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Benefits of Assistive Technology within the Inclusive Classroom for Students with Disabilities

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Abstract

As the number of students with disabilities in our classrooms grow, it is important to make sure we as educators do as much as possible to accommodate our students with disabilities. The 1997 reauthorization of Individuals with Disabilities Act (IDEA) extends this mandate by requiring Individualized Education Plan (IEP) teams to consider assistive technology. Do students with disabilities in inclusive classrooms benefit from using assistive technology at appropriate times in the classroom? In order to answer this question, I reviewed articles and distributed an anonymous questionnaire to inclusive education teachers in a suburban school district. All questions had to do with the use of assistive technology within the classroom and teacher's experiences with assistive technology and their students. By looking at these articles and questionnaires, I was able to gain a better insight into assistive technology and its academic benefits for students with disabilities when used at appropriate times. Results suggest that when students with disabilities used their assistive technology at the appropriate times, students benefited academically. However, more research needs to be conducted on what strategies teachers should implement to ensure students are using their devices at the appropriate time in order to be beneficial. Teachers also need support in the area of training. Educators are expected to know what device is appropriate for a particular disability, yet there is no specific training beyond the basic operating techniques.

Introduction

Assistive technology has a great impact on students with disabilities' academic performance within the inclusive classroom. Through professional experience in my internship, I have noticed that there is plenty of assistive technology available. However, getting students to use the technology is another story. I became very interested in this topic because I noticed that students with disabilities in my school have not been utilizing their assistive technology at appropriate times, thus leading students with disabilities to not be as academically productive as possible. Instead of students using their Alpha Smart to takes notes or begin writing an essay, they just sit in their seats waiting for a teacher to tell them to use it. Students seem to do this because they do not want to be different than their peers. Sixth grade is a time for making sure students fit in, they do not want to stand out. Students with disabilities should understand the importance of their assistive technology and be taught strategies regarding when it is an appropriate time to integrate it into their classroom setting. Thus, this will lead students to be more productive with their academics and self-determined.

Through studying the laws in my graduate studies classes, I have learned assistive technology should be an important part of every student's Individualized Education Plan (IEP) when appropriate for those students. Merbler, Hadadian, & Ulman (1999) state that the Individuals with Disabilities Education Act (IDEA) requires schools to provide assistive technology services and equipment for a student with a disability if the services and/or equipment are required to ensure a free and

appropriate public education. They also state that the 1997 reauthorization of IDEA extends this mandate by requiring IEP teams to consider assistive technology as a special factor when developing a student's IEP. Furthermore, Section 504 of the Rehabilitation Act and American Disability Act requires equal access to assistive technology for students with disabilities (Merbler et. al., 1999). This will ensure students a free and appropriate education. If a student's IEP mandates that assistive technology be used to accomplish work that other peers can accomplish, it is to be provided at the school's expense. These laws allow students with disabilities to work along side their peers as equals, with the help of assistive technology.

Two major theorists' theories lie around the concepts of technology within a student's life. Erik Erikson states within his latency stage, children age's six to eleven should be receiving systematic instruction, as well as the fundamentals of technology (Peterson & Hittie, 2002). Therefore, if students are provided the knowledge and strategies of how to use technology of any form it will continue into their adulthood. They will be able to know how and when to use different forms of technology to be beneficial in their academics. However, this stage is very much influenced on peer's perceptions of themselves. There is a danger of a sense of inadequacy and inferiority if a child despairs of his tools/skills and status among peers, therefore students are heavily influence by their peer's perceptions. It is important to make sure that students feel comfortable and at ease with the technology available to them and their skills to use the technology. If students do not feel comfortable, then assistive technology will not be beneficial. Erikson's adolescent

stage also plays a role in the use of assistive technology within the classroom. This stage focuses on student's struggle to develop an ego identity (sense of inner sameness and continuity) and a preoccupation with their appearance (Peterson & Hittie, 2002). These tie directly into Erikson's latency stage because if students do not feel at ease with the technology they are using, they will shy away from it and no longer use it. Students want to feel as if they belong, they do not want to be different.

Another theorist is Carol Gilligan; she states that individual's build on sense of self, rather than cognitive abilities (Peterson & Hittie, 2002). Gilligan's studies also focused on differences of student's abilities in relation to their gender. Gilligan felt that Erikson and other's theorists systems were based on a male-centered view. Gilligan changed the way of thinking by producing her own stage of moral development for women (2002). Gilligan and Erikson's theories both show that students need to first be comfortable with themselves and their skills, and then they will be comfortable with those around them. By having students learn new strategies on implementing assistive technology into their daily lives, they will in turn be comfortable with their skills and feel like one within the classroom environment.

