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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 FIVE

### DISCUSSION AND IMPLICATIONS

#### 5.1 Introduction

The purpose of this research was to investigate Education Assistants Special Needs' (EASN) 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. The results of the study will be discussed in relation to what these mean for the EASN, schools and future training program design. The discussion is organised into five main sections as illustrated in Table 5.1.

Table 5.1.

#### *Organisation of Discussion Areas*

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<b>Section</b>	<b>Sub-Section</b>
Prior experiences of the participants	<ul style="list-style-type: none"><li>• <i>Gender and Age Distribution</i></li><li>• <i>Prior Knowledge of AT</i></li><li>• <i>Prior Training Experiences in AT</i></li><li>• <i>Training Opportunities</i></li><li>• <i>Professional Experience and Role in the Classroom</i></li><li>• <i>Implications</i></li></ul>
Education Assistants Special Needs' initial perceptions of their effectiveness as users and facilitators of assistive technology	<ul style="list-style-type: none"><li>• <i>Willingness to Learn</i></li><li>• <i>In-Service training</i></li><li>• <i>Confidence in Initial Skill Level</i></li><li>• <i>Teaching Others to use AT</i></li><li>• <i>Roles in the Classroom</i></li><li>• <i>Transferring Skills and Knowledge</i></li><li>• <i>Understanding and Use of AT</i></li><li>• <i>Identifying Student Needs</i></li><li>• <i>Communication and Relationships</i></li><li>• <i>Implications</i></li></ul>
The impact of training on perceptions of personal competence and confidence	<ul style="list-style-type: none"><li>• <i>Confidence for Using AT</i></li><li>• <i>Skill Level</i></li></ul>

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- *Types of AT Identified*
  - *Assessing Students Needs*
  - *Teaching Others to Use AT*
  - *Learning More about AT and Transferring to the Classroom*
  - *Identifying Collaborative Partners*
  - *Implementation of Programs*
  - *Overall Changes in Perceptions*
  - *Description of Perceptions*
  - *Relevancy of the Training*
  - *Utility of the Training*
  - *Opportunity for Practice*
  - *Perceived Responses of Classroom Teachers*
  - *Between Group Differences*
  - *Implications*

The use of assistive technology in the classroom by Education Assistants Special Needs after training

- *Ability to Transfer Skills and Knowledge*
- *What has been transferred*
- *Collaboration*
- *Barriers to Transfer*
- *Usefulness of the Training*
- *Confidence and Competence*
- *Design of the Training*
- *Implications*

Chapter summary

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## **5.2 Prior Experiences of the Participants**

Demographic information in relation to the participants was collected at the initial phase of the research. Participants were asked to provide personal information, including age and, gender and also their work history, detailing years of service, types of students with whom they worked and prior training experiences. This information gave an overall picture of the participants and their previous work-related experiences. This initial information provided a context for the training and served to offer a richer understanding of the participants for the researcher. Information was gathered via questionnaire and discussion with the participants.

### **5.2.1 Gender and Age Distribution.**

The all female gender composition of the group was expected, given the generally high ratio of women to men working as EASN (Dalla, MoulikGupta, Lopez, & Jones, 2006), and was noted in the researchers journal as an assumption held prior to the beginning of the training. It is common in Education Support roles to find that the majority of positions are occupied by women. In the five schools where the training for the study was undertaken there was only one male working in the role of EASN and he was unable to attend the training due to timetabling issues. A number of factors have been suggested as possible reasons behind such an unequal distribution, including the poor remuneration, contracted nature of the work (no pay at uncontracted times), lack of career advancement and perception of the role as being one of a nurturing, rather than a skilled position (Dalla, MoulikGupta, Lopez, & Jones, 2006; Goss, 2003). Goss (2003) suggested that these factors need to be more closely examined and addressed by school systems to ensure that students with special needs are provided with appropriate role-models and educational opportunities delivered by both genders.

The age of the participants was not a significant factor in this study, as experience with AT can occur at any time, and is not age specific. It was interesting to note, however, that the majority of participants were in the 36 to 55 year age range. The EASN role is one which is popular with mothers whose children have started school, as it allows them to be at home with the children during school holidays and after school during term time (Ainscow, 2000; Patterson, 2006). It is also a position where extensive training has not been required to this point (Butt & Lance, 2005); as a result, unskilled workers have had opportunity to access this

workplace. Such a situation is changing, however, with the development of competency frameworks for EASN and with increasingly stringent requirements for employment in the role of EASN, that is, level 3 EASN must have specific skills (Department of Education and Training, 2008). A greater requirement for extended training may impact on the demographic composition of this particular workforce. The employment and demographic composition of EASN would be a useful area to track over a longitudinal period to determine if any demographic changes result from the development of a competency framework and increased training requirements.

### **5.2.2 Prior Knowledge of AT.**

Most of the EASN expressed a concern at the beginning of the training that they did not have any idea what constituted AT, and that they associated AT only with computers. The researcher was quite surprised at this finding and noted in her journal for bracketing purposes that she had held a belief that EASN would be more au fait with the terminology and range of assistive technology available. The fact that they did not hold such prior knowledge and that this knowledge could not be assumed then impacted on the way that the training was introduced and background that was provided. That many of them were already using a variety of low-tech assistive technologies in the classroom was a revelation to the EASN. After discussion and explanation of AT and the various types of AT available and the role that it plays for students with special needs, the EASN were better able to articulate the types of AT and potential uses. These initial results indicated that the EASN would potentially benefit from extended training in the area of assistive technology.

### **5.2.3 Prior Training Experiences in AT.**

The very low level of prior training in the area of AT was an unexpected finding. In the journal, the researcher had expressed an assumption that the EASN would have had a small amount of exposure to assistive technology as a result of undertaking an education assistant special needs qualification (particularly as the researcher had taught such a course), or that they had attended some training through their schools. The ten EASN who had completed an Education Assistant course, either at a Technical and Further Education (TAFE) College, or at an appropriate tertiary institution, should have all been exposed to components of study in the area of AT, at some point in their course according to a former TAFE (Technical and Further Education) lecturer (L. Thompson, personal communication, 15 February, 2011). Only one participant, however, indicated that they had received training in this area, and that this training was undertaken whilst working in her role as an EASN, not in her initial training to undertake that role. In addition, she described very specific and limited training that was offered, utilising specified computer software, rather than a wide range of assistive technologies.

That the EASN did not identify any prior study in AT in the initial questionnaire may suggest that they have no (or little) memory of this aspect of their course, indicating that there may be insufficient emphasis in this area, or that the content taught was perhaps inconsistent with their personal view of what constitutes AT. As the use of AT is potentially an important part of the role of an EASN (Department of Education and Training, 2008), AT may need to be assigned greater emphasis in training programs and in the identification of training needs for EASN, which is generally undertaken by the line manager (who is often the principal or

deputy principal of the school). Indeed, the EASN involved in the study indicated a keenness to learn more in this area and commented that they rarely had the opportunity or time available to do so.

#### **5.2.4 Training Opportunities.**

The assignment of EASN to the training (where thirteen were asked to undertake the training by the principal and five elected independently to do so), along with responses from the EASN indicating that they had limited choices in training, suggests some further attention is warranted in the training area in WA. Few of the EASN independently asked to undertake the training. When questioned informally, the EASN stated that they were either emailed the flyer or were simply approached by the principal and requested to participate. It appears that little autonomy in regards to the choice of training options is given to the EASN. Giangreco, Suter and Doyle (2010) support the requirement that high quality and consistent training for EASN should be given a higher priority in school settings. The training the EASN are offered ought to be substantial in nature and tailored to individual needs and requirements (Breton, 2010). These aspects were not sufficiently or routinely addressed in the workplace according to the experiences of the EASN involved in this study.

Most of the EASN indicated that the current training was the first time they (as a group) had been offered training that was specific to their needs. Generally, the training that was given was as part of whole school professional development, which was often not relevant to the role or needs of the EASN. As Butt and Lance (2005) and Giangreco, Suter and Doyle (2010) argue, it would be beneficial to provide

training which is appropriate for the EASN and for the work situations in which they expected to have proficient skills in a range of areas. A variety of training is offered through the Department of Education's *Centre for Inclusive Schooling*, but is quite generic in nature and rarely specifically targeted towards the EASN, but rather offered more widely to all school staff, including teachers and administrative staff (H. Epton, personal communication, 15 March, 2010). Examples of training which is available on a regular basis includes training in behaviour management strategies, catering for students with autism and first aid and manual handling (e.g. physically moving students with limited mobility) courses. Many EASN have specific requirements that relate to the students with whom they work (i.e. students with an intellectual disability, students with specific learning disability), and would greatly appreciate the opportunity to develop their skills in relation to the needs of these students and their own areas of limitation.

Although the Centre for Inclusive Schooling has an Assistive Technology Team which offers training, only one of the EASN had accessed this resource prior to the study. During focus group interviews and during training sessions, the EASN indicated that AT was not an area in which they were aware (or made aware) of training opportunities, or that it was not their responsibility to seek out such training. Dew-Hughes, Brayton and Blandford (1998) suggested that training in the area of information technology, incorporating AT, is of paramount importance to ensure that EASN are trained to a high level and that their professionalism is further developed. Appropriate and substantial training will assist the EASN to effectively support all students within an inclusive educational environment (Elkins, 2009) and enhance the likelihood that students with disabilities are able to be included in regular settings

(Anderson, Klassen & Georgiou, 2007). Appropriate methods to disseminate information about potential training opportunities could be developed at school level to ensure equity in access to the training available.

In addition to the attainment of skills and knowledge through training, is the increased status of EASN in the eyes of other staff members, which ultimately enhances the professional standing of this group (Groom, 2006). Enhanced professionalism is likely to lead to further opportunities for training, and development of a cohesive structure for enhancing working relationships within the classroom setting. Butt and Lance (2005) explain the importance of developing sound understandings of the training requirements for all staff and how these align to the role played by the EASN in the school system. They suggest that a great deal (up to 20%) of the workload of a teacher in England may be accomplished by support staff. Even if this was a goal for the education system, it is not achievable without appropriate training and support from the entire school staff and the school system as a whole.

#### **5.2.5 Professional Experience and Role in the Classroom.**

The overall experience level of the EASN in the classroom was extremely variable. The EASN reported having from less than one year of experience to having more than sixteen years of experience in the role of an EASN. Most reported between two and ten years of experience. It would seem logical that the more experienced the EASN, the more exposure they would have had to training (AT and other forms of training) and other experiences with AT (French, 2002). This exposure does not appear to be the case, with the cohort under investigation, with

only one of the more experienced participants reporting any form of prior training in AT.

