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Implementation of Assistive Technology in the Classroom

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Abstract
Assistive technology (AT) can be defined as "any piece of equipment or device that may be used by a person with a disability to perform specific tasks, improve functional capabilities, and become more independent" (Netherton & Deal, 2006, p. 11). Assistive technology can be used in the classroom to help assist students become successful in tasks otherwise not possible. A review of the literature shows that many teachers have difficulties implementing technology seamlessly into the curriculum because of a lack of funding and training. This research focused on teachers'' perspectives of assistive technology in the classroom and the training they have received to be successful in implementing a variety of technology into the classroom curriculum. A study was conducted at several suburban school districts located in Western New York consisting of teachers in a variety of subjects and grade levels. Each of the participants answered an anonymous survey to see how much training they have received for using assistive technology and if they felt the training was beneficial and what types of training would be most beneficial to teachers according to their perspective.

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Abstract

Assistive technology (AT) can be defined as "any piece of equipment or device that may be used by a person with a disability to perform specific tasks, improve functional capabilities, and become more independent" (Netherton & Deal, 2006, p. 11). Assistive technology can be used in the classroom to help assist students become successful in tasks otherwise not possible. A review of the literature shows that many teachers have difficulties implementing technology seamlessly into the curriculum because of a lack of funding and training. This research focused on teachers' perspectives of assistive technology in the classroom and the training they have received to be successful in implementing a variety of technology into the classroom curriculum. A study was conducted at several suburban school districts located in Western New York consisting of teachers in a variety of subjects and grade levels. Each of the participants answered an anonymous survey to see how much training they have received for using assistive technology and if they felt the training was beneficial and what types of training would be most beneficial to teachers according to their perspective.

Assistive Technology in the Classroom

Technology has potential for students in the classroom because it allows active involvement and assists students in completing tasks. Assistive technology can be used in the classroom setting to help support a variety of learners. The use of technology in the classroom has positively affected the movement of inclusive education because technologies available to students allow them to be successful in tasks they otherwise would not be able to perform. There are a wide range of devices that can be considered assistive technology. For example, assistive technology can be tennis balls on the bottom of a chair to diminish noise that is inexpensive or it can be relatively more expensive, such as an interactive tablet for a student to use to take notes. However, studies have shown that there is a need for professional development for teachers, parents, and students of how to best utilize assistive technology for students. Research has shown that assistive technology can be imperative to students' achievement in tasks that would otherwise be inaccessible. However, many times assistive technology is not implemented correctly or is not used because of the lack of professional development or training for teachers, parents, and students.

The proper implementation of assistive technology in the classroom to assist students in tasks they otherwise might not able to compete requires training for the student and teachers. If teachers are not trained properly then assistive technology may not be implemented properly, or may not be implemented at all. Therefore, the action research study focuses on teachers and their attitudes toward using assistive technology in the classroom and the level of training or professional development to how to successfully implement technology in the classroom.

The goal of this study was to determine the level that teachers are trained to utilize assistive technology in the classroom to help students reach high levels of achievement. As a

result of this study I expected to find a need for further professional development for teachers in implementing assistive technology in the classroom. I also wanted to find out if a correlation existed between teachers' attitudes toward assistive technology and the use of technology in the classroom. Lastly, I wanted to see if a correlation existed between teachers' training or professional development and the use of assistive technology in the classroom. An anonymous survey was developed that asked teachers questions about their level of training with assistive technology and if technology is implemented in the curriculum. It also asked if they felt they were prepared to teach using different types of assistive technology. I analyzed the survey answers and compared it to literature on the lack of training provided for teachers to see if any of the correlations existed.

Literature Review

Allowing all students the opportunity to be successful in the classroom is important for educators, parents, and students. Recently, education has increasingly changed from an exclusive model to become a more inclusive model that places students with a variety of needs in a general education classroom. This has increased the need for educators to support the different learning styles of all learners within the classroom. Technology has potential for students in the classroom because it "promotes active student involvement in the learning process and assists students in accessing and organizing information" (Maccini, Gagnon, & Hughes, 2002, p. 247).

