Technology for Students with Learning Disabilities in Classrooms

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Abstract

When we think about the perfect classroom now, we think of a technology filled room from Smart Boards to laptops and everything in between. Technology to students today is just like a dictionary or an atlas to students a decade or two ago all are simply used as tools for learning in class. These technological tools can be very beneficial to students for learning and for making school more interesting. Technology can also benefit teachers, by making their jobs easier and by allowing them to focus more on every student's needs for teaching bodies it is necessary to understand the benefits of educating a diverse student body. The simplest explanation of assistive technology is that it is technology that allows people to compensate for, or work around, their disability. By doing so they are able to improve their ability to function both in and out of the classroom, and are better able to learn and perform on par with other students. Some of these aids are specifically designed for people with learning disabilities in mind, while others are general programs that can also be of benefit to students with LD. Students with learning disabilities represent a significant segment of this group. This paper addresses emerging issues relative to students with learning disabilities on college and university campuses. The targeted audience for this paper includes college and university directors, presidents, administrators, faculty, and supporting staff. The potential for assistive technology in general education classrooms for students with disabilities is great. Its benefits include enhancing academic achievement in written expression, reading, mathematics, and spelling, improving organization and fostering social acceptance. When students have the opportunity to accommodate writing challenges, they are more successful in the general education classroom. A necessary component of this effort is collaboration between classroom teachers and assistive technology specialists. The use of technology must be a collaborative effort. The following article reviews helpful writing supports and the benefits of technology for students with learning disabilities.

As the wide variance in post secondary institutions in such terms as size and mission, there is little consistency in the way that institutions provide services to students with learning disabilities.Students with learning disabilities pursue not only undergraduate education, but graduate and professional education as well it is becoming increasingly critical for institutions to review both their mission and philosophies as they work toward an integrated model of service provision. This paper articulates the impact of college and university missions and their policies and procedures on students with learning disabilities. The paper concludes with recommendations for creating a responsive campus environment.

Introduction

For students with disabilities, technology is very beneficial for note taking (whether the student uses voice recognition software or the teacher emails the student the notes), for blind students

(textbook reading software) or for students with impaired hearing. Technology can also help kids with mental disabilities like Autism learn. Technology is breaking the barrier of learning impairments.When using assistive technology, people must have a realistic view about how they can be of help. One can expect assistive devices to help students with classroom instruction and as a result help their overall understanding, performance and ability to accomplish the work. They also help students so that they are better able to perform in classrooms with other students. It cannot, however, replace a proper instructor or improve on the teachings of the student's instructor. It is not and should not be seen as a cure and may not work the same or favorably for everyone.In a conference in Chicago 1965 was organized to discuss a common problem as they all had children who were struggling with studies, the cause of which was generally believed to be laziness, lack of intelligence, or just bad parenting, but the group of parents knew that their children were bright and just as eager to learn as any other child, but that they needed help teaching approaches to succeed in school.

Dr.Samuel Kirk, a respected psychologist and eventual pioneer in the field of special education, was the speaker in the conference used the term "learning disabilities,"which he had coined a few months earlier, to describe the problems these children faced, even though he, himself, had a strong aversion to labels. The speech had a galvanizing effect on the parents. They asked Kirk if they could adopt the term learning disabilities not only to describe their children, but to give a name to a national organization they wanted to form. A few months later, the Association for Children with Learning Disabilities was formed, now known as the Learning Disabilities Association of America, is still the largest and most influential organization of its kind.Special services for students who learn differently began to flourish, giving those who had previously felt little hope an opportunity to learn and succeed in school. The ripple effect kicked in, and these bright young people set their sights on college, a goal that would have been rare in 1963. This led to the historic founding of Landmark College 27 years ago, as the first college in the U.S. created specifically for students with learning differences.

As defined by the Individuals with Disabilities Education Act Amendments of 1997 (IDEA), an assistive technology device is "any piece of equipment, or product system. . . that is used to increase, maintain, or improve functional capabilities of individuals with disabilities" [Part A, Sec. 602(1)]. Assistive technology serves two major purposes to augment an individual's strength, thereby counterbalancing the effects of the disability, and to provide an alternative mode of performing a task. Thus, the use of technology allows students to compensate for their disability or circumvent it entirely.For students with learning disabilities, technology can be an assistive tool replacing an ability that is either missing or impaired. It provides the support needed to accomplish a task. For example, word processing assists students with learning disabilities in improving writing. Computers are given other support to motivate reluctant writers to write by facilitating motor actions, providing spelling assistance, helping with revising and editing, and producing a document that is neat and legible. Previous studies of using word processing versus writing with paper and pencil have generated mixed results. For example, MacArthur and Graham found no differences in the number or type of revisions students made with the word processor compared with using paper and pencil. A study held in 1987 found that students with learning disabilities spent more time writing and revising when they used computers than when writing by hand. Finally, MacArthur, Graham, and Schwartz (1991) showed that when computers are combined with effective instruction in revision, word processing could provide benefits for students with written language disabilities.

Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) has articulated the rights of individuals with learning disabilities in higher education. The laws mandate that postsecondary institutions provide equal access to programs and services for students with learning disabilities. Given their interpretation of such legislation, individual colleges and universities are at various stages in the development and integration of policies and procedures for providing accommodations to students with disabilities.Students are able to learn in their own way at their own pace on specialized internet devices. This allows students to learn in the way that benefits them the most. Technology is making the students of today more intelligent than ever.

Role of technology in inclusive classrooms

Using technology enhances the interactive participation in general education classrooms for students with learning disabilities. In a research it is found that technology increases the frequency of assignment completion and contributes to improved motivation. It therefore supports some of the basic objectives of inclusive education which includes a sense of belonging to a group, shared activities with individual outcomes, and a balanced educational experience. Adaptations for students with learning disabilities have been widely used to compensate for barriers associated with difficulties in reading, writing, mathematical reasoning, and problem solving. Increased use of assistive technology devices during cooperative learning activities can enhance the participation of students with learning disabilities by circumventing specific disability related barriers. For example, students who endure fine motor difficulties are not usually targeted for the role of recorder in cooperative learning activities. However, if those students could use portable note takers, they would be successful at recording group responses. Students with spelling problems could use devices to check spelling or search for definitions during a cooperative writing project. A fifth grade student revealed that using a portable note taker eased his frustrations, increased his motivation to complete assignments, and made him feel more accepted by his peers in the general education classroom. Teachers observed tremendous change in the performance of the students those who made use of note maker. This technology contributes to improved academic success.

Successful individuals with learning disabilities tend to be goal-oriented, determined, persistent, and creative. Persons with these characteristics are often an asset to the university community. Many students with learning disabilities are aware of their disabilities before matriculation. Some student is not diagnosed with learning disabilities until after their admission to college. Once diagnosed, it is the student's responsibility to disclose its learning disability and the extent to which it affects academic access. A student's eligibility for services, and the particular type of service he needs, must be based on appropriate documentation. With appropriate accommodations it is more likely that students with learning disabilities will experience a successful college career. A study says that a major university found that students with learning disabilities were competitive academically with their peers and graduated with grade point averages not significantly below the control group. This study also found that students with learning disabilities on average took only one semester longer to graduate.

Objective

Presently, institutions are establishing learner outcomes for all programs. While students with learning disabilities should be expected to meet the institution's academic standards, they should

be given the opportunity to fulfill learner outcomes in alternative ways. The process by which students with learning disabilities demonstrate mastery of academic standards may vary from that of the larger student body, but the outcomes can and should remain the same. Accommodating students with learning disabilities need not jeopardize the academic standards of the institution.

While the Americans with Disabilities Act and Section 504 of the Rehabilitation Act require institutions to make academic adjustments to provide equal access, they do not require postsecondary institutions to make changes to essential elements of the curricula and therefore do not compromise curricular standards. The courts and the Office of Civil Rights (OCR) have been clear that postsecondary institutions can and should establish policies that identify and maintain those essential components of the college curriculum. A team approach to reviewing the institution's mission and its policies for evaluating its essential programmatic elements results in a balanced and integrated plan for both academic integrity and educational access. Faculty and staff from the various programs can work to outline essential program components in relation to the institution's mission. Collaboration among administrators, faculty members, and disability service professionals should ensure that academic standards are delineated and maintained.

It is highly recommended that services for students with disabilities, including those for students with learning disabilities, be housed within the administrative structure that promotes a strong academic focus and shared faculty responsibility for providing accommodations. For some campuses that office reports directly to the president or provost; for others, disability issues may be under the purview of the academic or student affairs offices.

