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Adaptive Technology in Special Education: How does it Help our Students?

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Adaptive Technology in Special Education: How does it Help our Students?

Abstract

I conducted my research reflecting the opinions and thoughts of my colleagues. I exposed them to questions about their experience using adaptive technology in their classrooms, what types of adaptive technology they use, how they feel it benefits students with and without disabilities. They briefly talk about the training they may or may not have received on using such devices and how it affects them as the classroom teacher in assisting their students with using these devices. They discussed how using adaptive technology can be useful for students with disabilities as well as students without, as well as how it can “level the playing field”. The participants spoke positively about the use of AT in the classrooms and were very willing to provide feedback. There seems to be a difference in training on adaptive technology depending on what school district, grade level and subject you may teach. It seemed to be the general consensus that adaptive technology in the classroom is not only beneficial for students with disabilities, but can also give students who are not required to use such devices a little insight on how learning can be different for different people. For the most part, the participants have positive things to say about the use of any type of adaptive technology in the classroom that will help students with disabilities perform better in the classroom, as well as motivate them to want to do well.

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Adaptive Technology in Special Education:
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Abstract

I conducted my research reflecting the opinions and thoughts of my colleagues. I exposed them to questions about their experience using adaptive technology in their classrooms, what types of adaptive technology they use, how they feel it benefits students with and without disabilities. They briefly talk about the training they may or may not have received on using such devices and how it affects them as the classroom teacher in assisting their students with using these devices. They discussed how using adaptive technology can be useful for students with disabilities as well as students without, as well as how it can “level the playing field”. The participants spoke positively about the use of AT in the classrooms and were very willing to provide feedback. There seems to be a difference in training on adaptive technology depending on what school district, grade level and subject you may teach. It seemed to be the general consensus that adaptive technology in the classroom is not only beneficial for students with disabilities, but can also give students who are not required to use such devices a little insight on how learning can be different for different people. For the most part, the participants have positive things to say about the use of any type of adaptive technology in the classroom that will help students with disabilities perform better in the classroom, as well as motivate them to *want* to do well.

Adaptive Technology in Special Education: How does it help our students?

Students with disabilities are often ones who struggle in the classroom. This is no secret to those who work in the education field or know someone or is related to one who struggles with this issue. Many students deal with disabilities that distract them from learning in school. Autism, OCD, behavioral disorders are just a few that may weaken a students' desire to participate in classroom activities. Being able to use technology that helps benefit and strengthen student participation in the classroom will lead to more confident students who enjoy being in the classroom and are able to interact with their classmates despite a difference or disability. In this research I focused on three major types of adaptive technology, the first being the Electronic Interactive Whiteboard (IWB), or SMARTboard, the second being the iPad and lastly the Dynavox. All are relatively new in the education world and have been used for multiple learning strategies and in different types of educational research. The purpose in this research was to determine whether or not the use of these devices can contribute to helping student confidence, participation and better grades, all of which may go hand in hand. There is also a minor focus on how being teachers and staying up-to-date with current technology in your classroom will help you grow as an educator as well.

In my research, the first task completed was developing the questionnaire to distribute to my colleagues. The questions were answered by different types of educators within different school districts. Although most answers are pretty straight across the board, there were a few answers that varied as well. All participants are educators with Masters degrees within their field.

The results of the study show that teachers' and their school districts seem to be on board with using technology to help differentiate instruction for those students who need it according to their IEP or 504. Although there seems to be discrepancies within the training process, those who

have to become familiar with these tools will seek training on their own if it is not provided to them through their school. The main idea is that the teachers are there to support the students' learning and will use whatever technology they can to help support that growth within their classroom.

Researchers Stance

As the researcher, I developed the questionnaire, circulated it to my colleagues, compiled the data and did the necessary analysis. The questionnaire used was distributed to various teachers at different schools. While all that were submitted to be filled out were not completed, the ones I did receive back were helpful and full of useful information, observations and opinions. The participants were special education teachers and elementary school teachers. I took the answers and responses from the questionnaires and was able to create a table to better look at and understand the data given.