Assistive technology (AT) can be used in the classroom setting to help support a variety of learners. The use of technology in the classroom has positively affected the movement of inclusive education because technologies available to students allow them to be successful in tasks they otherwise would not be able to perform. Assistive technology can be defined as "any piece of equipment or device that may be used by a person with a disability to perform specific

tasks, improve functional capabilities, and become more independent" (Netherton & Deal, 2006, p. 11). Therefore, there are a wide range of "devices from low technology to high technology items as well as software" that can be considered assistive technology (Maushk, Kelly, & Blodgett, 2001, p. 420). For example, assistive technology can be a pencil grip that is inexpensive or it can be a laptop with a word processing program that is relatively more expensive.

The purpose of assistive technology is to "help students with disabilities participate in and complete tasks they would not otherwise be able to complete" (Simpson, McBride, Spencer, Lowdermilk, & Lynch, 2009, p. 173). Therefore, assistive technology allows students with a disability to perform tasks and assignments that they would not typically be able to do without the necessary supports to be successful in the general education classroom (Quenneville, 2001; Netherton & Deal, 2006; Sze, 2009). "Individual education program (IEP) team members are now mandated" by law to consider assistive technology "for every student when developing IEPs" (Messinger-Willman & Marino, 2010, p. 6). It is necessary to provide assistive technology when a student needs the technology to support a "placement in the least restrictive environment," "ensure that a student benefits from his or her education," and to "implement the goals and objectives in the student's IEP" (Netherton & Deal, 2006, p.12). Assistive technologies used by students in his or her education may be needed within the community or workplace if it helps the student to accomplish tasks that otherwise may not be accessible (Netherton & Deal, 2006). Using technology helps to promote "belonging and interactive participation" (Quenneville, 2001, p. 169). The use of the technology for a student with a disability can help the student feel a part of the classroom community because he or she can

complete tasks with the students without disabilities; this also can apply to tasks within the community or workplace.

Applications of Assistive Technology

Many different applications of assistive technology exist within the classroom community depending on the student's individual needs. There are several "areas of application" including "existence, communication, positioning, mobility, physical education, and environmental interaction" (Simpson et al., 2009, p. 173).

Applications that assist with existence are functions that "are necessary to sustain life" (Poel, 2007, p.64). Examples of activities associated with existence include personal care, sleeping, and feeding. Many of these technologies are low-tech devices that are typically inexpensive; spoons with larger handles or devices that help with putting on your shoes are examples of low-tech devices. However, high-tech devices do exist to help in this application and they may be more expensive, such as "augmentative communication aids, powered mobility equipment, and computers and peripheral devices" (Judge, 2000, p. 125).

Applications within communication "includes both oral and written expression, as well as visual and auditory reception and social interaction" (Simpson et al., 2009, p. 174). These technologies can help improve participation because it allows a student to communicate with his or her peers. Examples of technologies available to aide in communication include message boards, FM systems, and picture systems (Poel, 2007; Simpson et al., 2009).

Students that have physical disabilities may need assistive technology to assist with positioning. Examples of assistive technology that facilitate positioning include wheelchairs, braces, and tilt tables (Poel, 2007; Simpson et al., 2009). For this type of assistive technologies a physical or therapist typically will make the recommendation, but any member of the student's

IEP team may also recommend any technologies necessary for the student to be included in the least restrictive environment.

Physical disabilities may lead to a need for assistive technology for mobility. "Mobility encompasses a number of skills, such as walking, using the stairs, and transferring from the wheelchair to other seating" (Simpson et al., 2009, p.174). Examples of technologies for this application include canes, wheelchairs, and walkers. The application of physical activity has many different technologies available to help students be successful. Specialized technologies can adapt wheelchairs to allow students to swim, bike, or participate in other activities with peers (Poel, 2007). Typically students that require technologies for physical activities will have an IEP that includes the technologies required to be successful.

Another application of assistive technology is "environmental interaction, which includes activities associated with daily living" (Simpson et al., 2009, p. 174). Examples of technologies for this application include adjustable desks, alternative light switches, and switches for computers (Poel, 2007; Simpson et al., 2009). This application is important to the level of independence an individual has in the classroom and community.

Assistive technology allows "students to complete tasks more effectively and efficiently than otherwise possible while becoming more involved in their classroom" (Messinger-Willman & Marino, 2010, p. 6). Assistive technology helps students obtain independence in areas that otherwise may not be obtainable. Therefore, students belong and feel included within the classroom community because he or she can complete tasks independently as possible.

