Listening to the Learners' Voices in HE: how do Students Reflect on their use of Technology for Learning?

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Abstract: The importance of the Learner's Voice and thus of listening to students' views has been evidenced in various high profile initiatives in the UK. The work presented here is from the JISC Learners' Experiences of E-Learning Phase 2 Learners' Journeys STROLL project. The seven JISC funded projects were set up in 2007 to investigate inter alia the changing views of students in their use of technology to support their learning. The STROLL (STudent Reflections on Lifelong e-Learning) project has recruited a diverse range of students from both Higher and Further Education backgrounds with the aim of researching the students' experiences of learning in a technology rich environment and their progression in their use of learning technologies over the two years of the project's timescale. STROLL is a largely qualitative study with students participating from across the University of Hertfordshire (UH) and Hertford Regional College (HRC) by recording their own video and audio diaries of their learning experiences. Using the students' choice of camcorder, web camera, or digital voice recorder they recorded their daily learning experiences of using technology, including a range of e-learning tools and the University's own MLE (Study Net). The project started in March 2007 and completed in March 2009 with the final round of student diaries collected in October 2008.

The project's aim was to research and document the students' answers to the following questions:

How do learners experience change through their learning journey?

How do students use and make choices about their time?

How do students use e-learning tools to support their learning?

How do students use their personal technologies?

The qualitative data from the students' reflective diaries collected was first transcribed, then the transcripts were analysed and colour coded according to the research themes. Concept maps were created for each student's diary detailing their reflections on learning. Further concept maps of quotations relating to the research questions above were developed to identify comments which were particularly relevant to the themes. Finally Nvivo™ was used to support and track the large quantities of data. This paper presents some of the early findings in terms of the ease with which students interact with technology and the choices they make about what they use and when and where. The discussion includes consideration of the research methodologies, since the use of personal video diaries to record reflections on learning, is to date a rarely used method of capturing data on students' reflections.

Keywords: student experience, e-learning, social uses of technology

1. Introduction

> *'Regardless of how institutions or individual teachers choose to use networked technologies learning takes place in an environment saturated with information and communication. Learners are increasingly networked.' (Beetham, 2008)*

Following an investigation of the literature in 2005, Sharpe and her co-investigators revealed that very little research had sought to include learners' views of their experiences in e-learning (Sharpe et al,2005).This was in spite of a major increase in funding across the United Kingdom as Higher Education (HE) institutions sought to provide high quality e-learning support in universities and colleges for their students and the publication by the DfES of its plans for e-learning strategy in Harnessing Technology (2005) where it stated:

> *"We need to listen to people's views and ensure that technology meets their needs."*

Since publication of these reports various institutions have sought to fill this gap and there have been a number of funded projects into the Learners' Experiences of E-Learning. In 2006 Glasgow Caledonian University and the Open University in the UK developed innovative methods for researching into e-learners practice and experiences, through the JISC funded Learners' Experiences

of E-Learning Phase 1. Results from these projects have been widely reported (e.g. Creanor et al, 2006) and pointed to a general enthusiasm among students to use a variety of e-learning opportunities to support their study behaviours. These students exhibited increasing confidence in their use of technology for learning and could be defined as part of the 'Net generation' as described by the Oblingers in their research across a similar age group in the U.S. (Oblinger et al, 2006).The research described below is from one of the JISC Phase 2 Learners' Experiences of E-Learning projects which began in March 2007. The STROLL project sought to build a picture of the Learners' Journeys across a study period of 18 months. An important part of this research was to gather data from the student volunteers through personal reflective diaries constructed at approximately 6 monthly intervals, showing their changing uses of technology and their growing maturity in both learning and using technology.

2. The methodology of the STROLL project – Student participation and diary completion

The STROLL project methodology consisted of a series of up to four reflective diaries constructed by the participating student volunteers at roughly six monthly intervals as well as a set of focus groups and some telephone interviews. In addition to the qualitative data gathered, students were invited to complete an online profile which returned a set of quantitative data for separate analysis. Students were invited to participate in the project through tutors based in each faculty as well as an open invitation via the university's MLE (Study Net); the project team were concerned to have as broad a set of participants as possible and did not want to have participation concentrated in a handful of programmes.