I am currently certified Birth to Grade 2 in General and Special Education and I am presently enrolled in a program working towards earning a Master's of Science in Special Education.

Literature Review

“The Individuals with Disabilities Education Improvement Act defines an assistive technology device (AT) as any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve the functional capabilities of a child with a disability” (Coleman, p.4). Having these types of technology at our fingertips has allowed us, as educators, to better teach our children in

a way that best suits them and their individual needs. They allow us to not only teach our students by using new tools, but they allow us to learn from our students as well.

There are many benefits to incorporating adaptive technology into classrooms for all students. One beneficial tool that may help students with learning disabilities such as autism or other intellectual disabilities, is the interactive whiteboard, or the SMARTBOARD. Not only does the SMARTBOARD encourage active learning but it helps keep students stay engaged in what is being taught. The IWB can be used for multiple topics and forms of education, including mathematics, ELA, science and social studies. This tool can be of benefit to children with or without disabilities.

Research by Yakubova and Taber-Doughty (2012) states,

Integrating computers is one approach to using technology in classrooms and is demonstrated to increase student learning, motivation and engagement. Electronic Interactive Whiteboards (IWB's), a form of computer-based technology, have recently become a part of educational settings and the focus of numerous studies seeking to identify their benefit on students' learning (p. 1465).

Not only can this tool be beneficial in teaching core subjects, but can also be used in teaching daily living skills such as brushing your hair, taking out the garbage, washing your face etc. In one study of two children with autism and one with an intellectual disability, the students were asked to use an IWB to watch video clips of daily living skills and to self-monitor their task performance. In order to use something like this, the teacher would be required to create video clips that model the desired behavior. The ones in this study ranged from 41-to 60-seconds. Students were asked to watch the clips and then model the behavior after having seen it being

done the correct way. Each student also had their own electronic folder to keep track of how they performed each task and were able to use the SMARTBOARD pen to circle the smile face or the frown face to indicate how they feel they did (Yakubova, Taber-Doughty, 2012).

According to Turel and Johnson (2012),

Several IWB instructional strategies that have a positive effect on student learning include: Highlighting, coloring, or annotating important content, flipping back and forth to review previous content providing reviewing techniques better understanding, using pictures for discussion and brainstorming, collaborative writing, shared reading, peer-teaching, and collaborative problem solving, hiding and reveal, drag and drop, and matching items activities, observing different media – essential for visual learners, touching and feeling the material – good for tactile learners, accommodating lower ability and special needs – zoom feature for visually impaired students, presenting ideas and reflections about the course content, finding hidden part of a picture with spotlight or screen-shade, capturing screenshots from web pages synchronously, correcting mistakes in the materials and playing games. Benefits of IWB technology include: enhanced social interaction, reformed learning environments – teachers may facilitate student’s involvement, interaction, and collaboration, draw the learners attention, facilitated learning and remembering using visual media, enlarged computer screen, interactions can be recorded and saved and using with voting systems, document cameras and electronic microscopes. (p.382)

When discussing a literary lesson that was completed, Jessica Wertz posted a poem on the SMARTBOARD and listed literary terms to the side of it. As the students read the poem, they were asked to find the places where the terms were used. The whole class had to agree as a

whole and then the teacher (or a student could do this as well) would drag and drop the term next to the line that held that specific literary term (Saine, 2012).

By the end of the unit, students were able to easily identify various examples of the literary terms in poetry. These terms were a review of terms previously introduced in 8th grade. However, some class periods showed an average increase of 10% from the pretest to the posttest. It is important to note that their knowledge of definitions was tested during the pretest, but their knowledge of the definitions as well as their ability to identify the type of figurative language of several examples were tested during the posttest tested, so it was a more rigorous test. (p. 79)

The use of SMARTBOARDS or IWB's can not only be used to teach new skills, but to re-teach or use as a follow up tool to enhance previous learning. Not only can this be used as a lesson teaching tool, but it can be turned into a game as well to grab student attention and keep their focus when a game-spin is added to it. For example, a simple review could be turned into a jeopardy game, where the two teams compete to get the most answers correct. Not only is this a way that students can find another way to enjoy learning, but it changes the dynamic of the room and fosters a more exciting learning environment. According to *Game-Based Language Learning for Pre-School Children: A Design Perspective*,

Games are notoriously difficult to integrate into formal education, at the same time the digitalization of learning games provides teachers and learners with materials and possibilities for both self-directed and teacher led learning in a variety of contexts.

