STUDENTS NEED INNOVATIVE EDUCATIONAL TOOLS IN THE CLASSROOM NOW

By

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ABSTRACT

This paper addresses both the need and benefit of using technology in our K-12 and higher education settings. It also provides suggestions and samples for application of modern technology in schools. Teachers will be challenged to advance their lessons using technology that students are already familiar with and using in their personal lives. Finally, resources are provided for all levels and subjects.

Keywords: Technology, K-12, Research, Student Engagement, Special Education, Higher Education.

INTRODUCTION

K-12 students are independently out on the World Wide Web. They surf the Internet on *iPods/MP3s*, cell phones, computers, and webcams. They visit sites like *YouTube, Hulu, iTunes, MySpace,* and *Facebook* to watch movies, listen to music, and interact with peers. They make their way through this learning resource by exploring their access to the world purely for entertainment.

Why would these technologically savvy students want to sit still and listen to a lecture in a traditional classroom setting? Teachers have the same access to the same resources and can use these tools as vehicles for learning. To accomplish this, emphasis must be placed on critical consumption, academic rigor, and the relational aspects of online learning to maintain thoroughness of instruction and learning.

This modern approach to technology will empower educators to remain current in the multi-media learning trends that are now naturally being used outside the classroom. This article will discuss innovative approaches to create, utilize, and present quality lessons in both the K-12 and higher education settings through the use of video streaming, white board, discussions, audio/visual productions, and virtual classrooms.

Research to Practice in Technology

The use of technology has become a way of life in this new millennium. As professionals we must meet the challenges presented by the onslaught of technology, while also finding ways to enhance instruction through the use of technology. Technology should be viewed as a valuable tool that can enhance methods of instruction and prepare students for the future. When technology is woven throughout lessons, students will learn theory and research naturally while using the media they are already familiar with and utilize for entertainment.

The North Central Regional Education Laboratory (NCREL) cites research on the link between student achievement and the use of technology in the classroom (2005). NCREL reviewed research that relates the use of computer-based-instruction and improved student achievement for reading and math. Their research review also revealed a correlation between positive student attitudes and student engagement as-well-as improved grades, motivation, discipline, and writing skills (NCREL, 2005).

Research indicates that there are several benefits of using technology in the classroom (NSBA, 1993). Beyond the benefit of increased student achievement, students also have more positive attitudes, are motivated to learn, are well-behaved, are more cooperative, and more able to apply these skills to the work-world. Ultimately, students will go on as adults to the world of work and cooperative skills that apply to future employment are very important (NSBA, 1993).

Overall the use of technology positively benefits students and increases achievement.

A-synchronistic and Synchronistic Teaching & Learning Applications

There are many applications of technology that teachers can use to enhance learning and increase student achievement. Everything from computer-based-instruction, computer games, use of video, audio, media, PowerPoint, and White Boards to *iPods/MP3's* and Webcams can optimize learning and behavior in our modern classrooms. Below are several suggestions on how to increase the use of technology in K-12 and higher education classrooms.

White Boards

White board technology offers interactive learning to engage students, while inspiring teachers to create new and interesting lessons. At Smart Tech(http://smarttech.com/) teachers can review products and suggestions for how to use White Boards in all levels of the modern classroom. Teachers can easily access content, get technical support and effortlessly integrate technical products into their teaching using multi-media and interactive resources.

For example, K-12 teachers might use the whiteboard to create a diagram of a cell growth cycle. A slide show could be designed that builds the cycle in sequential steps adding each labeled component. Students can interact with the content by underlining, highlighting, or marking vital information for discussion for better understanding of the material. The information is then saved onto the whiteboard computer for review or lessons for those who were absent or who those who need more practice (Pershing, 2009).

Videos and Computer Games

Utilizing instructional videos and computer games as a part of math, science, social studies, or language lesson is a good way to implement real world technology advances into classroom education. Teachers can use *XBOX, Playstation, Wii, Game Cube, Nintendo, Sony PSP and Game Boy* as a vehicle to deliver information and create practice to mastery lessons.

