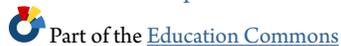

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Assistive technology: effects of training on education assistants' perceptions of themselves as users and facilitators of assistive technology and consequent transfer of skills to the classroom environment

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Publication Details

Chambers, D. J. (2011). Assistive technology: effects of training on education assistants' perceptions of themselves as users and facilitators of assistive technology and consequent transfer of skills to the classroom environment (Doctor of Philosophy (PhD)). University of Notre Dame Australia. <http://researchonline.nd.edu.au/theses/62>

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CHAPTER 6

CONCLUSIONS, RECOMMENDATIONS AND FUTURE DIRECTIONS

6.1 Introduction

The purpose of this research was to investigate Education Assistants Special Needs' (EASN's) perceptions of themselves as users and facilitators of assistive technology (AT) in the classroom and to examine how skills learnt in a training situation might transfer into a classroom setting. This chapter draws together the findings to address the overarching research question: How does assistive technology (AT) training for Education Assistants Special Needs (EASN) affects the subsequent use of the technology in the classroom? This chapter is organised into four main sections:

- Major Findings (Relating to the Overarching Research Question)
- Recommendations
- Limitations
- Future Directions

6.2 Major Findings

Assistive technology training for EASN has had a number of impacts on the use of the technology in the classroom. These impacts indicate that the AT training for EASN has resulted in a variety of benefits for the classroom and for the EASN themselves. These impacts are displayed in Table 6.1.

Table 6.1.

Key Research Outcomes

Outcomes
<ul style="list-style-type: none">• Greater awareness of the types of technologies available• Enhanced pedagogical understanding for the use of AT• Increased capacity to identify needs and monitor progress of students with special educational needs in relation to AT use• Increased use of technology in inclusive settings• Changes in self-perception of EASN

The EASN have exhibited a greater awareness of the types of technologies available as a result of completing the training. The EASN performed better after the training when asked to identify particular technologies that would be useful for students with specified difficulties (e.g. low muscle tone, vision impairment, organisational difficulties, and behavioural problems). Increased awareness was evident in the EASN responses to qualitative questionnaires along with an improved knowledge of how to access support in relation to AT. One of the EASN stated that the training “made me more aware of what is available and how to obtain the assistance that is available”; while another said that “I know more of what is available to apply with different students needs”. Ashton and Wahl (2004) have found low levels of awareness of AT in staff supporting students with special needs. An increased awareness, such as that demonstrated by the EASN in the current study, has the potential to lead to better and more frequent use of AT in classroom contexts.

In addition to displaying a greater awareness of the types of technologies available, the EASN also demonstrated an enhanced understanding of the pedagogy

that would be appropriate for using AT. This understanding included the need to appropriately match the technology with the user so that the best possible outcomes could be achieved. In an inclusive classroom setting, this skill is useful for a large number of students, not just the student with a disability, as the EASN is able to consider needs more effectively. Two of the EASN stated that based on the needs of students with whom they were familiar; they would use specific ATs to support difficulties the students were having (e.g. finger grip support for poor hand grasp function and the inclusion of a Smart board activity for students to engage them in a class lesson on letters). Scherer and Glueckauf (2005) stated that ATs can have a large impact on the ability of the students to access classroom curriculum and that “effective use of ATs and other supports will be maximized by matching device and support features to users’ goals, preferences, and environmental resources” (p. 132). As one EASN stated, the AT used with support can “help students with special needs to be more confident in classroom activities”.

The EASN involved in the study demonstrated an increased capacity for identifying the AT requirements and monitoring progress of students with special educational needs in relation to AT use. When asked, for example, if they considered the training useful for the future, one of the EASN replied that “it is because it makes you think of the students individually instead of just as a class whole. Each student needs assessing for assistive tech based on his/her own needs”; while another suggested that “I have a better understanding of how AT works for the specific needs of students”. A striking example of consideration for the needs of a student (and having confidence to express her opinion) was when an EASN stated “therapists came to visit L to look at his seating. I felt confident to voice my concerns and add

to the design of a new chair". Scherer (2005) suggested that the matching of the technology and student needs, coupled with consideration for the context in which the AT was being used, are paramount to ensuring a successful outcome for the student. Field notes and skill tests results have also shown that the EASN have an improved capacity to describe monitoring tools that may be appropriate for students using AT. Before the training, only very basic forms of monitoring were suggested by the participants. After the training, and at maintenance, the EASN were more likely to include more sophisticated forms of monitoring of students as appropriate ways to assess progress; both for using the AT and for academic or behavioural achievement.