Therefore, I want to study the role that assistive technology plays within the inclusive classroom to promote academic performance. I would like to know if assistive technology impacts a student's academic performance within the inclusive classroom. Assistive technology has been around for many years; however, it has taken many different forms in order to get where it is today. Lewis (1998) states, before computers low tech devices were used within the classroom, such as rulers to

keep a student's place while reading, audiotape recorders for a student with learning disabilities to compensate for memory problems, and larger pencils for students who couldn't hold their pencils.

As years have passed, hardware and software has become more advanced. Computers have become an important part of every classroom. Hardware and software has been targeted at general audiences so that is well designed and flexible enough to meet the instructional needs of a range of students, with and without disabilities. Within the classroom CD-R drives in computers are helpful for storing students' work, such as portfolios, created in Hyper-Studio, a multimedia authoring software program. (Merbler, Hadadian, & Ulman, 1999). These have allowed teachers to engage students and see what their students are capable of accomplishing.

Merbler, et. al., (1999) state there is an overall agreement that computers and other technologies have great potential for enhancing the capabilities of children, youth, and adults with learning disabilities. However, there are many more students with disabilities in our classroom today. It is important to make sure we as educators do as much as possible to accommodate our students with disabilities. Therefore my research question is: Do students with disabilities in inclusive classrooms benefit from using assistive technology at appropriate times in the classroom? To answer this question, I will be looking at different research articles, which focus on this topic. By looking at different research articles, hopefully I will be able to have a better insight into assistive technology and its academic benefits for students with disabilities.

Review of Literature

IDEA mandates educators to incorporate assistive technology into an IEP whenever is appropriate for the student (Merbler, Hadadian, & Ulman, 1999). It is important to consider all service possibilities while developing an IEP for a student. As educators it is our responsibility to make sure assistive technology is incorporated and provided within the classroom for students with disabilities. Allowing students access to individualized assistive technology will help students maintain full access to the curriculum and ensure they are receiving a free and appropriate education. When prescribing the appropriate assistive technology for a student it is important to take into consideration family and educators goals for the student. Assistive technology will become a major component of a student with disabilities life, inside and outside of the classroom. While prescribing the assistive technology it is important to determine what will be appropriate and beneficial for all students.

Educational Laws

Many laws and regulations help make assistive technology available for students with disabilities within the inclusive classroom. IDEA, Section 504 of the Rehabilitation Act, American Disability Act and No Child Left Behind Act, all play key roles in making sure students with disabilities are receiving a free and appropriate education (Merbler, Hadadian, & Ulman, 1999). As Merbler et. al., (1999) stated prior, the 1997 reauthorization of IDEA requires IEP teams to consider assistive technology as a special factor when developing a student's IEP. School districts are now searching for tools that they can use to ensure IEP teams meet the laws. If

students do require assistive technology, it is the school's job to provide it for the child to ensure they are receiving an equal education. One change that has been made possible because of the No Child Left Behind Act is making sure students with disabilities test scores are included in the standard scores reported (No Child, 2003).

By having laws that mandate assistive technology is considered as part of a student's IEP, it is important to determine tools that educators and schools would need to make that a reality. Schools need individuals who will advocate for mandating assistive technology for those students who need it within the classroom. Too many students are not given opportunities to ensure that their needs are met with the help of assistive technology. By educating our future and present teachers about what assistive technology is available, it might ensure that schools try to integrate it into their students' plans.

Integration of Assistive Technology

The integration of assistive technology within the inclusive classroom will allow students with disabilities full access to the curriculum and instruction. Warger (2003) suggests this process begins with the educators who must start with the curriculum and then determine what tools might assist students in achieving the outcome. Research-based applications show how technology is being integrated into the curriculum and instruction to support a wide range of student's abilities. Assistive technology is aligned with instructional arrangements and student's particular learning needs. Other researchers, Bryant, P., & Bryant, B (1998) state that assistive technology must match learning characteristics and assist students in fulfilling

educational program objectives by considering the setting demands, individual characteristics and adaptation for participation in group activities. The process of selecting appropriate instructional adaptations for students with learning disabilities may be identified by their teachers, technology specialists, users, families, job coaches, technology team, administrators and funding specialists. They also state that in order to best accommodate for a student's needs, their academic barriers must be determined and then assistive technology might be deemed the appropriate adaptation. By providing assistive technology, it circumvents the disability related barriers. Therefore, allowing students with disabilities to learn and play along side their peers (Johanson, 1997).