Instructional video can be accessed at educational sites like Math Playground (www.mathplayground.com) and used in the classroom or as homework assignments that can be retrieved from home. These instructional video should be accompanied by the written word and not replace the written word. Educational "research" experts assert that information delivered in more than one way will strengthen the understanding of the material (Patton, 2002).

Historically, these popular games allowed one person to play a game such as *Packman* alone in their living room but modern games have expanded into interactive games that people play with others simultaneously or at different times and locations all over the world. The games appear as simulations, scenarios, or short stories that present a goal or challenge. The game user has adequate control to help determine outcome. The games present unknown or unforeseen events are built around a fantasy or mystery and offer an intriguing way to engage students in coursework through the use of technology.

The same parameters can be brought into the classroom by introducing computer games as an action-packed medium to practice math skills like algebra, geometry, money, and percents. A basic algebraic operations lesson could entail the teacher's direct instruction of algebra followed by individual or group practice using the challenging game, *Algebraic Reasoning*, to gain mastery of the math skill. Students can then be directed to view a corresponding algebraic video, *How to do Almost Anything in Math*, to help cement the information (Math Playground, 2009). These ideas can be taken globally by partnering with other schools for lessons or competitions.

Media Streaming

Streaming video into course work through computer learning platforms like Bb, and iPod/MP3 download is an excellent way to convey information on almost any subject. For example an internet search of nearly every state resulted in video-streamed material that K-12 teachers could use in lesson planning. A class that is studying Alaska and glaciers for example could access

this video-streamed segment http://alaska.org/glaciers/glaciers.htm during a social studies lesson. (Alaska.org, 2009). Teachers should search the internet for media that supports their content and keep a file of appropriate media to stream into lessons to support student learning.

Power Point Presentations

Power Point presentations can be developed with audio and/or video components inserted into specific slides to add dialogue and expand interest to the bullet points. An effective approach is to design the visual portion of the slide and add audio or video to expand on the content or to ask questions about content and steer the student toward higher level thinking. Basic skills can be developed through creative lessons that are layered with visual and audio components that are important for learning (Beskeen, 1997).

The use of photographs insures that PowerPoint presentations are interesting. Inserting *video* adds layering of visual information within a simple presentation. This can be done at most computers utilizing a headset/microphone set. Click here for an example of a Power Point that can be used to enhance the presentation of a math concept utilizing the integration of reading and math in a visual format. As you view this presentation, you may notice a speaker icon on the bottom center portion of the pages. By clicking on the icon, you will hear additional information on the topic page. (This may take a minute to load. Be sure you have your speakers turned up.) The use of photographs and audio makes a PowerPoint interesting.

Virtual Classrooms, Chat Rooms, IM

Virtual classrooms, chat rooms, and instant messaging all provide an opportunity for students to meet simultaneously online. Young people today visit social networking sites daily as part of their regular routine. This platform could easily be integrated into classroom learning for the K-12 student.

These formats may all be hosted by learning platforms such as *Blackboard* (Bb) allowing students to meet in small groups at specific designated times. These systems support student interactions using instant message, writing on the whiteboard, and voice activated interactions. Students can also have access to teachers in "real-time" and get immediate responses. Several instructors or an individual instructor may meet together with students to answer questions about content or course procedures. This concept can be taken globally by adding guest speakers and/or guest experts may join the class and bring real world experiences to the class. This technology also offers students a forum for brainstorming with others.

A K-12 teacher, for example, could introduce a map lesson and the class could meet in the virtual classroom to engage in a map review using instant message and verbal dialogue to label regions. They could drag clip art pictures which have been copied and pasted into the whiteboard notebook section to depict a map of the city, state, or the United States, or the world. The sessions can be recorded for review or to save information for absent students or those needing practice (Yoon, 2007).