While the use of AT may be common-place and/or legally mandated in the United States and United Kingdom, it is not so in Australia. The use of AT, however, is likely to increase with continued availability and cost reduction (Stanberry & Raskind, 2009), which is bound to impact upon the need to have knowledge in this field. That the EASN in this study had poor knowledge in this area indicates that further attention may need to be paid to AT training now and in the future. This requirement for training is relatively urgent, particularly as a range of AT is already available in schools (e.g. computers, voice output devices, low-tech devices), but without appropriate training these technologies may not be utilised or adapted appropriately for the needs of the students (Simpson, McBride, Spencer, Lowdermilk, & Lynch, 2009; Sze, 2009).

Although only a small cohort has been utilised for this study, it is surprising that the training in AT is so limited considering the length of time the cohort have been involved in the role of EASN and the variety of students with special needs with whom they were working or had worked with previously. Broadbent and Burgess (2003) stated that the EASN may spend a great deal of time with the student, independent of teacher supervision, and that they need to be trained in order to be effective during this time. Some further examination of the training systems developed for EASN would be useful to determine where there are gaps in training provision and how these may be filled by existing and new service providers. The results of this study indicate that current training in the area of AT is inadequate in

order for the EASN to meet the competency standards as set out in their Competency Framework (Department of Education and Training, 2008). Competency Standards 1 (Communication), 2 (Learning) and 6 (Administrative Tasks/ Managing Resources) all refer explicitly to an expected level of competency in utilising AT and other computer technologies to support the classroom-wide and individual programs.

The role of the EASN may have had an impact upon their use and access to training in AT, as this may still be seen to be primarily the domain of the classroom teacher (Takala, 2007). With the increased dissemination of some of the role traditionally undertaken by the teacher to the EASN (Breton, 2010; Giangreco, Smith & Pinckney, 2006; Keller, Bucholz & Brady, 2007), there would appear to be an increasing need to ensure that the skills that are required by teachers to be successful in catering for students with disabilities, are those which are held by all staff who support these students. Previous studies in other areas have shown that the overall confidence and competence of EASN can be enhanced through appropriate training schedules (Rose & Forlin, 2010; Collins & Simco, 2006; Weintraub, Moore & Wilcox, 2006). As such, it is likely that there would be an increase in confidence and competence as a result of AT training.

Adequate planning and funding in relation to training is vital if the requirements of the Competency Framework are to be realised by staff. When designing training, the EASN should not in any way be disadvantaged by having to attend sessions outside of their scheduled work hours (Butt & Lance, 2005). Some of the EASN stated, in informal conversation and in addressing questionnaire responses, that in order to access the training, they had to make accommodations.

One of the EASN, for example, commented on the need to enlist the help of friends to collect her own children from school as she was completing the training, while another stated that there was no-one to 'cover' her in the classroom, and that she had to catch up on her work when she returned. Lee (2003) is adamant that EASN pursue training as a component of their existing role rather than in addition to it, and that they are compensated for any inconvenience (either through time in lieu or through payment for time given). The EASN in this study were often required to undertake training opportunities either partly or fully in their own unpaid time, or not at all. This is a disincentive for EASN who have commitments and family obligations which may prohibit them from attending these training situations.

Schools may need to be creative in the way that resources are used to ensure that the EASN have access to the training that they require. They may hold training sessions at staggered times throughout the day, so that staff can 'cover' each other, or provide differentiated training options during professional development days, which are provided for all staff at the start of each term. On some occasions, it may be necessary for administrators to manage budgets to pay EASN for attendance at training sessions when there is no other cost effective means to organise these in work time. In all of these scenarios, the administration personnel play a significant role in not only determining the types of professional development/training that are offered to EASN, but also the logistical considerations to ensure that the training is accessible to as many staff as possible (Dyal, Bowden Carpenter & Wright, 2009). A clear process may need to be developed in some schools to accommodate these practices.

### **5.2.6 Implications.**

Even before the training had begun, there were implications for schools in the way that the EASN were perceived and regarded as part of the staff structure; with reference to the training they received (Groom, 2006). These implications include the consideration of gender composition of the EASN workforce, systems of communication, choice in training, career opportunities and role definition and refinement. These may all be regarded as systemic issues for the larger part, but can often be addressed by some degree through individual school decision making teams. The school may, for example, actively seek out the opinions of the support staff in regards to their training needs in areas in which they feel they are deficient or that will enhance their existing skill set. Such action may consist of a very simple survey of staff conducted at the start of the term or semester which asks them to detail their training requirements and areas of perceived strength and weakness (Cobb, 2007; Griffin-Shirley & Matlock, 2004). Deficits can then be targeted effectively by the school and EASN to ensure that optimal outcomes are achieved with the available professional development budgets.

As Rose and Forlin (2010) found in their study on training EASN, the participants were able to clearly identify their own needs and expectations of the training, and to determine the benefits it may deliver. The current study also determined that the EASN were able to identify, to some extent, their needs, particularly if they were provided with a range of options. In addition to providing appropriate training, it may also be necessary to enhance the working relationship and status of the EASN within the school setting and ensure that there are appropriate avenues for communication available (Groom, 2006). Appropriate

communication between all parties involved with the education of students with special needs will work to promote positive and efficient work environments and can only lead to good quality outcomes for all involved.

### **5.3 Education Assistants Special Needs' Initial Views on their Effectiveness as Users and Facilitators of Assistive Technology**

The EASN were asked to indicate their perceptions of themselves as users and facilitators of AT by rating their views of their own abilities along a quantitative continuum (Likert-type scale), and to describe prior training and work experiences in AT through a written questionnaire. They were also asked to complete a range of skill tasks and were assessed on their ability to perform these. The quantitative and qualitative responses were then examined together for interpretation (Creswell & Plano Clark, 2007), along with field notes collated by the researcher and the findings are described below.

#### **5.3.1 Willingness to Learn.**

The initial questionnaire and skill assessment took the EASN approximately one hour to complete, almost double the anticipated time. This is a positive finding, as it demonstrates that the EASN gave considered, rather than flippant responses, which are more likely to reflect their true perceptions. Using data from both Likert-type scale responses and field notes, one of the areas in which the EASN consistently stated that they had a high level of confidence prior to the training, was in their ability to learn more about AT. Throughout the initial testing phase, the EASN demonstrated great willingness to try new things and to push themselves beyond the boundaries of their previous knowledge base, which for some of them was quite a

daunting task. The researcher noted in the journal (for bracketing purposes) that prior to the training she thought the EASN would not be as receptive to the training as they appeared to be, and she subsequently found this assumption to be false.. This positive attitude towards further learning bodes well for future training of this group, as behaviour is influenced by attitude (Ajzen & Fishbein, 2005).

A positive attitude towards the training means that the EASN are more likely to actively participate in their knowledge and skill acquisition. The high level of confidence to learn more about AT indicates receptiveness to new knowledge and skills and as a result, a greater potential for more effective transfer of the training to the classroom setting. During the initial skills assessment, a few of the participants stated that at times they felt they would not be able to complete the tasks or use the technology, as they considered their own abilities to be poor. This attitude was not perhaps a lack of desire to learn more in the area of AT, rather it was a lack of confidence in their ability to master the technology, or an acknowledgement that the initial level of knowledge in this area was low.

A consistent theme of wanting to know more about AT, not only for themselves, but in order to assist the students they were supporting, was evident prior to the training and was a characteristic that Ashbaker and Morgan (2001) also note in their research with EASN. Concern for the students was often offered by the EASN as the impetus for increasing their knowledge and skill base (Broadbent & Burgess, 2003). This enthusiasm and willingness to extend their skills and knowledge can be drawn on and encouraged by school and sector systems. That the EASN were willing to participate in the training even though it was something new

and unfamiliar to them and that they chose to do so even in their own (partly) unpaid time was a credit to them. Ashbaker and Morgan (2001) suggested that EASN who willingly give up their own time to enhance their knowledge and skills should be looked upon favourably by teachers and schools.

### **5.3.2 In-Service Training.**

In addition to the pre-service training that EASN may receive, on-the-job training and in-service training are the other primary ways that EASN access new skills and knowledge (French 2002; Trautman, 2004). On-the job training is generally effective as the skills are practised immediately. In the area of in-service training, however, Trautman (2004) stated that the EASN are often disadvantaged by training which is not relevant to their needs or that is delivered when the EASN are not scheduled to be at the workplace. Both of these scenarios were described by the participants in this study. The researcher had assumed that the EASN were provided with training that was specific to their needs and was challenged to reconcile this assumption when presented with evidence to the contrary. The assumption was duly noted in the researcher's journal.

Often the EASN were required to attend the same professional development as the rest of the staff, which was generally not relevant or specifically targeted towards the students they were working with. In one school, the number of EASN was almost equal to the number of teaching staff, yet their needs were still not perceived to have been given sufficient importance in the development and dissemination of training. It may be that the EASN see themselves as not having the same status as other staff and therefore do not assert themselves in requesting

appropriate training. Raising awareness of ways to identify training needs and providing options for a variety of appropriate training may be ways to address these perceptions.

It would appear that even though the importance of appropriate training (both pre-service and in-service) for EASN has been reported previously in the research (Cobb, 2007; Giangreco, Smith & Pinckney, 2006; Giangreco, Suter & Doyle, 2010; Kerry, 2005), that this training is not being made widely available to EASN, at least not to those in this study. Even if in-service training is offered, it is generally of a limited nature, being offered as a ‘one-off’ (only one session) or as a compromise (incorporated into teacher in-service training). Comprehensive in-service training, where there is a sustained examination of an area, is uncommon. A specified training coordinator in the school to assist EASN to identify and access appropriate training may be beneficial, and may add a ‘mentoring’ aspect to the role of the EASN (Burgess & Mayes, 2009). For many of the schools involved in this study, this mentoring-type role was undertaken by the deputy principal or principal as a small part of the many other roles they had to fulfil. As a consequence (and through no fault of the training coordinator), there was often very little time to devote to the training needs of the EASN. Giving a higher priority or more time allocation to this role has the potential to improve the identification and attainment of training for EASN.

### **5.3.3 Confidence in Initial Skill Level.**

While the EASN were very confident about learning more about AT, they were much less confident about their initial skill level in relation to AT. They were

often hesitant in answering questions in this area and would downplay any prior knowledge or skills, even though these were identified by colleagues as having been displayed in the classroom. One participant, for example, stated that they were ‘useless’ when it came to technology, yet her peers identified her as the most knowledgeable and skilled of the group. This low level of confidence in skills to use AT may be a barrier in the use of AT in the classroom and with students with special needs. It has been shown by researchers examining skills in areas other than AT that through appropriate training, confidence and competence can be increased (Rose & Forlin, 2010; Weintraub Moore & Wilcox, 2006). The low initial level of confidence in their skill level is likely to have a significant impact on the use of AT in the classroom setting, as the EASN would be more likely to adhere to ‘safe’ methods, rather than attempting to use AT to address issues with learning.