Availability and Selection

For each of the applications of assistive technology there are typically several options available. Assistive technology exists on a continuum from no tech—requiring no aids, to light-

tech or low-tech that requires attainable adaptations that are typically available, to high-tech options which include computers and other electronic devices (Watson & Johnston, 2007).

Selection of assistive technology requires planning to ensure that the most appropriate technology is the final product of the process. The first phase of planning is to come to a decision what type of assistive technology will meet the instructional needs of the student (Messinger-Willman & Marino, 2010). Once the type of assistive technology is decided then a technology must be located and reviewed to ensure it will meet the needs of the student that were identified (Messinger-Willman & Marino, 2010). However, selection may be difficult because "The technology used within the classroom needs to be aligned with both the instructional arrangement as well as the students' individual needs" (Simpson et al., 2009, p.174). Just because a high-tech option is available does not mean that it would be the most suitable technology for a student, and just because there is a low-tech option available does not mean that choice will always work. Since all students have different needs "a 'one size fits all' approach is never appropriate" in selecting assistive technology (Simpson et al., 2009, p. 174). Therefore, teachers should select assistive technology "based on individual student characteristics including their current skills, the task, their goals, and objectives" that are indicated in the students IEP (Messinger-Willman & Marino, 2010, p. 9).

There are several factors to consider when selecting the technology to use with a student such as training necessary, individual performance, independence, and the students capabilities (Blackhurst, 2005). When selecting an appropriate assistive technology it is important to consider the outcomes for the student and how easily the student can use the technology. A student needs to be capable of using the technology to increase his or her independence at certain tasks or objectives (Blackhurst, 2005). If the student isn't capable of using the technology

independently, then the technology will hinder the student's development. The goal of technology is not to hinder the development of students, but to provide assistance in accessing skills or completing tasks that would otherwise be inaccessible (Blackhust, 2005; Bryant & Bryant, 1998; Messinger-William & Martino, 2010). Educators also need to consider how assistive technology will "support the functional skills that allow students to access the general curriculum" (Messinger-Willman & Marino, 2010, p. 9). Assistive technology should increase or, at least, maintain student independence (Bryant & Bryant, 1998).

There are barriers "prohibiting secondary IEP teams from making appropriate AT selection decisions" (Messinger-Willman & Marino, 2010, p. 10). One of the barriers that exist is that many educators are unaware of the capabilities that assistive technology can provide for the student (Messinger-Willman & Marino, 2010). Many "teachers are generally unaware of most AT devices and services available," or have been told that the cost is too much for the school to provide the technology, therefore, assistive technology may not even be discussed as an option (Messinger-Willman & Marino, 2010, p. 10). Educators and parents should be proactive in learning about assistive technologies available and insist that they be provided if they would benefit the student (Bryant & Bryant, 1998; Messinger-William & Marino, 2010). It is up to educators and parents to be advocates for the student to receive the best education possible.

Training and Professional Development

"Another barrier stems from a lack of professional development opportunities" for educators, students, and families (Messinger-Willman & Marino, 2010, p. 10). In most settings "teachers in both general and special education are still not receiving the pre-service and in-service training they need" (Howell, 1996, p. 62). When professional development opportunities are offered it typically includes too much information or not enough information all at one time

(Messinger-Willman & Marino, 2010). Many times the professional development offered is not required so teachers may choose not to attend (Howell, 1996; Messinger-William & Marino, 2010). If the professional development is required then it usually is after school in the form of a meeting (Howell, 1996; Messinger-William & Marino, 2010). The information presented at most professional development opportunities may be vague or confusing and is not sufficient for a teacher to be proficient in the assistive device (Howell, 1996; Messinger-William & Marino, 2010). "Assistive technology can provide support for students and teachers" in the classroom, but "for this to happen both the student and the teacher must understand and know how to use the devices" (Maushk, Kelly, & Blodgett, 2001, p. 421). If the teacher or student is unsure of how to use the device to assist the student in accessing the curriculum then the technology will never fully be incorporated into the curriculum (Maushk, Kelly, & Blodgett, 2001). To incorporate the assistive technology into the curriculum teachers should be provided training that consists of modeling and practice with the technology. "The training should provide structured feedback, and teachers need ongoing training and sustained coaching and support" to successfully implement the assistive technology and continue successfully using the technology to its potential in the classroom (Messinger-Willman & Marino, 2010, p. 11).