Tech Tools for students with Learning disabilities

1. Computer support for writing:

Assistive applications are also available to help students with phonics. Customizable or alternative keyboards are useful for LD students who have difficulty comprehending traditional keyboards or who have trouble with handwriting. Handwriting difficulties can greatly hinder a student's ability to perform and/or focus. Alternative keyboards can be helpful by offering alternatives for keys such as graphics, fewer keys, or keys that are grouped by color, for example. Other assistive technology programs or devices that are useful include those that help with organization and math. Applications on computers and hand-held devices are available to help with one's organizational needs. Assistive programs that can aid students with math include talking calculators and electronic math worksheets.Computers change the writing process by making it easier to develop and record ideas, to edit ideas, and to publish and share with others. Different computer supports are useful during different phases in the writing process. I will touch on talking word processors, word prediction, portable note-taking devices, prewriting organizers, and multimedia prewriting prompts.

2.Talking word processors

Talking word processors give the student auditory feedback to reinforce the writing process. Letters, words, sentences, paragraphs, or entire documents can be read aloud while the student types. Features can be customized to individual student needs by selecting what text is read from

pull-down menus. With most talking word processors, students can select other features such as background color, text color, and font size, and can add graphics. Read & Write 5.0 TextHELP Systems Ltd. and Write Out Loud 3.0 are examples of software that includes talking word processing features. Most talking word processors also include a talking spell checking system, which allows students to spell check entire documents or highlight specific words for spell checking. Some spell checkers provide alerting sounds or visual signals for misspelled words and homonym checks to ensure use of correct word form, as well as allowing students to hear an unfamiliar word context and providing definitions. These features offer students powerful visual and auditory strategies.

Synthesized speech, the most common form of talking word processors, pronounces words from the text based on phonetic spellings. Therefore, some pronunciations may not be typical of standard speech. Pronunciation editing, or the capability to adjust the pronunciation of words produced by speech synthesizers, is available with some talking word processors. This feature allows writers to spell words and hear them pronounced correctly rather than phonetically.

3. Word prediction

Another useful tool is word prediction, which augments spelling and syntax to enable users to make choices, find words, and complete sentences. Word prediction programs display words based on frequency of use, grammatically correct usage of words, and most recently used words. Read & Write 5.0 by textHELP is an invaluable tool for students with reading and writing difficulties. It works with any Windows based application and with standard word processors. When a word prediction is active, the user types a letter, and as each letter is typed, the software predicts words accordingly. The user determines the number of words predicted. If the intended word is predicted, the user chooses the number of that word, which automatically inserts it into the sentence. If the intended word is not predicted, the user continues typing letters until the next prediction occurs. In some situations users are required to spell entire words. The dictionary will learn the word and predict it the next time it is used. Read & Write also includes dictionary customization. That is, users can add words to the custom dictionary based on specific content needs. Another support feature is abbreviation expansion, which allows users to increase productivity by allocating abbreviations to a specific phrase or paragraph. Once the abbreviation is typed, Read & Write types the phrase or paragraph. For example, the abbreviation "hyh" would produce "Have you heard about." This application also automatically capitalizes the first word of sentences and the first letter following terminal punctuation it provides automatic spacing when solely using word prediction.

4. Portable note-taking devices

Portable note takers provide an efficient means to record ideas and classroom notes to complete assignments, and to demonstrate writing creativity. Portable note takers allow more time for writing and require less concentration on operating the device. For example, the AlphaSmart 3000 keyboard contains a simple operating system: you turn it on, start writing, and turn it off when finished. Information typed is saved automatically in one of eight separate files holding 100 pages of text. The AlphaSmart 3000 is capable of editing, allowing the user to cut, copy, and paste within and between files. AlphaSmart keyboards interface with Macintosh and PC computers. Get Utility software makes two-way transfer of text possible from a Macintosh or PC to the AlphaSmart, allowing writers to send their documents to a word processor for further

editing and formatting documents on the desktop computer. The AlphaSmart 3000 has a 70,000-word spell check dictionary.

5.Prewriting organizers

 The writing process involves a number of stages. Many writers have difficulty with the planning stage, which incorporates brainstorming, clustering, and listing ideas, themes, or keywords. Some students with learning disabilities find graphic organizers helpful in mapping ideas during the planning stage. Graphic organizers such as Inspiration provide organizational frameworks to help writers generate topics and content for writing projects.

6.Prewriting prompts: Multimedia software

Many software programs incorporate both text and graphics for story writing. Generally, older students are expected to convey ideas via writing without graphic support. However, if the students have limited literacy skills or little prior knowledge in a particular content area they may benefit from visuals and other media for writing.