Learning games can be used for both entertainment and learning and can therefore make connections between different sites of learning – or operate between them as a third space or a third actor in education and learning. (p. 46)

These games can be made using the smart board and can also be used by one or two individuals or groups, or can be used by the whole class. They can also be used to build up student excitement and/or curiosity about the subject being taught.

The students were able to interact with the SMARTBOARD. They could actually come up to the SMARTBOARD and fill in the labels and color the bars for the graph. While the whole class was involved in creating the graph on the SMARTBOARD, the students shaded in and completed a hard copy of the graph at their seats. This allowed everyone to stay on task while waiting for an opportunity to come up to the SMARTBOARD and “touch”. Their individual graph, along with a hard copy of the information found on the Internet, helped them with a homework assignment later that night. It was easy to keep motivated during this activity. The students were bursting with excitement with the use of new technology, and the teachers were too” (Hogan, Gomm, 2000).

Not only is this a great way to keep students interested and excited, but it is a great tool for students with disabilities. This is a different way for the student to learn and grasp new material, especially with integrated and inclusive classrooms becoming more popular and accepted.

IWB’s take the preferences of children and present an activity in a large group format, which forces the child to engage with others and provides opportunities to teach attention, social interactions, and communication. Instruction with IWBs differs from traditional computer-assisted instruction because it provides opportunities to teach social and communication skills in a whole group interactive setting versus an individual learning experience. IWBs provide versatility, multimedia ability, efficiency, interactivity, collaboration, motivation, and instant access to the internet. They allow users to display

and manipulate computer images through a digital projector. Researchers suggest the use of IWBs increases students' motivation and enjoyment in learning, enjoyment in presenting and discussing their work, and academic achievement. (Whitby, Leininget, Grillo, p. 51)missed u!

The use of the SMARTBOARD has become more and more popular throughout the years. We have begun to see them used on a daily basis and one is more than likely to see one in any classroom they enter. However, some might pose the problem of whether or not this type of technology takes away from the basics of reading and writing. While the SMARTBOARD helps link children with one another and might give another aspect as to how to learn material, is it taking away from the basic communication skills we all need? According to *Technology in Education: Problem or Solution*,

“there is mixed evidence as to whether it is better to use technology as a replacement or as a supplement to classroom curricula. To be effective, the technology must be fully integrated into lesson plans and teachers must be trained sufficiently. There is a widespread belief among teachers that the constant use of technology is not allowing students to focus. They seem to have shorter attention spans and the constant stimulation is hampering their concentration. Instructors have to work harder to hold their students' attention, others say that technology can be a useful educational tool” (p. 174).

With that being a common thought or topic of discussion, it is important to remember that it is how the teachers uses the technology in the classroom and how the students take to it. If the students show no interest in the SMARTBOARD, then it is the teachers' responsibility to find something else that will grab the students' attention. If the SMARTBOARD is something the class will keep focus with, then the teacher would use it more to not only benefit the classroom

as a whole because it keeps the attention and focus on the lesson, but it is actually helping the students because they are paying attention to what is happening, whether it be a lesson, a video clip, an interactive game, or just fill in the blank notes.

