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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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CHAPTER ONE

INTRODUCTION

1.1 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. An overview of the study and reasons for the selection of the topic will be detailed in this section, including reference to the purpose, value and significance of the study for the field. The structure of the thesis will be introduced, along with limitations of the study.

1.2 Overview

With the continuing inclusion of students with special educational needs into regular school settings, there is an increased need to cater effectively for these students (Takala, 2007). This may be achieved in a multitude of ways, such as further training for the classroom teacher, the use of assistive devices, or the allocation of support staff such as Education Assistants Special Needs (EASN), to provide additional targeted support for the student. Schools are often choosing to employ EASN as a primary way of assisting students with special needs to access the curriculum (Gerber, Finn, Achilles, & Boyd-Zaharis, 2001), and as a result EASN are taking increasing responsibility for the delivery of the educational program for students with special needs (Achilles, Finn & Gerber, 2000; Carter, O'Rourke, Sisco, & Pelsue, 2009). Along with the proliferation of support staff to assist students with special needs, the variety, functionality and availability of assistive technology (AT) to support students with special needs has improved

greatly over recent years (Netherton & Deal, 2006). As many students with special needs may be able to access AT to support academic, social and independent learning, the EASN need to know not only how to effectively use this technology, but also have the desire and confidence to do so.

1.3 Purpose

The purpose of this research was twofold: firstly to investigate Education Assistants Special Needs' (EASN's) perceptions of themselves as users and facilitators of AT in the classroom; and secondly, to examine the transfer of skills learnt in a training situation into a classroom setting. EASN are important contributors to the process of including students with special needs in regular class settings (Gessler Werts, Harris, Young Tillery & Roark, 2004). They often assume responsibility for facilitating the learning of students with special needs by providing the structure and resources that these students require to be successful learners. As part of their role, the EASN are increasingly required to access AT devices and materials and facilitate the use of the devices with students. How the EASN perceive themselves as both users and facilitators of AT will be examined to determine if there is an impact on the AT that is utilised with the students, not only in quantity, but also in quality. While perceptions of efficacy in relation to AT use have been reported for teachers and other professionals working with students with special needs (Ashton & Wahl, 2004; Lee, Vega, & Ashton, 2005), perception of efficacy has not been clearly identified from the perspective of the EASN, a person who is most likely to spend a large part of their work day working closely with these students. It is this perspective that is being sought in this study.

The need for training in AT has been identified as an important factor in the appropriate and continuing use of this technology in the classroom (Carter, O'Rourke, Sisco & Pelsue, 2009; Netherton & Deal, 2006). Equally important is that the training relates to increased and effective use within the classroom setting. Planning for the transfer of skills and knowledge from a training situation to the classroom is an essential consideration, as without appropriate transfer, the training has little benefit for the trainees and ultimately, the employer and the intended recipients of the training (Goldman & Schmalz, 2005).

1.4 Justification

With the increased use of EASN in classrooms to support students with special needs, the Department of Education (formerly the Department of Education and Training) in Western Australia developed a *Competency Framework for Education Assistants - Special Needs* (Department of Education and Training, 2008) to articulate the professional roles and responsibilities of this group. The framework provides guidelines for the practice and professional learning of the EASN and includes reference to training requirements in a number of key areas, including AT. All EASN “require specific knowledge and a high level of competence in the areas of: communication and language acquisition; social skill development and training; behaviour management; and applications of technology to support learning” (Department of Education and Training, 2008, p. 12). Explicit reference is made to AT requirements in the competency framework, with EASN expected to be accomplished at using and facilitating the use of devices such as voice output communication devices, audiological aides, Braille keyboards and word prediction software. This research will examine training in AT for EASN, perceptions of EASN

in regards to their use and facilitation of AT and how training in AT translates to the classroom.

1.5 Value of the Research

This research will provide an original contribution to the special education discipline by providing information on EASN's perceptions of themselves as users and facilitators of AT and whether or not training in the area of AT is able to be successfully transferred to the classroom setting. While there is limited literature available on EASN's perceptions of training in general, and on teachers' perceptions of AT use, a search of national and international literature, utilising databases such as EBSCO, PsychInfo and MasterFile Premier, has not located any study of EASN's perceptions in the area of AT. This study attempts to remedy such a situation. The information gleaned will be valuable to schools, school districts and education systems, in that it is likely to provide a baseline upon which to develop training in the area of AT for EASN. Further, it will highlight appropriate classroom practices to ensure that all staff involved with AT have positive attitudes towards such technology and the skills to use the AT in an educationally appropriate manner.