The STROLL project enrolled a total of 54 students, (34 female, 20 male), from a broad age range which was between 18 and 52 years at the start of the project. The volunteers were studying on programmes based at one of the university's campuses or a local FE associate college and were drawn from a total of 18 different programmes of study. In terms of the students' ethnic diversity, this was an optional question on the profile but at least 8 different ethnic groups were included in the project. The majority of students came almost equally from White (British) or Black/ Black British (African) backgrounds. 23 students based in FE but following HE programmes that would progress to University of Hertfordshire (UH) degree programmes were included, with the majority of these studying at HRC. 31 students were enrolled on programmes based at UH and would be studying as a minimum from May 2007 to October 2008. Three students had a disability that they declared to the project team, two were dyslexic and one was wheelchair based.

Students were invited to launch events at UH and HRC for a presentation on the project prior to them enrolling for the first set of diaries in May 2007. The pattern of the diary completion is now described. The diaries were typically recorded over a five day period. The students collected their diary questions and the technology of their choice to record their diary (camcorder, web camera, and digital voice recorder) from the project office. Each day's diary included a brief recording in the morning to state the student's plan for the day and a five to ten minute recording in the evening stating what they achieved, how they studied, the number of hours they spent studying, the technology they used to aid learning and answers to a set of supplementary questions based on the project's research aims. In May 2007, 28 students completed a diary, in Oct 2007, more students were recruited to the project and 47 students completed a diary. In May 2008, 45 students completed reflective diaries. By the end of October 2008 40 students had completed three or more diaries providing a valuable longitudinal view to the project's findings.

In the summer of 2007 telephone interviews were carried out with the students who had participated in the first set of diaries. These used Beetham's 'Interview Plus' methodology (referred to by Creanor et al, 2006) itself a development from Bloom's stimulated recall methodology (Bloom,1953) using details which students had mentioned in their diaries as the artefacts. This gave a deeper insight to specific points made in their diaries. The contact was further beneficial in keeping the students interested and engaged in the project over the long summer vacation. To maintain a project identity and encourage further reflection a closed group was set up on the MLE (StudyNet) for the STROLL project, where the students were updated on project news, discussions, and an area was made available for blogging. This also acted as a contact point between students and the project team.

Following the second set of reflective diaries in October 2007 four focus groups were conducted between January and March 2008 by a researcher independent of the STROLL project. Twenty

students chose to participate in these. This activity further supported the project findings by picking up on specific points from the diaries, and encouraging group interaction on specific areas where clarification was needed about the students' voices.

The majority of the data which the project team collected was derived from the students' diaries and the project therefore generated large amounts of qualitative data to be analysed. The data was first transcribed and then colour coded according to the main project themes. Concept maps were created for each student's diary detailing their reflections on learning from the transcripts; further colour coded concept maps of quotes relating to the research questions above were then created from the transcripts. The benefit of concept maps to the project team has been the quick visual guide to each student's reflections. Finally Nvivo™ was used to support and track the large quantities of data and as a means of ensuring that data could be checked by another researcher to ensure it had been reviewed thoroughly.

2.1 Using video and audio diaries, the choices of who used what and when

The project team had originally intended that all STROLL participants would use a web camera to complete their diary, with the opportunity once the project had completed that they would be able to keep their web camera. However, not all the STROLL students wanted to use a web camera. The team also had access to a small number of camcorders loaned from the Blended Learning Unit and a number of digital voice recorders. This enabled a choice of technologies to be made available for the students to feel confident and comfortable recording themselves. Figures 1 and 2 show how students changed in their choice and the use of the diary capture technologies.
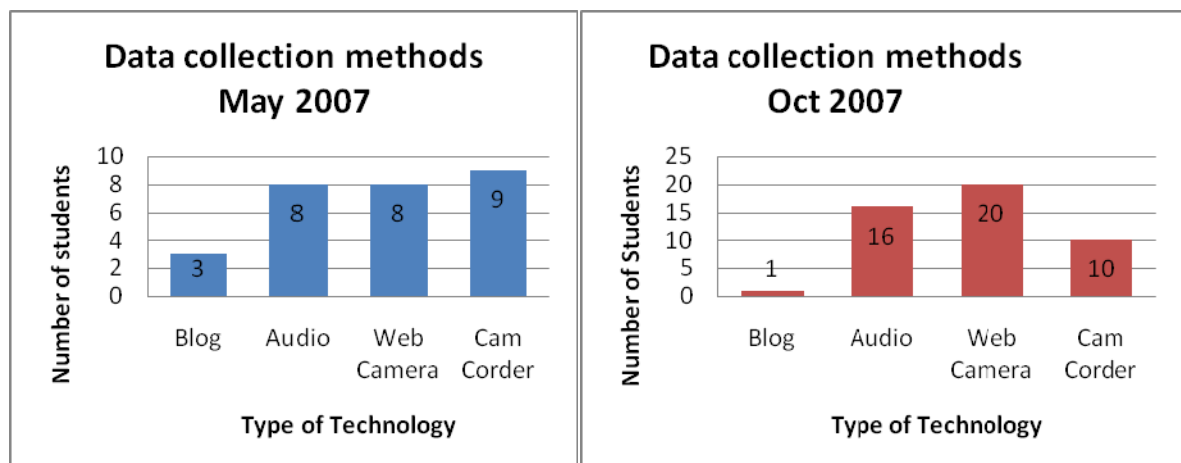
Figure 1: How students changed in their choice and the use of the diary capture technologies in May and October 2007

