Abstract

How can educators best meet the needs of students in a 1:1 laptop program? Will technological tools which are specifically designed for education be the most beneficial, or will adapting non-academic technological tools be the best solution? This article examines the process one high school took to integrate technology into the classroom using both academic and non-academic online programs.

Introduction

In the spring of 2007-2008, Edgecombe Early College High School (EECHS) shared Lenovo T-61 laptops with its entire student body which allowed the school an opportunity to address various concerns. Although one of the concerns was communication, a greater concern was how to integrate technologically centered lessons into each of their classroom settings. Three technological tools, Moodle, Ning, and Twitter, were used by the faculty, staff and student body, which have not only increased the ability of EECHS to communicate, but has also provided a medium for new literacy to be addressed.

New literacy can be loosely defined as increasing a person's store of information via computer-based mediums of communication. This includes reading news and correspondence online, as well as connecting with others through various online or digital tools (Leu, 2008). Teachers should identify, adapt, and integrate new technologies for use in the classroom. This is important in order to increase students' abilities to meaningfully interact with peers in a technological society.

Purpose

The general purpose of the adoption and adaptation of these technological tools was to examine the benefits of integrating technological tools specifically designed for education and those that were initially designed for other purposes. The technological
tool designed for education used was Moodle. The traditionally non-academic technological tools utilized were Ning and Twitter. Students were given the opportunity to engage with these technologies through classroom assignments designed to increase their level of technological literacy. Ning was accessible and used by the student body, faculty, and staff at EECHS while the use of Moodle and Twitter were restricted to one ninth grade AVID (Advancement Via Individual Determination) course.

**Controlling Question**

Will technological tools that students find familiar engage them more than traditional academic technological tools? This question will be answered by examining the quality and frequency of student interactions with particular technological tools. We believe that if a student does not engage with a technological tool, that technological tool was probably not meaningful for that student. Likewise, if a student engages with a technological tool but does not give quality responses, that technological tool may not have been meaningful as an educational tool.

**Summary of Applications Utilized**

Moodle, a course management system (CMS), was the technological tool selected to encourage students' engagement with traditionally academic online applications because it allows teachers and students to interact beyond the time constraints of the traditional school day (Cowan, 2007). This asynchronicity allows teachers to generate a collection of tasks that students can engage independently. Through the use of a CMS, students are able to work with a concept as long as they need in order to establish full mastery. As web based technologies become more accessible and more cost effective, colleges are utilizing more CMS based classes (Herman & Banister, 2007). Some colleges offer an introduction to online courses. However, without an introduction to CMS in high school, some students may be left unprepared for post secondary online courses.

The two tools chosen to represent traditionally non-academic technological tools were Ning and Twitter. These two technological tools are considered to be social networking tools. Many students’ learning styles may be addressed through social interactions. In light of the ability of new technologies to extend and enhance content based social interactions, students should be provided with the opportunity to learn from a technologically based social system whenever possible (Bai, 2003). The main goal of these tools is to bring groups of people together within a given social group, but these tools can be adopted and adapted beyond their original intent with creativity on the part of educational users.

Ning is a social networking web site that allows administrators to setup private networks where students may interact with each other in an advertisement-supported environment (Bianchini, 2008). The creator of the network may set various levels of privileges for each user. These privileges can include giving administrative rights to responsible individuals, banning irresponsible individuals, and blocking access to users.
who are not part of the school. Users can then elect to receive e-mail updates to forum posts, comments on their blog postings, and a wide variety of other occurrences on the website. This allows an individual instance of the Ning technology to be a central hub for public communications and evaluation.

Twitter is a method of instantly disseminating information to a select group of students. A service such as this is called a micro blog. That is, a blog that should not exceed a length of 140 characters. When one joins the Twitter service, he or she can subscribe to the blog postings of other users. This process is called following ("What is Twitter," 2008). Typically, Twitter is used for the same purpose as a traditional blog: Users log into their Twitter account, update their peers regarding daily events or important ideas, and check the updates of others.

With an instructional use of Twitter, teachers and staff can monitor students by following them, and can rapidly provide answers to questions. Students are then able to access the answers to those questions when they log in to their computers. Access to Twitter is persistent, meaning that students can examine a backlog of tweets (users' updates) to find answers to questions previously addressed.

**Trials with Individual Conclusions**

**Moodle**

*The controlling question.* Students need to be able to interact with academically based online applications in order to remain active learners. Since the controlling question is to compare academically focused with non-academically focused technologies, students were taught how to engage with Moodle. The students' assignments were graded and the results were recorded in the standard record book for the AVID class.

