Assistive Technology: Identifying Professional Development Needs of Independent School Teachers[1]

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Introduction

Assistive technology (AT) devices for students with learning disabilities provide a more balanced learning environment for students by removing barriers to learning and encouraging learning disabled (LD) students to participate and interact with their teachers and peers (Judge & Lahm, 1998; Stanberry & Raskind, 2009; Zhang, 2000). Assistive Technology is proving to be a critical piece in ensuring the success of students with learning differences. All students benefit from a multi-sensory approach to instruction and accommodations that allow them to reach their full potential.

For educators, professional development (PD) in AT is constantly changing due to the availability of new technologies and modes of communication for 21st century learners. Opportunities for PD are available in a plethora of formats, ranging from interactive webinars to blogs to YouTube videos. Teachers are faced with a whole new network of professional development opportunities.

Purpose

This research addresses teacher perspectives of professional development practices in one independent school setting and analyzes how teachers are implementing PD in the classroom. The focus of this research is on PD for assistive technology. The purpose is to explore what professional development practices are most effective, how they are being implemented in the classroom, and the impact that the use of assistive technology in the classroom is having on students.

Research Questions

1. What are the most effective methods of professional development currently being implemented for the use of assistive technology with learning disabled students?

2. What are the perceptions of educators regarding professional development for the use of assistive technology in the classroom?

3. How do educators implement what they learn from professional development in the classroom?

Theoretical framework

Assistive technology (AT) promotes children's learning and development by allowing children to more effectively participate in activities and routines in their natural environments (Langone et al., 1999; Mistrett et al., 2005). AT devices, ranging from low-tech (e.g., adapted spoons, switches, picture boards) to high-tech (e.g., computers, augmentative communication systems, power wheelchairs), can increase young children's options and facilitate their physical and social inclusion in various settings (Judge & Lahm 1998), as well as create inclusive environments for young children with disabilities (Judge, Floyd, & Jeffs, 2008).

AT can provide tools of access and enhancement for inter- and intrapersonal development. In essence, creative usage of AT can increase the overall effectiveness of inclusive programs for young children with disabilities (Judge, Floyd, & Jeffs, 2008). The application of AT into the lives of individuals with disabilities can expand placement, educational, and overall developmental options for individuals with disabilities, their families, and the professionals that provide supports to them.

Participants at one Assistive Technology Outcomes Summit shared their thoughts concerning AT and its impact on an individual's development and the outcomes that have been and should continue to be measured in instructional areas (Parette,

Peterson-Karlan, Smith, Gray, Silver-Pachouli, 2006). Participants agreed that educators have a great deal of work ahead of them to integrate AT into meaningful instruction/assessment and to truly understand the outcomes of these applications. Those attending the Summit established that part of that work involves enhancing the integration of AT into the lives of students with disabilities whether it be via (a) standards-based curricula and accommodations in statewide assessments, or (b) through the extension of evidence-based practices that show the effectiveness of AT in improving student learning. It is important to build upon what we know about AT and its use with students with disabilities.

A study by Schacter (1999) showed that schools in which teachers received training in the use of technology and later incorporated technology to teach higher order thinking skills experienced a lower rate of student absences and higher teacher morale. The study also showed that students of teachers who had received any form of training about computer usage in the last five years outperformed students of teacher who had received no training. "We need to educate professionals on the impact of these applications and to confront biases and misconceptions that use of AT presents unfair advantages" (Parity, Peterson-Karlan et al., 2006). The ultimate goal of all professional development is to strengthen student performance.

Methodology

Research Design

A qualitative approach, with the researcher as the key instrument, was used to address the following questions (Creswell, 2009):

1. What are the most effective methods of professional development currently being implemented for the use of assistive technology with learning disabled students?

2. What are the perceptions of educators regarding professional development for the use of assistive technology in the classroom?

3. How do educators implement what they learn from professional development in the classroom?

Sample

A sample of educators were selected from a school with a student body made up of approximately 68 students who have been diagnosed with dyslexia (reading disorder), attention-deficit disorder (ADHD), executive function deficits, and/or specific language impairments. The school has 13 full time faculty members as well as a program director and administrative assistant.