"Lack of technology training and technology support services" inside the classroom and at home can also be a barrier to "implementing assistive technology" (Judge, 2000, p. 128). This can lead to educators not using the assistive technologies in the classroom successfully, which can impede student learning for those individuals needing the device to be successful in the curriculum (Judge, 2000). If the parents are not trained in the assistive technology used in the classroom the child may have difficulty completing any assignments at home (Judge, 2000; Messinger-Willman & Marino, 2010). This can also hinder student successes because the parent

can not help the child with assignments when he or she is outside the classroom (Judge, 2000; Messinger-Willman & Marino, 2010). However, if appropriate training is provided for educators and parents then "it will likely result in functional daily use of a device that promotes the child's overall development of independence in their environment" (Judge, 2000, p. 129).

Although there has been a higher emphasis of training educators on specific assistive technologies there is still a high need for further training for both the educators and parents (Judge, 2000). Having parental support with the technology outside the classroom will increase the incorporation of the technology into the life of the child and help him or her be successful inside the classroom and in the community (Judge, 2000). Many of the skills that assistive technology aides are used outside the classroom environment in the community so some students could also benefit from using the assistive technology while in the community. Therefore, "until technology training is significantly improved, young children with disabilities may often continue to be mismatched with devices that do not meet their communicative, educational, and independent learning needs" (Judge, 2000, p. 129).

Funding and Cost

"The funding of assistive technology is a key issue" for many persons because "solutions can be expensive and prohibitive" (De Witt, 1991, p. 329). However, funding options are not meant to exclude certain technologies from students that would benefit from their use inside the classroom or the community. It is important that teachers and parents are aware that assistive technologies are required to be provided if put in the students Individualized Education Plan (IEP) (Sze, 2009). When assistive technology is identified in the student's IEP then the "assistive technology, as well as the training in the use of it, must be provided by the public agency at no cost to the parents" (Judge, 2000, p. 126). Although the law mandates that assistive

technology is provided to students at no cost to the parents if identified in the IEP, many districts will try to not allow the assistive technology to be entered into the IEP if the cost is too great (De Witt, 1991). This means that parents and special educators need to be up to date on the latest assistive technologies and be able to advocate for the child that would benefit from the use of that technology (Judge, 2000; Sze, 2009). Educators also need to advocate for training to be provided to the parents so that they can help incorporate the technology into the curriculum, home, and community (Judge, 2000).

"Despite its availability, however, there remain numerous barriers to the timely acquisition and use of assistive technology devices and services" states Bryant (1998, p. 2). One of the barriers that exists is schools may tell parents that funding for assistive technology does not exist. However, there are many options for funding and the district may not want to hassle trying to find the way to incorporate the assistive technology into the student's IEP. "Funding for high-tech devices can come through the school system, the insurance provider, or civic organizations" and just because it can be difficult to find a funding option does not mean that the school can leave the technology out of the students IEP if they would benefit from its use (Watson & Johnston, 2007, p. 38). On the other hand, there are many assistive technologies that are low cost or low-tech options that can benefit students with disabilities and other students within the general education classroom. Educators should explore these options regularly to see if there are any technologies that could improve the learning for all children within the classroom (Watson & Johnston, 2007). "Although financial resources are often scarce, funding does not limit a child's need for assistive technology" and funding should not limit the selection of appropriate assistive technologies because "it is still the intent of the law that AT must be considered for students with disabilities" (Judge, 2000, p. 127; Lee & Templeton 2008, p. 217).

If an assistive technology device would benefit the student then it is the educator's obligation to fight for it to be placed in the IEP and provided to the student at no additional cost to the parents (Lee & Templeton, 2008; Watson & Johnston, 2007).

Methodology

Participants

Adolescent education teachers participated. Participants were selected because they were all currently teaching in participating school districts where anonymous surveys were distributed. Teachers were not selected based on any demographics and the demographics are unknown based on the anonymous survey results.