#### **5.3.4 Teaching Others to Use AT.**

The low level of confidence in their own abilities was also evident in the EASN’S confidence in teaching others to use AT. The EASN were unsure of not only their ability in this area, but also whether this was actually part of their role. When asked whether they thought that they should be responsible for teaching others, including teachers, administration staff and students with special needs, to use AT, there was a large variation in responses. Some of the EASN felt that it was possibly part of their role to train others, if they had sufficient knowledge of the area under consideration. Others felt strongly that it was not their responsibility, and that they would not feel comfortable in doing so, even if they held appropriate levels of knowledge. The low level of confidence in teaching others to use AT paralleled the low level of personal confidence and competence that the EASN identified,

indicating that AT in general was not an area of strength for the EASN in the present study.

### **5.3.5 Roles in the Classroom.**

The discussion around roles in the classroom arose many times within the initial testing phase and, indeed, throughout the training. The EASN felt that although they should know something about AT, it was not necessarily part of their duties or role to initiate or sustain the use of the AT within the classroom setting and that they would be intruding upon the teachers' work if they did so. Upon a closer examination of the generic Job Description Forms (JDF) devised by the Department of Education and Training (2002a; 2002b; 2002c) and the newly (at that time) established *Competency Framework for Education Assistants (Special Needs)* (Department of Education and Training, 2008), the EASN expressed surprise that their roles could, and possibly should, among many other tasks, include the use and facilitation of AT. The lack of knowledge in regards to roles was unexpected and noted in the researcher's journal as an assumption that had been debunked. Ignorance of the role that they are undertaking and the breath of the competencies required has implications for the classroom, such as poor response to students needs, inadequate support for class programs and reduced emphasis on professional learning for EASN.

Many of the EASN stated that they had never read the JDF or seen the *Competency Framework* and that they were unaware of the extent of tasks that they were expected to perform. This finding is consistent with previous research on roles in the classroom, where EASN were unaware of what tasks they were required or

able to perform within classrooms (Trautman, 2004). It is difficult for any member of staff to know what an individual role requires without some form of guidance. Some EASN stated that although the tasks were noted in the JDF, their teachers would not allow them to undertake these tasks within the classroom, for a variety of (often unspecified) reasons. One reason given for the reluctance of teachers to utilise the EASN to the full extent of their Job Description was the teacher's level of experience (i.e. it was thought that the more years of experience the teacher had, the less likely they were to use the EASN widely). A further reason was the perception that the EASN was less capable than the teacher at performing many of the required tasks. The EASN in these situations had a clear perception of being 'powerless' to have any sort of impact on assisting in the running of the classroom.

A closer examination of how roles in the classroom are defined is critical for both the teacher and the EASN if smooth and collaborative functioning is to occur. This is especially important in regards to learning, particularly in the area of AT (Groom, 2006); for building relationships; and to ensure that appropriate and consistent pedagogy is utilised to the benefit all students. Role definition assists not only the EASN to know what they may be expected to do in the classroom, but also provides the teacher with some guidelines for the tasks that EASN can be assigned, and the level of supervision that may be required (Causton-Theoharis, Giangreco, Doyle & Vadasy, 2007). Supervision of the EASN will depend on the level of competency they have achieved and their prior experiences in working with students with special needs (Department of Education and Training, 2008). When EASN have a greater level of training and experience in the area of AT, there is less of a reliance on close supervision to ensure they perform tasks to the level required. Nevertheless,

supervision of the work of an EASN should always remain a component of the teachers' role (French, 2001) because teachers have the ultimate responsibility for the educational program for the student with special needs.

Role definition was an area identified in the study that required further examination and action on the part of the schools involved. Close examination of the roles undertaken by various staff members within the school setting may be necessary. A consistent and cohesive policy may need to be developed by the schools, either on an individual basis or as an educational sector, in regards to the roles of the staff members (Patterson, 2006). Procedures for detailing who is responsible for assisting the student to complete discrete self-care tasks, or assigning classroom duties to an EASN on a weekly or daily basis (depending on the needs of the classroom), for example, may be developed by schools.

There was a large variation in roles as described by the EASN, with some having a great amount of autonomy in the classroom; taking responsibility for developing and implementing programs. Others, however, worked under intense teacher direction and had very limited autonomy. Those who had some autonomy in the classroom also felt more comfortable in making suggestions and presenting information in regards to AT to their classroom teacher. A greater level of contentedness in the job was expressed by EASN who felt they had a more collaborative working relationship with the classroom teacher and where they felt that their opinions were not only welcome, but were also sought by the teacher. For those who did not have such a relationship, it was a very disempowering experience,

and it appeared that some EASN were just ‘going through the motions’, rather than truly involving themselves in the life of the classroom.

### **5.3.6 Transferring Skills and Knowledge.**

Even though there was some uncertainty in regards to role definition and status, the EASN felt very confident in being able to transfer skills they had learnt in the training setting to the classroom. The EASN were confident that they were going to have sufficient opportunities within the training itself to establish the skills they felt were lacking in order to be able to apply the new skills to the classroom setting. At times, however, this confidence to transfer learning was tempered with a caveat; the skills and knowledge could be transferred, but it was up to the teacher as to what was used and how. These perceived difficulties in transfer corresponded to the status of the EASN within the classroom setting and the role that they played. External factors, rather than individual ability to transfer learning were generally cited as being barriers to this transfer. Such factors included time, access to AT, role in the classroom and particular needs of the students.

The aspect of available time included time to learn and consolidate skills, along with time to explore the available AT and determine appropriate AT to use with the students with whom they worked. Many of the EASN were employed on a part-time basis, or were employed for defined hours within the work day (typically from when school started till when it finished). These working hours did not incorporate any preparation or learning time for the EASN. In addition to the lack of available time, was the concern that their role in the classroom was to do what the teacher requested, and that if the AT was not already a component of the classroom

or individual student program, that the EASN should not be using it. This aspect of the role of the EASN was a recurring theme of concern for the groups throughout the research, indicating that it is an area of some concern for them, and may need to be thoroughly addressed by the school (Carter, O'Rourke, Sisco & Pelsue, 2009; Patterson, 2006). The needs of the students with whom they worked was often a point of discussion for the EASN during the testing phases, with consideration given to how they would use their skills and knowledge within the contexts of their classrooms and with the variety of students under their charge. Although the EASN discussed the needs of the students as being important, they were often not able to clearly specify what these needs were and how they were currently being addressed.

### **5.3.7 Understanding and Use of AT.**

Prior to beginning the training the EASN were unable to provide a clear definition of AT. Little prior knowledge was evident, with the EASN unable to clearly specify or identify types of AT for use with students with special needs. Some of the EASN commented that they were 'stupid' and that they 'didn't know anything'. These comments along with self reported quantitative Likert-type responses suggest that the EASN initially had poor perceptions of themselves in regards to the use of AT. Indeed, they often made reference to being hesitant to use all forms of technology, not just AT. Computers were generally discussed as being the only forms of AT of which the EASN were aware. They had little understanding prior to the training of the extent of assistive technologies that were available to teachers and students (King-Sears & Evmenova, 2007; Scherer, 2005). Even though the schools involved in the study had a variety of AT available, the EASN were often unaware of how to access the devices or software or even that it was available. In

some instances, software was stored in areas inaccessible to the EASN (e.g. principal's office, teacher's desk drawer, library), so there was limited opportunity to explore the software.

Before involvement in the training, the EASN described a low level of AT use in their individual work situations, comprising mainly of low-tech AT devices including pen grips, slant boards, and some visual cues. They required prompting in order to identify these items as being AT. The EASN expressed surprise and delight that items they were already using could be classified as AT. These findings indicate little prior knowledge of AT and are congruent with previous studies undertaken which examined knowledge of AT with cohorts other than EASN (Ashton & Wall, 2004; Chmiliar, 2007; Dyal, Bowden Carpenter & Wright, 2009). AT as a tool for students with disabilities may need to be more widely promoted in school settings in Western Australia. In this way, as many people as possible are likely to have a thorough understanding of AT and potential benefits for students, along with a process for allocating or determining appropriate AT for use with students.

### **5.3.8 Identifying Student Needs.**

An awareness of student needs may be considered a requirement in order to effectively cater for their particular support needs and is increasingly becoming a requirement for EASN (Butt & Lance, 2005). Prior to training, the EASN had significant difficulty in clearly identifying student needs when presented with a specific scenario which would have been familiar to them. The EASN identified many environmental considerations, but did not fully address the academic adjustments that may be required for the student. They discussed environmental and

academic adaptations and modifications in a very superficial manner, only identifying the very obvious environmental adjustments such as the use of wheelchairs and pencil grips, without an in-depth examination of potential academic impacts. This indicates that the EASN have limited experience in determining the academic and social needs of the students. As indicated by Webster, Blatchford, Bassett, Brown, Martin and Russell (2010), the implications of an inability to clearly determine needs of the students may possibly adversely affect the benefits that the provision of an EASN may have on the development of the student.

Potentially, the identification of student needs is an area in which further training is required in order to clearly determine what adjustments and accommodations would be suitable for the students. This would entail a more sophisticated role for the EASN within the classroom, which some feel is already evident (Webster, et al. 2010). Without being able to effectively identify student needs the EASN would have difficulty in appropriately applying the SETT framework (Zabala, 2002) to determine assistive technologies that would be of benefit to the student. They might also have difficulty in adjusting curriculum and environment in order to differentiate content and access for the student.

### **5.3.9 Communication and Relationships.**

Throughout the initial testing phase and prior to the training, the EASN were very forthcoming with responses to the researchers' questions. They were also very keen to confide in the researcher as they felt that there were some areas of the classroom that they were unable to discuss with the teacher. Some of the areas discussed by the EASN included a powerlessness to have any impact on

implementation of the different programs or AT within the classroom, the attitudes of the classroom teacher and the poor access to technology of any sort within the school setting. The ease of communication between the researcher and the participants was unexpected, as the participants had only recently met the researcher and had little knowledge of any ongoing relationships between the researcher and staff or administrators in the school. The open nature of the communication indicated to the researcher that the EASN felt very strongly about the areas under discussion and that they felt very comfortable and at ease with the researcher. The EASN were also keen to ensure that the researcher had as full a picture as possible of individual situations and settings; with some EASN staying after training sessions to discuss aspects of individual situations with the researcher. The positive attitude displayed towards the research and researcher was encouraging, as it was felt that the EASN are more likely to be honest and open in their responses as a result, whether they held positive or negative views. It was possible that the EASN saw the researcher as a knowledgeable and neutral person in the field of education and someone with whom they could feel comfortable discussing issues in the school.

Although the EASN may have felt capable of transferring the AT information they learnt in training they were also mindful of the teacher. Many felt that the teacher would not want their suggestions or would not listen to what they had to say. Those EASN who indicated that they experienced a good working relationship with the teacher, stated that the teacher was interested in their opinion and that they would share the information with him/her, but that they had little say in whether or not the AT was implemented as a result. In contrast, two of the EASN indicated that they were responsible for making direct decisions about the student's work programs with

minimal supervision from the teacher. It appears that developing a balance between the EASN having input into the program and working under supervision of the teacher is an area that requires further examination, along with the development of positive working relationships (Morgan & Ashbaker, 2001; Scherer, 2005; Trautman, 2003). Many authors have discussed the need for positive relationships among all staff in the classroom to ensure the most conducive learning environment is available for the students (Cremin, Thomas & Vincett, 2003; Moran & Abbott, 2002; Morgan & Ashbaker, 2002).

