Assistive technology and associated training: a survey of students who have received the Disabled Students' Allowances

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This paper aims to highlight some important pointers to improving the provision of assistive technologies (AT) and their support, based on an online survey carried out between September 2011 and February 2012 with results from 841 students in receipt of the Disabled Students' Allowances (DSAs). The students overwhelmingly felt the technologies provided were "useful" or "very useful" and 70% of those who took up training felt that it helped, but there were some noteworthy issues that still need to be addressed. It was found that some problems appeared to be occurring due to a lack of clarity over technology terminology, training requirements and the need to review the provision of portable technologies.

Introduction

Over the past ten years there have been very few evidence based studies on the use of assistive technologies by disabled undergraduates and postgraduates (Cobham *et al.*, 2001; Fidler, 2002; Draffan *et al.*, 2007). There are anecdotal case studies about the successful use of assistive technology (AT) or tales of abandonment and rising costs for support, such as those noted in the literature review carried out by Mull and Sitlington (2003) of students with dyslexia, but more studies are needed in this area.

The outcomes of state funded allowances for AT and other disability support, in this case from the DSAs, are hard to evaluate in terms of statistics or 'value added' when they are linked to individual needs. The recent survey aimed to provide a follow on from the previous studies mentioned, as well as an informative collection of comments from disabled students on their AT and associated training and support. Overwhelmingly, and perhaps not surprisingly, when the group undertaking the online survey were self-selecting, the results were positive.

This paper reports the students' assessment of the impact the AT provision had and considers some of the dilemmas that arose for the researchers when establishing how to measure the impact of such support.

Methodology

In Autumn 2011 several emails were sent to various discussion lists promoting the lengthy and somewhat repetitive online survey (questions often had to be repeated for each type of technology or training need). Disability practitioners were kind enough to pass on the web link to their disabled students in receipt of the DSAs and the researchers were inestimably grateful to the respondents.

Over a thousand students started the survey and 841 completed all questions (taking an average of 18 minutes). The initial results were presented in July 2012 at the annual NADP

conference. There were 28 questions, with options to jump to other sections, or to follow on open text questions, resulting in a wide range of comments. These comments were analysed for various themes and it is the themes of terminology, training and future technology that will be discussed in this paper.

Terminology

> Assistive Technology (AT) is any product or service designed to enable independence for disabled and older people.
> (FAST - King's Fund consultation, 2001)

Terminology around AT is confusing both in terms of the support it can offer and because it can appear under such headings as 'access', 'adaptive', 'productive', 'personal' or 'enabling'. These terms and many more are used by funding bodies and charities, so it is hardly surprising that issues arise when aiming to provide an evidence base for the use of technologies by disabled individuals.

By analysing the respondents' comments, it soon became clear that not only were the questions that had been asked about assistive technology perhaps unclear, in that they covered technologies that might be described as productivity tools such as *Microsoft Office*, but they also covered generic hardware such as laptops and devices such as recorders. This was because there is, ultimately, no way of dividing technologies into neat categories, as most are interdependent. So the computer or portable technology is required to run the assistive software or app (common acronym for application) or the software or app has to link to a certain productivity tool, for example a screen reader working with *Microsoft Office* or a web app working with a browser to read web pages aloud.

> *"…I was able to store my important pieces of work on there* [the laptop] *and use the 'Read & Write' software on there as well. This hardware has helped me to keep up with my work and completing them on time."* (Student with SpLDs)

> *"MS Office. I could personalise documents and make them colourful to make them easier to read. I could print out and look at PowerPoints and notes before lectures meaning I got more out of lectures. It meant I could work on my assignments at home at my own level and pace. Wouldn't have been able to do it without it!"* (Student with SpLDs)

Students found their recommended hardware "useful" with 91% of those recommended a laptop and 72% of those recommended a desktop computer saying it was "very useful". While a computer is not an assistive technology in itself, it gives access to the specialist and productivity tools that provide support for the student.

