



Interactive whiteboards: An Assistive Technology for Special Education and Inclusion Classrooms

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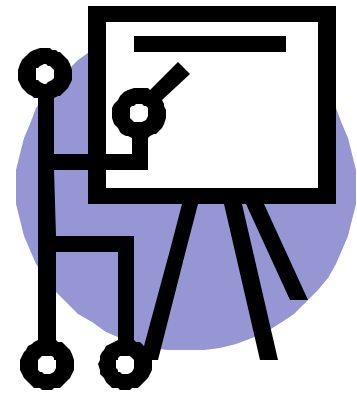
In recent years, there has been a push for full inclusion, the practice of grouping students with and without disabilities in the same facility or classroom to receive their educational needs. Eleven percent of all students enrolled in school received some special education service in the 1997-1998 academic year. Of this number, nearly fifty percent were classified under the category of learning disabled, and about seventy-five percent of the learning disabled received instruction through inclusive classrooms (Turnbull, 2002, p. 5; Wood, 2001). As a result, instructors have had to develop ways to accommodate the needs of all students without disrupting the normal class structure. "Teachers need to be attuned to student's strengths and the various learning styles that work best for each individual...Furthermore, teachers must provide access to curricular content consistent with student's ability levels, using assistive technologies if needed" (Wood, 2001).

What exactly is assistive technology? An assistive technology is defined as "an item, piece of equipment or product system, whether acquired commercially off the shelf, modified, or customized, that is used to in-

crease, maintain or improve the functional capacities of children with disabilities (Turbull, 2002, p. 418). Assistive technologies exist on a continuum and can be low-, medium-, or high-tech devices. A high-tech device, like an interactive whiteboard, revolves around electronics or computers (Turbull, 2002, p. 418). The Individuals with Disabilities Education Act (IDEA) of 1997 calls for regulatory action so that students with disabilities are provided with assistive technology to access curriculum (Wood, 2001).

An interactive whiteboard is a presentation device that interfaces with a computer and data projector. The computer image is displayed on the board by the data projector to create a large interactive projection screen. The user may manipulate his or her computer applications from the interactive whiteboard or take advantage of the additional software applications that are provided with the board (A.N. Basilicato, personal communication, April 11, 2003). This type of technology can be easily integrated into a class to address the needs of all students. And "designing inclusive environments that are accessible to everyone, with or without disabilities, minimizes the need for individual accommodations" (Thompson, 2003) and therefore, lowers additional costs.

Technology cannot address all the issues of teaching in an inclusive environment, but it does provide for new and innovative ways to learn. A door is opened when instructional tools are adapted to meet the unique learning styles of students, permitting knowledge to be shared by all. Tech-



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nology enables students to engage with subject materials in a way that focuses on their individual strengths (Wood, 2001).

An interactive whiteboard is the perfect facilitator of this type of learning. It can accommodate multiple learning styles like tactile, audio, and visual (Bell, 2002). Teachers, professors and foundations have conducted several studies to determine the impact an interactive whiteboard has on students with and without disabilities. The results have been overwhelmingly positive.

Dr. Mary Ann Bell conducted a study for her doctoral research that involved the use of interactive whiteboards in an 8th grade writing class. Her research discovered that there was a "statistically significant improvement in student attitudes toward



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both using computers in instruction and towards writing instruction” (Bell, 2002). She observed that the board was a “kid magnet.” The students were “wowed” by all of the features of the board and its interactivity. Interactive whiteboards use electronic ink to write on the surface. This eliminates chalk dust and dry-erase marker smells, so the board remains clean and attractive. The ink colors vary greatly and “research indicates that students respond to displays where color is employed” (Bell, 2002).



It has been clearly demonstrated that interactive whiteboards benefit students with learning disabilities, ADHD, and social or emotional disorders by helping to maintain students’ attention and focus. This tool may also assist the visually and hearing impaired, as well as those with physical challenges, severe and multiple disorders and other health impairments. A person whose visual capacity is diminished will benefit from the large size of the screen. Most interactive whiteboards also have a zoom feature to magnify whatever is on the screen. In addition, class notes may be printed and handed to a Braille translator for a person who is blind or notes may be printed for the hearing impaired student who has difficulty taking notes while trying to read lips. Individuals that use wheel chairs will appreciate the height-adjustable floor stands, and students that are confined to a bed can benefit

from the distance learning capabilities of the board during the time they are unable to attend school.

The ideal distance learning configuration would allow the student to view everything the teacher writes on the whiteboard, plus hear the discussion. In addition, the student would be able to contribute his or her thoughts verbally as well as visually by writing back to the board through his or her computer (A.N. Basilicato, personal communication, April 11, 2003).