Assistive technology such as computers and adaptive devices allow students to interact with their environment. It is an important equalizing tool for children, which has been shown to have a great impact on students, if they are used appropriately (Johanson, 1997). Assistive technologies, when used by a verbal or non-verbal student help aid communication with peers. Students who may have had trouble communicating can use software programs that specialize in speaking for the student. Adaptations should be made during cooperative learning activities because students with disabilities do not possess the academic and collaborative skills needed to be successful (Bryant P., & Bryant, B, 1998). Another time assistive technology should be implemented is when students are taking tests. Educators must make sure student's assistive technology accommodations included in their IEP, are provided.

Through my review of the related literature, I have determined that not all

students will benefit from the use of assistive technology within the instructional setting. It is important to make sure educators form relationships with parents regarding the integration of technology they will be using with their child. It might prove to be beneficial if educators know the effects assistive technology has on their students' families. Training might be an option in ensuring that educators and families are instructed on the skills needed to use the assistive technology. However, while researching Hider's (2000) case studies, which included five families attending an assistive technology camp, it was determined that training did not play a big role in ensuring students used the technology within the instructional setting. Therefore, if assistive technology is not integrated with the help of families and educators working together it will not always be beneficial.

Integrating assistive technology into the classroom is not the only accommodation educators must provide for an appropriate education for all students. There should be more research on what the other aspects are to consider when integrating the assistive technology into the classroom. Educators need assistance in developing strategies to implement assistive technology into their classroom, just as students need the strategies on when to use the technology.

Prescription of Assistive Technology

Families and educators are key components in prescribing assistive technology for students with disabilities. Teachers need to take a great deal of caution when prescribing assistive technology for their students. The key is for teachers to determine whether the assistive technology adaptations they have

prescribed or are currently prescribed are instructionally beneficial for students with disabilities. Wager (2003) suggests teachers need to effectively organize, monitor, and evaluate assistive technology devices to make sure they are meeting each student's needs. Families can also make sure the assistive technology is appropriate and meets their child's educational needs by monitoring their child and communicating with educators on a continuous basis.

Dedicated teachers and researchers play important roles in making sure assistive technology is provided for students. Milone (2000) states that one dedicated teacher wrote a grant to ensure that her students with disabilities were provided with assistive technology. She used "the reverse inclusion model," which ensured that she was meeting the learning needs of all students within the inclusive classroom. She upgraded technology by giving students exposure to sticky keys, instructional audio software to aid students with visual impairments, and used special keyboards for students with orthopedic disabilities. Other researchers, Merbler, Hadadian, & Ulman (1999) state it is important to customize assistive technology to meet each student's needs. Standard keyboards may pose numerous problems for children with disabilities. They feel the standard keyboard is overwhelming at times. Therefore, they suggest some alternative keyboards such as, Programmable overlays (Intellikeys), Chording, Miniature keyboard or an On-screen keyboard.

Other important devices that have been integrated into the classroom are: Word processing, computer-based instruction in reading and other academic areas, and interactive video disc interventions for math and technologies for every day skills

(Lewis, 1998). Word processing is helpful for students with poor handwriting and for students who need text alterations. Computer Based Reading Instruction can improve skills (word recognition and decoding, however is less effective for improving comprehension. Lewis (1998) states these have overall positive effects on achievement in reading problems. However, it is important to remember that just providing assistive technology devices is not sufficient; students with learning disabilities will not edit and revise papers unless they receive specific instruction in the editing process (Merbler, Hadadian, & Ulman, 1999). Students need to be taught strategies that will encourage them to use the assistive technology to be beneficial.