In October 2007 more students chose to use web camera, and digital voice recognition (Audio), students using the camcorders increased by one and the number of blogs decreased to just one.

It is clear that for the first three reflective diaries the digital voice recorder and web cameras were the favourite technology for recording. The project team discovered that the camcorder proved to have the best quality of recording, followed by the web cameras and then the handheld digital voice recorders. The number of camcorders used by the students over the three diaries decreased. This is probably due to the reduced number of camcorders available for the STROLL project to use and the extra responsibility for borrowing them. The project team found that students were keen users of the digital voice recorders as these were seen as simple to use and there were no compatibility issues. The team ascertained that some students preferred to use the digital voice recorders so their facial expressions were not seen by other people. The wheelchair student with cerebral palsy found the fine motor skills required to use the web camera and camcorder meant that these were difficult to use with accuracy and for her the digital voice recorder was a better choice as she was '*more in control of it*'. The reason a few students had to resort to blogging was due to problems with recording with digital technology, it was not their first choice of diary recording. This is in contrast with some of the students recording diaries of their first year undergraduate experiences for the LEAD project at University of Edinburgh (LEAD, 2008) who deliberately chose to handwrite or word process their reflections. A handful of students have struggled with using the web camera technology in spite of the availability of

technical support at both UH and HRC. Some of the STROLL participants also claimed to be unable to use the integral webcams on their personal PCs.
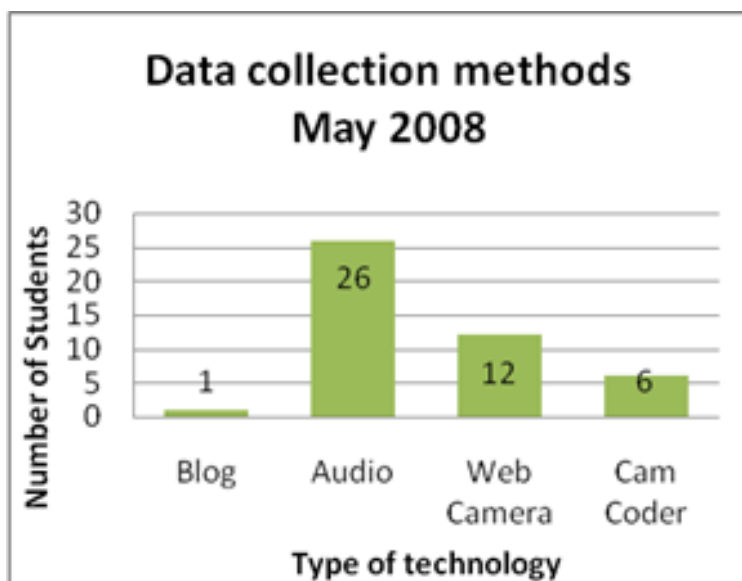

Figure 2: Student choice in the use of the diary capture technologies, May 2008

3. Developing the reflective questions and eliciting the student responses – reporting initial findings

Each diary session invited students to describe their daily routine and their use of technology for learning. Supplementary questions were asked to uncover students' maturing use of technologies and their attitudes.

