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# Interactive Whiteboard Technology: Strategies for Special Needs Students

*Strategies for Providing an Interactive and Engaging  
Learning Environment for All Students*

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## **Introduction**

Academic curriculum requirements for students moves rapidly and nobody involved in the process wants to feel left behind. The conventional method of presenting lessons in a classroom through visual and auditory means isn't always the most effective method for students, especially those with special needs. In the complicated education arena of low funding and high student populations in classrooms, finding a middle ground of compromise can be difficult. Students with special needs, such as learning, physical and cognitive disabilities as well as English Language Learners (ELL), may have trouble with auditory sessions and often require lessons that are more tactile, increased number and types of visuals, as well as the ability to learn at different paces.

Fortunately, in this exciting era of rapidly changing education, technology plays a key role in providing educators (both special education and regular classroom teachers) with the tools and skills to address the multiple modalities needed to provide inclusion of a diverse classroom. Technology assists the classroom teacher of an inclusive classroom by offering students many ways to learn information, express ideas and demonstrate understanding in a highly interactive learning environment. Because there are no restrictions on who can or cannot use technology, every person, teacher and student alike, can benefit from additional products in the classroom. Below are other ways technology supports educators:

- Gives educators access to engaging, more relevant, more current content on the web (multimedia, role-play, educational games)
- Provides a means for the teacher to create and incorporate tactile lessons for increased interaction (using a hand held device for input, annotating on-screen content)
- Maximizes the teachers time by utilizing collaborative small groups
- Offers the educator the flexibility to place "like" students in a group (slower-paced learners that may need addition support) or a "mixed" group (which can be used for peer teaching or to discuss topics from different perspectives).
- Allows teachers to monitor and access student comprehension and adjust the pace accordingly
- The capability to take notes for review and remediation

One way to integrate students with disabilities into the mainstream classroom is to provide students of all abilities with an interactive and engaging way to learn.

This paper answers the questions: "How can interactive technology provide benefits to students with special needs?" "What strategies can be used to fund this innovative method of interaction and engagement?"

## **Merits of Interactive Whiteboard Technology in the Classroom**

According to a June 2010 article in the Washington Post on whiteboard technology by Stephanie McCrummen, "Many academics question industry-backed studies linking improved test scores to their products. They argue that the most ubiquitous device-of-the-future, the whiteboard...locks the teacher into a 19<sup>th</sup> century lecture style of instruction, counter to the more collaborative small-group models that many reformers favor."

**Mobile** interactive white boards remove the need for the teacher to stand in front of the class to provide a lesson. This mobility is also useful for those students who work best in small group settings. While whole-class interaction is favorable in some instances, a smaller set of students can free more time for interactive activity-based lessons (Smith, Higgins 2005).

One of the key differentiators that distinguish the *mobile* interactive whiteboards from their traditional counterparts is in the name—the ability to be mobile. The mobile interactive whiteboard designed to support student-centered active learning and give educators the mobility and flexibility to manage classes and deliver lessons from anywhere in the room.

Mobile interactive whiteboards have many of the same benefits, features, and functionality as traditional, “fixed” interactive whiteboards:

- Student motivation and engagement
- Enhanced content presentation
- Direct student interaction
- Shared display
- Wealth of multimedia resources

Mobile interactive whiteboards, however, provide additional benefits.

- The flexibility to deliver lessons from anywhere in the room
- Support for student-centered collaboration
- Support for small groups to provide direct input into a learning activity without having to leave their seats
- Portability, shared across small groups of students and/or travels with the teacher to different classrooms and buildings

Mobile interactive whiteboards do that in a variety of ways. Below are some additional advantages of using a mobile interactive whiteboard:

- encourages children (with and without special needs) who are reluctant or physically unable to come to the front of the class a chance to interact from their seat
- collaborative usage provide experience-based instruction to supplement or introduce group instruction
- allows the teacher to assign groups based on pace, skill, diversity to maximize learning objectives
- allows for peer teaching and one-on-one peer support in group situations
- encourages students with special needs to learn by modeling appropriate learning behavior
- supports students with special needs to be able to frequently review and annotate lessons
- instructor can move freely throughout the classroom to more closely observe each student's behavior and learning

If a teacher is physically detached from the visual presentation, they appear to be more in tune with their laptop than the pupils. Facing the class and moving around the room allows the teacher to spend more time focusing on the students (Smith, 05). With a mobile interactive whiteboard, a teacher or a student can launch an application from anywhere in the classroom without being stationed at the board at the front of the room or their computer.