An important effect that came about as a result of the training in AT with EASN, was the increased use of AT within the classroom settings. It should be noted that most of the increase in AT use described was in the area of low-tech assistive technology, as opposed to medium and high-tech assistive technology. Possible reasons for the use of low-tech AT include the easy access to this technology and the utility of the AT for the students served by the EASN. Some examples of the low-tech devices or tools used by the EASN after the training include: reading windows (cards with slots cut into them to focus reading); magnifying glasses; Velcro prompt cards on the student's desk; rulers with handles; and, self-opening scissors. All of these items are able to be constructed by the EASN or purchased at a low cost. It may be that the low-tech devices also suited the inclusive settings that the EASN were in, by ensuring that the students did not 'stand-out' within the classroom as they may do with high-tech devices.

Although not mentioned as frequently, the use of medium to high-tech AT was also discussed by the EASN. The more sophisticated AT was generally in the form of computer software (e.g. Boardmaker, Clicker 5) or specific communication devices (e.g. BigMack, GoTalk). Other high-tech AT used included computer-based reading and mathematics programs, online behavioural management tools, and writing supports (e.g. The Writer). The high-tech devices that were mentioned were those that would not generally be found in inclusive classroom settings, aside from the computer-based software and online tools. That the inclusive setting was embracing these devices to cater for the needs of the students is encouraging. The EASN generally indicated that they were using more AT after the training than they were prior to the training. Those who were not using the AT currently, stated that “some of the information wasn't relevant to the student I am working with this year; however, it will be extremely helpful in subsequent years. I will have a wealth of ideas and knowledge of some fabulous websites right from the beginning”; and, “I work with a variety of children with special needs and you can never have too much knowledge”.

A major finding resulting from the research which may affect the use of AT is the change in perception of themselves as users and facilitators of AT as expressed by the EASN. The increase in self-efficacy in the area of AT use and facilitation has the potential to increase the frequency of the use of AT in the classroom. Research conducted by Bandura (1982) on self-efficacy suggested that a person who believes he or she is capable of performing a task (has high self-efficacy) is more likely to succeed at that task. Similarly, Ajzen and Fishbein (2005) have studied the influence of attitudes on behaviour, and have found that a positive attitude towards a

task (or object, as they call it), leads to an increase in the behaviour related to that task or object. In this case, that development of positive attitudes towards the use of AT may lead to the increased use of the AT in the classroom. Both the EASN's self-efficacy and their attitude towards AT has been impacted positively by the training. These impacts are evident in statements made by the EASN such as, "I feel more knowledgeable and capable of accessing the assistive technology"; and, "I've learnt that no matter what the issue, there will be some form of AT that can help. Although I'm not a guru, I feel I have the confidence to try certain programs not previously known to me before this training. I feel I have a high level of competency in making low-tech/visual assistive technology".

6.3 Recommendations

Alongside the positive effects of the training, a number of areas where further action is required were also identified (Table 6.2). Recommendations for action to address these areas will now be discussed.

Table 6.2

Recommendations for Action

Recommendations
<ul style="list-style-type: none"> • Training in the area of AT • Improved provision and access to AT • Examination of the role of the EASN • Development of collaborative approaches between staff working in classrooms

Training available in the area of AT for staff in schools was not always made known to the staff, particularly the EASN. Although the availability of training in many facets of AT is becoming more broadly available, mainly as a result of dedicated staff in the government and not-for-profit sectors, the training that is available is not always tailored to the needs of the individual schools and classes. Schools may need to dedicate an individual staff member to coordinate the training undertaken by the staff in the school, to ensure that it meets the requirements of the staff and students and that all staff have access to the training (if required). It is especially important that the staff in the school have an understanding of what AT is and what the AT means for the students in their classrooms, particularly with the inclusion of more students with special needs into regular settings (Department of Education and Training, 2004; 2007). Providing joint training, where the EASN and classroom teachers work together to improve knowledge and skills, is suggested as a beneficial way of ensuring that there is a common foundation from which to implement the AT.