The software allowed the students to create graphic scenes and then write stories about those scenes. Students using graphics-based software spent more time creating or modifying graphics and less time writing, in comparison with those who used text-based planning software. The researchers found that some students may not have the prior knowledge to develop a coherent story even when graphics are presented. These findings suggest that writing teachers may need to develop a management strategy that ensures a balance between time spent planning stories and time generating actual text.

For students with learning disabilities computers, portable keyboards, and specialized software provide efficient means for recording, editing, and sharing ideas. One of the most valuable benefits is a reliable and immediate legible document. Valuable time is spent communicating ideas rather than correcting writing. In addition editing on word processors allows multiple revisions without recopying, thus enabling students to concentrate more on the content.Writers compose and edit more efficiently when using computer-supported writing tools. Computers improve the quality and quantity of writing. Spelling and grammar supports enable writers to decrease their emphasis on writing mechanics, thus increasing planning time and content generation. Finally, computers make it possible for students who struggle with handwriting to publish neat printed work.

Many students with learning disabilities struggle to communicate their thoughts and feelings. They may have trouble finding the words or using language effectively. The visual arts, such as painting, drawing, music, and computer graphics, can give them a non-verbal way to express themselves and interact with other people. Computer graphics programs in particular can provide alternative avenues for creative expression, and when coupled with the overall classroom software application, use and retention of knowledge and skills can result in students retaining the ability and knowledge to use alternative input devices — often up to two full years after initial use, according to one study .

Combining the arts with technology can create new and exciting ways to keep students motivated and engaged in the learning process and the world around them. Teachers can help reduce

learning barriers by working arts curriculum and technology into students' individualized education programs (IEPs) and the general curriculum.

As with all technology, it is of utmost importance that students with disabilities get the support they need to learn to use the tools and features of the technology. Many sites have tutorials that a teacher or parent can use to structure learning how to use the program. One of the benefits of digital or digitally-recorded art of all types is its ability to be shared far and wide. The literacy and language of critique that are involved in sharing with peers is valuable for students.

Collaboration: Key factors in technology implementation

Collaboration takes on many dimensions in educational settings. Cook and Friend summarized the characteristics of successful collaboration. The most significant for introducing technology to the general education classroom are shared responsibility for participation and decision making and for securing and sharing resources, and shared accountability for student outcomes.

Assistive technology specialist evaluates students' technology needs in collaboration with classroom teachers, related services staff, parents, and students. The specialist takes into account the user's motivation, as well as his or her reaction to particular adaptations. For example, a student may be resistive to using a portable note-taking device. The school staff facilitates the evaluation process by identifying students' strengths and the areas in which they are challenged in general education classrooms. In collaboration, the team determines an appropriate match among devices, setting- specific demands, and student characteristics.

Once the suitable technology is determined, assistive technology specialists are responsible for training and consulting with teachers, students, parents, and related services staff. Classroom teachers and students will be primarily responsible for the integration of technology into daily classroom routines.

Concluding comments

Technology can help students with learning disabilities compensate for challenges in learning, especially in the area of writing, providing computer-supported tools. In addition, this technology can also ease frustration, increase motivation, foster a sense of peer acceptance, and improve productivity in the classroom.The IDEA amendments specify that assistive technology be considered in developing individualized educational plans. Collaborative planning teams must develop a vision of technology for individual students and general education classrooms. Team members need to determine the effectiveness of current technology and closely monitor students to ensure that the necessary modifications are made to reflect the changing abilities of the individuals. The potential of assistive technology for students has not been realized the future was uncertain but holds much promise.A learning disability makes it a challenge for students to progress at the same rate as their peers. Fortunately, technology has helped to make it easier for students to overcome the difficulties that their disabilities have created. Computers, and even cell phones and tablets, have programs or applications that may be used to compensate.The major downside to technology in the classroom would be the distraction factor. With the wide variety of websites on the internet, kids are able to google anything to avoid paying attention in class. These distractions can inhibit students from learning and can seriously affect their academic performance.Moreover, it is important for both the teachers and students to know how to use

technology as an educational asset and not just see an iPad or laptop as interesting and expensive gimmicks. If used properly, technology has been proven to engage students as well as improve intellectual skills like reading and problem solving. And to use these devices properly, teachers will need to be trained. Professors and graduate students from Harvard believe that future teachers need to understand technology and learn how to apply it to education. It is important that parents and students educate themselves on the devices that are available and determine which technologies are most effective for their individual needs.

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