Individual interviews were conducted with $N = 5$ full time LD educators whose primary role is teaching LD students. These individuals were invited through a personal email that described the purpose of the research, followed by a faculty meeting describing the purpose of the research in greater detail.

Data Analysis

Krippendorff's (2004) content analysis method was used to analyze the verbal content gathered in the individual interviews. Emerging themes were grouped together, by what Krippendorff (2004) has termed clustering. These "clusters" shared a particular

quality.   Interviewing is a way to get to know a person's beliefs, attitudes, and expectations, while the content analysis of the interview transcripts allows the researcher to identify qualitative inferences from the material to be analyzed (Krippendorff, 2004).

Limitations & Delimitations

This research is limited in that it only takes into account the perspectives of educators from one independent school setting, during one school year. The results of this study may not be generalizable to educators in a public school setting due to the lack of availability of professional development funds and opportunities for technology in the classroom.

Results

The primary purpose of this study was to determine the level and effectiveness of professional development regarding assistive technology for students with learning disabilities. The results indicate that professional development is active and effective in this school setting. The finds that follow will be ordered by research question.

Research Question 1

What are the most effective methods of professional development currently being implemented for the use of assistive technology with learning disabled students?

The results of the analyses indicated that professional development in this independent school setting is active and successful. All subjects identified at least two professional development opportunities they had been involved in within the last school year. One of the PD opportunities was a Learning Differences Conference, at a destination location, while the other PD was a two-day smart-board training that took

plan on school grounds. Teachers that were interviewed shared experiences and tools

that they took away from their professional development opportunity.

> I used to have challenges downloading photos to my computer and them uploading them onto an album. There were too many pieces of equipment involved, so I wasn't really apt to put up many pictures of my class in action on the school website. Now, with the ipad, I find I can easily upload pictures and videos using the Picasa App, which I learned about at the conference.

Another teacher was excited to talk about the apps for the iPad that she heard about at

the conference and then implemented in her classroom.

> At the conference, I was exposed to iPad apps such as "My Homework", "inClass", Google Calendar, Google Docs, and Evernote that help support executive functioning skills.

Research Question 2

What are the perceptions of educators regarding professional development for the use of assistive technology in the classroom?

All the educators interviewed for this research indicated that one of the best forms of

professional development for them is the time to spend with their peers to discuss

assistive technology use in their classrooms. They all indicated that the time to share

and reflect with one another is one of the best and most effective ways for them to learn

about new tools and tricks when using technology in the classroom.

> Professional development that has been best for me has been direct contact with faculty on campus who are already using these devices.

Another educator shared:

> I have a particular interest in assistive technology for LD students and I am always happy to share my knowledge with others. I think that is really the best form of professional development that I can think of!

Others shared that they were grateful for the opportunities afforded to them by the

school to attend professional development workshops and conferences. They

appreciate the collective interest and enthusiasm they feel from their peers when they

return from workshops and share their experiences. Again, all the teachers interviewed

discussed the on-site training they were involved in when their classrooms were equipped with Smart boards. They talked about the effectiveness of this training and the support that was offered after the training ended. One teacher shared a story about her first Smart board, which was defective.

> Last year my first Smart board was defective and it was difficult to determine if I was lacking tech knowledge or if the board had a problem! Actually, I knew it was the board, but had difficult convincing the company that they had defective equipment.

The company eventually provided a new board and she has been actively enjoying it ever since.

Another educator discussed being active on Twitter and following educators who tweet about their experiences with assistive technology in the classroom. She said that she gets most of her app ideas this way. Another suggested searching for iPad apps based on those that have won awards.

Research Question 3

How do educators implement what they learn from professional development in the classroom?

The three technology tools primary being used in the classroom by the educators interviewed include Smart boards, IPads, and document cameras/projectors (ex. ELMO document reading or ladybug document camera). One teacher reports that her students who struggle academically find this type of technology to be engaging and accessible.

