

Electronic Journal for Inclusive Education

Volume 1

Number 3 *Electronic Journal for Inclusive Education*

Vol. 1, No. 3 (Spring 2000)


Article 3

Spring 2000

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Repository Citation

Sableski, M. (2000). Augmentative Communication Devices in the Classroom and Community, *Electronic Journal for Inclusive Education*, 1 (3).

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Augmentative Communication Devices in the Classroom and Community

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Assistive technologies may be defined as "any item, device, or piece of equipment that is used to increase, maintain, or improve the functional abilities of persons with disabilities"(Holder-Brown & Parette, 1992, p.73). Devices such as automatic door openers, chair lifts, large print books, customized cars, hearing aids, and wheelchair ramps enhance the independence and productivity of persons with disabilities and increase their ability to participate in the mainstream of society. In a school setting, this technology is not an end in itself; rather it is a means to provide increased experiences, opportunities, and independence for children who have disabilities. Assistive technology should generally facilitate gradual behavioral changes in the child that are observable and have social validity.

For students who have difficulty communicating, very specific methods, known as Augmentative/Alternative Communication (AAC), have been created to help them function more normally both in and out of the classroom. These methods include the use of sign language systems and communication boards, as well as sophisticated computer-based systems that typically produce voice. These special assistive technology devices may assist an individual in daily and vocational activities, as well as in academic activities such as hearing, listening, reading, and writing.

This paper discusses how one teacher of multi-handicapped students uses augmentative communication devices to enable her students to function both in the classroom and in the community. I will attempt to show how these devices not only enhance learning, but also, increase the students' independence and lift the individual's self-esteem. Before discussing the specific findings of my study, I think it is important to first offer you some background on how assistive technology came to be prevalent in schools and some issues that special education professionals must consider before implementing the devices.

Legislation Requiring Availability of Assistive Technologies

In 1975, the federal government enacted the Education for All Handicapped Children Act (P.L. 94-142). This piece of legislation mandated free and appropriate public education for all children with disabilities, ensured due process rights, and mandated Individualized Education Programs (IEP's). The law was revised in 1983 and reauthorized the discretionary programs, including the establishment of services to facilitate the transition from school to work for youths with disabilities. This amendment (P.L. 98-199) also established family training and information centers and expanded services for early childhood education. Further amendments in 1986 (P.L. 99-457) also expanded services for preschoolers and early childhood education.

In 1988, the Technology-Related Assistance for Individuals with Disabilities Act (P.L. 100-407) was initiated to assist states in developing comprehensive programs of technology-related assistance to individuals with disabilities and their families. The Americans with Disabilities Act (P.L. 101-336) of 1990 assures the full civil rights of all individuals with disabilities. Also in 1990, the Individuals with Disabilities Education Act (P.L. 101-476), known as IDEA, reauthorized and expanded the discretionary programs and mandated transition services and assistive technology services to be included in the IEP. This opened the door for educators because it required districts to provide funds for devices that were previously inaccessible because of their high price. Finally, in 1991, IDEA was amended to include

assistive technology services to infants and preschoolers with disabilities (National Information Center for Children and Youth with Disabilities, 1991).

Issues that Impact Implementation

Although the law requires districts to provide the assistive technology needed by students, several issues have to be addressed before deciding whether or not to give a child a device. "Some of the key issues are assessment, training, family involvement, organizational policy and funding"(Levine, 1997, p.8).

To determine appropriate recommendations for assistive technology, special education professionals need to discuss the student's mobility and fine motor skill as well as his or her intelligence and educational level. A student needs to have adequate reception skills in order to choose the right words. The assistive technology needs being assessed should be done on an individual basis and these needs must be considered along with the child's other educational needs (Levine, 1997, p.8). By involving parents, caregivers, and professionals in the assessment process, it is anticipated that the need for a reevaluation or appeal process is lessened.

Training on assistive devices increases the student's general knowledge level and provides the necessary skills to family members teachers, and other professionals who will implement the devices in the classroom and home environment. The appropriate use of assistive technology may require intense training. It is very important to include caregivers and family members, and teachers in the training process when introducing any new piece of assistive technology (Levine, 1997, p.9).

Involving the family and considering its needs when assessing an individual for assistive technology is extremely important. These devices can be an intrusive element into the lives of families. Professionals may discover initial resistance from family members to these new devices unless they are involved in the decision making process. Once the decision has been made to implement the device, family members must be trained on the devices functional use (Levine, 1997, p.9).

The development of an organizational policy for assistive technology is the key to successful implementation of the laws and services affecting assistive technology. It is in the best interest of school districts or any organizations providing services for individuals with disabilities to establish a policy for implementing these services and devices.