While prescribing assistive technology individually to each student, it is important to consider all students' educational needs. If students are not provided with sufficient devices early on, they may retain problem areas well into their adult lives. However, if students are provided with sufficient devices early on it may make them more marketable for jobs in the future. Students will have the job skills needed to be employed in the future, unlike those who have had insufficient devices throughout their schooling. Using software that is available on computers such as spell checkers, Co-Writer and Musical Instrument Digital Interface can be beneficial for students with disabilities. Students will be able to interact with software alongside students without disabilities and feel like an equal. Merbler, Hadadian, & Ulman (1999) suggest proficient use of Word Prediction Software, such as Co-Writer can enhance a student's ability to complete writing assignments independently and with reduced physical effort. Musical Instrument Digital Interface (MIDI) enables

students with limited motor ability to play music using only their computer (1999).

Prescribing assistive technology for students during testing can be beneficial for students because standard test accommodations do not provide students with visual impairments access to graphics (Landau, Russell, Gourgey, Erin, & Cowan, 2003). A study by Landau et. al., (2003) examined the use of a Talking Tactile Table in mathematics; it proved to have a positive impact on the performance of students who were visually impaired or had difficulties visualizing graphics and diagrams.

In addition to the role a family plays in integrating assistive technology, families also can critically impact the prescription as well. Families must also be active members in making decisions regarding assistive technology for their children. Culture, linguistic backgrounds, time, money and results are all major issues surrounding families. Parette & McMahan (2002) state different cultures have different expectations of assistive technology for their child, some want immediate results and immediate use of the assistive technology devise. If results of assistive technology are not what a family expects, they might abandon the device. Since we as educators do not want this to happen, it is important that we take into consideration each family's expectations and goals. Assistive technology is heavily influenced by cultural/linguistic backgrounds. African American families may prefer not to use assistive technology that calls attention to their child (Parette & McMahan, 2002). Therefore, when prescribing assistive technology, educators have to look at the family's cultural background. They cannot assume that all cultures value the prescriptions of assistive technology the same way as others. By taking the time to

understand families' backgrounds will help schools and families work together to prescribe the appropriate assistive technology.

Parette & McMahan (2002) also suggest the time required for assistive technology training might pose additional issues for family members. Parents do not always have enough time to be trained to use the assistive technology efficiently to help their child outside of the classroom. Funding may also pose a problem because it may take weeks for student's families or schools to be provided with the money needed to pay for the equipment. By the time the family or school receives the assistive technology it might not be as beneficial for the child as it could have been if used earlier in the year.

Families and educators should be an important key to determine what types of assistive technology prescribed will be beneficial for each student with a disability. There are many issues surrounding assistive technology that still need to be researched, such as research literature on Word Processing for students with learning disabilities. Word Processing has not been subjected to a systematic study. Also, research shows that The Talking Tactile Tablet helps students with visual impairments, however we do not know if it will help students who are sighted.

Conclusions

Based on the research, I have concluded that there are still many aspects of assistive technology that need to be researched. Assistive technology is generally effective for students with disabilities providing a professional has watched individual needs and the appropriate device and service. However, not all disabilities have been

studied. Professional experience in my internship has led me to believe that if students use the assistive technology at appropriate times throughout the day, they will be more effective with their academics. Students at my school have been provided with the assistive technology they need to be successful within the classroom setting. However, they do not always utilize it at the correct time. The main components students need to be taught are strategies that will ensure they utilize the assistive technology at the appropriate time.

Students I have been observing follow closely to Erikson's stages. Sixth grade is a time for students to be self-conscious; therefore, Frequency Modulation (FM) systems are not used as much as they should be to be beneficial. Students often have excuses not to wear their FM system, when I sense they are really wondering what everyone is thinking about them. Gilligan's theory, which states that individuals build on self, rather than cognitive abilities, is directly related to Erikson's theory of self-image. Students are concerned about what everyone else thinks about them, and that hinders what technology they will use. They want to be considered an equal to their peers; they do not want to stand out. Therefore, a student's first priority is their image and then their need for learning. Once students develop their own self-image, then they will be able to accept the assistive technology needed to be successful without fear of public embarrassment from their peers.

Therefore, I studied the role that assistive technology played within the inclusive classroom to promote academic performance. Assistive technology has a great impact on student's academic performance within the inclusive classroom.

Students who are able to use assistive technology have greatly flourished. However, students need to be matched individually with the specific assistive technology that will be beneficial to them and begin using strategies that will help them utilize the devices. Watching students within my internship placement not utilizing their assistive technology at appropriate times led me to be interested in this topic.