*Learning objectives / classroom goals.* Given that most students will be engaged in some kind of online course before they complete their college degrees, we believe that students should be able to engage in online learning in a scenario that is typical of most online courses. With this in mind, students in the ninth grade AVID course were taught how to engage in a Moodle course specifically designed to help them learn how to take an online course. The outline of the course was a four-week set of assignments that were designed to be completed during the school day. The students were offered two forms of after school support: in-person and digital support via e-mail with the instructor.

The technologically based learning objectives for this lesson were:

- The learner will demonstrate application of interacting with an online CMS with 100% accuracy by posting four assignments assigned and completed online.

- The learner will demonstrate comprehension of online material by meaningfully responding to articles online with 100% accuracy.
The controlling goals for this lesson were to increase students’ awareness of online CMS and to help the students learn how to engage in an online course.

**Methodology and results.** This Moodle course was designed with the concept of New Literacy in mind. In an effort to ascertain if ninth grade students participating in an AVID program were able to complete the work required for an online course, a Moodle course was configured and designed to give the students assignments that met the goals of a standard AVID curriculum.

The students were evaluated for this project on several criteria. First, did the student complete all the assignments? Second, did the student complete the assignment as it was given? Third, did the student give a cogent response? Assignments were given and explained in Moodle. In order to increase student's familiarity with online-only coursework, students were encouraged to interact with the instructor regarding the Moodle assignments through e-mail or chat. Twitter had not yet been introduced as a class tool at this time, so it was unavailable for questions regarding Moodle.

The assignments for this four-week Moodle course included two forum based interactions and two blog postings. The students were given instructions on how to login to Moodle and how to find the assignments. All further instructions were provided online in Moodle. Each of the assignments required the students to engage in forum-based discussions regarding the assignments, and asked the students to complete their forum postings in a thoughtful manner. Explicit instructions stated that students were not to repeat comments or to simply express that they agreed with a previous post.

In order to simulate the environment of a college level online course, the students were not given in-class reminders of assignments. Students were able to meet with the teacher during regular tutoring times if they had any questions. The students were also encouraged to ask the teacher questions via e-mail or some other electronic medium.

The first assignment was to read a post from the teacher and reply to that post in the forum regarding the practical application of learning about a learning system like Moodle. The students were encouraged to respond to posts from the teacher, as well as start new threads and respond to their peers' threads. The students were able to engage meaningful conversations regarding the purpose of Moodle, the benefits of learning about online courses, and how to complete online courses. Given that students were given privileges to start their own threads in the forum, several conversations began based upon extracurricular issues such as the presidential election.

The second assignment was to read a brief article about writing a web log (also known as a blog) for academic purposes. The students were to then write a well thought out response to the article and respond to a minimum of five posts from classmates. The purpose of this assignment was to give students an opportunity to engage in a meaningful dialog in a digital forum. The students also had the opportunity to provide input regarding the subsequent assignments. Students were able to engage in discussion regarding what guidelines could be used for blog posting. That is, what
subject should be accepted, what ideas should be addressed and how the blogs should be formatted. However, the students did not take advantage of this opportunity. The third and fourth assignments were blog entries to be written based on a theme and rubric established during the second lesson.

**Conclusion.** Students were able to engage in an online environment which simulated an authentic online course that they might take in college. Students engaged with the content, but did not show a high level of interest in keeping up with the assignments. With respect to student participation, the majority of students consistently participated. Even though all students were given the opportunity to work on the first assignment in class, 97% (38 out of 39) of the students participated in the first assignment. The following assignments showed a decrease in participation with 71% (27 out of 38) for the second assignment, and 74% (28 out of 38) of the students participating in the combined third and fourth assignments.

Although these participation percentages seem to indicate that students are unprepared to take an online course, there were some limiting factors to this initial assessment. Students were only able to access the Moodle server at specific times on specific days. Furthermore, students could not access Moodle off-campus. In addition, this data seems to suggest a Hawthorne effect; the idea that people naturally increase productivity when an environmental variable is adjusted, but return to the standard level of productivity after the environmental change has become the norm (Merrett, 2006).

Even though 71% of the students participated in the second assignment, none of the students correctly completed the assignment. No student suggested topics for blogs, nor did the students describe how a meaningful blog post would be constructed. The instructions for this assignment included writing at least two paragraphs in response to the article and to respond to five posts from peers. Many of the student responses to the article consisted of two to five sentences, indicating that either the students did not plan their responses in advance, or that the student did not fully understand the assignment. Several students did not respond directly to the article. Instead, these students wrote responses to the concept of an online course. The responses to the student postings were rare and usually restated the ideas of the original post.