Finally, organizational policies will aid in successful implementation of assistive technology and may reduce the financial strain on an organization faced with the responsibility of providing access to assistive technology. A well-designed plan that considers current needs of the majority of students and future needs of students with low incidence disabilities can save money and assist in meeting needs of all students who would benefit from the use of assistive technology (Levine, 1997, p.10).

Once the teacher, student, parents, and district agree upon implementation of a device, it must be written into the student's IEP and training should begin immediately so that the assistive technology can be utilized on a daily basis. The child should be given opportunities to use the device both in and out of the classroom and be encouraged to practice using the device whenever possible.

Research Study on the Use of Assistive Technology

In researching this topic of assistive technology and more specifically augmentative communication devices, I found a lot of material about the various types of augmentative communication, legislation facilitating its use, and various issues and considerations regarding its implementation. However, I found little in the way of action research or case studies, written by special education professionals, that discuss the practical uses and effectiveness of these devices. Therefore, I decided to go into a special education classroom where these devices were being used by students to see for myself: 1) how these devices were being used; 2) what effects they had on the students who used them; and 3) how easily the devices were learned by the students.

My study focuses on the ways in which one teacher-- in a self-contained, multi-handicapped, middle school classroom-- uses augmentative communication devices to make communicating in the classroom and out in the community easier for two of her students. These students are not hearing impaired, but have great difficulty enunciating words and expressing complete thoughts. The students have so much difficulty that an untrained ear cannot understand them at all. This situation presents many problems for them in the classroom, but especially in the community where they interact with many people while learning important life skills.

The Devices

Upon recommendation from the school district's speech pathologist, the teacher has implemented two specific devices to be used by her students.

The Delta Talker. The Delta Talker resembles a computer keyboard, but instead of writing words and sentences, its audio feature produces the desired sounds. The Delta Talker has picture and word keys in addition to the letters that allow it to produce over 4,000 sounds, words, and phrases. The device is easy to use, and students can even use it to control electronics via remote.

The Walker Talker. The Walker Talker looks like a label scanner and is geared more for users with limited or short-term communication needs. The device must be programmed, but its 16-key keyboard can produce hundreds of words, phrases, and sentences. This device is easier to handle than the Delta Talker, but has more limited functions.

To determine the effectiveness of these devices, I observed the students once or twice a week in various settings both in and out of the classroom. I accompanied the students and their teacher as they used the devices on shopping trips, restaurants, and the post office. In addition, I observed the students in their classroom and in sessions with the speech pathologist. Behavior with and without the devices was observed. In addition, I worked with the students individually to assess their ability and willingness to use the device. Also, I discussed the students' progress at length with their teacher, aide, and speech pathologist.

The Students

The first student is David*. David is seventeen years old and has Down Syndrome. He is almost completely non-verbal, although his teacher and others who are around him can often interpret his verbalizations when he tries to communicate. David has poor reception skills, which means that

although he can recognize certain symbols such as a stop sign, he doesn't necessarily know what they mean. David is very good at

****All names of people and businesses in this paper have been changed.***

memorizing numbers and addresses because of the patterns they contain. According to his teacher, David would thrive on using a communication device because of his ability to memorize the various sequences or patterns that make the device work.

I also observed Chris. Chris is mentally retarded and is also non-verbal. Chris has adequate reception skills and can even say a few phrases clearly. He will often say, "Go home!" or "Thank you," but cannot respond verbally when you ask him a question. I experienced this first hand on one of my visits to the classroom:

I (Matt) walked over and began to ask him about the car but he (Chris) was completely non-verbal. He just sat there and stared at me with the biggest grin on his face. Every time I asked him a question, he'd just smile even bigger and blink his eyes. This little interchange between Chris and me is significant because it gave me a better understanding of the problem. Chris knew who I was, what I was saying, and that he should probably respond. However, he could not make words despite the connections he no doubt was making mentally. I could almost see the words he wanted to say in his eyes, but there was no way those words were going to come out. It must be so frustrating to want to speak and not be able to. Thoughts, although jumbled, run through Chris's mind constantly, but rarely does he speak. Further, when he does speak, it comes out as a jumbled sound, word, or phrase. (My journal)

Chris can identify certain signs and symbols and understand what they mean, but his speech pathologist informed me that when he looks at a stop sign for example, he is "seeing the red shape with letters on it, not reading the word stop" (My journal). Chris' teacher said that he would benefit from an augmentative device because of this ability to identify symbols and know what they mean.

The Observations

I observed Chris and David over an eight week time period. I visited their school once or twice a week for eight weeks, about two hours each time. I observed the boys in their classroom, on their trips out into the community, and in one of their weekly sessions with the speech pathologist. As part of their curriculum, the class of four students goes out into the community to gain real life experiences such as going to the post office, a restaurant, or the grocery store. Through these experiences, the students learn how to use and count money, how to find certain items in a store, and most important for my study, how to interact with people in public.

