Effective Transition to Higher Education for Students with Disabilities through Enhancing the Use of Assistive Technology in Second Level Education

This article describes a project undertaken to review existing strategies for assessing assistive technology needs and to establish/adapt a model for assessing assistive technology needs in second level education using the SETT (Student, Environments, Tasks and Tools) model of assessment (Zabala 2005).

Introduction

The University of Limerick established an Assistive Technology Assessment Centre (ATAC) in January 2007 as part of the Higher Education Authority's Strategic Innovation Funding (SIF) activity. Assistive Technology (AT) is a generic term that includes assistive, adaptive and rehabilitative devices for people with disabilities, and the processes used in selecting, locating, and using them. AT promotes greater independence by enabling people with disabilities to perform tasks that they were formerly unable to accomplish, or had great difficulty accomplishing, by providing enhancements to or changed methods of interacting with the technology needed to accomplish such tasks. Some people with disabilities would be unable to attend, participate or complete their education or enter employment without the correct identification of the appropriate assistive technologies, and the training and support for these. For example, students with visual impairments would be unable to read a text book, complete an assignment, or take notes without the full and appropriate use of screen reader software.

ATAC was a key initiative of the Shannon Consortium group of Higher Education Institutions that included Limerick Institute of Technology, Institute of Technology Tralee, Mary Immaculate College Limerick and the University of Limerick. The aim of the Assistive Technology Assessment Centre was to increase the numbers of students with disabilities in Higher Education through the use, by students, of assistive technologies.

Building on ATAC

The newly established Education Assistive Technology Centre (ETAC) at the University of Limerick continues to provide AT assessment and training services to Limerick Institute of Technology, Mary Immaculate College and the Institute of Technology Tralee. The centre also provides services to students and staff in the University of Limerick. The primary goal of ETAC is to increase the participation, achievement and retention rates of people with disabilities in education (with a focus on second, further and higher education in the mid-west region) through the establishment of a centre of excellence in the use of Educational Assistive Technologies. EATC will also focus on improving the employment opportunities of people with disabilities through the use of relevant assistive technology devices in employment.

Spreading understanding through CPD

The assistive technology team at the University of Limerick has successfully facilitated the Continuous Professional Development (CPD) training on assistive technologies for the Special Education Support Service (SESS) of the Department of Education and Skills for over the past five years. This CPD training has included providing the

national training programme, for the visually impaired visiting teachers, in the use of the relevant assistive technologies. ETAC has also facilitated the literacy support software training for SESS.

Widening access

ETAC has also run assistive technology courses for the general public every year since 2008. These courses are open to the general public and are attended by teachers, parents, students and educational professionals. The courses are hugely popular and there are a large number of requests from the general public, schools, disability organisations and others for additional courses.

Use of Assistive Technology

We have seen the increasing use of assistive technology by pupils with disabilities in second level education over the past number of years. However, experience in the University of Limerick is that, over a three year period, while 40 students arrived using assistive technology, there was no way of assessing their level of competency prior to their start in the university. Only five students had assistive technology assessment reports or recommendations and only two students were proficient users of their technology (power users). 30 students did not receive formal training in their technology and 35 students did not like using their technology in the classroom because they were too embarrassed or it was too big and it took too long to set up. Students in second level education felt isolated when using their technology - they often had to sit apart from peers because of table size or access to power points. Most of the AT users did not know how to access support for the use of their AT.

Our project approach

There is no evidence of a systematic model for the assessment of Assistive Technology needs in second level education. Assistive Technology (AT) recommendations may appear in various reports (medical, psychological, visiting teacher service, occupational therapist and some assistive technology reports). Currently, if the second level school recommend AT the parents complete a National Council for Special Education (NCSE) application form and the school principal declares the necessity for the equipment. This is passed onto the Special Education Needs Organiser (SENO) who then must approve it and pass it to the National Council for Special Education for a decision. The Department of Education and Skills then sanction the grant for the equipment.

The project – funded through the Higher Education Authority and in collaboration with University College Cork - reviewed existing strategies for assessing assistive technology needs and established/adapted a model for assessing assistive technology needs in second level education. It tested and evaluated the assessment model and used the findings to inform future assessment approaches. The project identified interested second level schools. It established an assessment team and created the criteria for student participation on the project. It explored existing assessment models, including IPAT (North Dakota Interagency Program for Assistive Technology) and UKAT (University of Kentucky Assistive Technology Project). Participants were identified as high needs students with low incidence disabilities including some students already using technology and some users not.

Some of the challenges to the project set up were the following:

- difficulty identifying interested schools
- travel to schools and arranging of suitable times

- ensuring all parties could commit to project
- adapting assessment model to the Irish school context

Goal for participants

The goal for project participants was to provide AT solutions that would meet the individual students' requirements. Also to ensure the collaborative participation of the students, schools and families and support the use of the AT for the students at home and at school.