The EASN described a variable level (often poor) of resourcing for AT evident within the schools. Some of the schools had a wide variety of AT already available to them, while others had access to potential sources of funding to purchase AT. In some cases, however, the EASN indicated that it was unlikely that their schools would prioritise spending on AT in the future; often citing comments made by other staff that it would not benefit many children, only those with disabilities. In Australia, the requirement to consider AT for students with disabilities is not mandated as it is in other countries, such as the USA (Library of Congress, 1998). However, the *Disability Standards in Education 2005* (Department of Education, Science and Training, 2005) legislation requires that students with disabilities must be able to participate in the curriculum and social environment of the classroom. Such legislation has strengthened the need for schools to ensure that they cater effectively for students with disabilities in the area of AT. Not having a specific requirement to access AT for students with disabilities may also have a significant impact on the availability and use of AT in schools, which is reflected in the EASN'S poor prior knowledge of AT. It may be necessary for relevant authorities in

Australia (e.g. State or Commonwealth Governments) to develop policies or legislation to ensure that AT is at least considered when assessing the needs of the students with disabilities.

In addition to the variability of resourcing in regards to AT, the EASN also commented on their lack of ability to access the computer systems within the school. Many of the computer programs that may be used as AT, require a form of ‘Administrator’ access so that modifications can be made to the computer systems. Support from the school Administration (e.g. principal) to purchase devices/programs is a key element of access to AT. The EASN often cited access to the person who was the Administrator of the computer systems, or obtaining designation as an Administrator, as being problematic. An Administrator’s role (designated person) in a school setting is to ensure that inappropriate material is not installed on school computers and that the Standard Operating Environment (a standard set of computer programs) is maintained. An example of the lack of attention to and by the EASN in regards to accessing the computer systems of the schools was when they were required to sign in for the first session and did not have appropriate log-in information or access to the systems. A closer relationship between the school administration (for purchasing of appropriate AT), the Administrator of the computer systems (for access to the computer systems of the school) and the EASN may need to be established if appropriate access to learning tools, such as AT, is to be provided.

### **5.3.10 Implications.**

There were many factors for further consideration identified during the initial testing phase. These factors included: the potential to utilise the EASN's enthusiasm for learning more; the provision of better quality and quantity of training programs specifically targeted towards EASN; prior to training, the EASN had very low levels of confidence in regards to using AT, which may be linked to their poor knowledge in this area; low level of confidence for teaching others to use AT, although they had confidence in their abilities to transfer new skills to the classroom; and further clarification of roles and responsibilities is required along with the further development of appropriate working relationships within the school setting. These factors have implications for the training and professional development of EASN, particularly in reference to AT. Considering that the role of an EASN should ideally incorporate the ability to use and teach others to use AT, this is an area that requires much further examination in the schools.

## **5.4 The Impact of Training on Perceptions of Personal Competence and Confidence in Regards to AT**

While it is expected that training would have some impact on skills and knowledge (Giangreco, Suter & Doyle, 2010), the extent of change cannot be predicted and it may not necessarily translate into positive perceptions of efficacy. While some researchers have shown an increase in efficacy as a result of training in specific areas (Rose & Forlin, 2010), the area of EASN perceptions of efficacy in regards to AT has not previously been addressed. Research undertaken by Ajzen and Fishbein (2005) suggested that having a positive attitude will impact upon the behaviour of an individual. It may be postulated that a positive attitude towards the

use of AT and their own self-efficacy will impact upon the behaviour of the EASN, potentially leading to increased use of AT within the classroom setting. A sense of competency and confidence in their abilities will encourage the EASN to utilise the skills and knowledge learnt in the classroom. Without a positive self-efficacy in relation to AT, the skills may not be accessed by the EASN, even when the opportunity presents itself.

#### **5.4.1 Confidence for Using AT.**

At the completion of the training, the EASN demonstrated a significant increase in confidence for using AT when compared to their pre-training level. Confidence to use AT was demonstrated in both the EASN's description of their increased capability and desire to use AT and also quantitatively, through improvement in scores on skills tests. The increase in confidence will potentially have an impact on the use of the AT in the classroom. Not only are the EASN more likely to use AT if they are more confident to do so, but they are also more likely to promote the use of assistive technologies within the classroom, as positive attitudes impact upon behaviour (Ajzen & Fishbein, 2005).

The increased level of confidence reported by the participants when completing Likert-type responses, indicates that the participants' self-efficacy in the area of AT has been enhanced in a positive manner (Bandura, 1989), and that they have a view of themselves as users of AT, rather than being peripheral to its use. These findings are supported by reference to feelings of increased confidence in their own abilities to use AT during focus group interviews and use of AT during participant observations in classrooms. EASN with a high self-efficacy are more

likely to adopt new approaches to teaching within the classroom (Swackhamer, Koellner, Basile & Kimbrough, 2009), including the use of AT.

Breton (2010) suggested that training which results in improved confidence in one area may enhance participants' confidence in tackling other areas of professional need. Improved confidence in the area of AT may translate into greater confidence in other areas of participants' work. For example, if EASN have developed competency in one aspect of supporting students, particularly if they originally had low confidence in this area, they are more likely to build upon this experience when addressing other areas of competency (Breton, 2010). In relation to an area of study where confidence was previously low, an enhanced sense of self-efficacy, such as that described by Bandura (2001), demonstrates to the EASN that they are capable of learning and applying new knowledge and skills. An increased self-efficacy may manifest in many ways in relation to AT. For example, increased desire to try new technologies or increased belief in ability to effectively use the available technology may be evident. This impact upon self-efficacy is vital if the AT is to be used to maximum benefit for the students with special needs.

#### **5.4.2 Skill Level.**

In addition to an increase in confidence for using AT, there was a subsequent increase in measured skills such as basic knowledge of computer function, planning for the use of AT, and the use of specified assistive technologies and in observed AT use in the classroom. The use of these skills was more fully described by the EASN during training and focus group discussions. Further, a sense of learning skills that were relevant and useful to them prevailed throughout the focus groups. Particularly

relevant was the personal understanding of many of the EASN that they already had a number of skills in relation to AT, that they had not previously identified as such. This understanding allowed them to be not only more confident in their abilities, but to also build more fluently on their existing skill level. It should be noted that the increase in skill level occurred for all participants, but that some improved more than others. Lee, Vega and Ashton (2005), when describing a study undertaken with teachers, stated that “the largest barrier to AT use was lack of knowledge” (p. 61). It is likely that their finding may also apply to EASN. The improvement in skills and knowledge is a positive step towards greater incorporation of AT.

Generally, the improvement in skill level was related to how often the participants had access to technology and practised the skills. It is important also, that the participants knew that they would be re-assessed in regards to their skill level at the completion of the training. Research suggests (Kromann, Jensen & Ringsted, 2009) that the effect of participants knowing there is a test at the completion of a unit of work has a greater impact on skill attainment than does practice with the skill alone. As suggested by Helsdingen, Van Gog, and Van Merriënboer (2011) “Post-training performance on test tasks that resemble the training tasks and transfer to new tasks may be better indicators of a durable change in behavior or knowledge” (p. 1 ).

After the training was provided for the EASN, a number of participants sought out further training in the area of basic computer skills and more advanced skills. These participants stated that they could see the value in undertaking further training and that they now felt better equipped to take on these tasks or to work

towards a higher level of knowledge. The increase in skills, particularly those which are the foundational skills which underpin the use of AT, is of vital importance in not only enhancing self-efficacy of the EASN but as building blocks for further development in this area (Swackhamer, Koellner, Basile & Kimbrough, 2009).

### **5.4.3 Types of AT Identified.**

During the training and skills testing the EASN expressed wonder and amazement at the scope of assistive technologies that were available to assist students with disabilities. That they were already using some AT was something that they had not previously considered, or labelled as such. Knowing that some of the tools, devices and computer software they were already using were considered to be assistive technologies may have assisted the EASN to make appropriate cognitive connections with the training material (Perkins & Salomon, 1992; Schunk, 2012), as they were able to organise the information within existing cognitive structures. Many of the participants were engaged in developing and/or implementing programs for students with special needs that incorporated specific or generalised AT, often unbeknownst to them, and they were able to connect these with the AT being described during the training. Examples of these include: the use of slant boards; pictorial cues; electronic white boards; pen holding devices; ankle-foot orthotics; wheelchairs; voice-output devices; computer programs; online learning programs; and, seating supports.

While the participants had a wide variety of previous experiences working with students with special needs, they also had varied exposure to different types of AT. The most common types of assistive technologies identified by the participants,

and as would be expected due to low cost and easy accessibility of the products (Netherton & Deal, 2006), were the low-tech assistive technologies such as pen grips and slant boards. At the high-tech end of the AT spectrum, participants identified more sophisticated computer programs such as Boardmaker, Clicker 5, and more expensive voice output devices, such as the GoTalk and Dynavox (Bryant, Bryant, Shih & Seok, 2010; King-Sears & Evmenova, 2007).

Given that the schools involved in this research had very diverse student populations, with the associated variety in student needs, it comes as no surprise that the EASN also had diverse prior experiences (Morrison, 2007). These different experiences potentially have an impact on how AT is utilised and what types of AT are provided in the classroom. A number of factors impacted on the availability of AT in the schools, particularly in relation to the more high-tech AT. These factors included: the number of students requiring AT to access the curriculum; funding available to the schools; and staff advocacy for AT. Scherer and Glueckauf (2005) note that an ability to clearly match the type of AT with the needs of the users is extremely important; a skill that the EASN did not initially demonstrate well. If AT is not closely matched with the user, there is a greater chance of abandonment of the technology or poor progress for the student.

#### **5.4.4 Assessing Student Needs.**

The assessment of needs and environmental factors affecting the use of the AT must be considered to avoid the abandonment of technology in the future and to ensure that the most appropriate type of AT is utilised for the maximum benefit of the students with disabilities (Verza, Carvalho, Battaglia, & Uccelli, 2006). When

determining the EASN's ability to appropriately assess a student's progress when using AT, both academic and technical, it was found that there was no significant change from pre-testing to post-testing on the skills test measure. Only one item was used to measure change in assessment of student needs, which may have been insufficient to determine change in this area.

While there was no quantitative change in determining the needs of the students, there were qualitative differences when the EASN were asked to articulate how they would monitor students' progress, determine when changes were required to the use of the AT, and identify the people responsible for making those changes. When asked how they would monitor student progress in the pre-testing phase, for example, a common response was to "sit with them and see if they improved their work". At post-testing the EASN included more sophisticated monitoring tools such as checklists, rating scales, charts, observational records, video, consultation with the student, quality of output of work, and commercial assessment programs such as the Georgia Project for Assistive Technology - GPAT (Georgia Department of Education, 2008a). Having a range of monitoring and assessment tools may assist in ensuring that the AT prescribed for students closely matches their needs and is applicable to the purposes for which it is being used (Scherer, 2005).