Setting

The teachers selected all taught at a suburban school district located in Western New York. All the schools used were either middle schools or high schools that consisted of adolescent education teachers teaching a variety of subjects in grades seven through twelve.

Procedure

All participants filled out an anonymous survey shown in appendix 1 that was distributed to their school by email. The surveys were distributed to two different schools and the teachers that filled out the surveys were those that chose to respond. The survey was anonymous and did not collect any demographic or personal identifying information and all participants were informed that the responses would remain anonymous.

Data Analysis and Discussion

The survey consisted of ten questions and I had a total of ten participants that respond to the survey. They were asked a series of questions with the chance to add any additional

comments or concerns to most of the questions by choosing the other option which allowed text entry.

The first question "What grade and subjects do you teach." I received a variety of answers as shown in the following figure.

#	Answer	Response	%
1	Grade 7	5	50%
2	Grade 8	4	40%
3	Grade 9	7	70%
4	Grade 10	5	50%
5	Grade 11	5	50%
6	Grade 12	5	50%
7	Other	3	30%
8	Science	2	20%
9	Social Studies	1	10%
10	Math	2	20%
11	English	2	20%
12	Technology	1	10%
13	Special Education	3	30%
14	Other	3	30%

Other	Other
K-3	music
college	education
Adults	
	Theater

The results from this question showed that I had a variety of participants that taught many different subjects in different grades. Out of the ten participants many taught more than one grade level and more than one subject. There were participants that answered they taught in grade levels that were outside of the setting intended, however, they also had answered that they taught subjects within the intended grade levels. I was interested in which subjects and grades were taught because technology used in classrooms could be depended on the subject or grade level used. I want to ensure that my sample size represented a variety of grades and subjects.

The results I received from this question did show that I had a variety of respondents with diverse subject background knowledge.

The next question was "Assistive technology is any piece of equipment or device that may be used by a person with a disability to perform specific tasks, improve functional capabilities, and become more independent. Have you ever incorporated any types of Assistive Technology into your classroom?" This question yielded that 70 percent of the participants had used some type of assistive technology in the classroom and only 30 percent had not used any types of assistive technology in the classroom, as seen in the following figure.

#	Answer		Response	%
1	Yes		7	70%
2	No		3	30%
3	Other		0	0%
	Total		10	100%

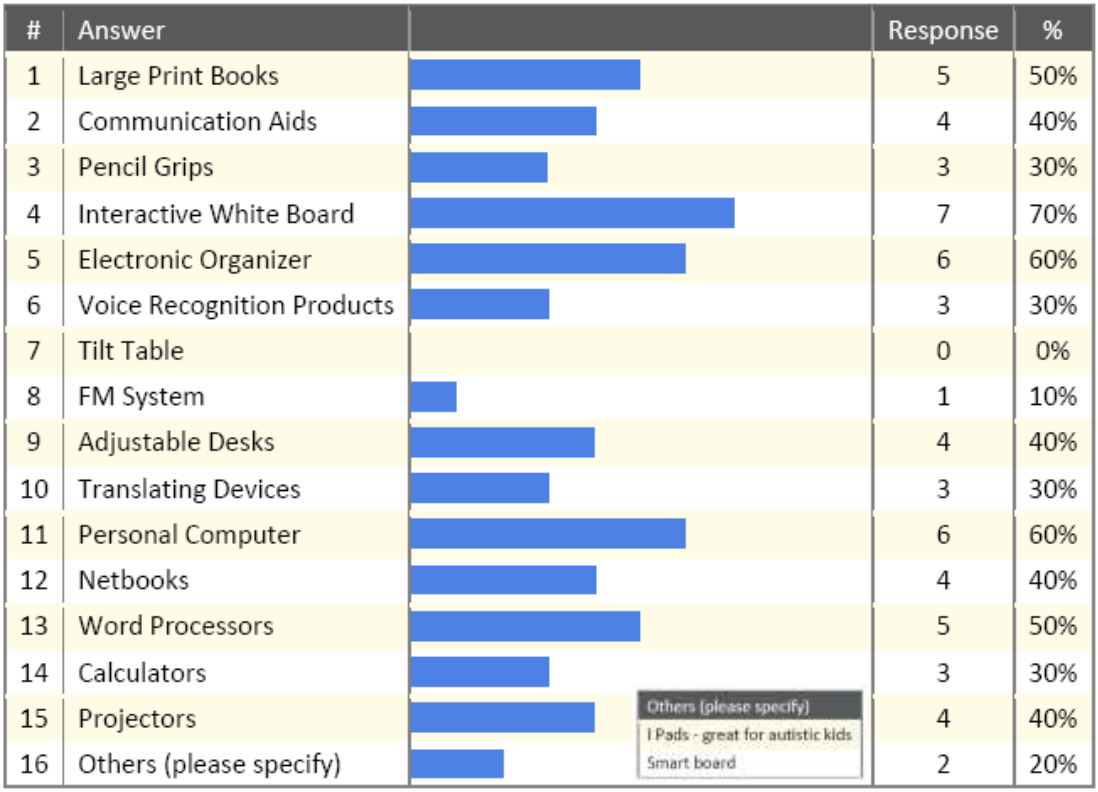
I wanted to know how many of the participants had used assistive technology in their classroom because I felt that if they had not used assistive technology they may have different opinions of technology used within the classroom setting. The responses showed me that I had mostly participants that had used assistive technologies, but I also had some respondents that had not used any technology to assist students in the classroom.