The teacher, Ms. Garrison, assured me that the time spent in the community would be rich with opportunities for the students to use their devices and show how effectively they could be used. Sure enough, on my very first trip into the community, I observed how much more confident and independent the students were with the device than without it.

Our first stop in the community was Drugstore. We had to buy lollipops for a Valentine sale the class was having for the school. Ms. Garrison, Chris, and I went into the store and picked out the bags of lollipops, took them to the counter, and let Chris pay for them. He did not use his Walker Talker in the store,

partially because the task wasn't that difficult. He only had to hand the clerk the money and say thank you. Also, Ms. Garrison wanted to see how Chris acted without it.

Chris was very shy and timid towards the clerk. He didn't make a move or say a thing until Ms. Garrison or I prompted him to hand the money to the clerk. The clerk simply handed Chris the money and didn't respond when he said thank you.

Next, we went to the post office and again Chris didn't use the Walker talker. However, the packages we were mailing were a little complex because we wanted to certify them, so Ms. Garrison took care of the communication, but had Chris handle the exchange of money.

Hamburger Restaurant was our next stop and definitely the most enlightening. First, Ms. Garrison asked Chris how much money he had and what he would like to order. He decided that he had enough money to buy chicken nuggets, french fries, and a medium drink. When it was decided what Chris would order, Ms. Garrison recorded it into the Walker Talker. Chris then took the device up to the counter and waited his turn. When the cashier asked him what he would like to order, Chris pushed the buttons for "I" and "want" and then the recorded message. This took a little bit of time and the cashier looked as if he wasn't sure what Chris was doing. When Chris finished, the Walker Talker sounded off, "I would like chicken nuggets, biggie fries, and a medium Sprite."

"That's pretty neat!" the cashier said. "That'll be \$3.12."

Chris handed him the money and smiled huge as the cashier thanked him and handed him the change. After Chris got his food the cashier asked us about the Walker Talker and showed genuine interest. He was really impressed. When we told this to Chris, he beamed with pride at his accomplishment of ordering his own food.

This was in stark contrast to our experience at Drugstore. There, Chris received no feedback from the clerk and had no confidence in his own ability to pay for the suckers. However, at Hamburger Restaurant, using the talker proved to be a great source of freedom and independence for Chris. Once the cashier gave him some positive feedback about his order, Chris felt confident and handed him the money without hesitation and said thank you without any prompts. (My journal)

In this case, the WalkerTalker proved to be a tool for facilitating Chris's independence and proved to be a source of pride for him. Furthermore, people in the community had an opportunity to see a person with a disability as more self-sufficient than they had before. The more these devices are used by people with disabilities, the more people without disabilities will come to accept them as functioning members of society. This realization was certainly an unexpected, but pleasant surprise result of my study. The clerk at Drugstore seemed impatient and annoyed with having to deal with an atypical customer while the Hamburger Restaurant worker seemed enlightened and happy to serve Chris just like any other customer.

At the beginning of this study, I had hoped to discover how user friendly these devices were. I couldn't help but think that something as complex as the DeltaTalker with over 60 buttons and some 4,000 different sequences would be impossible for anyone to learn, especially a person with such low ability. However, several times throughout my observations, David showed how easily this device could be

learned. One occasion at the Super Boy restaurant, David amazed everyone at the table with his ability to use the DeltaTalker.

When the waitress came over to get David's order, he pushed the correct series of buttons and the DeltaTalker announced, "Hamburger french fries." The waitress acknowledged David's order and then asked, "What would you like to drink?" Ms. Garrison looked at David and repeated the question. Right away, David pushed the buttons and the DeltaTalker said, "Mountain Dew."

"We don't have Mountain Dew," the waitress said as she looked at the adults. Immediately, and without being prompted, David punched in a series of keys and the DeltaTalker announced "Coke!" (My journal)

This exchange was significant for two reasons. First, the waitress looked at the adults when she spoke. This is very typical and the waitress certainly can't be blamed. However, one of the reasons a DeltaTalker and similar devices are used is to help the students with disabilities communicate *with* people in the community, not just answer prompts from the teacher. However, in order for this to happen, the people in the community will have to recognize that the persons with disabilities are able to communicate.

Second, this exchange was significant because of the way David utilized his talker without being prompted. When the waitress told him there was no Mountain Dew, he did not get confused or wait for the teacher to help him, he simply pushed the buttons for the alternative drink.