As seen in my internship, students who did not utilize their assistive technology had little to no effect on their academic performance. However, when students did utilize their assistive technology they improved a significant amount. I have seen a student improve her math grade significantly by just picking up a calculator. I have also seen a student more excited about writing because he gets to use the computer. Overall, making sure assistive technology is a part of the every day inclusive classroom has made a significant impact on academics, but it cannot act alone. Students need to be taught the strategies and need to know when to use it. Students will, in turn, try harder and feel as though they are part of the group when they can stay right along side their peers.

Research conducted by Montgomery, Karlan, & Countinho (2001) states that students' inability to spell correctly inhibits the effective use of spelling correction technologies such as a dictionary and word processors. Spell checkers alone cannot eliminate the written expression deficits of students with learning disabilities. In order for spell checkers to be effective, they need to produce target words for misspelling within the first screen or first three suggestions. However, this is only one researched assistive technology device's effectiveness out of many. By

conducting more research on specific benefits of assistive technology for specific disabilities, it will help students with disabilities flourish in the inclusive classroom. Students with disabilities will also benefit significantly if they are provided strategies to ensure they are using their assistive technology at the appropriate time. By ensuring that educators and families work together following regulations to integrate and prescribe assistive technology to meet all students' individual needs will have a great impact on all students with disabilities academic performance.

Therefore, after my review of the literature, I have determined that my research question: Do students with disabilities in inclusive classrooms benefit from using assistive technology at appropriate times in the classroom? is still unanswered. To gain further information about this question, I will be distributing an anonymous questionnaire to inclusive education teachers in a suburban school district. All questions will have to do with the use of assistive technology within the classroom and teacher's experiences with assistive technology and their students. By looking at these questionnaires, I hope to have a better insight into assistive technology and its academic benefits for students with disabilities when used at appropriate times within the classroom.

Methods

The research question I am planning to study is: Do students with disabilities in inclusive classrooms benefit from using assistive technology at appropriate times in the classroom? I am looking to see if students benefit academically from assistive technology if they are taught strategies to help them implement the assistive technology at appropriate times.

Subjects

All subjects in the study are teachers in a suburban school district who teach in inclusive classrooms. The ethnicity is Caucasian for all subjects who are primarily female, with the exception of one male. They teach in grades six through twelve.

Instruments

The instrument that is going to be used in this study is an unpublished instrument created by the researcher for the purposes of this study. All of the questions have to do with the use of assistive technology in the classroom and the teacher's experiences with assistive technology and their students (see Table 1). Reliability and validity information is planned to be computed during the study.

Procedures

I am planning to distribute the questionnaires in one weeks time (February 26, 2004 to March 4, 2004) by placing them in school mailboxes. They will be attached to a blank envelope with directions to place the completed questionnaires in the sealed envelope in the researcher's mailbox by March 5, 2004. No identifying information will be associated with the collection of the instrument. Questionnaires

will be collected by the researcher and analyzed. Planned statistical analyses will include descriptive statistics such as percentages, mean and standard deviation. A correlation graph will also be used to interpret the information on the variables collected at the end of the study. The graph will be used to portray the relationship between the variables of benefits of assistive technology to increase student's performance in relation to using the assistive technology at the appropriate time. Inferential statistics will be computed using a One-Way Analysis of Variance (ANOVA). It will be used to show if a significant difference exists between how teacher training effects the strategies teachers implement to help students know appropriate times to use the assistive technology. During the study reliability will be determined by using Statistical Package for the Social Sciences, (SPSS 12.0). The validity is planned by having an assistive technology technician review the researcher's instrument to ensure all questions are of significant importance to obtaining information in regards to the benefits of assistive technology for students with disabilities.

These are the subjects, instruments, and procedures the researcher will use to conduct the study. All information that is found will be presented in the results section. Any changes that were made in data collection and analysis will be dealt with in the results section.

Results

The research question I studied was: Do students with disabilities in inclusive classrooms benefit from using assistive technology at appropriate times in the classroom? All of the analyses I had planned in the methods section were not computed due to small sample size and wording of questions on the survey.

Descriptive Statistics

Percentages, means and standard deviations (N = 6) were computed using Statistical Package of the Social Sciences (SPSS 12.0). Results are shown (see Table 2).

