

# Beating Technology Abandonment

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There is a debate among educational professionals as to the value of assistive technology (AT) and its use with students with learning disabilities (LD). Students with learning disabilities may abandon the use of technology unless educators and service providers take the proper steps. What are some of the benefits of assistive technology for students with LD? What is technology abandonment? Why does it happen? And, more importantly, what can we do about it?

There is an increase in the amount of students with learning disabilities attending postsecondary institutions. Johnson, Zascavage, & Gerber (2008) state that 98% of universities in the US report having students with LD enrolled in their institutions. According to Hasselbring & Bausch (2005), 10 percent of students in Canada have a learning disability. Currently, there is a social and financial commitment from our government education bodies to help these students to get the supports they need in order to succeed in school. Silver-Pacuilla (2006) has stated that these students may lag educationally behind their peers. Thus, the lack of opportunity in school for students with LD has a dramatic impact on them socially, economically, and vocationally. The result of this is an economic drain on society as many of these students rely on social services and other government supports instead of obtaining gainful employment. Feller (2006) has determined that adults who do not finish high school nor pursue postsecondary education earn 65 percent less than someone who does finish high school.

## Benefits of Assistive Technology

*“Although assistive technologies make it possible for students with disabilities to profit from good instruction, technology is not magic; it is simply a tool of education. As with any tool, when used skilfully, it can help achieve spectacular results” (Hasselbring & Bausch, 2005, p. 75).*

There is ongoing research as to the effectiveness of assistive technology for students with learning disabilities. Research demonstrates that the benefits of AT occur when it is used as a compensatory tool to build on students’ strengths and compensate for processing deficits, to motivate students, to allow students to learn and achieve more, and to help students to achieve academic tasks independently (Ministry of Education, 2010; Alper & Raharinirina, 2006; Lewis, 1998).

Today, the K-12 education system provides some

tools to students with LD at no cost. Thus, more students with LD are coming to postsecondary not only knowing what tools are available but which ones work for them. In addition, more educators are becoming knowledgeable of the use of assistive technology and its use in mainstream classrooms. This is a result of knowledge that AT has expanded the learning opportunities for many students with LD (Ministry of Education, 2010; Neibaur Day & Snow Huefner, 2003).

Students with LD can use assistive technology to enhance spelling skills. Consequently, this can impact on students’ ability to read. Since eight of ten students with LD have difficulty reading, they may require support in order to read information at an age or grade appropriate level. Thus, they may not be able to read at this level without proper intervention. Students with LD who required the use of assistive technology in order to become better spellers also became better readers. This was the direct result of the use of assistive technology (Hasselbring & Bausch, 2005; Wanzek et al., 2006).

Assistive technology can also help students with LD who cannot read very well in two ways. One way is that the technology can be used to help with decoding and comprehension. For example, when students use text to speech software, the words are read aloud while students read along. This can increase reading speed because the software decodes the words. Students can also get immediate access to electronic dictionaries to improve comprehension. Sometimes just hearing the text helps students to understand it. The second way that technology can be helpful for students with reading problems is that it can strengthen their overall reading skills because students will read more than they would without the software. Thus, the technology allows students with LD to read and gain knowledge; they can then scaffold upon this knowledge afterwards. In fact, many adults with LD stop reading at a young age. Many have never read any books. When students with LD use technology to read, they are exposed to

a wider variety of materials than those who don’t use technology. The more materials that students with LD read, the broader their knowledge base becomes. Thus, reading with AT can alleviate a common problem that non-reading students face, a lack of background knowledge (Hasselbring & Bausch, 2005; Silver-Pacuilla, 2006).

Another positive benefit of using assistive technology is in the writing process. Using a word processor and assistive technology can increase the volume of written output for students with LD. Many AT software programs provide the opportunity for students to access better vocabulary and spelling. Some software offer organizational capabilities to allow students to organize and plan written assignments. Finally, the read back text to speech features allow students to edit their own work more independently (Montgomery & Marks, 2006; Hetzroni & Shrieber, 2004; Zhang, 2000).

Adults with LD have found assistive technology to be a motivational factor to completing reading and writing assignments. In one study, adults were introduced to assistive technology in an adult education setting. These adults expressed excitement about the technology to help them with reading and writing; they also expressed frustration about the lack of access to these tools during their K-12 education. During this study, the students were allowed to give feedback to their instructors about their education and also received constructive feedback about their work. The combination of feedback plus the use of technology strengthened students’ determination and persistence to not only achieve but to extend their goals. “Supported access to assistive technology can create opportunities for adult literacy learners to strengthen skills, improve computer literacy, and reinforce self-determination” (Silver-Pacuilla, 2006, p. 114).