Besides IWB's, there are many other types of adaptive technology that can be used in the classroom to help support Special Education. One of these is an iPad. Although newer to the educational field, it seems to have some great benefits to both the teacher and the student within the classroom. Not only can these provide a more organized way to help students keep things together, but they serve as a great communication tool for those students who may not have access to a cell phone or computer. It is an easy way for students to be able to gain access to information on the internet as well as get work if they are out sick or have misplaced their work. Not only does it have educational benefits, but much like the IWB, the students get excited and are enthusiastic about using new technology to help with their school work. They can not only be used individually at home, but they can be used collaboratively as well. "The portability of the iPads combined with their touch-sensitivity and the responsiveness of diverse apps open up new arenas for learning and inclusion for many students" (Flewitt, Kucirkova, p.111). These types of technology allow students who have visual impairments or fine motor deficiencies to participate like the rest of the class without being singled out within the classroom. The teachers are able to download certain apps for specific student use if need be. The student is able to participate and not feel like they are the only one in the class with special privileges. A large pro to this type of technology is that when being used by one specific individual, it has the capability to be programmed and designed specifically for their use-and no one else can see what they are doing, so the way they complete their work is private and cannot be seen or judged by anyone else.

This type of technology used as a group is a great way to get students to connect on different levels as well. Pairing a student without a disability with a student who may have one is a good way to help each show off their specific strengths when working together. Students with poor fine motor skills or students who do not have use of their hands or fingers can still use the iPad by touching it with other parts of their body, such as their elbow, forehead or chin. Students with visual impairments are able to adjust the brightness on their screen to allow them to better see what they need to on the screen (p. 111). The iPad is something that can be used for all ages as long as the students are properly trained on how to use the device. It can be used for basic literacy skills like tracing letters in pre-school to doing science experiments and math calculations in high school. “Through our observations and interviews, we found that iPads afforded to students of diverse ages new opportunities for communicating their ideas through the overlapping yet distinct roles of touch and gesture” (Flewitt, p.113).

Another tool used specifically to assist those in special education would be the Dynavox. This device is used for students with moderate to severe disabilities and helps provide meaningful instruction and student participation during a lesson. Not only is it used for education, but it is a communication tool as well for students with speech impairments or students who are completely nonverbal. One way this tool can be used in the classroom is through listening comprehension responses for students in a special education setting. The teacher would do a read-aloud in the classroom and ask probing questions to the students, and the student using the Dynavox would be able to respond with pre-programmed answers on their device (Hudson and Browder, p.12).

Assessing listening comprehension differs from reading comprehension in that it is most often done orally. While listening comprehension can be assessed in different ways (e.g.,

retelling a story), answering oral questions is a common way for students with disabilities to demonstrate their understanding of test read-aloud” (Hudson p. 12).

While the Dynavox can be large and sometimes a hassle to maneuver, the benefits it provides to a non verbal student are priceless. While one may find it difficult for a nonverbal student to participate in an everyday lesson in a general education classroom, the Dynavox allows the students to participate by answering questions probed by the teacher, participate in games that the class may be playing for review or to communicate with peers in a typical, every day conversation. The Dynavox can be updated and programmed to fit a certain class or game and is easily used by the student with the touch of a button. There are pictures and words that associate with one another to make it easier for the student to communicate if they have difficulty reading as well. The Dynavox can also contain personal information about the student as well. The student can use this device to introduce him/herself to someone, tell them their age, where they live and things they enjoy doing in their spare time. While sometimes there may be a sense of awkwardness when meeting someone who has a verbal disability, the Dynavox can definitely make that situation a bit more light and help the conversation flow.

While the use of the Dynavox is typically an easy tool to use, one does have to be familiar with how to program it to fit the needs of the individual child who is using it. Students using this tool need to be trained too. One study shows that 75% of students using AT receive no training at all for themselves, their teachers or their families. It is said to be unacceptable and should be something that is taken more seriously. It is technology and things can go wrong; therefore one needs to know what to do if that type of problem occurs (p. 6).

It is imperative that teachers of students with physical disabilities, and related services personnel who work with these students, make time to receive training in assistive

technology so they know (a) what devices are available commercially or know how to create low-tech devices to meet individual student needs, (b) how to operate and implement AT devices and follow up with ongoing data collection to ensure the devices are effectively meeting their students' needs, and (d) where to locate additional resources and receive additional training (Coleman, p. 6).