An understanding of potential barriers to the use of AT by EASN, such as poor self-efficacy and confidence to use the AT, will possibly impact upon the use of the technology or the way in which technology is introduced into schools. Consequently, if positive training experiences can have an effect on the EASN's perceptions of themselves as users and facilitators of the technology, then appropriate training and use of AT in the classroom is more likely to be instigated.

An examination of whether there was training transfer to the classroom and the form this might take ought to provide insight into the dynamics of the classrooms as well as determine whether further follow-up training is required. The form of the transfer is of interest as this indicates strengths and weaknesses of the training and areas of possible concern in regards to classroom environments. The information gathered on transfer of the skills and knowledge to the classroom environment will add to the existing knowledge base in this area and will potentially allow future researchers to develop ever more effective means of transferring knowledge and skills of this type, particularly in relation to AT.

1.6 Context of the Research

In regards to personal involvement, the researcher has had a long-standing interest in the use of technology to support the learning of children with special needs in regular classrooms. This interest includes the use of assistive technologies, particularly as they are becoming more readily available in Australia, for students with a wide range of functional difficulties. In addition, the researcher is increasingly aware of the need for large numbers of support staff, in particular, Education Assistants Special Needs (EASN), who are employed to assist students with special needs to access regular and special settings. Of particular concern is the potential for people without significant training to be employed in reasonably challenging roles with children with special needs. Personal observation of such staff in a number of classroom environments indicated that the staff were very caring and eager to assist the students, but were occasionally unaware of the tools and strategies available to assist them. While the eagerness of the staff to support the student is admirable, without the tools necessary to do so, their efforts may be ineffective.

Further insight into the use of AT in the classroom was gained when an approach was made to the researcher from a local school district (Fremantle/Peel Education District) to provide training for EASN in the area of AT. Such an approach indicated that further training may be an area of concern not just for individual schools but for whole school districts. In an attempt to ensure that the training was not undertaken in vain, a longitudinal approach consisting of training over a sustained period of time was determined to be most appropriate, and an examination of how well the training was transferred to the workplace deemed necessary.

Training in AT for EASN was undertaken in five regular primary schools in the Perth south metropolitan area. The venue for the training varied according to a schedule devised jointly with the participants, and consisted of a rotation between schools. Two separate groups were involved in the study, consisting of eighteen participants in total. The training was identical for each group. The first training group of participants (9 in total) were drawn from three different schools in relatively close proximity to each other, and the second training group (9 in total) were drawn from two different schools, also in relative proximity. The participants in the study came from schools ranging in size from very small (approximately 86 students) to very large (approximately 730 students). The cohort was also from a variety of educational and experiential backgrounds and ranged in age from 18 years of age to over 55 years. The schools allowed the EASN to be absent from the classroom to attend the AT training, which required that the schools provide alternative personnel to replace these staff. On some occasions, the EASN very

generously gave up some of their own (unpaid) time to participate in the training, sharing this load with the schools.

The training was provided by the researcher along with other experts in the area of AT. A session on AT for communication, for example, was delivered by a speech pathologist from the Independent Living Centre WA (a not-for-profit organisation to assist people with disabilities to live independently), who has had extensive experience with this AT. The AT Team Leader from the Centre for Inclusive Schooling (a section of the Department of Education) also had input into the training, providing information on the AT which is available to schools through the Department of Education and what formats were most likely to be used in the regular education setting. This collaboration ensured that the training provided was consistent with what the EASN could reasonably be expected to access in their classroom settings, and with policies and procedures developed by the Department of Education.

1.7 Research Questions

The general research question aims to explore the use of technology in the classroom after Education Assistants have been provided with training. The main research question is:

- How does assistive technology (AT) training for Education Assistants Special Needs (EASN) affect the subsequent use of the technology in the classroom?

Sub-Questions

- How do Education Assistants Special Needs (EASN) view their effectiveness as users and facilitators of assistive technology (AT)?
- Does training in assistive technology (AT) make any difference regarding the EASN's perception of personal competence and confidence?
- How well do the skills associated with assistive technology (AT) and learnt in a training environment, transfer to a classroom setting?

1.8 Significance

This research is significant as it addresses AT training requirements for EASN in Western Australia and evaluates the use of AT in the regular classroom, as a result of this training. The research is timely in that the Department of Education in Western Australia recognises that EASN require access to further training in areas such as AT and student learning. The Department of Education stresses that there is a "... need for EASN [Education Assistants Special Needs] to be life-long learners who engage in ongoing professional learning during the course of their careers" (Department of Education and Training, 2008, p. 3).

