class time.</p> <p>*It's tough to boot with 8 minutes of passing time. The screen captures don't save if there is a network problem. It was great for Jeopardy.</p> <p>*I need more training to use it comfortably with students.</p>	

<p>4. The TEACH classroom is equipped with a copy cam which captures images on the ENO board. I used the copy cam: 1 often, 2 frequently, 3 sometimes, 4 rarely, 5 never</p>	<p>2 (1) 5 (3) Average 4.25</p>
<p>Comments on copy cam use:</p> <p>*It's tough to boot with 8 minutes of passing time. The screen captures don't save if there is a network problem. It was great for Jeopardy.</p> <p>*The short training that was provided was not enough for me to feel comfortable experimenting during my limited class time.</p>	
<p>5. The TEACH classroom is equipped with Huddleboards. I used the Huddleboards: 1 often, 2 frequently, 3 sometimes, 4 rarely, 5 never</p>	<p>2 (2), 5 (2) 3.5 average</p>
<p>Comments on the Huddleboards:</p> <p>*I'm not sure how to use the huddleboards in a productive and meaningful way. I am very interested in learning how others use them.</p> <p>*It is good for reporting back when students do group work.</p> <p>*These are great for sharing out work. When students work on them, I see them looking at their own work, critiquing, and editing.</p>	
<p>6. If you did not use any of the equipment in H 217, what might have encouraged you to do so?</p> <p>* I use the ELMO. The room arrangement is great; however, an essential part of the learning environment is to see the students' reaction while you are writing. This is almost impossible here. This I would change.</p> <p>*More training and suggestions for use.</p> <p>*We need more professional development. The person who provided the training instructed us on the process of turning on the ENO board and CopyCam. There was no instruction on use for instruction.</p>	
<p>7. Other comments on H 217</p> <p>*I am astounded at the technology in the room. I hope to learn more about the equipment.</p> <p>*It is nice not to have to zoom in as much on documents since everyone is close to a screen. More information can be displayed at the same time.</p> <p>*The room has allowed for more interactive teaching. It will be good to have the opportunity to work with other instructors to learn how to integrate the ENO board and CopyCam into our teaching.</p> <p>*Scheduling of teachers who are interested in using this technology and having these teachers be in the room for consecutive classes might help with time issues for setting up documents to be used with the ENO board.</p>	