Next, I wanted to know what types of technology had been utilized or implemented in the classroom, so I asked "What types of assistive technology have you incorporated into your classroom?" I had a variety of typically used assistive technology for the participants to choose from as well as any other category for them to add any additional technologies used in the classroom.

#	Answer		Response	%
1	Large Print Books		2	20%
2	Communication Aids		3	30%
3	Pencil Grips		5	50%
4	Interactive White Board		6	60%
5	Electronic Organizers		2	20%
6	Voice Recognition Products		1	10%
7	Tilt Table		1	10%
8	FM System		3	30%
9	Adjustable Desks		1	10%
10	Translating Devices		1	10%
11	Personal Computers		6	60%
12	Netbooks		3	30%
13	Word Processors		7	70%
14	Calculators		7	70%
15	Projectors		6	60%
16	Other (please specify)		0	0%

The previous figure shows at least half of the participants had used pencil grips, interactive whiteboards, personal computers, word processors, calculators, and projectors in the classroom. Less than half of the participants had used netbooks, translating devices, adjustable desks, FM systems, tilt table, voice recognition products, electronic organizers, communication aids, and large print books within the classroom. None of the participants added any additional technologies into the other category. This data shows that of the participants that had used technology in their classroom they had used a wide variety of different technologies that were available for students. It would have been interesting to know how these technologies were incorporated.

Many times there is not an opportunity to incorporate technologies into the classroom because of funding or availability. Therefore, participants were asked "What types of assistive technology would you like to incorporate into your classroom?"



#	Answer	Response	%
1	Large Print Books	5	50%
2	Communication Aids	4	40%
3	Pencil Grips	3	30%
4	Interactive White Board	7	70%
5	Electronic Organizer	6	60%
6	Voice Recognition Products	3	30%
7	Tilt Table	0	0%
8	FM System	1	10%
9	Adjustable Desks	4	40%
10	Translating Devices	3	30%
11	Personal Computer	6	60%
12	Netbooks	4	40%
13	Word Processors	5	50%
14	Calculators	3	30%
15	Projectors	4	40%
16	Others (please specify)	2	20%

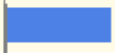
As seen in the previous figure, at least half of the participants answered that they would like to incorporate large print books, interactive white boards, electronic organizers, personal computers, and word processors. Less than half of the participants answered that they would like to incorporate communication aids, pencil grips, voice recognition products, FM systems, adjustable desks, translating devices, netbooks, calculators, projectors, iPads, and smart boards. Participants did not choose that they would want to incorporate a tilt table into their classroom. I found in interesting that more than half of the participants put that they would want to incorporate a personal computer in their classroom but less than half would want to incorporate the use of a netbook. This makes me wonder if participants understood what a netbook was or how a netbook could function in the classroom setting. It could have been more useful to ask participants to explain how they would like to incorporate these technologies into the classroom setting.

Next, participants were asked "To what extent do you think the following people are trained to incorporate assistive technology successfully?" This question received a mix response, which can be seen in the following figure.

