



Leveling the Field for Students with Learning Challenges

The DyKnow Software Suite Creates Individual Learning Environments Addressing the needs of Tactile, Auditory and Visual Learners.

Vibrating fluorescent lights, buzzing electronics, the quiet tapping of a student sending a cell phone text message, the monotonous tone of a lecture in progress, students browsing internet sites like YouTube, Facebook and MySpace on a computer intended for school work.

For students with learning challenges, the 21st century classroom can be an intimidating place where distraction, feelings of anxiety and frustration are overwhelming. Now more than ever, schools realize the need to utilize technology as a tool for learning rather than another distraction in the learning process. This is especially true for students with diverse learning styles.

This paper addresses how technology affects students with varied learning abilities and the ways in which the DyKnow Software Suite can scaffold the learning process for diverse learners while also minimize electronic distraction in the classroom.

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Defining Special Needs and Related Education Policy

A student with special needs is defined as anyone who, because of a disability, requires some special education and related services to achieve his or her fullest potential (IDEA, 1997). Surprisingly, one in every six students meets this standard (Bray, 2002). Recently, government mandates have pushed schools to integrate all students, regardless of ability, into standard classrooms where they can be exposed to the same resources. The approach is called full inclusion (Hasselbring and Glaser, 2000).

Presidential education advisors are urging schools to use technology to individualize learning environments, especially in fully inclusive classrooms where learning styles vary greatly (The Presidential Committee of Advisors on Science and Technology, 1997). The International Society for Technology in Education (ISTE) even created a standard by which technology should be used in order to better harness the positive impact technology can have for students with different learning abilities.

However, introducing technology does not come without its hurdles for students and educators.

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Challenges for Students with Diverse Learning Styles

According to the National Information Center for Children and Youth with Disabilities (NICHCY), students with learning challenges usually exhibit a variety of difficulties, ranging from problems with comprehension, reasoning abilities and inattention, to unpredictable test performance and a low threshold for frustration.

Research shows that computer-assisted instruction supplements traditional teaching if the proper software and technology are used (Christmann, 1997). Likewise, teachers support the conclusion that technology levels the playing field for students with learning delays (Lewis, 1988).

On the other hand, educators are keenly aware that classroom distractions are virtually everywhere, especially when technology is introduced. Training one's self to block out distractions is practically impossible for students with learning disabilities (Hasselbring, 2000). In order to address the growing distractions in 21st century classrooms, schools are seeking technology that augments, and not further distracts from, the learning process.

The following sections address how the DyKnow Software Suite, made up of DyKnow Vision® and DyKnow Monitor®, can level the field for students with the following learning challenges:

Language: delays, disorders or discrepancies in listening and speaking; difficulties with reading, writing and spelling.

Arithmetic: difficulty in performing arithmetic functions or in comprehending basic concepts.

Organization: difficulty in organizing all facets of learning.

Reasoning: difficulty in organizing and integrating thoughts.

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Eliminate Electronic Distractions

Paramount to success among students in a digital classroom is finding a way to minimize electronic distraction while also keeping students on-task. DyKnow Monitor software provides a platform to help teachers maintain control of the digital classroom.

With DyKnow Monitor teachers can easily monitor student’s computer use and, with one click of a button, quickly and quietly bring students back to attention. By viewing thumbnail versions of students’ screens teachers have immediate visibility of students computer use (Figure 1). When a student is off-task, DyKnow Monitor allows the teacher to block non-curricular applications and URLs and lock the keyboard and mice on one or more computers, even take remote control of a student’s computer.

Once electronic distraction is minimized, teachers can effectively use other interactive tools to foster collaboration and individualize the learning process to address the needs of auditory, tactile and visual learners.

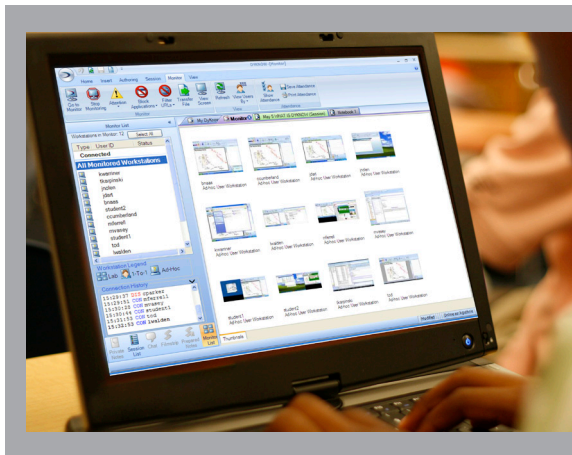


FIGURE 1
With DyKnow Monitor, teachers can see thumbnail views of students’ screens. In this example a teacher sees a student playing solitaire, then unbeknownst to other students, she sends a message telling the student to get back on-task.