The enhanced ability to identify the different types of AT possibly accentuated the more complex qualitative responses given by participants in the area of assessing student needs, as the EASN could more clearly picture the AT and what the student was able to do with it, as a result of the training. The EASN were more likely to match closely the type of AT with the form of assessment for the student.

For example, one of the EASN suggested that a checklist would be appropriate for determining competency in using a specific computer program, whereas previously she had only identified “looking at what the student is doing” as a way of monitoring and assessing whether changes were required. While observation is a useful tool (Barry & King, 1998), it has limitations and is restrictive in regards to the type of valid and reportable information that can be gathered. By implementing appropriate and effective monitoring and assessment of student needs and progress, the EASN are more likely to assist the students to enhance their learning (Scherer, 2005) by adapting techniques and resources when required. The use of evidence-based practice is also highlighted by a number of researchers in the field of special education (Kretlow & Blatz, 2011; Odom, 2009).

#### **5.4.5 Teaching Others to Use AT.**

Prior to the training, the EASN felt that they were poorly prepared to instruct both students and other adults in the use of AT. They were not keen to do so anyway because they did not feel this task was part of their role within the classroom. A few participants indicated that their lack of knowledge and experience in using AT would be a barrier to assisting others in using the technology, even after training in the area. For others, the circumstances within the classroom and school settings inhibit the opportunities for them to contribute to teaching others. Many of the EASN felt that the teacher would be resentful if they attempted to display knowledge that the teacher possibly did not possess, or that they would not want to know about the AT. This reluctance to share knowledge reflects the roles of the teacher and EASN in the classroom.

After training, there was a significant increase in the EASN's sense of preparedness to instruct others. Indeed, there was a distinct perception that if they held knowledge that was of use to others, they should share such knowledge. The EASN were more likely to nominate themselves as being responsible for some of the instruction (perhaps even a majority) in AT for students with special needs as a part of their own practice. One participant stated that she would be very prepared to assist students using AT "...if we can use it. If we can get on and have admin rights to use it". On occasion, this instructional role also extended to other adults, including other EASN, teachers and other support staff. A small number of the EASN indicated that they would only feel capable of instructing others in the skills or sharing knowledge with which they felt comfortable.

Providing opportunities for the EASN to teach others is useful for a number of reasons, including: practice for the EASN so that skills and knowledge can be maintained; an increase in skills and knowledge through the development of materials to teach others; access to constantly updated information; and the acknowledgement of the EASN as a valuable member of staff and holder of important knowledge (Ghere & York Barr, 2007). Keller, Bucholz and Brady (2007) describe EASN as essential members of the educational team, who are able to contribute effectively to the teaching practices in the classroom. The EASN are able to train other EASN in the school, or demonstrate their newly acquired skills and knowledge with a small group of teachers. The EASN can also contribute information and website links to AT via staff newsletters and during staff meetings where appropriate. Skills such as these are advantageous because they allow the

EASN to be seen as a contributing member of staff and can enhance professionalism of the EASN.

In light of the changing nature and increasing competency requirements for EASN, it is important that the EASN are seen as playing a role which is not that of simply a bottle washer/paint-pot cleaner, but as an active, participating member of the school and classroom (Giangreco, Suter & Doyle, 2010). In one of the schools which participated in the research, an EASN was already sharing the information obtained during training with teachers and was known in the school as a person to approach in order to seek information in this area. For this individual, the act of sharing the information not only made her feel useful, but also enhanced her standing in the school community and assisted her in consolidating and even expanding on her own learning. This EASN had developed a ‘toolkit’ of low-tech resources which was kept in a communal area within the school which all staff members could access. The toolkit consisted of devices such as a variety of pen grips, drinking aids, rulers with handles, reading windows and adapted writing papers.

#### **5.4.6 Learning More About AT and Transferring to the Classroom.**

The survey results indicated that the EASN felt extremely confident, both before and after training, in their ability to learn more about AT and in their capabilities for transferring their new knowledge and skills to the classroom setting. This confidence was rated highly by a majority of the participants, but by no means did all feel this way. A small number of the EASN were less confident about their own competency, stating during the training and focus group sessions that they had “never been very good at computers”. However, they indicated that they would

attempt to learn and implement the knowledge and skills acquired during the AT training to the best of their ability. That they suggested a willingness to attempt and apply new skills and knowledge is encouraging in that they found the training relevant and able to be applied to their individual classroom settings.

The quantitative data collected for the question of transfer indicated that the EASN felt that they were capable of transferring the information acquired; however, the qualitative data suggested a higher level of reservation in regards to transfer. This discrepancy suggests that the EASN would like to believe that they can transfer the skills, but when they have time to consider what this transfer may entail they identify more potential difficulties. The AT training may need to explicitly address solutions to some of these difficulties, so that the EASN have strategies to apply when encountering problems with implementation. During focus group interviews, some of the participants indicated that there were many barriers that would stop them from transferring their knowledge and skills into the classroom. These included: teacher responses; time; availability of AT; access to AT; and, administration support. Most of these barriers are congruent with those identified by other researchers (Copley & Ziviani, 2004; White, Wepner, & Wetzel, 2003). The issue of teacher acceptance of the EASN and their newly acquired knowledge and skills, however, has not been as clearly identified in the literature. A study undertaken by Giangreco, Suter and Doyle (2010) described teachers as relying heavily upon the EASN to undertake teaching tasks and responsibilities for the student with special needs within the classroom, and accepted them as having responsibility for catering for the student with special needs. That in the current study the teachers were not necessarily accepting of the EASN's input may be due to poor role definition and degree of professional

collaboration within the classroom setting. A close examination of the roles of each party and developing collaborative working environments may need to be explicitly addressed by schools.

It appears that the teachers encountered during this research, rather than relinquishing control to the EASN, as had previously been documented (Giangreco, Suter & Doyle, 2010; Suter & Giangreco, 2009), have worked to maintain individual control over what happens in ‘their’ classroom. The teachers, in this study, may not be including the knowledge and observations of the EASN in their planning and implementation of curriculum. This is quite at odds with what Giangreco, Suter and Doyle (2010) described as an increasing reliance on EASN to perform duties normally associated with the classroom teacher. While an over-reliance on EASN may be the case in other schools or settings, it was certainly not the case with the 18 participants of this study. As described by the EASN, some of the teachers with whom they worked were very collaborative, and welcomed the ideas and input of the EASN, but these situations were not in the majority. Further in-service education for teachers in regards to the role of the EASN in the classroom would be advantageous.

Time was identified as an important consideration in regards to access and practice using the AT. The EASN indicated that they were generally busy with tasks from the moment they arrived (generally collecting children from buses, or settling them in to class), until the end of their working day. Many of the participants felt that they had insufficient time to become proficient with the use of AT to the point where it could be used effectively in the classroom. For some of the EASN the solution was to access the AT (where possible) at home. For others, it meant giving

up their own time before and after school to access the technology. The lack of time allocated to explore and practise with AT suggests that the schools do not see EASN's AT use as a priority for their staff.

As noted earlier, in the USA, there is legislation requiring the consideration of AT for students with identified disabilities (Library of Congress, 1998). Such legislation means that greater consideration has to be given to the training of staff and the availability of the AT for schools. Australia does not have comparable legislation to the *Assistive Technology Act* (1998), although the *Disability Standards for Education 2005* (Department of Education, Science and Training, 2005) is supporting the need for schools to cater effectively for students with disabilities. This support may possibly include the use of AT. The increasing availability of AT in Australia will hopefully also equate to increased access and availability for EASN in schools. Administration support for the EASN in accessing AT is also vital, as the administrators of the school (including, Principals, Deputy Principals and Registrars) are the people who decide where funds, for personnel, training, and equipment are spent. If the administrators do not clearly see the benefit in providing for these resources in the school budget, then there is little chance of the EASN having appropriate access to the training and AT. While the schools involved in the study all supported greater knowledge and understanding in the area of AT, they were not always allocating funds to support the development of AT as a whole school initiative. Addressing such a deficit would enhance the availability of AT and emphasise the importance of using the AT with students with special needs.

#### **5.4.7 Identifying Collaborative Partners.**

An increased awareness of the need to collaborate in regards to the use of AT with students with special needs was evident after the EASN completed the training phase. Not only was the need for collaboration recognised (Angelides, Constantinou, & Leigh, 2009) but the EASN were also better able to identify appropriate people with whom to collaborate. For example, other EASN were not identified as being collaborative partners prior to the training, but were often cited as potential collaborators after the training. In addition, the EASN were more likely to suggest other professionals such as members of the Department of Education AT team as being people they would work with more closely. Such a scenario suggests that the EASN have broadened their views on collaborative partnerships within their professional context.

That the EASN were unable to initially identify collaborative partners in regards to AT indicates that they were unaccustomed to doing so within the daily context of their work. This lack of identification has implications for the broader working relationships of the EASN, as they rarely collaborated with anyone except the classroom teacher. One recommendation of this study is that more effective and efficient, collaborative partnerships should be developed between key stakeholders in the education of the child with special needs, with particular reference given to AT. Only through these partnerships can the needs of the student be fully recognised and addressed (Ashton & Wahl, 2004; Scherer, 2005; Scherer & Glueckauf, 2005). EASN may work collaboratively with many stakeholders, including but not limited to, teachers, other EASN, general Education Assistant (EA), therapists, parents, administration staff and Department of Education staff.

#### **5.4.8 Implementation of Programs.**

Along with an understanding of the need to collaborate is the requirement to know who is responsible for implementing AT programs. Prior to the training, the EASN had a somewhat narrow view of who was responsible for implementing AT in the classroom. The majority of EASN felt that the teacher had the prime responsibility; however, when questioned further after training, they described a much wider variety of people who were involved in implementing programs within the class, with themselves as primary people responsible for implementation. Clearly, a change in regards to their perception of themselves as facilitators of the AT had come about as a result of the training.

The fact that the EASN suggested that they played an important role in implementing AT use with students with special needs was a step forward in potentially taking personal responsibility (even in part) for AT. The EASN even included other students within the class, parents, administration staff, and outside agencies as having an impact on how and when assistive technologies were to be implemented. This broader understanding indicates that the EASN had an expanded view of the role that others played regarding the use of assistive technologies. This expanded view is extremely beneficial in that the EASN not only have a greater understanding of their own role, but they are also able to approach and discuss difficulties and successes and implementation with appropriate parties. Through discussion and collaboration, the implementation of AT, when approached in team fashion, is much more likely to be successful for all involved (Weintraub Moore & Wilcox, 2006).