In order to ensure that the students with special needs are able to access the most appropriate AT to suit their needs, improved provision and access to AT may need to be considered. This consideration could be made at a number of levels within the current government educational system including: Central Office (in particular, the legal requirements for including students with special needs); District Offices (in particular, the support given to schools to implement AT); School Administration (in particular, the support given to individuals to implement AT); and, the classroom staff (in particular, collaborating for optimum outcomes for students using AT). In addition to providing AT to schools and students, access to

the AT that is currently available may also need to be streamlined. In the government school system, only a few staff have the ability to make changes to the computer systems of the school, which includes modifying the accessibility features of commonly used programs (e.g. Microsoft Word, PowerPoint) and installing new programs onto systems. Although there are sound reasons for maintaining control over a large computer system, procedures for staff to access the system can be made clearer through school policy and a dedicated person who can perform this role may be beneficial to the smooth use of AT for all.

In light of this study and in reference to the *Competency Framework for Education Assistants Special Needs* (Department of Education and Training, 2008), further examination in schools of the role of the EASN is warranted. Clarification in regards to the role of the EASN in the classroom is likely to benefit both classroom teachers and EASN by ensuring all parties are aware of the capabilities and requirements of the role of the EASN. It is useful for the classroom teachers to have a thorough understanding (if they do not already) of the nature of the work that can be undertaken by the EASN in the classroom and the conditions that they work under (i.e. under teacher direction, under general teacher guidance, under limited teacher guidance). Ensuring that staff are cognizant of these roles is important so that all staff share a common understanding, there is limited role confusion in the classroom and appropriate training opportunities can be provided, if so required. The competency framework "...articulates professional practice for EASN who work in Western Australian public schools and outlines the varying roles and responsibilities they may undertake when applying their professional knowledge, skills and understandings to their specific working context" (Department of Education and

Training, 2008, p. 6). Many stated roles and responsibilities included in the competency framework relate to the EASN implementing programs of work using technology, including AT. Further training for the EASN would allow them to better achieve the outcomes set out in the competency framework, particularly in regards to AT.

The benefit of developing collaborative approaches between staff working in classrooms cannot be underestimated. Those classrooms where the teacher and EASN worked in partnership were reported by the EASN as the classrooms where the training they undertook in AT was most likely to be utilised. As stated by one of the EASN, “It’s a teacher to teacher thing isn’t it? It’s like she lets me do whatever I want, and then others are very structured and tell you exactly what they want you to do”. Role definition, although important, is not necessarily sufficient to ensure all parties are aware of the tasks they will perform in a collaborative classroom. There are many ways that collaborative classrooms can be cultivated by teachers and EASN, including: developing an open relationship; setting aside time to discuss experience strengths or weaknesses and other areas of interest; using active listening; and, practicing open communication (American Federation of Teachers, 2010). Due to the necessity of having more than one adult in the classroom to assist in catering for students with special needs, it is requisite that staff establish appropriate working relationships that are going to be conducive to learning (Cremin, Thomas, & Vincett, 2005).

6.4 Limitations

As with any study, there are a number of limitations that must be considered when interpreting the results. These limitations include:

- A relatively small number of participants drawn from only one education district;
- Public education system only; and,
- Lack of long term follow-up.

A potential limitation of the study in regards to determining the EASN's perception of efficacy is that it seeks to determine the perceptions of a small cohort in relation to the larger pool of EASN working within the Government education system. Due to the small cohort, the findings may not be able to be generalised (transferred) to the wider cohort. Even though this is a small group of participants, they were drawn from a number of different schools and exhibited a variety of levels of experience and knowledge and skills, and therefore represented some variety within the sample. A follow-up study might seek to examine a wider range of EASN, in identified settings to add to this body of knowledge and to more clearly determine if the setting in which the EASN are working has a differential impact on their knowledge of AT.