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Solutions through DyKnow Vision

Language Difficulties:

Students with language challenges frequently misunderstand verbal communications, have difficulty listening or hearing, misinterpret language subtleties like tone of voice and sarcasm and have difficulty comprehending standard print materials (Ortiz, 2001). In a traditional classroom where students have to first interpret spoken language then copy it all down on paper the task of compiling an accurate set of personal notes becomes extremely difficult, if not impossible.

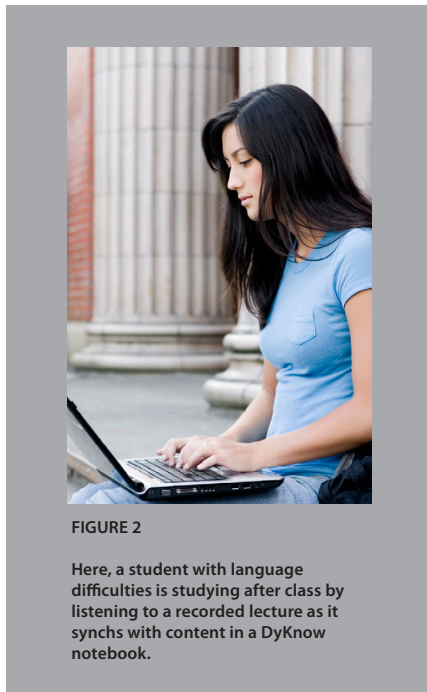


FIGURE 2

Here, a student with language difficulties is studying after class by listening to a recorded lecture as it synchs with content in a DyKnow notebook.

With DyKnow Vision, teachers can transmit all prepared and extemporaneous content to students' computers where they can then make annotations to personalize the teacher's notes. Relieving students from copying all notes allows more time for understanding class material, asking questions and clarifying concepts.

In addition to a comprehensive set of notes with annotations from the teacher and the student, DyKnow Vision provides a private outlet for students to receive special attention through the Chat feature. Students can easily 'chat' questions or comments to their teacher without the fear of being stigmatized. This eliminates the need to disrupt the flow of class while also paying attention to the needs of diverse learners.

For students who need more concrete, repetition of verbal communications, DyKnow Vision's Audio Recorder allows teachers to capture a class lecture as it synchs with content in a DyKnow notebook. The ability to hear a lecture more than once increases the likelihood of success for students who have language difficulties. Likewise, with Vision's Audio Broadcaster teachers can stream live audio to students' desktops so students with hearing impairments can listen to instructions better while blocking out other distracting noises (Figure 2).

Reasoning Difficulties:

Students with reasoning difficulties have trouble absorbing oral presentations, demonstrate poor decision-making skills and have trouble moving from one idea to the next (Learning Disabilities and Assistive Technology). Opportunities for success appear when concrete, repetitive demonstration is given in supportive learning environments where students can get feedback without embarrassment and one-on-one attention (NICHCY).

Assists students in absorbing major concepts:

In a traditional classroom teachers have to rely on students to admit when they have not grasped course material. Most students with learning disabilities are fearful of being stigmatized and therefore rarely alert the teacher when they are lost. In a classroom with DyKnow Vision, instructors can privately gauge class understanding with tools like chat, polling and participant status.

Participant Status allows the teacher to prompt students to indicate, using a stoplight-like scale, how well they understand course material. Students can click the red button to indicate a very low level of understanding, the yellow button to indicate a mediocre level of understanding or the green button to indicate a high level of understanding. Student's responses are immediately reflected in

graphical form on the teacher's computer. Knowing which students understand and those who don't allows the teacher to adjust instruction as appropriate or make a note of who needs special attention - teachers no longer have to wait until an exam or test.