Dimension 2 (Learning) of the *Competency Framework for Education Assistants Special Needs* explicitly states that at all three levels of employment (described later), EASN are required to work with AT (Department of Education and Training, 2008). In discussion with key personnel in the Fremantle/Peel Education District it has been recognised that there is a need for EASN to have access to information about AT and to become skilled in the use and facilitation of this technology for students with special needs (C. Hackett, personal communication, 20

February, 2008). Assessing the implementation of AT in the classroom following training for EASN, will allow further examination of effective pedagogies for training purposes to take place.

1.9 Ethical considerations

Consideration needs to be made for the ethical treatment of participants within the research. The participants were volunteers and all identifying biographical information has been kept strictly confidential. Written permissions were obtained in all cases, and participants were able to withdraw from the research at any time. All information has been kept in a locked facility at The University of Notre Dame Australia, Fremantle Campus, which is only accessible by the researcher. This data will be destroyed (via secure shredding) after a minimum period of five years post completion of the thesis.

1.10 Limitations

As with any research this study has some limitations that must be addressed.

These include:

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

These limitations will be addressed in more detail in the concluding chapter of the thesis.

1.11 Definitions of Terms

Assistive technology (AT)

AT can be described 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 functional capabilities of a child with a disability” (United States Congress, 2004, sec 602.1). AT can be described as low-tech or high-tech (and occasionally as mid-tech). Low-tech AT includes tools which are generally easily constructed or are of a low level of technological complexity. High-tech tools include sophisticated electronic devices and software. Examples of AT include pencil grips, modified eating utensils, voice output devices, adapted switch software and computer screen magnifiers. Assistive technologies are specifically designed to assist students to bypass difficulties or augment strengths and would generally be used by a small number of students within the regular classroom setting.

Education Assistants Special Needs (EASN)

This term describes a person employed to provide assistance to students with special educational needs within a school setting. The EASN may be employed at level 1, 2 or 3 (Department of Education and Training, 2008), with their work roles and responsibilities varying in accordance with their level of employment. Level 1 EASN are expected to work under teacher direction, level 2 EASN work under general guidance and level 3 EASN may work under limited guidance from the teacher. EASN provide support in the areas of communication, learning, student self-management, managing students at risk, managing student behaviour and administrative tasks/resource management.

Inclusion

Inclusion, according to the Curriculum Council (1998), refers to “...providing all groups of students, irrespective of educational setting, [with] access to a wide and empowering range of knowledge, skills and values” (p. 17). Inclusion can be viewed as a broad concept which reflects shifts in international, national and local provision of services and supports for students with disabilities. “Inclusive practice is defined as a mindset or a worldview that permits inclusivity to be realised” (Berlach & Chambers, 2010, p. 3). Inclusion in the context of this study refers to students with special educational needs being included in a regular classroom setting.

Instructional technology

Instructional technology may be used by all students in the class to enhance learning experiences (Loeding, 2002). Examples of instructional technology include a computer, an electronic whiteboard or a projector and appropriate software. The teacher would use instructional technology to introduce new concepts or content to the whole class, and to consolidate learning experiences. Instructional technology is seen to be enhancing the learning taking place in the classroom, but differs from AT in that it is not specifically designed to bypass or functional difficulties that students may be facing or augment poor abilities.

Perceptions

Schunk (2009) described perception as a process of pattern recognition that is a “...process of assigning meaning to a stimulus input” (p. 133). A person’s perception of their experiences consists of the meaning that they make from those

experiences and is tempered by their prior experiences and expectations of the experience. The perceptions of the EASN in regards to the AT training that they have experienced are of interest in this study. These perceptions include thoughts and feelings in relation to the training and the resulting application of the training, as the EASN engage in the process of meaning-making.

Regular school

This term describes a school which provides services to students within the local area, which does not cater specifically to one category of student (i.e. students with autism, students with learning disabilities). Other terms used include mainstream school or local-intake school. The regular school setting is considered the least restrictive setting for the majority of students in the education system (Westwood, 2010).

Special Educational Needs

Children who have special educational needs may be described as “...children who have learning difficulties or disabilities that make it harder for them to learn or access education than most children of the same age” (Her Majesty’s Government, 2011, para. 2). Students with special educational needs in the Western Australian context may have difficulty with behavioural requirements, learning difficulties, an intellectual disability, an Autism Spectrum Disorder, sensory impairment, physical disability or have a severe mental or health condition (Department of Education, 2010c).