I was impressed with his ability to know a series without practicing it first. This contradicts my earlier thoughts that it would probably take a very long time to become proficient with the talker. Apparently, David is intelligent enough to remember the basic button series. Ms. Garrison, the aide, and myself praised David repeatedly for his actions and the smile on his face showed his satisfaction with himself. He now feels more independent in social situations and more confident in using his board in public. (My journal)

Because of David's confidence in himself and the praise he was getting from the adults, he started to show off his ability with the DeltaTalker. Without being prompted, David started to push all kinds of sequences that he had learned. Using the device, he told us his name, address, and phone number. Then he named everyone in the class, Ms. Garrison, and Mary the teacher's aide. He even told us a few jokes that the DeltaTalker has programmed. Because of David's ability to memorize sequences, he will undoubtedly learn the device relatively quickly and be able to use it in all aspects of his life.

Unfortunately, David will not be able to continue developing his skills on the DeltaTalker. The one he had been using for the past few months was on loan from the county's resource center. Apparently, the district needed the device back so that they could test it with another student to determine if it could be implemented in that setting. The good news though is that funding has been approved to get David his own DeltaTalker next fall. He will be able to use it all the time and his parents will have permanent ownership of it rather than the county. The downside, of course, is that David will have to re-learn the DeltaTalker and its full potential will not be utilized for some time. Ms. Garrison is excited for the opportunity to train David and his family on the device.

This points however to the problem of adequate resources and timeliness. Taking the device away from the student just as they are learning how to use it well is simply not educationally sound. Would we take a student's pencil away from them just because they've proven they can write a sentence without erasing it? I think not! It seems to me that if laws are made to provide the devices to students who need them, then accommodations must be made by the state or federal government and the school districts to provide enough of these devices temporarily until permanent ones can be purchased.

Even though the boys' electronic devices were gone, Ms. Garrison still used augmentative communication to assist her students in the community. She made a booklet that contains all of the commonly used symbols that the boys would need in the community. The symbols were arranged into categories such as fast food, drinks, and desserts. When the boys want to say something, in the restaurant for example, they simply point to the picture that they want. Although these booklets are more restrictive than the electronic devices, they still provide the students with more autonomy because they don't have to rely on the adult to speak for them.

Conclusions

In the short time I have spent researching the use of augmentative communication devices, I have found them to be a very positive step toward transitioning people with disabilities into the mainstream of society. These user-friendly devices give students more autonomy in and out of the classroom, increase their self-esteem, and enhance their learning.

The examples I have given in this piece are only a few of the many times I witnessed the boys becoming more independent through the use of their devices. Without their devices, they are totally reliant on the adults they trust. They won't speak when asked a question, they take very little initiative, and always look to the adults to make decisions for them. However, with the devices they respond to questions and are not afraid to use their own voice to supplement the machine. They are more apt to make their own decisions and they rarely wait to be prompted when speaking.

The special education professionals who work with these students agree with my conclusions.

Mrs. Fitch, the teacher's aide says:

Augmentative communication devices help a non-verbal person "talk" and be understood better. These people can now express themselves so that other people can understand what they are trying to say. They can now do more on their own. (My journal)

Ms. Garrison states:

These devices provide a great deal of independence and pride to students with disabilities. Through these devices, students are given the freedom and joy of speaking for themselves. They are able to express thoughts and ideas instead of just holding them in. There is great educational value in this because teachers now have access to the knowledge these students are capable of. (My journal)

Also, by using the devices a seeming increase in self-esteem occurs. When their teachers or other adults in the community praise them for using the device, a smile always appears and they use the device with even more proficiency the next time. The example used earlier of David "showing off" with his

DeltaTalker once he realized that the adults were impressed with him suggests this to be the case. This incident also shows the importance of making the students feel smart and independent. It is important for people who work with these students with disabilities to constantly give them opportunities to demonstrate their abilities and then praise them as much as possible. Whenever these students feel like they have accomplished something, they are more willing to try something else. Too often, people with mental impairments are not given the opportunity to succeed. Instead, they are smothered by impossible tasks and left helpless. As a consequence, they are often timid, lack self-confidence, and are unwilling try things on their own. By giving students opportunities to learn and achieve independence out in the community, Ms. Garrison is lifting their self-esteem, giving them important skills for the future, and most importantly, instilling in them a desire to take care of themselves!

Although this study only included two boys in one community, I believe the evidence of enhanced learning, increased independence, and higher self-esteem that these boys demonstrate speaks volumes to the usefulness and necessity of these types of augmentative communication devices. The federal government has recognized the usefulness of these devices and has passed legislation to ensure their use. The special education community has recognized their usefulness and has devised plans for their implementation and training. Now it is time for all educators and society as a whole to recognize the importance and usefulness of these devices in facilitating independence and equality for all people with disabilities.

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