Project plan

The project encouraged and promoted the independent use of the assistive technology and supported the student and the school with the implementation of the AT. The project also purchased the equipment for use by the student and trained all the relevant parties. The project continues to support individuals as necessary. The main ethos of the project was to encourage collaboration and share findings and expertise.

Critical elements of using the SETT framework

It was decided that the project would use the SETT (Student, Environments, Tasks and Tools) model of assessment (Zabala 2005). The SETT framework is a four part model intended to promote collaborative decision-making in all phases of assistive technology service design and delivery, from consideration through implementation and evaluation of effectiveness. Although the letters form a memorable word, they are not intended to imply an order, other than that the student, environments and tasks should be fully explored before tools (assistive technologies) are considered or selected.

Shared knowledge

One of the major premises of the SETT framework is the decisions about Tools (Assistive Technologies) – the devices and actions that are needed for the student and others to succeed. These are most valid when they are based not on knowledge that one person has (or believes they have) but based on and agreed-upon mutually valid shared knowledge of the student, the environments and the tasks.

Collaboration

The SETT framework is a tool that both requires and supports the collaboration of the people who will be involved in the decisionmaking, and those who will be impacted by the decisions. Collaboration is not only critical for the SETT framework, it is also critical to gaining the buy-in necessary for effective implementation of any decisions.

Communication

The SETT framework requires that people communicate actively and respectfully. Shared knowledge can only be developed if the opinions, ideas, observations and suggestions of all are respected and respectful.

Multiple perspectives

Everyone involved brings different knowledge, skills, experience and ideas to the table. Although multiple perspectives can be challenging at times they are critical to the development of the accurate and complete development of shared knowledge. Not only are the multiple professional perspectives important to include, but

also those of the student and parents. This can make the difference between success and the lack thereof.

Pertinent information

Although there is much information that is pertinent to decision making, there is other information that is not relevant. Knowing where to draw the line is important, but that line may well be a moving target.

Flexibility and patience

When working through the SETT framework or using other means of concern-identification and solution-seeking, there is the tendency to suggest possible solutions before the concerns have been adequately identified. When a solution springs to mind collaborators are urged NOT to voice it until it is time to talk about the Tools (Assistive Technologies) because when a solution is mentioned, the conversation shifts immediately from concernidentification to determining the worth or lack of worth of the suggested solution. Even when a team member thinks of the ‘perfect solution’, silent patience is urged. It might not look quite so perfect when all important factors are discussed.

On-going processes

Decision making in educational settings includes on-going processes. Whatever conclusions are reached at any point, these are only valid when the evidence shows they have been successful in lowering barriers to student achievement. It is expected that the SETT framework will be useful during all phases of assistive technology service delivery. With that in mind, it is important to revisit the SETT framework information periodically to determine if the information that is guiding decision-making and implementation is accurate, up to date and clearly reflects the shared knowledge of all involved.

Steps in Assessment

The four steps in the assessment framework are noted below:

Step 1 - Student

This involves the gathering of information related to the student and includes the following facets:

- functional area of concern
- requirements related to the area of concern
- current abilities related to area of concern
- expectations and concerns
- interests and preferences

Environment

This involves the information related to the supports currently available to the student in both the physical and curriculum environment and includes the following facets:

- supports available to staff and student
- material and equipment used by others in the environment
- access issues (technical, physical and curriculum)

- attitudes and expectations (staff, family, student)

Task

This involves what is currently required of the student and includes the following facets:

- what specific task is progress required with
- communication
- instruction
- participation
- productivity

Step 2 - Consideration of AT needs

This involves the detailed assessment of the student's assistive technology requirements and includes the following aspects:

- review of difficulties
- highlight areas of concern
- identify tasks affected
- identify current tools or strategies
- identify solutions or
- identify need for further investigation

A summary of the considerations of the generic requirements of the student is produced; this will include the following detail:

- needs currently being met
- assistive technology required
- need for further investigation or additional information
- identify devices and/or services to be provided
- identify who is responsible

Step 3 - Tool (Assistive Technology) selection

This involves the selection of the optimum technology related to the student and includes the following facets:

- identify possible tools
- prioritise tools
- identify availability of tools
- identify training needs (student, parents, teacher and other relevant staff)
- co-ordinate training delivery

Step 4 - Implementation and Evaluation

Following on from the selection of the assistive technology the process moves to the implementation and evaluation stage with the following facets:

- identify areas for change

- identify opportunities for AT use
- identify any additional strategies that may be required for example material to be scanned or the requirement for additional time
- decide on the areas of expected change
- decide what the minimum criteria for success are
- decide who will monitor change
- how will change be determined?

Case Studies

The follow two case studies highlight the utilisation of the SETT framework and the outcomes from the process for two students.