#### **5.4.9 Overall Changes in Perceptions.**

In order to determine whether the changes in confidence and skills could be maintained after the training, maintenance testing was undertaken, which entailed a repeat assessment of perceptions of confidence and skills, and a skill assessment. When examining the results of the study over the entire research period, from pretesting to maintenance testing, there were significant differences in all areas of self-efficacy (perceptions of themselves) as reported by the EASN, except for transfer to classroom settings (which was already at a very high level). These results extended to the assessment in all skill areas, indicating that the EASN had not only increased skills and knowledge as a result of the training, but had maintained these at a high level over the 10 week maintenance period. The maintenance of these skills and knowledge is vital to ensure that the EASN are able to build upon these existing levels of skills and knowledge and utilise this information to the fullest extent possible. As such, continual examination of AT availability and refresher courses on a regular basis will assist in maintaining the increases brought about through training.

When examining changes in perception, one area of note was the increased variety and number of ways that the EASN indicated they could assist students with disabilities who were using AT. Thorough and substantive assessment of the needs of students and their subsequent use of the technology is required in order to ensure it is the most appropriate technology available for them and that is not abandoned in the course of its use (Verza, Carvalho, Battaglia & Uccelli, 2006). As the abandonment of AT is a concern amongst researchers in the AT field, it is imperative that those involved in providing and facilitating the use of assistive technologies

with students with disabilities have the tools required to make appropriate judgements on the efficacy of the AT for the students (Scherer, 2004; Scherer, Sax, Vanbiervliet, Cushman & Scherer, 2005). The EASN were provided with a variety of tools throughout the training that better equip them to make these judgements.

That the confidence level of participants was maintained at high levels 10 weeks after training was extremely important as it meant that the participants felt comfortable and confident in their newfound skills without the presence of the trainer, in this case the researcher. If the EASN feel comfortable with their skills they are more likely to use skills and knowledge more appropriately (Rose & Forlin, 2010), leading to a greater likelihood of these skills being maintained (Alberto & Troutman, 2008).

The responses of the participants to the measures of confidence were high both at post-testing and maintenance testing, although the ceiling was not reached for any one measure. The areas closest to achieving a ceiling measure were those of ‘confidence for learning more about AT’, and ‘usefulness of the training for the classroom’. These measures indicated that the EASN felt that the training was beneficial for the students with whom they worked, and that they felt capable of increasing their knowledge in this area. Both of these areas are critical for the enhancement of practice in the area of AT for students with disabilities (Edyburn, 2005; Layton, & Wilson, 2009), particularly in relation to the support staff who are such close partners in the education of students with disabilities. Of particular consideration is the understanding of the EASN of what constitutes AT and the difference it can make to the functioning of students in the classroom. Being able to

see the usefulness of the AT is necessary for ensuring that it is considered as part of the overall pedagogical approach (Edyburn, 2005; Edyburn, 2009).

The EASN, while very confident in their abilities, still felt that learning in the area of AT is an ongoing journey. There was no decline in the skill assessment undertaken by the EASN from the end of the training until the maintenance period. The maintenance of skills and knowledge is a key consideration for any training program, as without this maintenance the training program is likely to be only minimally effective (Burke & Hutchins, 2007). It should also be noted that the EASN did not achieve a ceiling height for any skill assessment measure, also leaving room for improvement in their attainment of skills in relation to assistive technology. Further training might allow the EASN to attain greater levels of skill in AT use.

#### **5.4.10 Description of Perceptions.**

When asked to describe (rather than quantify) perceptions of their own personal competency in regards to the use and facilitation of AT, the EASN described a better knowledge base, higher levels of confidence, and that they were more highly motivated as being key agents in their increased competency. A small number of EASN found it difficult to discuss their level of competency, referring instead to the beneficial nature of the training, rather than the impact on them alone. When further questioned, they were able to describe the impact the training had on them personally, including changes in knowledge and confidence.

The EASN suggested that they were highly capable of using the AT and that even if they did not use it immediately, that the skills and knowledge they had

gained were able to be utilised at a later date, with students displaying many types of disability. That the EASN realised the potential of the training for future situations is encouraging, as it indicates that they were already considering how AT could be incorporated into the classroom. To translate the training to future circumstances indicates a high level of thought given to the AT area (Perkins & Salomon, 1992; Schunk, 2009). Consideration for future classroom situations also suggests that a form of 'high-road' or purposeful transfer has occurred, as the explicit connections have been made between the knowledge and situations in which it can be utilised (Perkins & Salomon, 1992). Bell and Kozlowski (2008) suggested that a positive self-efficacy can have a strong impact on an individual's motivation which relates to learning and the transfer of this learning.

The perceptions of increased personal efficacy also translated into a greater preparedness to teach others about AT and about how to use AT. A better knowledge of the available resources and improved skills, alongside an increase in confidence, were identified by the EASN as being pivotal in assisting students within the classroom setting. Such resources were also of benefit in being prepared to provide support to others, such as teachers, family members and other EASN, or general EAs. A small number of the EASN indicated that they had already started to provide support to other staff working with AT, either through suggestions for the use of AT, or through hands-on support in the form of teaching others and constructing resources/devices for others to access. While the EASN were describing this increased capacity, they exhibited characteristics indicating excitement and enthusiasm, such as the use of elaborate hand gestures and increased volume and speed of voice.

#### **5.4.11 Relevancy of the Training.**

The EASN found the training to be very relevant for their personal situations. They felt that there was a positive impact on their skills and confidence and that this would ultimately translate into benefits for the students with whom they worked. A large number commented that they found low-tech devices and ideas to be of particular value to them in the classroom. Some of the reasons given for the preference for low-tech devices include the versatility, ease of access, replaceable nature and ease of manufacture of many low-tech devices. The low-tech devices also had relevancy for a wide variety of students within the school settings. As previously mentioned, ‘toolkits’ of low-tech devices are easy to construct and provide a stepping stone to the use of other, more sophisticated, AT devices.

During feedback following the training, the EASN indicated that the training had been very relevant for them. They noted a significant personal impact on their skills and confidence for using AT, and that the AT was useful for the students with whom they worked. When discussing the needs of the students and the relevance of the training for them, the use of both high-tech and low-tech devices were cited as were changed feelings about use of AT to cater for student needs. The EASN commented that they were surprised that they had not been made fully aware, prior to the training, of the relevancy and variety of AT in their settings, and as a part of their role in working closely with students. Many suggested that they would be pursuing the use of AT and further training, if such was available.

#### **5.4.12 Utility of the Training.**

In regards to the use of the skills within the classroom setting, both high-tech and low-tech devices were listed as being able to be used within individual settings. The EASN described how the knowledge and skills acquired as a result of the training could be used in a variety of situations, with a range of students. That the utility of the training was recognised was significant, as it indicated that the EASN considered that they were able to apply their training in a wide range of environments and generalisation of the skills and knowledge was taking place (Schunk, 2009).

Along with the enthusiasm to try and implement new AT resources within the classroom were a number of potential barriers to doing so. Among these barriers, as previously mentioned, is access to assistive technologies that may be of benefit to students, further training, the classroom teacher and his or her reaction to the EASN's new knowledge and skills, and the ability to apply these skills to the classroom. In addition, a lack of time available to practise and implement knowledge and skills learnt and to explore the full range and variety of AT available so that it can be correctly matched to the needs of the students, was cited as being a significant barrier to using the AT.

#### **5.4.13 Opportunity for Practise.**

The EASN felt that the lack of opportunity to practise the skills and to become fluent in the use of AT, would impact upon their level of confidence in using the AT. This lack of opportunity for practice has implications for the school, as the EASN themselves indicated that appropriate time and opportunity to practise and

develop skills in the area of AT needs to be provided in order to maintain and enhance existing knowledge and skill bases. Although the maintenance test showed that the EASN had maintained skills and knowledge over a period of ten weeks, sometimes with limited opportunity for practice, it would be worthwhile to conduct further maintenance probes at longer time periods to determine if the skills and knowledge are maintained over longer time frames and if the opportunity for practice impacted upon maintenance.

Providing appropriate opportunities for supporting practice may impact on the way the school arranges professional development for its staff; both the type of professional development offered and the configuration of the professional development (i.e. ongoing basis, individually targeted, group targeted, one-off sessions). Currently, there appears to be little continuity in the professional development offered to EASN, including monitoring the requirements of the EASN in regards to developmental needs. It is necessary to build in opportunities for the EASN to practise acquired skills in order to promote the skills as important for the classroom (Bugaj, 2002; Trautman, 2003).

#### **5.4.14 EASN's Perceived Responses of the Classroom Teachers.**

One area of interest in the study was the perceived responses of the classroom teachers to the EASN's improved knowledge and skills in the area of AT. The EASN described highly polarised responses from the teachers in regards to the training. These perceptions described the reality of the lived experience from the point of view of the EASN, and therefore were valid for them in the context of their work in the classroom (Ajzen & Gilbert Cote, 2008). Some of the responses from

teachers were described in regards to the training itself, while others appeared to be more associated with the relationships in the classroom; in particular, the relationship between the EASN and the teacher.

In regards to the training, the EASN described some teachers as being grateful for the EASN contribution to the classroom. For example, one EASN solved a problem that the teacher had been having with a piece of AT, by showing her how to connect it to a computer. Some of the teachers were thought to be open to new ideas and would generally welcome input from the EASN. A number of EASN shared notes and ideas with their teachers and these were enthusiastically received. A few of the teachers were described as not asking for, or respecting, the opinion of the EASN. Some EASN were told that it was not their business to deal with AT in the classroom, and that it should be the responsibility of the teacher alone.

A few EASN suggested that teachers with whom they worked 'felt they already knew everything' and did not need further input from the EASN. This was made clear to the EASN by teachers ignoring the EASN's efforts to contribute to the classroom programs, and occasionally responding in a sarcastic or angry manner. Anecdotally, the EASN suggested that some of the teachers, who had been teaching for a long period of time, were less willing to embrace the new technology and were also less likely to involve the EASN in planning for the student. This lack of willingness to incorporate new technology into the classroom has also been noted in the literature, and is possibly related to teachers' own low level of knowledge and competency in this area (Morrison, 2007; Weintraub Moore & Wilcox, 2006).

The reactions from the teachers affect how AT is used within the classroom and also whether or not the EASN has the opportunity to apply and practise the knowledge and skills learnt in the training. One way to combat difficulties with opportunities to practise and apply the AT knowledge and skills is to train both the teachers and the EASN at the same time, highlighting ways in which they can collaborate to achieve appropriate outcomes for the students (Angelides, Constantinou, & Leigh, 2009). Unfortunately, in the current study, joint training was not able to be accomplished due to logistical and funding difficulties, including the fact that the EASN were not paid for attending after school professional development. In order to ensure that training is not undertaken in vain, a whole school approach and a plan of action for the implementation of training would be useful. The incorporation of all parties involved in AT application and implementation would strengthen the transfer of the training, and promote the use of assistive technologies within the school.

