

INTERACTIVE CLASSROOM TECHNOLOGY: ADDING A BENEFIT TO THE TRADITIONAL CLASSROOM

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ABSTRACT

Abseil has a long history of evaluating new technologies for enhancing learning. Initially this focus was on simulations and experiential exercises used in class-use. Later ABSEL recognized the needs for broadening our sphere of evaluations and included online teaching. This provides ABSEL as a key location and central repository for information on ways to enhance student learning through the proper integration of technology. Unfortunately this provides an incomplete view of the potential for technology uses in student learning as it ignores the possibility of using technology as a means for enhanced communication within the classroom. This paper evaluates the current state of research regarding technology enhanced learning with a focus on filling in the apparent gap in in-class technology-enhanced communication.

CLASSROOMS

The traditional classroom environment of one-way communication is slowly disappearing. A quick review of the BKL shows a steady acceptance that the old “sage on the stage” and “chalk and talk” method of instruction are no longer the most efficient forms of instruction. Our expectations for teaching and learning evolve at the same rate as technology evolves. WebPages, email, social networking, are all technologies that changed accepted means of communication.

Figure 1 shows a framework for evaluating the differing method for class communication. A quick review of Figure 1 shows that possibility of using technology to enhance communication in the learning environment for 3 of the possible 4 possibilities. The BKL is curiously silent on one of the potential communication methods in spite of the distinct position of ABSEL to evaluate learning related technologies.

ONE-WAY /IN-CLASS COMMUNICATION

The traditional method of classroom instruction is inherently one-way. The instructor tells the student what to learn. Technological use in the classroom reflects that method through the use of PowerPoint and videos. Though the instructor can illicit questions and discussions in class (potentially providing for two way communication), the technology is used to facilitate the transfer of knowledge from learned to learner but not used for two-way communication.

A special note about simulations and technology-enhance experiential exercises is necessary as they may fall under multiple headings depending on the method of distribution. Simulations and experiential exercises provide instructors a means to utilize technology to display real world scenarios. These activities have been shown to enhance student learning and increase communication between students, but do nothing to facilitate communication between the instructor and students in the class.

ONE-WAY /OUTSIDE-CLASS COMMUNICATION

One of the benefits of recent technological advances is the multiple uses of technology for different communication methods. Anything that can be used as one-way communication in the classroom can be made available for access outside of class. PowerPoint, videos and document files are all examples of technology enhanced communication that can be provided via the internet to students outside of class. This technology is continuing to change making outside-class communication easier and more available. Thus websites are becoming less static (one-way) and more dynamic (two-way).

TWO-WAY /OUTSIDE-CLASS COMMUNICATION

Technology enhanced two-way communication is as old as the telephone. The internet allows communication to

**Technology-Enhanced Means of Class Communication Research found in the BKL
Figure 1**

	In-class	Outside-Class
1- WAY	PowerPoint Presentation Youtube Videos Simulations?	Webpage Simulations
2-WAY	?	Discussion Board Email

expand such that conversations and entire courses can occur online. Tools such as email, discussion boards and chat rooms provide the means to converse without the need for face-to-face meetings. This technology is perhaps one of the fastest growing and greatest benefits to the introduction of the internet. Instantaneous communication regardless of geographic distance receives (and rightly so) a large amount of focus as we plan for the future of education.

TWO-WAY /IN-CLASS COMMUNICATION

The final category of technology enhanced communication is that of two-way communication in the classroom. This is an area of research that has received little attention in the research literature. In this category, technology is used to facilitate communication between instructor and student while in the class-room. This may seem unnecessary in a face-to-face environment where the instructor is available to respond immediately. But there are some inherent issues that may exist in the formal classroom.

Some students may be overly shy or unwilling to voice questions. Other times, the classroom discussion may move beyond a certain point and become impractical to backtrack to cover questions or ideas raised by students. Perhaps in the course of answering one question the student forgets another question. Students may bend towards peer pressure and fail to voice their own ideas or thoughts. These are all concerns that are often voiced by instructors in questing to enhance student involvement. Now we have an answer.

Technology is now available that provides for communication with the instructor while in class. Depending on the means of integration, it provides an anonymous outlet for students to voice or reply to questions without risk and encourage constant in-class interaction.

There are numerous products in the market with two popular choices being: Senteo Interactive Response (SMART Response) and Texas Instruments Navigator. All of these have slightly different requirements and perform slightly differently. Senteo Interactive Response is a remote or “clicker” that allows instant response from students. This allows educators to test students and even record test scores. The remote allows for an anonymous mode which allows students to answer without fear of responding to any type of

question. This allows the educator to see how students answer questions instantly. It allows students to answer questions in various modes: true/false, multiple choice, numerically and multiple answers. The clicker works with regular batteries and with software that is loaded into a computer. Educators can create their own questions or choose from test banks. (SMART Technologies, 2009)

The Texas Instruments Navigator works with certain graphing calculators. The software works with the educator’s computer and wirelessly connects with the “hub.” The hub connects four students graphing calculators and answers to various question types are reported back to the educator’s computer. This allows students to perform graphing equations and other mathematical questions to be reported back to the educator. (Texas Instruments, 2009)

A third technology was presented at the 2009 ABSEL conference. In this instance, the instructor used an interactive website where students, in the classroom, log-in to an instant message type system. All participants can text questions or ideas to the instructor at any time. These are collected and made available in real-time to the instructor who can then address the texts as necessary. This provides advantages compared to the ‘clickers’ previously noted as it provides for full text questions instead of simple responses asked by the instructor.

Greve at Oklahoma: This technology is mainly being focused at primary education. This powerful tool needs to be utilized more in higher education. The features, especially the anonymous feature, would be extremely beneficial to older students. In classes that exceed one hundred students, this type of instant feedback would be valuable information. This allows professors to see how well a large number of students perform in an instant. They would be able to steer their lectures to meet the classes needs and measure what pace they should move at. This technology seems to be a powerful tool and could possibly be seen one day in every college setting.