Students with learning disabilities in postsecondary education can benefit from the use of AT for other aspects. AT use can dramatically impact students’ abilities to complete their college or university education successfully. Postsecondary students with LD may have difficulty with organization, memory, listening, math, and writing in addition to reading and spelling difficulties. At the adult stage, AT is not used for remediation; its most profound effect is when it is used as a compensatory tool which can be very beneficial to students with LD in a postsecondary environment (Day & Edwards, 1996; Raskind & Higgins, 1995).

A final aspect is the impact of assistive technology on an emotional level. Brinkerhoff (2002) states that assistive technology can impact students with LD in three major ways. AT devices allow students with LD to communicate their feelings, ideas, and

thoughts independently. Also, students who use AT can increase their capability to cope with their attitudes, feelings, and behaviours. Finally, students who use AT enhance their functional, cognitive, and psychological abilities in a postsecondary setting.

### Drawbacks

Despite the tremendous improvements in assistive technology, there are several drawbacks. There are many financial costs associated with purchasing, training, and using AT. In addition, assistive technology may be abandoned by the students who use it resulting in unused or underused costly equipment left in dorm rooms or on shelves.

There is an increased cost with the use of AT, both financial and with human resources.

Implementation, training, and coordination of AT can become a financial burden to educational institutions. Costs of AT use in postsecondary are rarely free. Therefore, purchasing computers and software can put a financial burden on already cash strapped institutions. Also, specialized personnel are required to determine what technology to use in certain times and places. Evaluation of appropriate AT requires someone who has proper training and expertise. It takes times to observe students in educational settings and to determine the proper tool to use depending on the nature of the both the disability and students' requirements (Neibaur Day & Snow Huefner, 2003; Bryant, 1998; Alper & Raharindirina, 2006).

*"I hated the stuff. Some guy came in and sat in front of a computer for an hour clicking buttons and talking. Then, he left and there I was – alone with my computer. I had no clue what to do."* Brian, a student

Training students to use technology is another cost to educational institutions. Students with LD require specific training to not only **how** to use the AT tools but **when** to use them. Simply sitting a student in front of a computer is not enough. Students with LD may have difficulty learning how to use the software effectively with one training session. Thus, if they only receive superficial training, they may not use the tools and abandon its use.

"Mismatches lead to frustration, AT equipment abandonment, and task avoidance" (Silver-Pacuilla, 2006, p. 122). Research shows that technology should be used to compensate for processing difficulties; it should be used as a compensatory tool. It should also be matched to students' needs. However, some students still outgrow the capabilities of the assistive technology and abandon its use (Beigel, 2000; Alper & Raharindirina, 2006).

*"I was told that I was stupid for so long that I started to believe it. I couldn't read without my computer, and there was no way I was going to use it when everyone was watching. I had to go to the back of the classroom to use the computer. It was humiliating. So I didn't use it."* Stewart, a student



Of course, one must take other personality factors into account. Many young students with LD are affected by the difference between them and their non-disabled peers. Standing out and being different at a young age is not tolerable for many students with LD. Thus, some students will not use technology because

they want to do things the same way as their peers do, whether it is good for them or not.

*"When I read with the computer, it does the reading for me. All I have to do is sit back and listen. Is that really reading? I'd like to be able to sit and read on my own. I do it, but I have to pick easy books to read otherwise I can't figure out what it means."* Patricia, a student

The reading process is not simple. There is a perception

that if the computer says the words aloud, it is reading. However, this is not the case. The person who is reading with the computer must still process the meaning of the words, tie them into the context of the sentence, tie that into the context of the paragraph, etc. It is quite complicated. Yet some believe that the computer is reading and not the student. Because of this misperception, many people utter phrases such as, "He will become dependent on the computer," and "She's not reading, the computer is reading." This added pressure tells some students with LD that using technology for reading is cheating.

*"I'm articulate. I like school; I just don't like school work. I mean I love learning; I love reading and being in classes. I just hate writing and trying to organize myself and writing papers and stuff"* (Higgins, Raskind, Goldberg, & Herman, 2002, p. 13).

The amount of effort required to use assistive technology is another deterring factor for many students with LD. Students may already be overwhelmed with the amount of work they have, and we are adding more to their plate by asking them to learn how to use other tools. For example, if a student is having difficulty editing their work, I would teach them how to use textHELP Read & Write GOLD. In the next session, once they feel comfortable with the software, I would introduce a learning strategy – GRADES – which gives them some steps to perform with Read & Write GOLD to edit their work. This requires several sessions to master, and the student, in the meantime, has to try to edit their own work. Wouldn't it be easier if I just circled their mistakes and have them edit their work and hand it in? Of course! However, if they learn the skill to edit, they can become more independent writers. This adds more work for students with LD.