These devices are constantly changing and improving and it is important that those who use them on a daily basis stay up-to-date with the most recent information about them. This way, teachers and students alike will be able to gain the best insight into each lesson being taught and be able to teach others who may need to learn about such AT.

Using assistive technology in the classroom is a way for students with disabilities to be able to fully participate without feeling that they are, in fact, at a handicap. They are able to answer questions, play games, participate in conversations and discussions as well as communicate with other students in the classroom about every day type activities or conversations. While many schools have the funds to be able to provide these types of technologies for their students, some do not-which puts the student in a tough situation. These technologies are not only helpful for students with disabilities, be it mental, emotional or physical, but they also can help general education students become more well rounded by being familiar with them - such devices can also help bridge the gap between special education and general education. When a child *needs* to use a form of technology to be able to participate, the other students in the class don't necessarily know it is a need; other students in the class may find using the SMARTBOARD, iPad or Dynavox different and interesting and want to give it a try, thus giving the special education student a chance to become the teacher. Being able to work with a student using an AT or using one as a group is beneficial to all students involved, giving

them insight into what it might be like to not be able to verbally communicate, or to have full function of your body.

Methodology

Context

This study is taking place mainly in special education and general education classrooms. These classrooms are mostly inclusive and have integrated technology use into their everyday classroom procedures, with the exception of one. The teachers who completed the questionnaires are all New York State certified teachers who have completed Masters Degrees. I used social media as a way of opening the questionnaire up to a variety of different people and educators- and while many showed interest, it was half the special education teachers and half general education teachers who completed and sent back the questionnaire to me.

Participants

Those who participated in this particular study were all certified educators with Masters degrees in education. Two are Special Educators and the other two are elementary school teachers. Three of the 4 teachers are all new to the teaching world and have five or less years experience being a classroom teacher. The other is a veteran educator who has been a teacher for 20 plus years. All four participants volunteers to take this questionnaire and were very willing to provide their history and experience using technology, or in some cases, not using adaptive technology in the classroom.

Method

This questionnaire and study was designed to gain knowledge and the opinions of educators, first-hand. They are the ones using this technology on a daily basis and can see the truth benefits or lack-thereof these types of devices may have on students. The participants discussed what types of technology they have been exposed to, how they deal with differentiating different technologies into their lessons, and how it can change a students' view on learning and education. The main reason for sending on the questionnaire was to gain insight into what teachers feel is important in teaching students with disabilities and how they feel it may or may not help with any type of a physical, sensory or cognitive disability. It was also a platform for them to express what types of technology they feel is most beneficial for students with disabilities, as well as what they actually think adaptive or assistive technology really is. Based on the results, this study will share results and opinions from well-educated and highly qualified teachers who work with special needs children on a daily/weekly basis.

Informed consent and protecting the rights of the participants

The process for sending out the questionnaire was quite simple. I asked if anyone would like to participate in this survey I was completing for my masters program and I had people volunteer. When I had the set number of people I wanted to participate, I sent out the questionnaire to them via email on a Monday and asked for their answers and responses to be completed and sent back to me by that Friday. Before sending out the questionnaire, I explained what it was about. Those we chose to participate were informed of all the methods and my reasoning behind doing this particular study. The email with the questionnaire was sent along

with the directions of when to please have it sent back to me by. I also let the participants know they did not need to put their name on their questionnaire, but I would really appreciate the grade level they taught or worked with.

Data collection

Data was collected via email. Out of the 10 participants who volunteered, only 4 responded. The tables below show the specific questions that I asked all participants and then the questions are broken into topics and arranged on how each participant responded.

In the data collection, P1 = participant one

1. Do you use adaptive technology in your classroom?

Yes	No
P2	P1
P3	
P4	

Data Analysis:

Three out of the four participants use adaptive technology in their classroom. The fourth does not. This could be because that specific teacher is employed in the state of Florida. They may or may not have different types of rules and regulations to meet and have different standards.