#	Question	No Training	Little Training	Some Training	Lots of Training	Responses	Mean
1	Teachers	1	5	3	1	10	2.40
2	Students	2	4	4	0	10	2.20
3	Parents	6	3	1	0	10	1.50

Most participants felt that teachers and students only received little or some training, and they felt that parents received no training. Only one of the participants answered that they felt teachers received a lot of training for implementing technology in the classroom. I should have had an open ended response part to this question so that I could learn why each participant chose the level of training for parents, students, and teachers and would have provided more of an insight into their thinking process or what they define as training.

Participants were then asked "Do you feel well trained to use assistive technology in a classroom? Why or why not?" The results shown below indicate that 80 percent of the participants felt that they are not well trained to use assistive technology and only 20 percent of the teachers did feel well trained.

#	Answer		Response	%
1	Yes		2	20%
2	No		8	80%
	Total		10	100%

This question allowed the participants to input why or why not into a text box. The two participants that felt they were well trained in using assistive technology indicated that they enjoyed using technology and have had specialized training that they sought out through their jobs or taking graduate level classes. The participants that felt they were not trained for using

technology stated that they had to learn how to use the technologies as the students' needs arise. They tended to rely on trial and error and have never had any official training through their jobs, conferences, or graduate work. The results from this question were not surprising and it seems like anyone that wants to have official training in technology needs to seek out the opportunity and typically needs to advocate for training or use the trial and error process.

Next participants were asked "How much training have you had for incorporating assistive technology into the curriculum?" The results, shown below, indicate that over half of the participants have had less than four hours of training and only 20 percent have had over eight hours of training.

#	Answer		Response	%
1	None		2	20%
2	1 to 4 hours		5	50%
3	4 to 8 hours		0	0%
4	8 to 12 hours		1	10%
5	12 to 16 hours		0	0%
6	16 to 20 hours		0	0%
7	20 to 24 hours		1	10%
8	Other		1	10%
	Total		10	100%

The participant chose other indicated that they had not received any direct training, but had received theory based training and how theoretically technology could be incorporated into the curriculum. These results seem to correlate with the previous question since over half of the participants did not feel well trained and have indicated that he or she has received less than four hours of training. Only 20 percent of the participants had indicated that they had received over eight hours of training and this correlates to the participants that felt well training to incorporate technology into the curriculum.

Participants were then asked "Did you find the training to be beneficial? Why or why not?" I felt this question was important because just because an individual receives training does not mean that the training benefited that individual. However, many of the participants chose not to answer this question or answered with a simple yes or no answer. Of the participants that answered the majority of the answers were that they wished that there was more direct training and how to actually incorporate it into content lessons. These participants also indicated that the training did not show them how to apply the theory of the technology into the actual classroom setting. Two of the participants indicated that the training received was beneficial because it helped them to become aware of the needs of diverse learners and how to effectively utilize assistive technology into the content to help assist learners. This data does indicate that even though there is some training provided, it does not mean it will benefit the teacher or student that needs the technology to be successful.

To find out what types of training would be most beneficial to each of the participants they were asked "Please rank the following types of training from 1 being most beneficial to 4 being least beneficial."

#	Answer	1	2	3	4	Responses
1	Hands On	9	0	0	1	10
2	Lecture	1	0	0	9	10
3	Demonstration	0	5	5	0	10
4	Discussion	0	5	5	0	10
	Total	10	10	10	10	-

The results above indicate that 90 percent of the participants felt that hands on training of the actual technology would be most beneficial and that lecture is the least beneficial training. The participants were split between demonstration and discussion for being somewhat beneficial. The results showed that one participant felt that lecture was most beneficial and hands on

training would be least beneficial. I am unsure whether or not the participant actually felt this way or if they misread the question and thought that one was least beneficial and four was most beneficial. The question could have been misleading to participants if they did not read it properly and they could have indicated the wrong type of training.