Inferential Statistics

An assistive technology expert examined the content of my teacher survey, and concluded it was valid. The reliability was found to be unreliable through SPSS 12.0. The One-Way Analysis of Variance (ANOVA) planned was not computed because of a limited amount of available subjects. Post hoc, two Paired Sample T-Tests were computed using SPSS 12.0. One was computed to determine if a significant discrepancy existed between how teacher training affects the strategies teachers implement to help students know appropriate times to use the assistive technology. No significant differences were found for any items. The results are as follows ($t = -2.236$, $df = 1,5$, $p = .076$). The second was computed to determine if a significant discrepancy existed between, students' benefits academically when they used the assistive technology at the appropriate time. The results are as follows, ($t = 1.581$, $df = 1,5$, $p = .175$).

Conclusions

The research question I studied was: Do students with disabilities in inclusive classrooms benefit from using assistive technology at appropriate times in the classroom? Through professional experience in my internship, I have noticed that there is plenty of assistive technology available. However, getting students to use the technology is another story. I became very interested in this topic because I noticed that students with disabilities in my school had not been utilizing their assistive technology at appropriate times, thus leading students with disabilities to not be as academically beneficial as possible. In order for me to determine if a significant discrepancy existed between the two variables, I developed a questionnaire for inclusive educators in a suburban school. The questions all pertained to the uses of assistive technology for students with disabilities and the benefits observed by teachers. Through data collection, no significant discrepancies were found.

Limitations

The researcher found limitations to lie in the small amount of volunteers available and the small sample size that was used. Volunteers were only from one suburban school district in grades six through twelve. Therefore, the sample size was limited to those in the inclusive education department. The school district surveyed was a suburban school district, therefore limiting teachers' observations in rural or urban school districts. Also the school that was surveyed only had students with mild to moderate disabilities. Therefore, the researcher assumes there was a limited amount of assistive technology being implemented because of the lack of students

with severe disabilities. Results of reliability are inconclusive. Future research might include the development of a new survey, with more appropriate questions.

Uses of Assistive technology

Through this research study, I have determined some findings concur with Hider's (2000) case study. Hider determined that training did not play a big role in ensuring that assistive technology was used. I also found that teachers who said students benefited from assistive technology within the classroom had little to no training. Therefore, there seems to be no relationship between teachers trained to use assistive technology and students' academic benefits. The findings also concur with Merbler, Hadadian, & Ulman (1999) who state students need specific instruction from teachers in order to benefit academically while using assistive technology. In this research study it was determined that teachers implemented different strategies that promoted students to independently use their assistive technology devices. This helped students benefit academically because they knew when to use their devices.

In contrast, no information existed before surrounding the benefits of assistive technology when used at the appropriate times. The findings seem to suggest there is a relationship between students being taught appropriate times and academic benefits observed. Therefore, if teachers continue to implement strategies for students to know when to use their devices, then there may be an increase in academic benefits.

Assistive Technology Support Systems

Of particular interest was an unexpected finding of the study. This find had to do with the amount of assistive technology training educators have been provided

with and expectations placed on special educators surrounding their abilities to implement and prescribe different forms of devices for students with disabilities.

While the finding did not reach significant levels, a trend was observed in questions six through ten having to do with assistive technology teacher training and the implementation and prescription for students. Educators are expected to be knowledgeable about different types of assistive technology for their students with disabilities, yet they are minimally trained. The data suggest that teachers have only been provided with the basic training needed to operate the assistive technology. This training is not specific enough to ensure special educators know certain modifications to implement that will be helpful for students. Special educators need to be trained how to implement different devices into the curriculum for students with disabilities in order to modify and achieve success. Without support, it is unreasonable to think that educators will be successful at doing this.

Although Hidler (2000) found that training did not play a big role in ensuring assistive technology was used and in turn beneficial for students. No information was found in the review of the literature about the importance of ensuring teachers receive support in the area of assistive technology training. Teachers need opportunities to enhance their knowledge of assistive technology, specifically additional modifications for particular devices. At this point, teachers are only implementing general strategies such as, coaching, reminders and cues to ensure their students are using the devices. This is not sufficient. All teachers are able to do these; the strategies need to be more particular to devices.

Therefore, some recommendations for future research might include making sure schools provide professional development training in the area of assistive technology. At the present time, data suggest that no training, besides basic operational techniques is taking place. Also, there is no bridge between assistive technology and modifications or applications teachers can implement with students. More research needs to be collected in regards to specific strategies that teachers can implement for students with particular disabilities. This might include determining specific forms of assistive technology that will be beneficial for specific disabilities.