2. What types of adaptive technology do you use, if any?

SMARTBOARD	Boardmaker	iPad	Hearing microphone/Audio/FM system	Other
P3	P2	P2	P2	P2
P4	P3		P3	P3
			P4	P4

Data Analysis:

While only half of these participants use SMARTBOARD technology in their classroom, it seems that the majority of them are using some type of technology to help assist students with special needs. Hearing microphone, Audio and FM systems are all common types of adaptive technology used in classrooms and can be used by students with or without disabilities. They all had other types of technologies they used as well, such as enlarged touch screen computers, specialized headphones and Big Mac Switches.

3. How often do you use these?

1-2 times per week	3-4 times per week	5 or more times per week
	P2	P3
		P4

Data Analysis:

It seems as though the majority of teachers use some sort of adaptive technology on a daily basis. Those teachers and educators who have access to such tools seem to see the positivity and the effect they have on their students and their classroom as a whole. If given the opportunity to use such technology, why not use it and help create a better learning environment for all? It seems that the teachers in this study may have the same type of outlook.

4. How many students in your classroom are required to use a form of adaptive technology based on a 504 or an IEP?

0-4 Students	5-7 Students	8 or more students
P1	P3	
P2		
P4		

Data Analysis:

It is very interesting that out of the 4 teachers questioned, 3 of them use adaptive technology but *all* participants have 7 or less students that need to use these devices based on an IEP or 504. I think that shows greatly how powerful technology is. We may not have students who are required to use them, but our schools seem to be noticing the positive effects they have and have given these teachers and students the opportunities to learn and grow using such tools.

5. Does adaptive technology only benefit students with disabilities?

Yes	No
	P1
	P2
	P3
	P4

Data Analysis:

It is very clear by the responses given above that these teachers feel that adaptive technology does *not* only benefit students with disabilities. This seems to be because we have all been educated on the pros that go along with using AT in our classrooms and have seen the outcomes in the student work, as well as the difference in student attitude.

6. Do you believe that adaptive technology helps assist those students with physical, sensory or cognitive disabilities? If so, how?

Helps to achieve success	Levels the playing field	Easier to manipulate	Capitalize on strengths	No
P1	P1	P3	P2	
P2	P3	P4		
P3				
P4				

Data Analysis:

All participants here agreed that adaptive technology helps assist students with physical, sensory or cognitive disabilities by helping them to achieve success within the classroom. Out of the four people surveyed, 50% felt that these types of tools and devices help

“level the playing field” and another 50% felt that these devices make everyday tasks easier to complete and manipulate.

7. Do you feel that you have had appropriate training on how to use the AT that your students may be required to use?

Yes	No	I would like more	Training is ongoing	There is always more to learn.
P2	P1	P1	P2	P3
P3		P4		P4

Data Analysis:

While one participant did not answer this question due to lack of technology in their classroom, two of them felt that they had enough training. The teacher who does not have any technology in their classroom did state that she would like to receive training and become more familiar with SMARTBoards and iPads to be prepared for when she does have students with these disabilities she can be prepared to help them in any way she can. Participants three and four also felt that there is always going to be more to learn with teaching using technology. Participant two stated that she has on-going training, as she is a special educator and needs to be on top of the latest technology to keep her students on a level playing field.

8. Do you believe there is a difference between adaptive or assistive technology and educational technology?

No	Yes	The terms are used interchangeably
	P1	P2
	P2	
	P3	
	P4	

Data Analysis:

Across the board, all participants in this study felt that there was a difference between adaptive or assistive technology and educational technology. Participant three stated, “Yes, I believe that adaptive/assistive technology is how students access the technology because of a disability. Educational technology is used to supplement learning.” The other three participants followed suit and gave very similar answers. I think this is because we have been educated on the difference between what the two really are and what the two should be used for.