Mobile whiteboards allow students to work in small groups and use the technology for shared projects and discussions. Research evidence suggests that small group; cooperative/collaborative learning is an effective instructional strategy (Gillies, 2007, p. 25; Langer, 2001, p. 857; Slavin & Lake, 2008, p. 475). Additionally a study done in 2009 by Marzano & Haystead found the ability to work in small groups provides a platform for activities. These activities may include students answering questions in a group, students summarizing new content in groups, and students working as a team making predications.

## **Benefits for Students with Special Needs**

As the number of children requiring special services increases, it is becoming more difficult for teachers to accommodate the needs of students with a disability while continuing to meet the needs of the rest of the class. These students make up roughly 10 -12% of the general student population. (U.S. Department of Education, 2005).

While not a disability but more of a special need, English Language Learners (ELL) is the fastest growing segment of the student population. Between 1979 and 2008, the number of school-age children (children ages 5-17) who spoke a language other than English at home increased from 3.8 to 10.9 million or from 9 to 21 percent of the population in this age range. (U.S. Department of Education, National Center for Education Statistic 2010)

A student with a disability must be provided the same opportunity to interact educationally with students without disabilities when possible. Providing mobile interactive whiteboards to students offers greater access to general education curriculum, extracurricular activities, or other programs that students without disabilities are able to access.

Other instructional best practices for students with disabilities and special needs include employing multisensory methods and relevance to teach. Integrating visual, auditory, touch and movement into the learning environment give educators the interactivity needed to provide engaging lessons. For instance, lessons can be completed by using sounds, videos and images that are much more interactive and engaging than in a flat, two-dimensional display of a textbook or blackboard.

Digital manipulative tools are critical for hands-on and multi-sensory learning and support repetition of core concepts. Highlighter, curtain, and spotlight tools allow for an emphasis on major points and enhance contrast. Various font options and the magnifier tool optimize the print size/type for students with visual impairments. Freehand shape and freehand text tools reinforce fine motor skill development for those with a dexterity disability. Note taking for review of key concepts and recorded assignments that can be used to review lesson content and be saved, printed and taken home for additional reinforcement. Audio or video supplements make information more accessible for emerging readers and ELL students. Copies of board work and student/teacher notes can be captured and shared across the classroom or taken home for additional practice and review.

## **Mobile Interactive Whiteboard Accommodations by Disability**

The capabilities of mobile interactive whiteboards can be accessed in a variety of ways for students with a variety of disabilities. Below are some categories of student disabilities and the unique functions that will benefit each.

### Physical disabilities:

- Low vision – high contrast and font size can be changed
- Blind – Notes can be printed and used to translate into Braille
- Deaf or hearing impaired – captioning for multimedia presentation, notes can be captured and printed for hearing impaired students who has difficulty taking notes while trying to read lips or sign language

- Mobility challenged –works from the desk – wheelchair accessible to both students and educators using wheelchairs
- Temporary disability or medical illness – allows students to catch up or go at a slower pace

Learning disabilities:

- Ability to remediate, review and reinforce learning
- Adjust pace to meet individual needs
- Contrast and font adjustments
- Increased interactivity leading to a greater ability to engage
- Individual and small group participation – peer teaching

Cognitive disabilities:

- Increased interactivity leading to a greater ability to engage
- Small group participation
- Adjust pace to meet individual needs
- Engagement leads to longer focus on tasks

English as a Second Language:

- Ability to remediate and review
- Adjust pace to meet individual needs
- Small group participation

## **Reducing Over-Identification of Students**

As more students in today's schools come from a variety of backgrounds, there is a growing concern about the over-identification of students in special education. Over-identification can cause problems which may result in students who are unserved, misclassified or inappropriately labeled, or receive services that do not meet their specific needs. Disproportionate placement of these students into special education class settings may be seen as a form of discrimination.

One goal of the Individuals with Disabilities Education Act (IDEA) is to reduce the over-identification of students with disabilities. Formula grant money is distributed for services that prevent over-identification of low performing students as "disabled".