#### **5.4.15 Between Group Differences.**

Two discrete groups of participants were identified during the study. The first group (who was also the first group involved in the training) consisted of EASN whose experience was primarily in inclusive or regular settings. The second group had greater experience assisting students with more severe disabilities and had often had substantial experience in segregated settings (i.e. Education Support Schools, Education Support Centres), prior to working in an integrated setting. These two groups were examined for differences as it was thought that the second group's results may differ from the first group, due to an increased exposure to more AT, and

AT that was more high-tech (e.g. Boardmaker software, voice output devices) than that used in the regular settings.

Quantitative and qualitative data were examined in order to determine if there were any differences between these two groups of participants. There were no significant differences found at any stage (i.e. pre-training, post-training, maintenance) for either group in regards to the skills assessed by the researcher. It is possible that neither group had sufficient exposure to the AT to become skilful in the use of the technology. Previously mentioned concerns in regards to time allocation, and teacher expectations of the role of the EASN may also have limited both groups to tangential, rather than extensive, experiences with AT.

Participants' responses in regards to their assessment of their own competency, confidence and skills as indicated on a Likert-type scale for the pre-training and maintenance phases of the study also indicated that there were no significant differences between groups. There were, however, significant differences between the two groups at the post-testing phase for the items of using and learning more about AT and for the assessment of their skill and confidence levels. Interestingly, the group that scored itself more highly was the group that had a background in regular settings, rather than the group that had more exposure to students with higher support needs. This difference had disappeared by the time of maintenance testing, suggesting that both groups had similar levels of perception at the completion of the study. This finding has implications for training designers and professional development coordinators. The environment in which participants were situated had no impact on the level of skills or perception of competence that were

present at the beginning of the study. It is therefore important to determine each individual's level of knowledge prior to delivering training, so that the training is effectively aimed at the target audience.

#### **5.4.16 Implications of Training on Perceptions of Personal Competence and Confidence.**

This study has shown that training in the area of AT can have positive impacts upon the self-efficacy and overall perceptions of competency of the EASN. As alluded to by social cognitive theory (Bandura, 2001), this increase in confidence has the potential to impact upon the use of AT in the classroom, and possibly extend into other aspects of the role of the EASN. Alongside the increase in confidence to use AT is a subsequent measured increase in skill level of the participants. The skills measured in the study included foundational skills, such as basic computer use, increasing in complexity to more specific skills, such as use of particular software programs and devices. Acquiring these skills provides a platform upon which the EASN can build further learning, in addition to providing the EASN with increased knowledge of the AT available to schools.

The importance of the EASN to be able to assess the needs of students was highlighted in the study. Without the ability to determine the areas in which the student requires support, the EASN cannot effectively cater for their needs (Scherer, 2005; Waldron & Layton, 2008). Further examination of this skill is warranted within schools to ensure that all staff have the ability and range of resources that allow them to accurately determine needs and how to address those needs. Enhanced

understanding in this area will also hopefully promote greater collaboration between key stakeholders in the child's education.

A number of barriers to the implementation of AT were again identified by the EASN, including the attitudes of classroom teachers, time, practice, collaboration and access to resources. The EASN elaborated on some of these barriers, including those involving teachers. The barriers identified implied that not all teachers are receptive to the EASN undertaking training that they themselves may not have accessed, and that they may not wish to incorporate AT in the classroom because of possible threats to their work in the classroom. Such issues need to be addressed by schools if they wish to ensure that the students who require the use of AT are able to access curricular or social aspects of the classroom.

## **5.5 The Use of Assistive Technology in the Classroom by Education Assistants**

### **Special Needs after Training**

One aspect considered by the researcher to be extremely important is that AT use by the EASN was enhanced as a result of the training. It would be a pointless exercise conducting extended training in the area of AT if it would then not be used by the participants (Burke & Hutchins, 2007; Lee, Vega & Ashton, 2005; Randi & Corno, 2007). It is not enough to just have available technology; people with appropriate pedagogical tools and an understanding of the purposes of the technology are required, before it is of use to the students (Edyburn, 2009; Scherer, 2005; Zabala, 2002).

In order to facilitate the transfer of skills and knowledge, the last training session with the EASN involved planning for the transfer of what they had learnt into the classroom. Part of this planning involved the completion of a form which required the EASN to describe the students with whom they had worked, areas in which they provided assistance to the students, types of AT that may be used, times (or teaching sessions) when the AT may be used, people that they needed to liaise with and to identify any further training they may need to complete these tasks (Appendix 2). The completion of this form required the EASN to consider how and when they could use AT in the classroom and to plan effectively for this use.

In order to determine whether or not the more positive self-perceptions of the EASN as users and facilitators of AT were maintained, along with the skills and knowledge taught in training, a maintenance probe was utilised. A maintenance probe replicates the data collection format used in the pre and post-training data collection routines, and allows the researcher to determine if there has been a change (either positively or negatively) in regards to these skills (Alberto & Troutman, 2008). For this study the maintenance probe consisted of the reapplication of the skills test, completion of a final Likert-type scale and questionnaire and final focus groups. Not only did the maintenance phase allow the researcher to determine use of the AT in the classroom after training, it also provided an opportunity to re-examine the effects of the training on skills and perception levels and acted as a form of closure for the participants. A discussion of the findings follows.

### **5.5.1 Ability to Transfer Skills and Knowledge.**

One encouraging indication that the transfer of skills and knowledge would be possible was through the high self-rating of ability to transfer by participants at each phase of the study (prior to the training taking place, after the training, and at 10 week interval post-training). The participants felt confident that they would be able to transfer skills and knowledge learnt to the classroom in some form. This high level of confidence is encouraging, given that a number of barriers had been described by the participants, and indicates that the EASN are willing participants in and optimistic about being able to use what they had learnt. This finding also has implications for managers, as it indicates that the EASN had a low level of ‘resistance to change’ (Collarbone, 2009). Involvement of the EASN in the training may have served to reduce any resistance felt.

### **5.5.2 What has been Transferred?**

The understanding and use of AT was the primary goal of this study; however, it is also important to note the impact of the training on the way that the EASN approached their work and colleagues. The training required the EASN to examine their students in ways that they had not previously considered and to discuss difficulties (not always associated with AT) encountered in assisting these students with a concerned and interested group of peers in a professional setting, leading to the development of critical thinking and problem solving skills. There were not many opportunities for this type of collaborative discussion in the working day for the EASN, and the social nature of the sharing of information was one that they commented on frequently as being highly beneficial. Indeed, Bandura (1989) in his description of social learning theory, suggested that the participants’ self-efficacy

is affected by the input from others in the social group. Grusec (1992) concurs, stating, “Individuals are believed to abstract and integrate information that is encountered in a variety of social experiences, such as exposure to models, verbal discussions, and discipline encounters” (p. 781).

The EASN were able to transfer newly learnt skills to the classroom, with approximately 72% describing the use of low-tech devices such as reading windows, handles on rulers and visual cue cards as being of particular use. Some of the participants were also using medium to high-tech devices such as specific computer software and voice output devices. In the final focus groups, the participants indicated that they felt confident about using their skills, ten weeks after the completion of the training, and in some cases their confidence had even grown. They also indicated that the training had provided them with different directions and ways of thinking about difficulties that the students faced and strategies to address these. One consistent message was that even if the skills and knowledge had not been utilised immediately, that they would be useful for future students and situations. One of the EASN, for example, suggested that “when you come across a child then we can think back and go ‘I know what you can do’”.

Not only were the EASN more likely to use AT in the classroom but they also contributed more effectively to aspects such as planning for and monitoring students’ use of AT. Previously, these were aspects that the EASN had little if any input into, indicating that a wider scope of role for the EASN was more apparent within the classroom setting. As a result of the training, the EASN were able to assist the teacher and the student in a variety of ways that they would not have

previously attempted. Scherer and Glueckauf (2005) suggested that it is necessary to closely match a device with a user. The EASN are utilising and acquiring further skills in matching devices with students, through the increased knowledge base and application of AT in the classroom. The increased use of AT demonstrated critical changes in the mind-set of the EASN, as the EASN indicated that they felt this is a part of their role, and that they have further skills to address difficulties faced by the student. Overall, the greater confidence identified by the EASN, along with the willingness to use their newly developed skills and knowledge, demonstrated an increase in self-efficacy (Bandura, 2001). One of the EASN for example, stated that she found that by monitoring the students closely, she was more able to determine where changes needed to be made and communicated this information to the teacher.

### **5.5.3 Collaboration.**

A welcome side-effect of the training, as reported by the participants, was the increased collaboration between EASN within the school. A group of EASN within one school met regularly to discuss what they had learnt and how they would apply this knowledge. Their discussions also consisted of other aspects of their roles such as behaviour management, curriculum support and personal care for students under their tutelage. Enhanced collaboration can lead to improved outcomes, such as increased knowledge of strategies and skills, for all parties involved in the education of students with special needs (American Federation of Teachers, 2010; Friend & Bursuck, 2011). Programs developed for students are reinforced if all stakeholders have a common understanding of the needs and characteristics of the students with whom they are working (American Federation of Teachers, 2010; French, 2001).

A number of the EASN found collaborating with the classroom teacher to be a useful and worthwhile experience, given their own increased knowledge in the area of AT. For example, one EASN stated that “the teachers I work with are really open-minded and they let me do what I really want to do, because they know it benefits the child” and another commented that “She’s open to whatever suggestions. We work together on everything; we discuss everything before its implemented”. The area of collaboration, however, was definitely not universal, with many of the EASN describing poor classroom relationships with the teacher, particularly in regards to more experienced teachers and contributing to the class program (Burgess & Mayes, 2007). As one EASN commented in respect to offering a suggestion to the classroom teacher, “you actually get more off the younger teachers than you do the older teachers who have been teaching for thirty years, they say I’ve been teaching for twenty years, don’t tell me what to do”. Wilson and Bedford (2008) described a teacher’s negative reaction to the use of the EASN as fear which manifests as a threat to their own professionalism. The authors suggest that increasing utilisation of EASN support may add to the teacher’s fear that teaching is perceived by others as easy (anyone can do it), or that the teacher is not capable of performing the necessary tasks in the classroom.

In relation to collaboration in the classroom, a few of the EASN also collaborated with others while taking more of a mentorship role. One EASN in particular was tasked with being the AT coordinator in the school, and offered to share with all staff her increasing knowledge and skills. Others took a less prominent, but still significant role, offering to assist fellow EASN who were unable to attend the training. The extent of the collaboration is an important area that can be

nurtured within training for EASN. Further collaboration can be encouraged, both within and between schools (Burgess & Mayes, 2007; Wilson & Bedford, 2008).

#### **5.5.4 Barriers to Transfer.**

EASN who had difficulty implementing the transfer of training into the classroom were able to identify a number of reasons for this. For some, movement from one classroom to another, and in one instance cessation of employment in the role of EASN, led to a lack of opportunity to implement skills and knowledge learnt. The time of year was also indicated as being a difficult time in which to implement changes to existing programs as for some of the EASN (particularly those in the second group) it was the final term of the school year and they felt that major changes were inappropriate at this time. Such information suggests that the training should be conducted at the beginning of the school year in order to maximise the implementation of the knowledge and skills learnt in the training.