Documentary Film

Documentaries are educational video based on real life situations and stimulate discussion on specific topics. The following is an example of an ethnographic research based documentary film called *Waking Up With Jack*. This is the story of how a family deals with Down syndrome and all the things that go along with it. This offers students a chance to view Down syndrome from a perspective that most will seldom if ever have the chance to do. *Normal People Scare Me* is a documentary film directed by Taylor Cross who has Asperger's. It is another example of a documentary film that can be used to enhance lessons in the K-12 setting that deal with social issues.

The combination of documentary film and instructional video is a reliable approach to visual delivery of educational content. Sneed asserts that using a research-based approach, including audience awareness, instructional content, and quality of delivery of information are all important components of the science of instructional educational film (1991). Using the appropriate documentary film that is in alignment with

the course content can enhance student learning. The K-12 teacher could design an earth science lesson around a nature documentary film based on the *vanishing lions* in the jungle (Educational Broadcasting Network, 2009).

Docu-drama

Docu-drama (documentary film with reconstructed dramatic elements), is another vehicle to deliver content and research information needed to advance high-quality practice in the classroom to enhance student learning. Some examples of these films are also classified as "based on a true story" by Internet Movie Data Base (IMDB - http://www.imdb.com/).

For example - The Other Sister starring Juliette Lewis directed by Garry Marshall, in 1999 is a docu-drama about a mentally retarded girl who proves she is every bit as capable as her "perfect" sister when she moves into an apartment and begins going to college (IMDB, 2007).

Another example - *Riding the Bus with my Sister* starring Rosie O'Donnell and directed by Anjelica Huston in 2005 is based on true characters and is about a sibling relationship between a sister who is mentally retarded and one who is not. You can view a clip of this movie courtesy of Youtube.com (IMDB, 2007).

An award winning docu-drama, *Door to Door* starring William H. Macy and directed by Steven Schachter in 2002 is a movie based on a true story about a door to door salesman with Cerebral Palsy. Docu-drama is an excellent avenue to relate pertinent information to students and can be used to support lessons in both K-12 and higher education (IMDB, 2007).

iPod/MP3

K-12 Students already love and use iPod/MP3 technology. It makes sense to teach with the media and technical tools they are already using. Many students have the capability to create digital content and do web research on their classroom and home computer utilizing the iPod. Learning has become mobile through the use of Podcast technology.

iPod & MP3 technology provide the means for K-12 teachers to collaborate with each other and their students at any given time. Teachers can implement mobile learning by creating digital content to be downloaded into *iPod*. They can easily create and distribute digital lectures, lessons, and reference information into engaging podcasts that are easy for students to access and use. Podcasts can be posted directly onto a school's server or the *iTunes* podcast directory for easy access.

The *iPod* allows students to download and listen to or view all types of media and the *iPod Touch* lets students to discuss content via chats and blogs, email, and networks. This technology gives students access to content twenty four hours a day, 7 days a week expanding learning time beyond the face-to-face classroom.

The purpose of downloading course content using *iTunes U* is to add yet another dimension to the online learning experience. This new element allows portability to student's studies. Click to experience an example of an audio podcast.

A vodcast is a video that can be downloaded and viewed on an *iPod*. This makes both audio and video information portable. K-12 schools, colleges and universities now have an easy way to create and distribute content throughout their educational institution.

Several universities currently utilizing *iTunes U* are Stanford, Duke, Brown U, and the University of Michigan at Ann Arbor's dental school. These institutions take the use of technology beyond K-12 to higher education as they are distributing course related content using the *i-Pod* technology and *iTunes U*. According to *Apple* they share common goals with education that advance teaching, learning, and research through innovation, and engage and empower students (Lederman, 2005). Current students who grew up using technology during their adolescence and high school years expect a campus environment that will accommodate their digital lifestyle. Utilization of the Podcast technology appears to adapt to students' individual learning needs, and encourages collaboration and teamwork between instructors and students. This technology offers a powerful way to manage a broad range of audio or video content while making it available quickly and easily to students, faculty,

and staff. Technology experts assert,

Web cam

Webcams are affordable and easy to use. Students in both higher education and K-12 benefit from the availability of IM, conference, and face to face access between students and teachers with immediate response. In the k-12 setting, several teachers or an individual teacher may meet together with students to answer questions about content or course procedures. Guest speakers may join the class and real world experiences may be exchanged. The technology offers students a forum for brainstorming with others.