When it came to software, *Microsoft Office* was felt to be most useful with 88% of the students recommended it saying it was very useful, followed by mind mapping (56%) and text-to-speech and speech recognition software (54%). While again, this seems that the productivity tool *Microsoft Office* was most useful, it should be noted that mind mapping, text-to-speech and speech recognition all add functionality and tools to the *Office* suite. It

was clear from the students' comments that having access to their assistive technologies at all times was one of the key benefits of the equipment (68% of their comments) whilst they also made many comments about how it helped them keep up with their peers and perform to the best of their abilities (61% of comments).

It is felt that this symbiotic relationship between the supportive tools and strategies makes it particularly difficult to show clear results for particular types of technology in the quest for clear measurements as to outcomes of the use of AT. In the students' eyes there are no boundaries between specialist AT, productivity tools and off-the-shelf hardware with the whole package providing the support requirements. This insight needs to be balanced against a funding system set up to cover additional costs for disabled students.
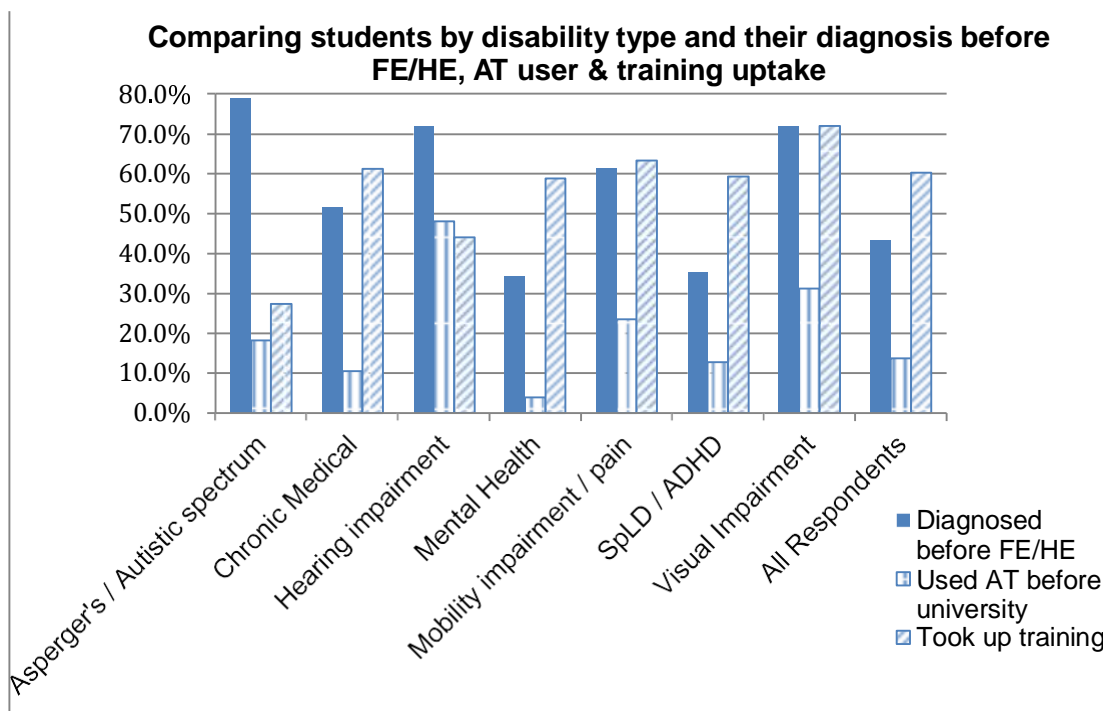
Training

Many experts have commented on the need for training to make the use of assistive technologies truly successful, but Draffan *et al.* (2007) highlighted the fact that in their survey of dyslexic students only 46.8% took up the training and of those, 46.6% were very satisfied with the outcome. At the end of the report the authors posed the question: *"A large proportion of students choose not to be trained, would training improve their benefits from the equipment supplied?"*

The recent survey was, yet again, a snap shot of the student experience, so the question as to whether the AT training affected outcomes could not be accurately answered as it would require a quantitative, longitudinal study. However, the vast majority of students (87.6%) reported that the DSAs had a positive impact on their studies and there had been a 21% increase in the proportion who took up training. By rating the type of training it was found that training by a specialist IT trainer in the home was considered "very helpful" by 42% of the students and training by a disability officer on campus by 36%. This compared to 19.7% for those students who received their training from a specialist IT trainer on campus.

