Top 10 Technologies for Designing 21st Century Instruction

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ABSTRACT

Faculties at all levels of education continue to ask, “How does technology fit into my teaching?” How can I teach my students to become technologically literate?” For some, the answers seem quite simple. Technology should be integrated into as many levels of the curriculum as possible. If we aspire to prepare students for the future, teachers must seize every opportunity to infuse the technologies their students will be using whenever possible. The key is to know what works best in each classroom situation. Podcasting, interactive whiteboards, blogs, wikis, social networking, virtual classrooms, and others are the latest in instructional technologies. Teachers use these tools to address the growing inventory of requisite 21st century skills that include: global awareness, self-directed learning, ICT literacy, problem solving skills, time management and personal responsibility, lifelong learning, financial, economic, business and entrepreneurial literacies, communications, collaboration, and more. This article explores best practices that lead to change and shares ideas about the use of these tools in the classroom. Emphasis is placed on many real-world examples of how technology has improved teaching and learning. This information paper will examine the hardware and software aspects of the following technologies: interactive white boards, web cameras, videoconferencing, iPods, digital cameras, digital video, wikis and blogs, social networking, digital electronic books, and student response systems. While the paper is not a scholarly endeavor, it is hoped that the review of important teaching and learning tools will provide the reader with an update on the latest in instructional technologies for the classroom. In addition to an introduction that includes a description of the technology, its primary features, advantages and disadvantages, there are links to online videos demonstrating each technology that bear witness to how these technologies actually impact the classroom. Finally, a link to current research pertaining to each technology is offered.

Keywords: Digital Curriculum, ICT literacy, Information and Communication Technology, Self-Directed Learning, Teaching with Technology, Technology

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1. INTERACTIVE WHITEBOARD

- **Description:** Interactive whiteboards are used in many schools as replacements for traditional whiteboards or flipcharts. They mirror a computer’s desktop to more visually demonstrate educational software, web sites, and DVDs, and more to classroom students. In addition, interactive whiteboards allow teachers to record their instruction and post the material for review at a later time. Interactive whiteboards can be a very effective instructional strategy for students who benefit from repetition or who need to see the material repeatedly to reinforce learning. They are also valuable for students who are absent from school, struggling learners, or need an additional tool to prepare for examinations.

- **Features of Interactive Whiteboards:** A combination of hardware and software empowers the whiteboard to convert hand-written notes into digital text. It provides a gallery of images and templates to assist in presenting material. Included in the software of most intelligent whiteboards are tools to save a recording of all actions on the screen, for creating notes over video, changing settings on the fly, control the projector and computer or other input/output devices, and to perform diagnostics and troubleshooting applications. (Smart Technologies, 2010).

- **Advantages:** Interactive whiteboards allow learners to absorb information more easily. They foster participation in group discussions by freeing students (and teachers) from note taking, allowing learners to work collaboratively around a shared task/work area. When used to test understanding, whiteboards can provide learner feedback rapidly and efficiently.

- **Disadvantages:** Interactive whiteboards can be more expensive than projector/screen combinations. Their surface is easily damaged by scratches or using improper markers and replacements are expensive. Front projection boards can be obscured if not raised to a proper height; unfortunately, this sometimes raises the board beyond the writing height of the teacher. Fixed height boards are often too high to reach the top or too low for their bottom to be readily visible.

- **Video Demonstration:** [http://www.youtube.com/watch?v=Bzqg1OAnZZM&feature=related](http://www.youtube.com/watch?v=Bzqg1OAnZZM&feature=related)

- **Learn More About Interactive Whiteboard and Classroom Research:** Read case studies, school profiles, and white papers at: [http://www.teq.com/case-studies](http://www.teq.com/case-studies)

2. WEB CAMERAS (WEBCAMS)

- **Description:** A webcam, or web camera, is the freely used term for any camera that generates images accessed by or displayed on the World Wide Web. A webcam is essentially a digital camera connected to a computer, either directly or wirelessly, that gathers a series of images for remote display elsewhere. Webcam technology is widely used by teachers and students for a variety of different reasons (Figure 1).

Webcam sites allow users to upload and store their webcam images (often without cost). They vary in their capabilities and features, and these variances are reflected in price.
Student Success in a University Introductory Networks and Telecommunications Course: Contributing Factors
www.igi-global.com/article/student-success-university-introductory-networks/2365?camid=4v1a