The final two assignments were completed in a less rudimentary fashion, but there was some lack of student participation in the process. Most students completed two blog postings on a favorite subject. One student's post bore remarkable similarities to an online political blog, and several students attempted to fill their blog space with random letters and words. Several students refrained from writing any blog entries.

Overall, students were able to engage in the Moodle exercise, but it is unclear if they learned how to interact meaningfully with CMS software.

**Ning**
**Controlling question.** Social networks are prevalent in many students' lives. Knowing this, the staff at EECHS created their own social network through Ning as a way to showcase student work and increase collaboration among peers. Many students already engage in social networks, but will students engage in an academically focused social network in a meaningful way?

**Learning objectives / classroom goals.** The EECHS Ning was utilized by teachers in a variety of settings. Students were asked to post blog entries, videos and discussions to forward the learning of all. Postings and responses for these projects were not restricted to just the students in the class. All students enrolled at EECHS and faculty and staff had access to the EECHS Ning, including off-campus, and could rate videos and other media.

**Methodology and results.** EECHS is a fully integrated Early College. That is, the classes and staff are spread across the local Community College campus with no public address system or functional central message board to make announcements or schedule upcoming events. Laptops for all students allowed widespread communication to take place. A Wikipage was initially adopted as an effective means for students to communicate, however, some important messages became buried in the Wiki and not all students were able to see them without drilling down the Wiki. In the fall of 2008, a Ning was created to allow quick communication. It soon developed a life of its own.

The EECHS Ning began with one member, the creator/administrator. Within one week, over 80 students (out of a 125 student population) had created accounts and began to interact socially and academically. Three students were chosen to be the first co-administrators due to their proficiency with social networks. A chat board soon appeared and a daily AVID internet scavenger hunt quiz, created by the Technology Facilitator, was published for all members. As the staff became aware of the potential of this social networking tool, assignment blogs and forums joined the student generated content. Blogs regarding English texts accompanied rants about the upcoming election. Forums on study habits accompanied boards about battles between pop culture icons such as the "Captain Crunch vs. Tony the Tiger" forum posted on November 22, 2008 ("Captain Crunch"). In short, the EECHS Ning became an amalgamation of entertainment and academic content. Posts that consisted of self-made comedy videos, Chuck Norris jokes, and birthday party invitations, accompanied academic material and assignments. Teacher directed academic content such as rubric assessed essays and digital storytelling assignments are also common and allow students to express themselves academically.

The EECHS Ning's original purpose, communication, has not been lost among the massive amount of information generated by students and staff. Broadcasted messages delivered to individual email accounts, events boards, and private messages allowed EECHS to finally have an effective method of distributing messages to its disparate population.
The EECHS Ning became home to 119 members including students, faculty, district technology personnel, and a course developer for North Carolina State University's William and Ida Friday Institute for Educational Innovation. The EECHS Ning fulfilled its original purpose as a communications website and allowed students to interact in an environment free of the predatory dangers of public social networks. Teachers and staff embraced the EECHS Ning as a showcase of student work and a method of fostering student collaboration that reaches beyond the classroom walls. Since the fall of 2008, a collaborative effort for the 2008-2009 C-SPAN Studentcam (www.studentcam.org) competition was developed between an AVID class and the 11th grade students at another high school. This collaboration was achieved mainly through an exclusive Ning (www.thseechs.ning.com). The use of Ning in the public school setting has proven to be a very versatile tool for collaboration.

Conclusion. While the benefits outweigh the drawbacks, there are difficulties which have come to light and demanded the attention of the faculty and staff of EECHS. First, student, some teachers, and Ning administrators have different internal scales of appropriateness for approving messages, pictures, and videos on the EECHS Ning. Some staff and students find content suitable for a public school display while others find it offensive. It is important to provide clear ground rules about content and membership with all potential Ning administrators. Second, Ning administrators should be aware of the value students' attribute to a social network. A ban for inappropriate actions means that a member's page is deleted. This intended slap on the wrist can be perceived as a catastrophic event and may affect classroom performance. Administrators must be mindful of this before banning a student who spent 12 hours on the page's style and content.

Twitter

Controlling question. Students engage in abbreviated forms of communication through instant-messaging services. Will students benefit from being able to engage their peers in a similar manner through the use of a microblog? If students are able to quickly communicate and view the messages and responses of their peers and teachers, will they be able to more effectively communicate ideas and questions regarding academic topics?