Students were least satisfied with training by the supplier on installation. This is often only intended to be a set-up and familiarisation session but many students interpreted this as training and were disappointed by the lack of knowledge and expertise they obtained from the session. Students who received this service were the least likely to take up all of the training hours recommended and were the group that made the most comments about poor quality training. This indicates that students need to be aware of the differences between familiarisation and training and the reasons for the recommendation of these services.

The most common reasons given for not taking up training were similar to those mentioned by Draffan *et al.* (2007), namely that they purported to already know how to use the equipment (39%) or that they thought they could figure it out (31%). Although only 14% of students had used specific AT items before attending university, it was found that overall this group were more likely to take up training compared to those who had no prior knowledge (65% compared to 61%). This result was unexpected and when looked at in more detail showed that those who had not only been diagnosed with having an impairment, but also knew about AT before their time in Further or Higher Education, were even more likely to take up training (66% compared to 58%). Some impairment groups were very small (in particular autism, hearing and visually impaired) and when comparing take up of training there was a variation from 27% - 70% (autism - visually impaired).

Figure 1. Comparing students by disability type and their diagnosis before FE/HE, AT user & training uptake

There is some indication that those who understood the benefits of AT and were more informed during the needs assessment process, valued the benefits of training more highly.

When asked what would help in terms of the type of training on offer, at least 39% of respondents wanted "drop in" facilities so they could review their needs and 27% asked for "reminder sessions" with 17% declaring that "shorter training sessions occurring more regularly" would help.

Future Trends in Technology

The Horizon Reports (Johnson *et al.*, 2012, 2013) have highlighted the growth in more adaptive learning environments with cloud computing, mobile apps and tablet computing coming to the fore. The survey data showed that the students were also considering these types of technologies, with a marked preference for lighter, portable technologies which allowed them to be flexible in their approach to learning. This was seen in the many comments they had made about wanting to have access to their AT "at all times" and the importance of having support for note taking and during lectures.

While such portable tools may be more expensive, the increased independence they provide can lead to less reliance on the even more expensive non-medical helper provision and also enables the student to develop strategies they can use after their studies. Several mentioned the latest tablets or smart phones when asked "Is there any piece of hardware or software that you would have benefitted from during your course which you were not recommended in your needs assessment?"

"IPad or tablet. I am quicker at writing on a keyboard but I am unable to carry my laptop everywhere with me due to its weight and size." (Student with mental health issues)

"Because of neck problems it is very difficult to read notes etcetera from a flat surface. An e-reader would be very useful because of the small print/feint print of books." (Student with chronic medical condition)

There are clearly implications for trainers when considering these technologies, as they not only come in a myriad of forms, but they also have the propensity to stretch any expert's knowledge in terms of the strategies that could be used with the thousands of apps available. They may also cause concerns for funding bodies as apps, subscriptions and shareware tools being suggested by students do not fit into the current AT supply and training paradigm for the DSAs.

Conclusion

The way we use technologies has not only changed since the earlier studies were undertaken with disabled students in receipt of the DSAs, but also the expectations of the students have changed. They expect to learn on the move, adapt their reading environment to suit their needs by personalising their technologies, they are often far more aware of what is available in terms of mobile technology, but not in terms of specialist AT. This recent survey still found that when they began their degree course 86.2% of the students had not used, or were unaware of, the types of technologies that could help with their study skills.

This survey has shown that the students have a high regard for what the Disabled Students' Allowances can offer them in terms of support, but that there are still challenges in the way we describe what is available, how the training can help and what the funding will allow assessors to recommend in the future that will fit with the changing nature of the students' studies. The online world of Massive Open Online Courses (MOOCs) with their accessibility challenges beckons, alongside the traditional face to face lectures and seminars. Professionals working with disabled students need to be aware of these flexible learning environments and to facilitate disabled students receiving equal access, with technologies that suit their individual needs.

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