Case Study 1

The student was in the senior cycle of second level education with a visual impairment. The student was already using AT (distance camera, laptop computer, magnifying software). The student had not received any formal training in the use of the assistive technology. The student wanted to improve her skills around the use of her technology and stated that she had difficulty using the distance camera because it took too long to set up and it was only being used for one subject. She also stated

> when reading PDF books there are no images, no page numbers so it is difficult to follow where the teacher is or what the teacher is doing

The areas of difficulty identified in the process were the following:

- reading the board
- taking notes
- reading e-books
- carrying equipment

The following recommendations were made:

- light weight laptop
- screen reading software
- Wi-Fi technology
- screen magnification
- books in alternative electronic accessible format

The following solutions were put in place. Firstly, tablet, screen sharing software and Wi-Fi system to read the board, and secondly tablet, magnification software, material in alternative format to access electronic material, equipment - portable, light weight and easy to use.

The training plan included how to use tablet and Windows 8 (one day training); using magnification software (3 X 2

hour one-to-one sessions); using screen sharing software and Wi-Fi for student and staff (4 X 2 hours training).

The training outcomes comprised everyday use of tablet and screen sharing software and everyday use of magnification software.

The feedback from the student and school staff included the following

> I can see the board in every class as soon as I walk in the room… I can take screen shots so easily and now I have my notes.

and

> Good support for staff and student, support available when issues arise, great to see student engaged.

Case Study 2

The student was very motivated and in the senior cycle of second level education and had a physical disability. She was already using assistive technology, Netbook, Windows 7 and voice recognition software. The student experienced fatigue and was very reliant on a scribe for note taking and examinations. She was very also very reliant on parents at home to assist with written homework.

The areas of difficulty experienced by the student were:

- writing
- walking
- carrying books and computer

The following recommendations were made:

- light weight laptop
- voice recognition software
- wireless headset
- iPad and apps
- live scribe pen printer

The following solutions were put in place. Light weight laptop, voice recognition software and wireless headset for writing assignments; iPad and Apps for taking notes in class; printer to print material.

The training plan included how to use Windows 8 and Windows accessibility training (one full day); using voice recognition software (one day training and group training 3 X 2 hour sessions and on-going support); iPad, Apps and Live scribe pen (one day training).

The outcomes comprised everyday use of laptop and voice recognition with iPad for note taking, and no longer needing a scribe in examinations.

The feedback from the student and school and college staff included

> I love my iPad

and

> Great that student did not have to spend time training on AT in third level. Student's level of expertise in the use of AT is very good

Project outcomes

The following are briefly the project outcomes:

- SETT model adapted for the partner's use
- process forms re-designed to suit both our schools and university environment
- three schools took part in the UL part of the project
- twelve students participated with UL
- every student had a parent or guardian attend the assessment
- ten students allowed the assessment to be recorded
- students required different approaches (some appeared interested, some needed encouragement)
- some assessments took more than one visit to the school
- all participants received equipment and training
- the training took more time than anticipated
- the equipment solutions were very complex for some students
- the lack of accessible texts is an issue for students
- we have gained an important understanding as to why students arrive to university with novice AT abilities
- AT assessment is only part of an overall plan for support for students with disability at school
- parent participation was informative

Project recommendations

The following are the key recommendations from the project's learning:

- A formal AT assessment model should be developed nationally for second level pupils with disabilities.
- A national strategy should be developed for the provision of accessible (not electronic) text books.
- AT assessments need to be carried out by relevant expert teams contributing expertise from only their own area of knowledge.

References

Zabala, J S (2005). Using the SETT Framework to Level the Learning Field for Students with Disabilities (Joy Zabala Website – http://www.joyzabala.com/uploads/Zabala_SETT_Leveling_the_Learning_Field.pdf)

Pat Hoey

Access Manager, University of Limerick

Pat Hoey is the Access Manager in the University of Limerick with responsibility for the Access and Widening Participation activity of the University. He was also Senior Disability Officer in Dublin City University and Disability Liaison Officer in Dublin Institute of Technology. He has worked for the Association for Higher Education Access and Disability as Project's Officer managing a number of European funded projects in the area of employment and training for graduates with disabilities. He is a graduate of both Dublin City University and University College Dublin with degrees in Communication and Equality Studies.

Brenda Shinners-Kennedy

Head of Disability Student Support Service, University of Limerick

Brenda Shinners-Kennedy is currently Head of the Disability Student Support Service (DSSO) with the University of Limerick. Her experience with students with disability and the technology they use has led to an interest in how students with disabilities are assessed and assigned technology for their education. Brenda has encountered many students who are given assistive technology that does not work for the task (education) that they are trying to achieve. The goal in the University of Limerick Student Support Service is that students are assessed and trained to suit their particular needs. The aim is that students with disabilities get the same opportunities as any other student. The DSSO strives to ensure they are experts in the area of assistive technology.

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Conor Hartigan has over 11 years' experience in assistive technology and student disability supports, as the Regional Assistive Technology Coordinator in the University of Limerick. Conor is a graduate of the University of Limerick in Information Technology and Telecommunications (2003) and is currently completing an MSc in Project and Programme Management. Conor has an in-depth knowledge, training and experience in all educational technologies. In particular Conor has a specific interest in training and support for students with visual impairments, screen reading, magnifiers, vision aids and researching new solutions to assist students in their education.

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