Transfer of Learning

Transfer of learning may be defined as “the effective and continuing application, by trainees to their jobs, of the knowledge and skills gained in training” (Goldman & Schmalz, 2005, p. 5). It is important that the participants of any training situation are fully aware of what they are expected to change as a result of the training and where this fits into their workplace duties. Clear planning by the trainer is required to address transfer into the workplace settings throughout the training (Thomas, 2007). Therefore, with regard to the EASN, the transfer of the AT training to the classroom setting is of interest.

1.12 Structure of the Thesis

The thesis is organised into six chapters. Table 1.1 provides an overview of the structure.

Table 1.1

Overview of the Thesis Structure

Chapter 1	Introduction
Chapter 2	Review of Literature
Chapter 3	Methodology
Chapter 4	Results
Chapter 5	Discussion and Implications
Chapter 6	Conclusions and Recommendations

Chapter 1 provides an introduction to the work contained in the thesis, including the purpose behind the research. A justification for the research is provided, as is the significance of the research for the Education Assistants Special Needs, the schools, and the wider research community. Research questions that are to be addressed throughout the thesis are provided which act to guide the research and assist in defining the areas under examination. The context in which the research is situated is examined in order to place the research within an appropriate framework for exploration of the issues involved. Limitations to the research and definition of key terms are also provided. Finally a brief summary of each of the chapters is provided to demonstrate how the chapters are related and complement the questions under consideration.

Chapter 2 describes literature in the areas of inclusion, Education Assistants Special Needs, AT and learning and attitude theory. Specifically, the topics of defining inclusion, impacts of inclusion, the current context of inclusion, the role and responsibilities of Education Assistants Special Needs (EASN), training for EASN, EASN's perceptions of personal efficacy, defining AT, examining the use of AT in the classroom, social cognitive theory, transfer of learning theory and attitudinal theory are explored. The literature described the increasing inclusion of students with special needs in regular education settings and the use of Education Assistants Special Needs as one form of support for these students. One way of assisting students to access the curricular and social aspects of a classroom is through the use of AT. Training in the use of AT is required in order for the AT to be effective in the classroom. The areas of literature are related to the purpose of the study.

Chapter 3 details the methodology that was employed to gather data to address the research questions. A framework is presented which describes the theoretical basis for the study, and the lens that was employed to view the data. The research methodology consists of examination of the philosophical approach of mixed method research (components of both qualitative and quantitative research methodology), incorporating a pragmatist paradigm. The theoretical perspective is that of parallel mixed methods, with the qualitative approach of phenomenology and the quantitative approach of quasi-experimental design playing leading roles. True to a mixed method design, the methods used to collect data incorporated a range of tools including skills tests, observational notes, questionnaires, rating scales and focus groups. A description of the method of sampling and the instrument protocols is given, along with details of the training program developed for the EASN.

Chapter 4 presents the findings of the study. The findings are arranged according to the three research sub-questions and include the demographic information which describes the participants. Firstly, to determine the participants' views on their effectiveness as users and facilitators of AT, responses to the initial questionnaire, the training and the understanding of AT are presented. The relevance of the training from the perspective of the EASN is also explored. Secondly, the impact of the training on EASN'S perceptions of personal competence and confidence is reported as a change in skill level and self-reported confidence. This change is examined at three points: pre-training to post-training; pre-training to maintenance; and post-training to maintenance. Results for analysis tools in the form of the Wilcoxon signed-rank test analysis and focus group interview analysis are provided. An examination is also made to determine any between group differences.

Finally, the use of the AT in the classroom after the training is examined using information from questionnaire responses, rating scales and a final focus group interview. Observational field notes are used to support findings throughout this chapter.

Chapter 5 comprises a discussion of the findings of the research in relation to the literature in the area. This section addresses the three sub-questions of the study: How do Education Assistants Special Needs view their effectiveness as users and facilitators of assistive technology (AT)?; Does training in assistive technology (AT) make any difference regarding the EASN's perception of personal competence and confidence?; How well do the skills associated with assistive technology (AT), learnt in a training environment, transfer to a classroom setting? The discussion is organised into five main sections, which are:

- Prior Experiences of the Participants
- Education Assistants Special Needs' Initial Perceptions of their Effectiveness as Users and Facilitators of Assistive Technology
- The Impact of Training on Perceptions of Personal Competence and Confidence
- The Use of Assistive Technology in the Classroom by Education Assistants Special Needs After Training
- Chapter Summary

Chapter 6 provides the conclusion to the thesis, including overarching findings, recommendations based on these findings, limitations of the research and future directions as suggested by the research. This chapter aims to address the main

research question for the study: How does assistive technology (AT) training for Education Assistants Special Needs (EASN) affect the subsequent use of the technology in the classroom? A final concluding section acts to bring together the findings from the research in a succinct statement.