Ipads are being used for small group work, independent work, and modeling. They are also being used to document activities in the classroom, on campus, or when working with other instructors out of the classroom. They are being used to access speech-to-text software, such as Dragon NaturallySpeaking, and text-to-speech

software, such as Universal Access on the iPad. Ipads are also being used as graphic

organizers and as access to word clouds. In addition, they are being used to take

videos in class or for class presentations, to take pictures, and to store pictures in photo

albums. Although the teachers interviewed were not currently using these features, it is

interesting to know that if a student is visually impaired, the Mac comes equipped

with a screen reader, magnification tools, as well as dozens of other features for

blind and low-vision students. In addition, students with physical or motor-skills

disabilities can customize the settings on a Mac to assist them with typing, clicking,

navigating, and more. These features could be particularly useful for teachers working

with students who are visual or physically impaired.

One educator indicates that the document camera has been a great resource for

science class because of the nature of the curriculum. She said that there are many

hands-on manipulatives and 3-D or motion activities. She did say that she would like it

if it were fully compatible with the Smart board and is hoping that she will have this

access next fall.

Conclusion

While educators appreciate the resources that are offered for attending professional

development workshops and conferences, all teachers interviewed for this research

stressed the importance of being allowed time to communicate with peers regarding

their work in individual classrooms. The most effective professional development

workshops have offered them specific assistive technology content.   They identified the

three most frequently used technology tools in their classrooms as being Ipads, Smart

boards, and document readers.

Educational significance

The data obtained from this research allows teaching professionals to better

understand which methods of professional development are most effective in preparing

educators for success in implementing AT in LD classrooms. It also informs educators

how the PD is being implemented in an independent school setting.

> The fact is that given the challenges we face, education doesn't need to be reformed -- it needs to be transformed. The key to this transformation is not to standardize education, but to personalize it, to build achievement on discovering the individual talents of each child, to put students in an environment where they want to learn and where they can naturally discover their true passions. (Robinson, 2009)

Assistive technology is innovative and naturally encourages students with learning

differences to stretch and strengthen their multiple intelligences. Allowing teachers the

time to immerse themselves in the assistive technology available and to communicate

with others who are using the technology is an important component to making sure that

our students have the greatest access to assistive technology in the classroom and

beyond.

References

Creswell, J. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches.* Thousand Oaks, CA: Sage Publications.

Derer, K., (1996). A survey of assistive technology applications in schools and recommendations for practice. *Journal of Special Education Technology, 13*(2), 62-80.

Judge, S., Floyd, K., & Jeffs, T., (2008). Using an sssistive technology toolkit to promote inclusion. *Early Childhood Education Journal*, *36*:121–126.

Judge, S. L., & Lahm, E. A. (1998). Assistive technology applications for play, mobility, communication, and learning for young children with disabilities. In S. L. Judge & H. P. Parette (Eds.), Assistive technology for young children with disabilities: A guide to family-centered services (pp. 16–44). Cambridge, MA: Brookline.

Langone, J., Malone, M., & Kinsley, T. (1999). Technology solutions for young children with developmental concerns. *Infants and Young Children*, *11*(4), 65–78.

Mistrett, S. G., & Goetz, A. (2000). Playing with switches. Retrieved from http://letsplay.buffalo.edu/products/index.htm.

Parette, H. P., Peterson-Karlan, G. R., Smith, S., Gray, T., Silver-Pachouli, H. (fall 2006). The state of assistive technology: Themes from an outcomes summit. *Assistive Technology Outcomes and Benefits, 3*(1).

Robinson, K. (2009). *The element: How finding your passion changes everything.* New York, NY: Penguin Group.

Schacter, J. (1999). The impact of educational technology on student achievement; What the most current research has to say. Retrieved April 5, 2013 from the Milken Exchange on Educational Technology Website: www.mff.org/pubs/ME161.pdf.

Stanberry, K., & Raskind, M., (2009). Assistive technology for kids with learning disabilities: An overview. *LD Online.* Retrieved from http://www.ldonline.org/   article/Assistive_Technology_for_Kids_with_Learning_Disabilities%3A_An_Overview

Zhang, Y. (2000). Technology and the writing skills of students with learning disabilities. *Journal of Research on Computing in Education*, *32*(4), 467-479.