*"...the most difficult time was fourth through eighth grade because the kids made fun of me"* (Higgins, Raskind, Goldberg, & Herman, 2002, p. 7).

Many students with LD have had negative experiences in their K-12 education. Many have been laughed at in classrooms by their peers and some by their teachers. This leaves an indelible mark on their self-esteem, one that is hard

to erase. Thus, trying to teach these students how to use new assistive technology can be met with resistance and learned helplessness. Students balk at trying something new because of the negative experiences they've had in the past when they've tried to learn other things.

*"Don't worry about your accommodations! Write the test in class." Rob, a professor*

Some professors try to accommodate students with learning disabilities by encouraging them to write in class. This is great for students who require extra time and, students can ask the professor for clarification of test questions and such. On the other hand, students with LD who rely on technology to help them with decoding, spelling, and comprehension are disadvantaged without access to assistive technology. The well meaning professors often do not understand the complexity of their students' disabilities. Thus, they discourage students from writing in the disability service area because they feel they are better suited to help students. This may not always be the case.

*"I want to be like everyone else. Why can't I read like my friends do? Why does this kind of thing have to happen to me? I'm so tired of being teased and struggling. I'm ready to give up." Tara, a student*

Finally, some students with LD experience stages of grief when they are trying to come to terms with their disability. If the student is in the denial phase, there is very little we can do to persuade them to use a tool that they think is unnecessary. It is similar to the saying, "You can lead a horse to water, but you can't make them drink." Often, we have to let students flounder until they come to terms with the fact that they need help. It is everyone's right to fail; it's just hard for us to let them sometimes.

### Suggestions

*"By design or by accident, the field of LD has been thrust into the technological revolution. Technology is being used at an ever-increasing rate, in the hope of improving academic abilities, ensuring employment success, and promoting social and psychological well-being" (Raskin & Higgins, 1995).*

This statement was made in 1995. Yet, many educators, students, and parents still resist using and accepting the use of assistive technology. Here are some suggestions that I would like to offer that can be implemented with students in postsecondary education.

- **Differences** – When students with LD use technology for tests or assignments, they often

do not attribute what they do, the effort they perform, and the outcome (marks in this case). We need to mirror their success or failure. Did their assignment or test mark improve? Why or why not? What could the student do differently the next time? Was it the right technology?

- **Learning Strategies** – Using assistive technology is not a strategy. What students do with the technology is the strategy. There is more work upfront for both students and assistive technologists or learning strategists, but students will become more independent in the long run. One example of this is a reading strategy. Students can learn how to use text to speech technology to read, but they may not be able to pick out main ideas or realize what is important to study for tests. Adding a strategy such as SQ4R (Survey, Question, Read, Record, Recite, Review) may be key to help these students, so the AT becomes a useful tool.
- **Normalizing** – Technology is available in most classes these days. How many students in postsecondary have laptops, iPads, iPods, cell phones, etc? However, students with LD have specialized software that others may not have. Successful students with LD who use technology can have a powerful impact on other students with LD. Their example can be more beneficial than trainers and disability advisors trying to convince students with LD to use technology.
- **Knowledge is Power** – Students with LD can usually tell you what they are good at; however, many cannot tell you their strengths. A psychological assessment is key to showing the students what they are good at; we pair learning strategies with processing strengths. In addition, students need to know how the assistive technology will help with their processing weaknesses and become a compensatory tool. This knowledge can make the difference between acceptance of AT and its abandonment.
- **Training** – There are many AT tools available on the market today. However, the skilled expert along with the student are the best people to determine a good fit between the students' processing strengths and difficulties and the technology that is available. Skilled personnel can teach students how to use the tools efficiently. Start by training students how to use features that will be immediately useful. We use a tool called The AT Checklist. The assistive technologist asks the students several questions to determine exactly what the student needs to start with. Then, the technologist introduces features that the student can use immediately. Of course, the technologist should also be knowledgeable of

learning strategies that the student will be able to use in the next session in order to plan for that. For example, if I am going to introduce SQ4R in my next session (after the student feels comfortable using text to speech software), I will make sure my student knows how to use the Read feature, highlighting, and notes.

- **Evidence Based Training** – The Strategic Instructional Model is a method that was developed by the University of Kansas. It is an evidence based training method to introduce learning strategies and assistive technology to students with learning disabilities.

### Conclusion

Technology abandonment is a key issue in most educational institutions. Students with learning disabilities may abandon its use for many reasons. A systematic approach and continued feedback are key to helping students to realize the true value of AT and to continue its use. These tools may be the key to students' success in postsecondary and to obtain gainful employment. Together we all win.

### References

For a complete list of references, please contact the author at the email listed.

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