Lastly, participants were given the opportunity to share if there was anything else they would like to tell me about their perspective of assistive technology in the classroom. Only four of the participants answered this last open ended question. Of the participants that answered their answers were very similar and indicated that technology can be a bridge between students and teachers and can help to differentiate materials so that students can be successful. However, if there is a lack of funding or training is lacking then technology may not be incorporated into the curriculum properly and may not benefit the student or the teacher. This additional information shared by some participants correlated with what was shown from the other data collected from the survey. Participants that had assistive technology available were not trained properly and did not understand how to incorporate this into their content materials. If technology is not properly incorporated then the student is suffering because the technology will not assist the student in the way intended and may actually hinder success.

Conclusion

The research findings and my literature review were both similar in findings that many times assistive technology is not incorporated into the classroom properly because of lack of training. Many times if technology is provided because of student need, the student, teacher, and parent are not properly trained how to use the technology and this is a setup for failure. This leads to the technology not being used properly to assist in success and leads to the discontinuation of a technology that if used properly could help the student become successful at

tasks otherwise not possible. If appropriately incorporated into the curriculum technology can help open many doors to students to become successful in a variety of different areas. However, this does require training for the students, parents, and teachers to be successful and funding should not be an acceptable limitation when dealing with student success.

This research has implicated a need for further research to be conducted within this topic. Research could be conducted to see what types of training is provided at a pre-service level for teachers. If teachers were trained in some assistive technologies before they were placed into classrooms then they may have more success in properly implementing these technologies seamlessly into the content. Research could also be conducted on why schools are not offering more professional development opportunities to staff to use the available technologies for students to assist them academically, socially, and in the community. Further research in all aspects of this topic may help to show a need for more training and funding for technologies to be incorporated successfully into the curriculum to help students be successful in all aspects of life.

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Appendix

Appendix 1

What grades and subjects do you teach?

- ☐ Grade 7
- ☐ Grade 8
- ☐ Grade 9
- ☐ Grade 10
- ☐ Grade 11
- ☐ Grade 12
- ☐ Other _____
- ☐ Science
- ☐ Social Studies
- ☐ Math
- ☐ English
- ☐ Technology
- ☐ Special Education
- ☐ Other _____

Assistive technology is any piece of equipment or device that may be used by a person with a disability to perform specific tasks, improve functional capabilities, and become more independent. Have you ever incorporated any types of Assistive Technology into your classroom?

- ☐ Yes
- ☐ No
- ☐ Other _____

What types of assistive technology have you incorporated into your classroom?

- ☐ Large Print Books
- ☐ Communication Aids
- ☐ Pencil Grips
- ☐ Interactive White Board
- ☐ Electronic Organizers
- ☐ Voice Recognition Products
- ☐ Tilt Table
- ☐ FM System
- ☐ Adjustable Desks
- ☐ Translating Devices
- ☐ Personal Computers
- ☐ Netbooks
- ☐ Word Processors
- ☐ Calculators
- ☐ Projectors
- ☐ Other (please specify) _____

What types of assistive technology would you like to incorporate into your classroom?

- ☐ Large Print Books
- ☐ Communication Aids
- ☐ Pencil Grips
- ☐ Adjustable Desks
- ☐ Translating Devices
- ☐ Personal Computer

- [ ] Interactive White Board
- [ ] Electronic Organizer
- [ ] Voice Recognition Products
- [ ] Tilt Table
- [ ] FM System
- [ ] Netbooks
- [ ] Word Processors
- [ ] Calculators
- [ ] Projectors
- [ ] Others (please specify)

To what extent do you think the following people are trained to incorporate assisitve technology successfully?

	No Training	Little Training	Some Training	Lots of Training
Teachers	☐	☐	☐	☐
Students	☐	☐	☐	☐
Parents	☐	☐	☐	☐

Do you feel well trained to use assistive technology in a classroom? Why or why not?

- [ ] Yes
- [ ] No

How much training have you had for incorporating assistive technology into the curriculum?

- [ ] None
- [ ] 1 to 4 hours
- [ ] 4 to 8 hours
- [ ] 8 to 12 hours
- [ ] 12 to 16 hours
- [ ] 16 to 20 hours
- [ ] 20 to 24 hours
- [ ] Other

Did you find the training to be beneficial? Why or why not?

Please rank the following types of training from 1 being most beneficial to 4 being least beneficial.

Hands On Lecture Demonstration Discussion

Is there anything else you would like to tell me about your perspective of assistive technology in the classroom?