Utilizing SMARTBoards to Enhance Technology Integration in University Classrooms

Abstract

This paper presents the preliminary results of a university-wide effort to enhance technology integration in the classroom. The College of Education at Idaho State University has received a grant to disseminate SMARTBoards, computers and projectors to all seven colleges within the university, to train faculty in the use of the equipment, to provide support and ideas for implementing the new technology, and to collect information on faculty and student attitudes towards, and use of, the technology. It is projected that the use of a non-threatening but extremely flexible digital technology, like the SMARTBoard, will encourage faculty to develop their own original digital classroom materials, to incorporate computer technology on a regular basis, and to encourage pedagogical changes in higher education classrooms.

Introduction

The College of Education, Idaho State University, received a State Board of Education Technology Incentive Grant to place SMARTBoards in classrooms in each of the seven colleges. The purpose of the project is to facilitate the integration of technology into higher education curricula, to enhance faculty productivity, to amplify the rate and quality of student learning, and to increase classroom access to educational programs. With a user-friendly delivery medium such as the SMARTBoard, it is hoped that university faculty will become more motivated to create their own applications, including web courses, original digital graphics and movies, electronic presentations and CD-ROMs. The project was begun in the fall of 2001 and, although not yet complete, has garnered preliminary indications of faculty skills and predisposition toward computer technology.

The SMARTBoard is an interactive surface, which acts as both a large computer touch screen and whiteboard. When the computer desktop is projected onto the SMARTBoard, the Board itself becomes the desktop and the user is able to open programs, type, select, and move objects by touching the board. The project is based on the premise that interactive digital boards are a convenient and comfortable way to reach instructors who may have resisted integrating technology in the past. Since the SMARTBoard requires minimal training and appears non-threatening, it is not as intimidating as other forms of technology. It is one of the few innovations that do not place a barrier of equipment between the instructor and the student. The Smart Board enhances the instructor’s role in the classroom.

Bates (2000) argued that since faculty is critical to the instructional praxis of the university, any change in the core activity of teaching has to have faculty approval in order to succeed. Therefore, the integration of technology in the university classroom cannot be imposed on faculty if it is to succeed. However, adapting computer technology into the classroom may suggest a reversal of teacher-centered instruction, and this change process is critical to the successful adoption of technology by faculty. Bates identified several factors, which inhibited faculty’s adoption of computer technology in the classroom, including anger, resistance, grieving for the old, cautious adoption, total disbelief, and fear. Dusick (1998) also identified factors that influence faculty members’ decision not to use computers for teaching, including environmental factors outside the faculty’s control and anxiety. Other environmental factors encourage the use of technology for teaching: a supportive administration, availability of the requisite hardware and software, a supportive technical staff, and positive personal and social elements. Both Dusick and Bates argue that training in technology integration is one way to overcome faculty fear.

This project sought to address some of these factors in order to facilitate faculty technology integration. SMARTBoards were chosen in order to introduce faculty to technology that was not only user friendly, but which also lends itself well to most classroom uses without drastically altering the instructor’s role. Faculty training on the SMARTBoard was carried out in a non-threatening way and with plenty of opportunities for practical hands-on experiences. The training sought to convince faculty that using the SMARTBoard could enhance both teaching and student learning. The principle investigators argued that, if faculty members believed that computer technologies did indeed make a difference to classroom teaching, then they were more likely to integrate them on a more permanent basis (Woodrow 1991). If, on the other hand, faculty saw technology in teaching as a fad, they were more likely to adopt it just to conform and not take it seriously.

The project also seeks to determine if faculty members’ attitudes and perceptions toward computer technology in teaching will change as a result of using SMARTBoards. Straub and Karahana (1999) argue that knowing the distinction between pre- and post-adoption beliefs and attitudes is important to understanding and managing the process of technology integration. To fulfill this goal, faculty and students are completing four separate evaluations. The first two instruments are an evaluation of the faculty training workshops and an attitudinal and skills survey (reported here).

Preliminary Results

As of this writing, 75 members of the ISU professional community have participated in the SMARTBoard training, preparatory to using the technology in the classroom. Of these, 61 identify themselves by faculty rank (19 Full, 11 Associate, 18 Assistant Professors, and 13 Instructors); the other 14 are staff positions, graduate students, or teaching assistants. The initial attitudinal survey indicates that many of these trainees already exhibit a moderate to strong disposition toward integrating technology in the classroom. Most respondents (more than 75%) indicated that they were comfortable using computers in instruction, that they believed technology could enhance learning, and that they wanted to learn more about integrating technology into their instructional
methods. A slightly smaller majority disagreed that traditional lecture methods of teaching were preferable, or that computer technology had no place in their discipline. Almost all the participants indicated that they used both the Internet and email in teaching, but less than half were using WebCT (the on-line curriculum program used at ISU).

In terms of their skills, this faculty considered themselves as intermediate or advanced users of the Internet and word processing. A sizable minority considered their skill level as low on electronic presentations. Approximately half considered themselves as novices (or less) in terms of statistical software, spreadsheets, databases, and subject specific software. The majority rated their skill level as none or novice on the SMARTBoard technology, multimedia authoring software, and WebCT. Thus it appears that, if these faculty are indeed comfortable integrating technology into their teaching methods, the technology they use is primarily confined to word processing and the Internet, with PowerPoint skill levels still being developed. However, more “difficult” applications, or applications which have not been traditionally presented in direct-instruction environments, are not usually part of the faculty’s technology repertoire.

In order to understand how faculty determines whether or not they can commit to learning a new technology, they were queried as to which factors they considered important. Although all of the factors were rated as important or very important by most participants, there was a pattern as to which of these factors were rated as very important by increasing numbers of participants. Figure 1 illustrates those factors, which were rated as very important. Surprisingly, faculty rated the simple, practical factor of Availability as Very Important, more than any other factor. Time to devote to the technology and Ease of Use were also rated as Very Important by a large number of respondents.

Figure 1. Number of faculty rating specific factors as Very Important to their integration of technology into classroom teaching. 1. Learning Curve; 2. Personal Comfort Level with Software; 3. Advantage of Technology over Traditional Teaching Methods; 4. Compatibility with Discipline; 5. Administrative Support; 6. Time; 7. Ease of Use; and 8. Availability.

Conclusion:

Although this project is on going, some interesting trends are already identified in the data collected. The most important appears to be that, although faculty are well disposed toward using computer technology in their communication with students and in teaching, they actually have limited skills and confine their use to email, the Internet, and word processing. Only a few produce electronic presentations for the classroom, and fewer still use the capabilities of the web to post presentations or other material for their students.

It is hoped that the SMARTBoard project will encourage faculty to expand their technological skills, producing original web sites, multimedia projects, digital video and audio, and other electronic media to incorporate into their instruction. Whether the project succeeds will be determined by faculty and student evaluation of courses, which are held in SMARTBoard-equipped classrooms by project-trained faculty. These final evaluations and surveys will be conducted at the end of spring semester 2002 and again in fall semester 2003.

References:

