

Chapter 26

The Best Edtech of 2007: Promising Features and Design Models

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ABSTRACT

As part of a larger project for the NASA-sponsored Classroom of the Future to benchmark the effectiveness of educational technologies, researchers used multiple data sources to develop a list of exemplars and delineate common design features. The exemplars included promising educational technologies, tools, websites, resources, software, and hardware. Each exemplar was placed into one of six categories: knowledge and comprehension tools, interactive technologies and problem-solving tools, product-creation tools, efficiency and productivity tools, communication and collaboration tools, and technology tutors. The features of each exemplar were described, and a set of common design principles for that category was developed.

INTRODUCTION

Emerging technologies present enormous potential for improved teaching and learning as schools and universities worldwide embrace and use the new media. The growth of multimedia and digital information and communication technologies has revolutionized the opportunity to learn. We are on the cusp of a new era that will see the ability for information, audio, and video to be accessed nearly anytime and anywhere in the world. Users expect

their media to be cross-platform and available for consumption on a variety of devices. Social networks, especially among young people, are expansive, immediate, and important. Information is consumed in nuggets, much like fast food, and shared virally—sometimes reaching millions of consumers within minutes of release.

As educators we must look forward—testing promising developments—while holding on to the established best practices of the past. We must integrate the new and the old using a thoughtful, principle-driven approach. The continuum of opinion on how to do so is broad. At one end is the desire

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of the early adopter to “try it out.” The advantage to this approach is that the novelty alone increases student motivation (Clark & Sugrue, 1991). The disadvantage is the inefficient use of class time during the trial and error process and the need to maintain motivation through novelty. At the other end of the continuum is the desire, sometimes imposed by the administration, to use only research-based tools, techniques, and approaches. The advantage here is in using proven methodologies. The disadvantage is that such methodologies might be disconnected by more than a few years from the most current educational environments and constraints.

In our approach to this study, we accommodated both ends of the continuum. With a futuristic perspective we developed a list of exemplary educational technologies from 2007 that had promise for improved teaching and learning in the coming five to ten years. With an eye toward integrating existing best practice, we derived the common *design principles* from these exemplars.

METHOD

Data Sources

We derived the items on the list of exemplars from three sources: comments from interviews of educational technology leaders, articles from trade journals, and expertise derived in house. The interview process with the educational technology leaders is described elsewhere in this special issue. These leaders, or *pacesetters*, were chosen from a multitude of regions in the United States and represented the forefront of the newest national or regional initiatives in educational technology. Pacesetters included staff from the U.S. Department of Education, program officers for federal and state educational technology initiatives, grant awardees, professional organizations, futurists, gaming and simulation experts, journal editors, and university professors. As research subjects,

their identities are not disclosed here. The trade journals were from the United States and included *Campus Technology Magazine*, *Converge*, *Education World*®, *Edutopia*, *eLearn Magazine*, *eSchool News*, *Innovate*, *T.H.E. (Technological Horizons in Education)*, and *Technology and Learning*. Our in-house expertise from the NASA-sponsored Classroom of the Future™ included a team of educators, researchers, instructional designers, programmers, multimedia producers, technology specialists and subject matter experts.

Procedure

As in other studies in this special issue, we defined educational technology as *a device or system that makes use of digital media to enhance the teaching and learning process*. Here is the procedure our team used, with a detailed description following:

1. Draft an initial list of exemplary technologies.
2. Elicit comments from pacesetters on the list. Revise list.
3. Examine trade journals from 2007. Revise list.
4. Finalize the list.
5. Categorize exemplars into six categories.
6. Conduct background research on each exemplar.
7. Examine features and derive design principles for each category.

Initial List of Exemplary Technologies

Our first step was to use the combined expertise of more than a dozen Classroom of the Future™ team members to generate an initial list of wide-ranging educational technologies. The list was to be used in the pacesetter interviews. Members were asked to identify assorted technologies that they have seen, experienced, or heard about that they considered powerful educational tools or

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