Websites

There are numerous Websites available on virtually every academic subject. Teachers need to be critical consumers of these websites and spend some time investigating sites prior to sharing them with their students. They also need to teach students to be critical consumers of information available on the web. However after in-depth analysis has been completed, there is a great deal of valuable information available to support academic subjects.

Additionally - some popular websites that are available and very easy to use are http://www.myspace.com, http://www.youtube.com and http://www.facebook.com and http://spacebook.com. *Myspace.com* advertises easy contact for friends, a place to share information, jpegs & videos. *Youtube.com* is a place for free video posting, viewing, & has a rating system. *Facebook.com* is a network through universities to locate, contact, & share information and jpegs. *Space book.com* is a meeting and shopping place for friends. The application of these sites could be expanded by a K-12 teacher who might design a lesson and share academic interactions on any subject from language arts to math using a platform familiar to students.

A word of caution needs to be given here. Children need to be protected as they venture into the world of websites. Not everything available on the web is appropriate for children. Teachers and parents must be sure to supervise children as they surf the web.

Phone Computer Communication Links

Computer technology can be used to advance communication through phone to phone through sites like www.skype.com . Webcams add a visual component to Skype calls allowing interactive discussion on any given subject to students who are at a distance or in any other location.

Technology for Teacher Training

Teachers will find that at www.aslpro.com , a site free to teachers is helpful in creating and personalizing a math quiz for their students. This site also provides a math lab for students.

Technology can also be used to advance teacher skills and knowledge. Click on the following example to view an instructor using a modified lecture format to demonstrate specific pieces of assistive technology.

Entertaining Instructional Videos help to engage students while instructing and are specifically designed to be entertaining while instructional. Click on The Book Walk as Dr. Hope presents an example of how to integrate math and language arts in K-12 Classes. She models how teachers can motivate reading by using a book walk to introduce several books to a class.

With permission from the author or the publisher, streamed video can be viewed by teachers on their computers and iPods. For example, with permission, Marilyn Friend's *The Power of Two* video could be used to provide teacher in-service or for lessons in higher education teacher preparation programs. Instructors may also produce their own products to be used in the virtual classroom.

Conclusion

Technology is advancing at an ever-increasing rate and utilizing technology to enhance learning is crucial for teachers in both the K-12 and higher education settings to creating lessons that are rigorous and engaging. Tony Wagner, in his book *The Global Achievement Gap (2008),* suggests that schools are obsolete and that one thing teachers need to do is take a look at how young people use technology to learn. Lessons that engage modern students and increase student achievement incorporate available technology to enhance learning, motivate

students, and augment teacher skill and knowledge levels. Teachers need to challenge themselves to remain current with advances in technology and utilize it to create engaging lessons, prepare students for the future, and eliminate that global achievement gap!

Resources

Alaska.org http://alaska.org/glaciers.htm

Aslpro http://www.aslpro.com

Apple http://www.apple.com

Facebook http://www.facebook.com

Frappr http://www.frappr.com and http://www.frappr.com/regentuniversity

Hulu http://www.hulu.com

iTunes http://www.itunesu.com and http://www.regent.edu/itunesu public

Internet Movie Data Base http://imdb.com

Jaschik, S. October 17, 2005, iTunesU Click.sync.Learn, Retrieved from http://www.apple.com/education/solutions/itunes_u/profiles/umich.html

Smart Tech http://smarttech.co

Micro soft http://microsoft.com

MySpace http://www.myspace.com

Nintendo http://www.nintendo.com

Sony http://sony.com

Skype http://www.skype.com

Spacebook https://www.spacebook.com

YouTube https://www.youtube.com

Wii http://www.wii.com

Wiki http://www.wiki.com

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