Combining mobile interactive whiteboard with student response systems allows educators to actively monitor and provide corrective feedback and/or positive reinforcement in real time. Teachers can capture feedback on individual students. This data can then be used to evaluate and place students more appropriately and be given the most relevant modifications and accommodations for their specific needs. While many student response systems utilize hand held "clickers" for student input, web-based virtual clickers are available for students who are blind or have difficulty using a hand held remote control input device.

Frequent formative assessment with timely feedback to students has value for improving both instruction and student learning (Black & William, 1998a, 1998b; Fies & Marshall, 2006; Hall, 2002; Kay & Knaack,

2009; National Research Council, 2000; Penuel et al., 2007; Roschelle et al., 2004a, 2004b; Tierney & Charland, 2007; Tomlinson, 2000).

Results obtained by employing a student response system can be used to more succinctly develop an individual's IEP to meet their needs. For example, a student response system provides individual results of a student's understanding so that teacher knows which students may need to be re-taught key concepts, when to slow or increase the pace, or to provide supplementary materials. The data can also be presented to specialists and parents to confirm the most appropriate placement.

## Funding Strategies

Administrators and educators at both the district and school levels have recognized the value of technologies that can provide a broader range of learning techniques to a wider set of student needs. Mobile interactive whiteboards are one of these technologies. These interactive resources can better engage the new generation of students, the "digital natives" now occupying the classroom.

Using special funding available for students with disabilities can provide a solution for not just special needs students, but for all students. For example, purchasing a mobile interactive whiteboard solution for small groups of children that learn at a slower pace can also be used for a group of students who can function at a higher level or at a faster pace. Or, administrators can use available funding to purchase mobile interactive white boards for special needs students and combine small groups of learners with diverse abilities or cultural backgrounds for group activities.

"Designing inclusive environments that are accessible to everyone, with or without disabilities, minimizes the needs for individual accommodations" (Thompson, 2003) and therefore lowers additional costs.

### IDEA Federal Funding

IDEA is a federal legislation that makes provisions for funding to assist states and schools in their effort to educate students with disabilities. There are \$11.5 billion available in IDEA funding. In addition, formula grant money is available for services that prevent over-identification of low-performing student as disabled.

Below are the requirements to meet eligibility for IDEA funding;

- Provide supplemental materials that are aligned to reinforce a scientifically based core curriculum or state standards based accountability system.
- RTI (Response to Intervention) a school-wide multi-tiered instructional framework that addresses the needs of all students and integrates assessment and intervention to maximize student achievement and reduce problem behaviors.
- Provide appropriate use of assessment data and evaluation of effectiveness of approach.
- Provide curriculum-based, progress monitoring, formative assessment measurement instruments and curriculum materials for intensive instruction.
- Provide professional development around appropriately and effectively using the progress monitoring and formative assessment measurement instruments.

The benefits provided by *mobile* whiteboards and student response systems meet these requirements to those interested in applying for federal money to implement IDEA in their own schools.

## Technology and Media Services

The purpose of this program is to:

- Improve results for children with disabilities by promoting the development, demonstration, and use of technology
- Support educational media services activities designed to be of value in the classroom setting to children with disabilities
- Provide support for captioning and video description that is appropriate for use in the classroom setting.

## Assistive Technology

The State Grant for Assistive Technology Program (# 84.224A) supports state efforts to improve the provision of assistive technology to individuals with disabilities of all ages through comprehensive, statewide programs that are consumer responsive. The State Grant for Assistive Technology Program makes assistive technology devices and services more available and accessible to individuals with disabilities and their families. The Alternative Financing Program (# 84.224C) provides grants for the establishment and maintenance of programs that enable individuals with disabilities to purchase assistive technology devices and services through financial loans.

## **Conclusion**

School Districts and Administrators have the responsibility to provide the least restrictive environment possible for students with disabilities or special needs. Funding is tight and therefore creative ways of acquiring support is crucial. However, using technology funding opportunities for those with disabilities helps leverage benefits across the entire student population. Providing “assistive technologies” like the *mobile* interactive whiteboard to educators and classroom teachers in effect benefits for all involved in the educational process.

## **About Accessibility Partners, LLC**

Accessibility Partners is an organization of senior accessibility and disability consultants, technologists and subject matter experts known for their broad industry experience. The principal partners collectively have over 40 years of experience in this industry. Accessibility Partners has successfully completed projects for both industry and government clients providing top level accessibility and disability consulting and services.

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