Helps move students from one idea to the next:

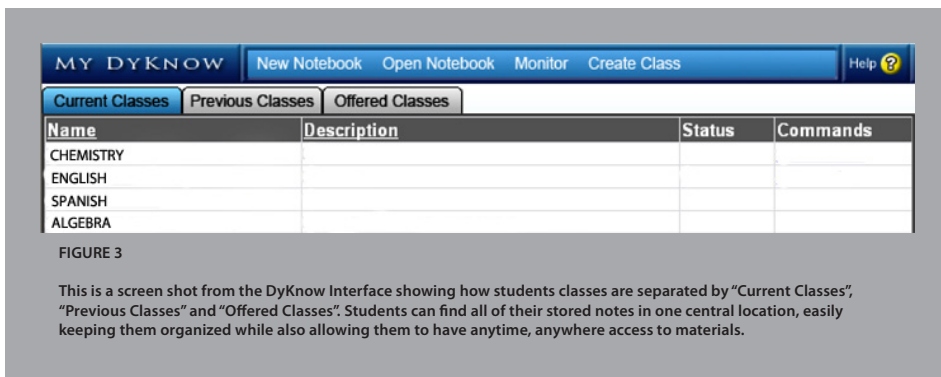
In a traditional classroom, students may be inundated with pages of notes. In a DyKnow classroom, teachers seamlessly guide students from one concept to the next by progressively disclosing notes. Students can no longer jump ahead of the teachers related in instruction. With this style of teaching students are less overwhelmed and are kept on-task.

Provides an outlet for repetitive, concrete demonstration:

DyKnow's content replay allows stroke-for-stroke demonstration of instruction. This is especially valuable to students with reasoning challenges who need continuous repetition and concrete demonstration in order to fully absorb ideas. Teachers can also utilize Vision's Audio Recorder to capture a class lecture for later review.

Organizational Difficulties:

According to Learning Disabilities Online, most kids with learning disorders lack organizational skills. This lack of structure causes trouble with time management, organizing belongings and prioritizing actions (Lavoie, LDOonline, 2007). The classroom is one place where structure is a necessity and, unlike conventional students, special needs students do not benefit from standard organizational methods (Lavoie, 2007). With DyKnow Vision students can save all notes, by class, to the server where they are electronically accessible anytime, anywhere (Figure 3).



The individual folders allow students to find notes from specific classes quickly and easily. In addition, notebooks are stored as digital files, eliminating the need for paper notes which are hard to organize and easy to lose. Both features make studying and completing assignments less complicated and more achievable for students with organizational difficulties.

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Arithmetic Difficulties:

Memorizing basic number operations, equations, formulas and graphs prove challenging to students with arithmetic difficulties. Research suggests that interactive and intensive practice in small doses with a limited number of problems per session can drastically improve the learning experience (Garnett, 1998).

In an inclusive classroom some students with arithmetic difficulties tend to labor continuously over course material due to lack of repetition or interactivity.

In a DyKnow classroom math equations are no longer static concepts on paper but rather fluid processes that can be replayed time and again. With the “replay” feature, students with mathematical challenges can playback notes to see a stroke-by-stroke visualization of the exact order and method a teacher used to solve a problem or draw a graph. Students can access these notes from any internet connected computer because all DyKnow notes can be stored on an individual work station or a central server. This makes after school studying and review achievable and effective.

Effective Utilization of Technology

With the DyKnow Software Suite students are capable of combining auditory, tactile and visual aspects of learning to achieve success.

Once the threat of distraction is removed from the classroom with DyKnow Monitor, teachers can effectively use technology and feel comfortable integrating interactive learning tools like DyKnow Vision. Diverse learners now have the opportunity to succeed in school through the use of essential collaborative tools.

Utilizing polling and chat can ease the fear of miscommunication while other interactive learning tools like content replay, stored notes, and “status requests” can scaffold the learning process for students with learning challenges.

Whether teaching a student with profound learning disabilities or teaching a student with minor organizational, reasoning and language challenges, utilizing the DyKnow Software Suite will make comprehension and accountability possible in fully inclusive classrooms.

About DyKnow

A leader in interactive education, DyKnow combines sound teaching with intuitive technology to create the most flexible and effective solutions for teaching and learning. DyKnow is committed to helping teachers maximize class time and foster collaboration while also minimizing electronic distraction. By promoting effective studying and gathering student feedback teachers can feel confident in students’ academic success.

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