In conclusion, the future of academic benefits from the use of assistive technology for students with disabilities looks hopeful. As more assistive technology becomes available it is important to make sure our educators stay informed through training, focusing on specific modifications for devices that will benefit their students' specific needs. By continuing research on assistive technology, it might ensure students with disabilities are achieving success within the inclusive classroom.

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Table 1

Questions from Survey

1. Do students with disabilities you work with in inclusive classrooms use any forms of assistive technology (Word Processor, Alpha Smart etc...)?

2. If yes, what assistive technology devices do the student(s) use?

3. Do you feel the assistive technology students use benefits their academic progress? (Increases grades of written assignments, etc...) Please explain.

4. How do your students know when it is an appropriate time to use their assistive technology? (Example, F.M. System at the beginning of class, etc...)

5. What strategies, if any, do you integrate in order for students to know when it is an appropriate time to use their assistive technology?

6. Have you ever participated in a training program to help you use assistive technology or to know when to use it with your students? Please explain.

7. If yes to question 6, was it beneficial, please explain? If no, would you have liked to participate in a training session?

8. When developing or reviewing IEPs, do you consider assistive technology an important service in the plan? Please explain.

9. How do you go about prescribing the best assistive technology for students?

Table 2

Paired Samples Statistics (Percentages, Mean and Standard Deviation)

		Mean	Percentages	Std. Deviation
Pair 1	Do students benefit from using AT?	1.0000	100%	.00000
	Do students know appropriate times to use AT?	.8333	83%	.25820
Pair 2	Have teachers been trained to use AT?	.4167	42%	.49160
	Do teacher implement strategies for students, so they know when to use AT?	.9167	92%	.20412

The author Natalie Erin Bruzee was born in Newark, New York on

She attended State University of New York College at Brockport from 1999 to 2003 and received a Bachelor of Science in English in 2003. She began work toward a Master of Science in Special Education at the State University of New York at Brockport in the Summer of 2003.

Natalie E. Bruzee

EDUCATION

Master of Science in Childhood Special Education
State University of New York, College at Brockport, May 2004

Bachelor of Science, Major: English
GPA 3.44, Dean's List for eight consecutive semesters, Sigma Tau Delta
State University of New York, College at Brockport, May 2003

TEACHER CERTIFICATION

New York State Provisional Certification:
Special Education, Grades 1-6, September 2004
Elementary Education, Grades PreK-6, September 2003
Orlo L. Derby Award in Elementary Education
English, Grades 7-12, September 2003

RELATED EXPERIENCE

Intern — **Greece Odyssey, Grade 6**
Fall 03-Spring 04 — Rochester, New York

- Co-taught in various subjects, individualizing instruction to meet needs of all students
- Participated in CEC meetings and reviewing IEP goals, objectives and services
- Conducted norm-referenced assessments
- Empowered students with disabilities to set high expectations and realistic goals

Assistant Camp Counselor — **Camp Abilities**
Summer 2003 — **SUNY College at Brockport**
Brockport, New York

- Empowered children with sensory impairments and multiple disabilities to be physically active, maintain confidence and increase self-esteem
- Taught sports and recreational activities to children with sensory impairments
- Helped conduct research on students with visual impairments

Teacher Candidate — **School #17, Grade 5**
Spring 2003 — **School #12, Grade 3**
Rochester, New York

- Planned and implemented units integrating all areas of the curriculum and standards
- Implemented management strategies, effectively maintaining student's learning
- Adapted lessons to meet individual student's needs
- Participated in parent-teacher conferences

Teacher Candidate — **School #12, Bilingual Kindergarten**
Fall 2002 Semester — Rochester, New York
Spring 2002 Semester — **Ginther Elementary, Grade 1**
Brockport, New York

- Instructed hands-on lessons and cooperative learning activities
- Assessed mathematics abilities of students

Substitute Teacher and Aide — **Newark Central School District, Grades K-12**
Semester Breaks (1998-2002) — Newark, New York

- Taught developed lessons to students and implemented classroom management

EMPLOYMENT

Server — **Swiss Chalet**
5/03-1/04 — Rochester, New York
5/00-8/03 — **Ramada Inn**
Geneva, New York

- Interacted daily with customers and made sure their needs were met with fast and friendly service

Student Secretary in English Department — **SUNY College at Brockport**
1999-2003 Academic Year — Brockport, New York

- Advised students with academic courses and organized departmental documents

REFERENCES

Furnished upon request