Learning objectives / classroom goals. The learning objectives for the Twitter lessons were technologically focused. The learner will demonstrate application of Twittering with classmates by sending out a test tweet, a message sent to a select number of individuals, and by following the messages and responses of all classmates and teachers involved. The learner will demonstrate application of Twitter in class by utilizing Twitter to keep up to date with regards to commonly shared assignments.

Twitter was included as a part of the classroom in an effort to increase the student awareness and comprehension of homework assignments in all classes. The students were expected to remain academically based in their tweets and to not engage in chatting style messages.
Methodology and results. Twitter is used to communicate brief concepts to a targeted group of individuals. This concept is ideal in situations where students have a question regarding assignments or homework. The goals of this project were: To foster social interaction, to encourage peer tutoring and to increase student awareness of assignments.

In order to best configure this tool for the students, the teacher setup a step-by-step set of instruction for the students to follow. The innovative nature of the assignment was explained so that students that wanted to keep Twitter non-academic understood that Twitter was being allowed only because it was being used as an educational tool. If it was abused, it would be blocked. Knowing this, students were instructed to develop a set of rules for the governance of Twitter. The student expectations for the use of Twitter included: “#1 Be responsible. No playing around. #2 Be respectful to others on the site. #3 No goofing off. #4 No negative comments.” (“Twitter Rules”, 2008). Students were then given guidelines for creating their account. Neither anonymity nor ambiguity were acceptable options for this assignment, as one of the goals was to foster social interaction across the entire cohort. Once the students created their accounts, each student was instructed to install Twitterfox on their Firefox web browser. The Twitterfox add-on allowed students' to be instantly updated regarding school announcements upon opening their web browser.

Finally, students were required to follow the messages and responses of all of their peers, as well as the teacher. The first class of the day logged into Twitter, and joined others who were following the teacher. This list comprised all of the students from the first class. The second class followed the teacher as well as all of their classmates from the first and second classes. This continued through the day until finally the last class was able to follow the teacher as well as the entire cohort of AVID students. The next day, when the other classes were instructed to log in, they followed the totality of the cohort.

Using Twitter, students have been able to communicate effectively with each other and several staff members. The typical questions asked on Twitter are about upcoming homework assignments and portfolio entries. On two occasions, while the teacher was out of town, the students were able to ask questions regarding course materials. In fact, many content questions are answered by a student before the teacher has a chance to reply. Thus, Twitter has become a form of peer tutoring.

Overall, with respect to peer tutoring and academically based social interaction, Twitter has been successful. The students who need help are more than willing to use Twitter to get assistance. With regards to increasing student awareness of assignments, Twitter is less successful. Students who do not check Twitter regularly, possibly because they do not need academic help, have missed non-essential adjustments to assignments. Regarding the learning objectives for Twitter, students were able to easily send out a test tweet, and have followed each other readily since the inception of Twitter.
**Conclusion.** Twitter is an effective tool for classroom use as long as it is not the only form of peer tutoring, academic social interaction or dissemination of information. However, it does seem to cover gaps with respect to student inclusion. Twitter seems to have increased assignment completion and accountability for students who had previously stated that they were unaware of assignments. In the future, Twitter will be used as one tool of many to increase student accountability for assignments.

**Conclusions**

Students were able to engage in all technologically based projects regardless of whether those projects were centered on academically based online programs or on socially based online programs. Students were able to continually engage in Ning and Twitter technologies in a meaningful way. Projects resulted in high quality products that the students were able to reference in later projects.

Students utilized non-academic technological tools in academic settings, but required redirection to remain engaged. When students were given assignments to be completed on the EECHS Ning, they also engaged in non-academic tasks. They would complete their assignments and then add photos and modify their home pages. When students were given reminders through Twitter, they regularly checked their computers for updates.

**Future Research**

While there are benefits for students at EECH to be utilizing non-academic programs, are there benefits for all students to be using technologies such as Twitter and Ning? Do underachieving students see an increase in academic performance because they are able to utilize technology in a more familiar way? Are academically proficient students engaging lessons in a more intellectual manner?

Another research question regards the New Literacies. Do students benefit from an increase in technological literacy by regularly engaging in activities such as Ning and Twitter, or are those programs catering to an already abbreviated attention span and cognitive process? Finally, do students improve the quality of their work if they perceive the tool that they are using to be less academically based?

While these vignettes represent a trial portion of the semester, the programs will be an integral part of subsequent coursework for AVID. Students will be completing their homework assignments online through Moodle, and will have opportunities to engage in peer tutoring through Twitter and Ning. Video competitions will be peer judged through use of the EECHS Ning, and there will be another blog assignment where students are asked to prepare their thoughts before posting the material to the web.

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References