That the public (or government) education system was used to conduct the study is also a potential limitation of the study. A broader examination of EASN and AT in Catholic and Independent school systems would allow for a greater range of data to be collected and would enhance the transferability of the findings to a broader range of settings and staff. There is also the potential for the resource allocation in each of the sectors to be different, which may also impact upon the results of the

study. In the public school system, for example, there is a team of people at the upper management level who provide support for the identification and implementation of appropriate AT for individual students, on a visiting teacher basis. The Catholic and Independent sectors do not have this dedicated team available to them, although a number of inclusive education consultants hold knowledge in the area of AT. Such sector differences may have implications for the EASN working within these sectors, and in the way in which AT is acquired and implemented, which the current study has not addressed.

Although a maintenance probe was conducted ten weeks after the completion of the training to determine whether the perceptions, skills and knowledge had changed, a longer term follow-up study may allow examination of whether the training outcomes were maintained over greater periods of time. A long-term study would also allow more in-depth examination of the transfer of the skills and knowledge to the classroom. On some occasions, the current work situations of the EASN were not conducive to transfer, but future situations may have allowed this transfer to be more obvious. A work situation which was not conducive to transfer of skills was highlighted by a small number of the EASN who indicated that they would use the skills and knowledge in the future, but that they were currently unable to do so. Studies conducted by Brehmer, et al. (2008) indicated that maintenance of skills was achieved by participants who were similar in age to those in the present study. In some instances, a 'refresher' or follow-up course may be required to re-initiate memory of the skill processes (Brehmer, et al., 2008).

6.5 Future Directions

Many future avenues of research are suggested by the current work. These include further study of the AT in use in schools, cross-sectoral use of AT and EASN (i.e. Catholic and Independent schools sectors in addition to Government schools), expanding the participant group, expanding the context (setting) of the study, and training all staff simultaneously. These areas of research would provide further insight into the use of AT and how EASN are utilised in school settings to support students with special educational needs who are using AT.

An in-depth examination of AT use by schools in Western Australia and in other states of Australia would be useful to determine the current usage of the AT within the school sectors, as opposed to just the availability of the AT. A study examining AT use in schools would supplement the current study and allow comparisons to be made between school sectors (e.g. Catholic, Government and Independent), staff using the AT, and individual schools within these sectors. From the data collected, schools who were intense users of AT could be more closely examined to determine factors which enhanced the use of the AT. These factors may assist other schools to improve upon their use of AT to support students with special educational needs.

The current study could be improved by working with a larger number of EASN. By increasing the number of participants, the credibility and dependability of the data is improved. In addition to increasing the number of participants, the range of contexts in which the participants are employed would also be a useful area of study. These contexts may range from a regular classroom setting in a small

school, to an education support centre based in a larger school, to a segregated education support school. The variety of school settings provide the opportunity for seemingly endless combinations and varieties of contexts, and the use of AT in a wide variety of contexts would be a valuable area for further study, so that a variety of AT training can be developed for individual situations.

One aspect of the current study that requires further examination is the interaction between all staff in the schools. Ideally, future studies would be directed towards training both the EASN and the classroom teachers at the same time. This would be a relevant area of study as the effects of the training may be quite different if all parties are accessing the same information and skills training simultaneously. It would also allow the classroom teacher and the EASN to view each other's skill level and progress on skill development, which they may not always have opportunity to observe.

6.6 Conclusion

Training for EASN in the area of AT has resulted in the increased use of technology, greater awareness of the types of technologies available, enhanced pedagogical understanding for the use of AT, and an increased capacity for identifying needs and monitoring progress of students with special educational needs in relation to AT use. The current study has provided insight into the EASN's perceptions of themselves as users and facilitators of assistive technology. Prior to the training, the EASN did not consider themselves proficient users of AT, whereas after training they were not only more aware of assistive technologies, but saw themselves as skilled users of AT in relation to the students in their classroom. This

change in perception is considered to be an important factor in regards to the overall use of AT to support students with special educational needs.

Recommendations in relation to the findings of the study include further training in the area of AT, improved provision and access to AT, the need for an examination of the role of the EASN, and development of collaborative approaches between staff working in classrooms. These recommendations serve to strengthen the existing skills and knowledge of the EASN and also extend the development of both EASN and teachers in regards to the use of AT.