Scaling ALPS – An Overview of the Mobile Enabled Disabled Students (MEDS) Project

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Introduction
The principles of the Special Educational Needs and Disability Act SENDA (2001), directly apply to the provision of education services, making it an offence to discriminate against a disabled person by treating him or her less favourably than others for a reason relating to their disability. Education services are deemed to include the provision of e-learning and m-learning materials. It is generally accepted that it is both easier and good practice to build accessibility at the point of design, rather than have to add this at some point in the future.

It is therefore essential that the needs of disabled people are taken into account at the point of developing such learning materials, in order to improve equality and reduce the risk of possible litigation. The barriers and potential benefits that new technologies offer must be investigated to ensure that disabled people are enabled by these tools and not disabled by them. It was therefore deemed essential that when developing the ALPS mobile assessment suit, the work should be informed by user experiences. Based on the principles of universal design i.e. that processes (and in this case technology) which work well for disabled people will be accessible to all, the project focussed on disabled users and the barriers and benefits they encountered in mobile devices.

Project aim
To inform the ongoing work and development of ALPS in relation to the specific needs of disabled students when using mobile technologies for learning and assessment in practice settings

Methodology
An eclectic approach was developed within the phenomenological paradigm embracing a philosophy of collaboration based on feminist ontology (Letherby 2003). A feminist ontology was appropriate to this study because it acknowledges the complexity and diversity of societal structures and the people within those structures (Dearnley & Walker, 2009).

Methods of Data Collection
Stage 1
- **Focus group to ascertain perceived benefits and barriers to learning & assessment of using mobile devices among disabled students**
  - Attended by 12 disabled student participants with a wide range of disabilities and with experience of using mobile devices *in some form* and *r*epresentatives from ALPS partner software developers.

Stage 2
- **Blogs/diaries**
  - Eight disabled students were given an ALPS mobile device and asked to keep a blog (or electronic diary) of how they used it generally and how they experienced the ALPS assessment tools in supporting their learning.

- **Focus group to ascertain the accessibility issues related to the ALPS mobile assessment tools**
  - Attended by five participants who had used the devices and ALPS assessment tools.

o Microsoft Desirability Toolkit (Benedek and Miner 2002). This is a process in which participants are supplied with a list of key words and asked to rank 5-10 them in order of importance to them.

Sample
Participants for stage one were recruited from across the University of Bradford as a whole to obtain a wider picture of disabled students in one HEI and to ensure a maximum range of disabilities were captured within the enquiry. Participants for stage two were recruited from Health and Social Care students at the University of Bradford, so that they could engage in realistic use of the ALPS Assessment tools. The prominent disability in this group was dyslexia (Dearnley et al 2010).

Data Analysis
Data from the focus groups was transcribed and entered in to NVivo computer software for initial open coding and the development of emerging categories to which data from the electronic blogs and desirability tool kit was added. Words selected in the Microsoft desirability toolkit were used to generate word clouds that provide a visual overview of participant experiences with both the mobile devices and the ALPS mobile assessment tools (Dearnley et al 2010).

Overview of findings – stage one
The disabled student participants who took part in the initial focus group reported a number of uses, benefits and difficulties that they had experienced whilst using mobile devices. For them the key benefit was to aid memory function and for this purpose they relied on diaries, alarm systems, audio and camera functions. The spell check was also crucial as was the calculator for some.

For example:

"Yeah and I also take it if I've got a meeting with the doctor or something like that. Err for any particular reason [because I have]… … problem remembering what they were saying to me."
And
> *"I have short term memory and I'd be lost without my device."*

They liked the mobility and size of the lap top around the home, but found these generally too heavy for taking to lectures on a daily basis and therefore relied on a number of other more mobile devices, which often did not have the functionality they required.

For example:

> *"I've got a heart condition and so I'm not supposed to carry heavy things like a laptop"*

Light weight laptops and advanced mobile devices were generally out of budget. Whilst the participants were enthused by the capabilities of the mobile devices, some were concerned about the size of the screen and the buttons and others thought it might be too complicated to use. Whilst enthusiasm for potential use in this group of disabled participants appears higher than in other groups of students it is interesting to note that these concerns are not just the concerns of disabled people. Other studies with student health care practitioners using mobile devices have shown the same concerns (Haigh et al 2007, Dearnley et al 2008).

Overview of findings – stage two
In stage 2 of the study a wider range of data collection methods were employed and participants reported on their experiences of using the ALPS mobile devices and the ALPS mobile assessment tools. All participants were from students studying on health and social

care programmes. Many of the issues that arose during the stage one focus group emerged here too, adding to the reliability of those outcomes.

Participants reported how mobile devices supported difficulties commonly associated with dyslexia such as organization, recall, writing and spelling. For example the organizational capacities of the mobile devices:

"I have found it invaluable in relation to keeping appointments and track of my days activities"

As an aid memoire:

"*Useful for memory, more than anything you could fill it in as you went along*"

And for spell checking:

"Brilliant...it tells you if your spelling is not right... I often get letters the wrong way round, so that was really helpful... it really speeded the whole process up"

The assessor's point of view
One participant was a practice assessor and was able to give a voice to the perspective of assessors both generally and those with similar disabilities. She commented that it was good to see mobile devices being used in this way as she had previously used a device of her own to support her disability. She referred to herself as formerly being a 'closet user'. She expressed the view that the tools could be "developmental for student and everybody – especially as a dyslexic mentor ".

Participants reported that comments from the staff who filled out the peer assessment were generally that they "*liked the software although thought some of the answer options were a bit odd (e.g. the one about are you the same profession - they thought it odd that an option was `mostly`). They seemed to prefer using the keypad to input written responses but found capitalisations etc hard."*

It was noted however that there are time constraints in practice settings and it was problematic when the device wasn't working correctly as this confounded existing resistance to the devices. Participants reported that mentor reactions were *"very mixed"* and that *"some people dismissed it straight away"*

Conclusions
MEDS identified the extent to which mobile technology can support some disabled learners generally and more specifically those with dyslexia and associated memory and organisational impairments. We gained an early indication of how the ALPS mobile assessment tools can provide additional support for such learners because of the functions of the mobile devices; but also how the tools appear to help students generally to organise their work, reflect on their activities and engage with their learning and practice educators.

Implications
The work of the ALPS MEDS project demonstrated the importance of considering the rights and needs of Disabled people when developing mobile learning systems. It became clear that when people face barriers, they will often use the tools at their disposal, in this case mobile technologies, in innovative and imaginative ways.

References

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