9. In your opinion, what types of AT can help students and teachers in the classroom?

Depends on the students and their specific needs	Computers, SMARTBOARDS, hearing devices	Speech recognition, adaptive keyboards, tactile computer mouse
P1	P2	P4
P2		
P3		
P4		

Data Analysis:

All four of the participants stated that they felt like the type of adaptive technology they can use in their classroom would depend on their students specific needs. I think this could be because as educators, we know that all students learn differently and have different needs within a classroom setting. Some students need fine motor skills, some have Attention Deficit Disorder, others are physically disabled and unable to participate in many classroom activities due to such types of things. Participant two and participant four think that computers, SMARTBoards and other types of adaptive technology like speech recognition and adaptive keyboards etc., may be able to reach all kinds of students with disabilities.

Reporting data:

From the results of the four teachers who responded to the questionnaire, they all pretty much agree that using adaptive or assistive technology not only benefits students with IEP's or 504's, but can be helpful to general education students as well. It seems clear that technology used in education is almost crucial at this point in history. We have so many opportunities and so much new information at our fingertips and using these technologies helps make it so much easier for use to get to it. Out of the four participants, three of the teachers used adaptive technology in their classroom during the majority of the school week. There seem to be many different types of technology used depending on the classroom and type of disability each student has. Out of the three who do use adaptive technology, all of them use some type of hearing microphone, audio system or FM system to help students with hearing difficulties or deficiencies. Two thirds of the participants use a SMARTBOARD, as well as boardmaker. Participant two also uses the iPad in her classroom. Besides the technologies listed above, each

participant also used some other type of adaptive technology in their classroom, such as a Big Mac switch or enlarged touch screen computers. All four participants agree that adaptive technology does not only benefit students with disabilities. This speaks highly of our view on adaptive technology and how it assists our students in way that other services, teachers and tools cannot. Only 50% of participants feel as though they have received enough training on how to use their given technology, however, answers and opinions varied on whether or not they wanted more training, if training was an on-going process within their school district or department, and felt that there is always more to learn. All participants felt there was a difference between adaptive or assistive technology and educational technology. Answers given were that adaptive/assistive technology is how students access the technology because of disability and educational technology is used to supplement learning, to being things that help a student listen, speak, move and write. The general consensus for educational technology was that it helps supplement learning. The last question asked what types of adaptive technology can help students and teachers in the classroom, in the opinion of the participant. Across the board, all stated that it depends on the student needs. Participant two listed computers, SMARTBOARDS and hearing devices and participant four felt speech recognition tools, adaptive keyboards and a tactile computer mouse would be beneficial as well.

References

- Burke, L. (2013). Educational and Online Technologies and the Way we Learn. *International Schools Journal, 32*(2).
- Coleman, M. (2011). Successful Implementation of Assistive Technology to Promote Access to Curriculum and instruction for Students with Physical Disabilities. *Assistive Technology and Physical Disabilities, 2*-22.
- Dell, A. (2011). Assistive Technology. *Journal of Special Education Technology, 26*(3), 47-49.
- Hudson, M., & Browder, D. (2014). Improving Listening Comprehension Responses for Students with Moderate Intellectual Disability During Literacy Class. *Research and Practice for Persons with Severe Disabilities, 39*(1), 11-29.
- Malek, A. (2013). Technology in Education: Problem or Solution? *Arab World English Journal, 4*(3), 172-182.
- Messer, D. (2004). Touching the Virtual, Touch the Real: iPads and Enabling Literacy for Students experiencing Disability. *Touching the Virtual, Touching the Real, 37*(2), 107-116.
- Meyer, B. (2013). Game-Based Language Learning for Pre-School Children-A design perspective. *The Electronic Journal of E-Learning, 11*(1), 39-48.
- Patronis, M. (2014). The Effect of Using the iPad on Students' Performance in Writing and Reading Comprehension; Pilot Student Report. *Arab World English Journal, Special Issue on CALL*(1), 67-80.
- Saine, P. (2012). iPods, iPads, and the SMARTBoard: Transforming Literacy Instruction and Student Learning. *Computers in the Classroom, 47*(2), 74-79.
- Whitby, P., Leininger, M., & Grillo, K. (2012). Tips for Using Interactive Whiteboards to Increase Participation of Students with Disabilities. *TEACHING Exceptional Children, 44*(6), 50-57