There are ten different manufacturers of interactive whiteboards today. Each company integrates software and specific features to make their boards unique. The decision to purchase a specific brand is often made by a technology coordinator or committee. The actual users (teachers and students) are rarely consulted to learn what features are most important to them. In addition, when the boards arrive, minimal training is provided. As a result, users are timid with the board (A.N. Basilicato, personal communication, April 11, 2003). A typical response which Alfred N. Basilicato, the President and CEO of Numonics Corporation which manufactures the Interactive Presentation Manager (IPM), receives from teachers who do not use their equipment is that “teachers do not want to look foolish or silly in front of their students. They complain about lack of time to be trained, and as a result, they do not use their whiteboard” (personal communication, April 11, 2003). This issue is known as the “Ease of Use Initiative” in the business world, and affects every new piece of technology. “Surveys indicate that only about half of U.S. teachers use technology in classroom instruction.... Many teachers, the experts say, still are reluctant to use technology, mostly because of a lack of time, a lack of resources, or a lack of confidence in their ability to use the available technology”



(Encouraging, n.d.). Technology must be simple and intuitive, but interactive whiteboards are slightly more complex than the traditional chalk and blackboard (Simons, 2002, p. 32).

The responsibility for support and training of interactive whiteboards generally falls to the individual user. Manufacturers provide manuals and offer training sessions, however experience indicates that most users rely either on their fellow teachers or trial and error to learn the technology.

Despite all of these issues, the studies list favorable results for interactive whiteboards as an assistive technology. Educators are particularly happy with the improvement in class participation and attention and retention rates. The benefits outweigh the technical difficulties of the board (Beeland, n.d.).

It is important to keep in mind that technology need not be designed specifically for students with disabilities in order to benefit them. This concept is called Universal Design and ideally, technology “should be flexible enough to be used by many people for many different purposes” (Wood, 2001). Interactive whiteboards definitely fall into the spectrum of Universal Design.

There will never be a solution that is fit for every instructor and every classroom since classroom environ-

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ments and instructor personalities vary significantly from one to the next. The fundamental aspect of any technology is that it is only as good as the person who is using it. Interactive whiteboards require a dedicated individual who can convey their enthusiasm for learning to students. The person should have an open mind to new teaching methodologies and be versatile enough to incorporate them into their curriculum. With a little effort on the part of the teacher, the board's features will deliver an effective and engaging lesson and will facilitate his or her ability to reach all the students in the classroom, making it a very viable resource to inclusive and regular classrooms.

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pate in these training sessions.

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"The Interactive Whiteboard People"

Numonics Corporation is located in Montgomeryville, PA, just outside of Philadelphia. We have been manufacturing computer peripheral equipment for over 30 years. In 1994, the Interactive Products Division of our company was formed and we entered the presentation graphics and education markets with an innovative product designed to revolutionize interactive computer generated presentations. Numonics has won industry awards for product innovation, design engineering and computer productivity.

Numonics products are available through an international network of systems integrators, OEMs, resellers and distributors throughout the United States, North and South America, Europe, Africa and the Far East. International sales are supported by a full range of capabilities from offices in Europe.



User Testimonials

Okoboji Community School District is located in the beautiful great lakes region of Iowa. They have 991 students located in two communities. They purchased their Interactive Presentation Manager (IPM) from R&D Industries of Milford, Iowa. As a Numonics reseller, R&D installed the board for the school district and continues to offer local support.

The IPM has been the greatest component of the technology upgrade this summer because it has allowed teachers to teach in an innovative classroom. As the Vocal Music Teacher

Jackie Bryan states:

"I think the white board room is wonderful. The students here really enjoy being in the room and using [it] for class presentations. I think it is a great way of combining the 'traditional' classroom with the technology available to students today. I love that I can do the classroom lecture and then have students use the Internet to further the lesson without having to change locations. The convenience is great. I enjoy being able to teach in this setting and my students enjoy learning in it as well."

The board is also used daily by the Calculus Teacher who uses an on-line web site to have the students discuss problems and look at calculus procedures.

Two teacher training sessions were held via a virtual

classroom with Mandy from Numonics. The training was fantastic and very useful for teachers. The teachers, after the training, have embraced the technology to the point that the room has become so busy that the school district is going to request another IPM for next year.

Julie Davies, the Curriculum and Technology Coordinator for Okoboji Community Schools, remarks:

"Numonics has been very supportive with their training, and they have a superior product. They even rescheduled a training session so it would fit with our time zone. As the curriculum/technology director, the training piece is the most crucial for teachers to have so the technology will be implemented. Thank you for a truly terrific product."

To submit your comments or your own testimonials, please contact Mandy Childs at mandyc@numonics.com.



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Julie Davies, Curriculum/Technology Coordinator, Okoboji Community School District