Once again, as indicated in the post-training feedback, participants felt that adequate time to practise the skills with the students and having specific time set aside to use AT devices within the classroom would be of great benefit. As one EASN stated, “We need DOTT [Duties Other Than Teaching] time for learning sessions”. They felt that this time would allow them to build upon existing skills and knowledge, as well as maintain what they had already learnt in the training. The lack of time to practise the skills, however, did not appear to affect the maintenance of skills in this case, as the EASN did not demonstrate a loss of skills or knowledge during maintenance testing. Wilson and Bedford (2008), stated that the provision of ‘non-teaching time’ for both the EASN and the teacher is necessary to collaborate

successfully on classroom tasks. Finding appropriate time to develop skills and knowledge is an ongoing issue, for all staff. As this long term training has shown, the EASN have a great capacity to develop their skills and benefit from appropriate opportunities that are offered.

Alongside practise time, was the concern about the lack of availability and access to the AT. In all of the schools involved in the training, the computer systems were only able to be modified (e.g., accessibility options in word documents, magnifying screen, changing mouse functions) by a person with Administrator rights. None of the EASN had Administrator rights and therefore were restricted in their ability to use some of the information that they had been taught. Not only were they unable to make simple changes to existing programs, but they were also unable to download or install web-based AT to benefit students. In some instances, the Administrator in the school installed requested programs on computers and in one school computer software was held in the library so that all staff members could access this on a loan basis. The use of the school library was seen as a more equitable way of distributing the resources that also allowed for tracking and monitoring of the resources so that there was less chance of them being lost or stolen.

Schools may need to consider developing a system of support for the EASN to assist them in making changes to AT systems in a timely manner. It is unreasonable to expect schools to give all staff Administrator access, as this restriction is in place for valid reasons, including safety issues for staff and students, and to ensure consistency of systems for staff who move from one classroom to

another. A designated staff member with responsibility for assisting with access in regards to AT would, however, be appropriate and extremely valuable for the EASN. This role could be incorporated into the workload of an existing staff member. The person designated to assist the EASN may be another EASN, with sufficient knowledge to assist all staff to access appropriate AT.

#### **5.5.5 Usefulness of the Training.**

When the participants were asked to rate the usefulness of training for their individual situations and settings, at both post-testing and maintenance-testing phases, positive feedback in the form of high ratings was given. These results were supported by questionnaire and focus group responses from the participants, with enthusiasm in the form of describing what they were doing with the students as a result of what they had learnt. They also suggested that the researcher "...should come back every year" and provide a refresher course for the EASN as well as provide training for the teachers in the schools. The EASN felt that the training was relevant for their long term needs and increased their awareness of the types of AT available and how to access AT. An EASN stated "I think the course is a great way for us to learn about something that is completely necessary in our line of work", which was a view supported by many other EASN involved in the study. They suggested that the types of students with whom they work are constantly changing and that they needed to be equipped with skills to accommodate this vast variety of needs. Such students include those with physical difficulties, cognitive impairments, social difficulties, behaviour problems, Autism, and learning disabilities. The needs of the students are highly variable and as such, the skills required to address students' needs will be different for each case.

Through an improved skill set which includes increased computer use, construction of low-tech devices, and the use of a number of different medium to high-tech devices, the participants were better able to apply appropriate differentiation, modification and adaptation to classroom lessons. As suggested by one participant, “I now know what to look for as far as if it’s working or not working and I am able to see the changes that need to be made”. One of the EASN commented that a visiting teacher from the Autism Association had been pleased with the AT she had put in place for a child under her tutelage. Not only was the EASN catering for the student’s needs more effectively, but she was also demonstrating the usefulness of her training, in a real-world situation.

#### **5.5.6 Confidence and Competence.**

A substantial increase in personal competency came about during the study through increased confidence and self-efficacy in the participants’ ability to use AT. This was a common theme throughout data collected in the post-training and maintenance phases. The EASN described confidence in their abilities or improved self-efficacy as leading to a greater willingness to use AT in the classroom. A common thought expressed by the EASN was that “I feel my perceptions have changed dramatically. I am so much more confident in trying and implementing new strategies and ideas”. Also having a very positive impact on perceptions of personal competency was their increased knowledge in the area of AT, “I guess I know more what I’m talking about. Even just down to the label 'assistive technology’”.

A lack of confidence in using AT was noted as a potential barrier to the transfer of the training to the classroom situation. A few of the EASN felt that they

would require some further training to use more sophisticated AT in their classrooms, such as Boardmaker, Clicker 5 and Dynavox. This lack of confidence generally related to more complicated computer programs that required more training than was possible given the time available (2 hours per week for 8 weeks). Such extended training is available should the EASN require it, either from companies selling the software/device, or from the Centre for Inclusive Schooling's Assistive Technology Team. Consideration must be given when accessing the training from the organisations or AT team to cost and time factors. The EASN who shied away from the high-tech AT were very enthusiastic about the use of low to medium-tech devices. It is possible that once their confidence in using low and medium-tech devices has grown, they would be more likely to attempt the use of high-tech devices and software.

Along with increased feelings of competency, there was a greatly improved preparedness to teach others, in particular students, to use AT assuming that the technology was accessible and available to the student. One commented, "I am confident with my knowledge I am able to pass that confidence on to my student". The benefits of using AT and an awareness of the different types of AT available, in concert with increased confidence, were among reasons given for this preparedness. Some of the reservations that participants had in teaching others related to technical aspects, such as technical support being available, and the type of AT (e.g. Low-tech, medium-tech, high-tech) that they would be required to train others to use. The participants felt that if they had appropriate support from a suitably knowledgeable person, who they could contact at times of need, that they would feel comfortable in delivering training to others. The application of a buddy or mentor-type system

within the school setting would work to support the EASN and encourage the sharing of information in a supportive environment (Burgess & Mayes, 2009).

A number of participants had already shared a variety of low-tech AT with other staff members and were very enthusiastic about doing so. For medium to high-tech devices, most participants would like further training on the specific device before helping others. This training would be necessary to ensure that they had sufficient knowledge and skills to effectively teach others. A variety of further training sessions was a suggestion made during focus group interviews. Other opportunities for training in the area of AT were discussed with the participants during maintenance focus group interviews. Many of the participants suggested follow-up sessions to ensure their skills were kept up-to-date and to introduce them to new technologies. Training for the teachers was also suggested as a way of more effectively bringing AT into the classroom.

### **5.5.7 Design of the Training.**

The EASN expressed contentment with the structure of the training and the areas covered. A small number of specific requests for further specificity of training with particular devices and assistive technologies such as Boardmaker, Clicker 5, and voice output devices were made. In general, the participants were very happy with the variety of assistive technologies presented throughout the training and with the opportunities that they had to interact with these assistive technologies. Further interaction with the devices and software would have been useful but was restricted by the time available and access to computer systems at schools and access to expensive electronic tools and devices such as voice output systems and specialised

computer software. Overall, the participants enjoyed the sessions and developed a deeper understanding of AT and their own students as a result of undertaking the training. These feelings were obvious in comments such as, “The course widened my experiences. There is something that can assist anyone”; and, “I have enjoyed learning about assistive technology. I use my knowledge by sharing it with other staff at this school and I have been using skills I learnt in the classroom”.

#### **5.5.8 Implications.**

After a ten week period following the training, the EASN stated that they had maintained perceptions of competency and confidence acquired after training. They were able to transfer a wide variety of the skills and knowledge learnt to the classroom setting, although the majority of these were in the area of low-tech AT. Some of the EASN also utilised medium to high-tech skills and knowledge, where the opportunity presented itself, for example, through the use of voice output devices, electronic whiteboards and advanced computer software. This transfer indicated that the skills and knowledge learnt in the training sessions were successfully incorporated into the classroom settings and that the participants were able to apply their knowledge in both similar and new situations (Perkins & Salomon, 1992).

The training had provided the EASN with alternate means to determine the needs of the students and to address these accordingly. Aspects of planning and monitoring students’ progress were also enhanced as a result of the training, and were also applied in areas other than AT, such as communication, and behaviour

management. In addition to working with the students, further collaboration between staff members, both EASN and teachers, was reported as an outcome of the training.

A number of barriers to the transfer of the skills and knowledge were identified. These included unreceptive teachers, time to practise the skills and enhance knowledge, the lack of availability of the AT, poor access to the AT, and lack of support from administration. A lack of confidence in using AT was also a potential barrier to implementation in the classroom. Such barriers can act to work against the transfer of skills and knowledge of AT into a classroom, and may need to be addressed by schools.

The EASN increased their awareness of types of AT and how to access AT as a result of the training. They felt that the training was very relevant for their long term needs and that they experienced an increase in personal competency and confidence as a result of the training. As part of this confidence came an increased preparedness to teach others to use AT. This is an important consideration, as the knowledge of AT use should be shared amongst staff, rather than being the domain of a single 'expert'. The AT is more likely to be used consistently and longitudinally if there are staff that have the knowledge and skills to do so. The EASN are more likely to instruct a student on how to use AT, if the AT is a component of the classroom and school curriculum.

In regards to the training, the EASN expressed overall satisfaction with the structure and content of the training. They felt that a wide variety of AT had been covered and that it was relevant to their roles. The EASN suggested that instruction

in AT should be an ongoing part of their professional development, and that all staff in the school should have training in this area.

## **5.6 Chapter Summary**

There are a number of implications of this study. The first and foremost of these is that training for staff (including EASN) in the area of AT is both relevant and necessary. The increased proliferation of support staff, such as EASN, to assist students with special needs to access inclusive settings is likely to increase even further in the future, alongside the increasing availability and complexity of AT devices. Training for EASN, therefore, which is targeted to their specific needs and provides choice is required. Currently, there does not appear to be consistently appropriate or sufficient training offered to this group. The lack of specific training has direct implications for the ability of the EASN to meet the required competencies as set out by the Department of Education and Training (2008), particularly in reference to skills in technologies, especially AT.

The role of the EASN in the school and individual classroom needs refinement and definition, so that all parties are 'on the same page' in regards to roles and responsibilities. Definition and refinement of roles is, by necessity, a task that needs to be undertaken with both EASN and teachers working together for the benefit of the students in the classroom. In addition to the clarification of roles, is providing the EASN with opportunities for a career progression in a field that is seen as important and valued by the school community. One way that the EASN can feel valued is to be fully included in the life of the school, and be seen as part of the staff structure and communication network, rather than peripheral to it. In order to

facilitate the sense of inclusion of all staff, time may need to be provided so that the staff can work together on ways to achieve an appropriate balance and understanding of the classroom.

The following chapter addresses the overarching research question of the study, which focuses on how AT training for EASN affects the use of the technology in the classroom. Limitations and recommendations that the study has motivated are also considered. Future areas of research in relation to EASN and AT are highlighted.