3.1 How do learners experience change through their learning journey?

The supplementary questions around this area included the following: How has your use of technology to support learning changed in the last year to October 2007 and what is your favourite technology? In subsequent diaries students were invited to reflect on how their favourite technologies had changed and why. Students were asked to reflect on how their learning had changed over the last three years as they came to study at HE level and whether the technologies that they used had changed during the last three years. Three years was chosen as a time period since it would cover all project participants who had started their HE experience within three years of the start of the STROLL project.

There appeared to be a change in the learners' journey though their time in FE and HE and some students reported sharp changes, such as the student below who went from using physical to digital media.

> *'I've gone from using pencils to do my drawings, to different mediums like digital media like Photoshop™ and Flash™ and other programs like that. I'm using my pen tablet as well so it has really been quite a big change.' Male, 2D Designs, HE*

As students progressed through their university degree it has been a common theme that their use of technology also increased.

> *'I would say that I am getting to use more and more technology, and I am relying more and more on technology in this past year...I'm getting inseparable without technology.' Female, Psychology, HE*

> *'I also am on the StudyNet e-mail service a lot more. Always always on it. Which was kind of different I guess because last year I hardly ever used it ever, ever… But this year it seems like if I don't I'm going to miss something serious, I'm going to fail or a lot worse.' Male, Music Technology, HE*

There has also been a recurring theme that for each year of the students' course they are maturing in their learning and are adapting and using the available technology more.

> *'I wouldn't say it's changed as much as I have developed using it...I am becoming more dependent on it I suppose and I'm using it more.' Male, Computer Science, HE*

3.2 How do students use and make choices about their time?

The supplementary questions around this area asked students how they divided out their studying and personal time, whether they had a daily routine with regard to using technology in their learning e.g. checking the MLE every day plus their university and personal emails and their use of social networks.

There were a few students who only worked a standard 9am-5pm Monday to Friday but in general as they progressed through university, they reported that they matured and realised the need to prioritise studying over personal time and flexibility in study time becomes more highly prized.

> *'The way I divide my studying and personal time is as opposed to all the other years, I guess, this year it is study first and then friends and personal time second.' Male, Music Technology, HE*

> *'My general plan is that I work nine in the morning until five, Monday to Friday.' Male, Humanities Modular, HE*

Students with families had to fit in learning around their home lives. These students reported being heavily dependent on technology to aid their learning, benefitting from course information that was available 24/7.

> *'I do divide my studying time [and personal time]. I worked late at night when the children have gone to bed.'*
>
> *Male, Modular Extended Degree, FE*

Other students deemed it important to enjoy life as a student as well as studying and put a priority on personal time.

> *'I think all work and no play makes a good girl cry...So I divide my time, roughly equally.' Female, Nursing, HE*

Time was often seen to be a precious commodity in today's busy life, and many students liked to make the most of their time wherever they were:

> *'I will be doing studying on the bus and the train'. Female, Combined Modular, HE*

3.3 How do students use e-learning tools to support their learning?

The supplementary questions around this area asked whether students had any difficulties using technology in every day life and in their studying. The project wanted to investigate what would make e-learning technology easier to use for these students and how their lecturers could use technology (including StudyNet) better to improve learning. In terms of investigating students' own rates of confidence the project asked them to reflect on how confident they felt using technology and what extra support would be useful.

This university now uses podcasts extensively, these being posted on module sites via StudyNet. Students reported using the technology to aid their learning on the move, like the student below who listened to her podcasts as she drove home at the weekend.

> *'Pod casts...[I] just bought [a] car over the summer and I've got a radio which rigs up to my MP4 player so I am able to … play it when I'm driving' Female, Combined Modular, HE*

StudyNet was widely used throughout the university by lecturers and students. This has become an essential part of their learning experience for many students. The student below typically expressed how useful StudyNet is in their learning, although one or two students have recorded being less keen to use it.

> *'StudyNet, it is my favourite just because of how useful it is really...all my course notes are put on [it], and any assignments ...and class discussions, with your own little e-mail account, private messages as well...It has lots of features for my course and just fully supports me when I'm not in class.' Male, Computer Science, HE*

Voice recognition software was described as a favorite technology by some participating students;

> *'My favourite piece of technology that aids my learning is possibly voice recognition software and the reason I would like to say that is because I have a physical disability …I have an awful lot of reading to do, so rather than reading and making notes, I am reading and speaking my thoughts about what I'm reading and then I save it and print it'. Female, Computer Science, HE*

As technology evolves, so has the method to input images, from a pencil, to a mouse to a pen tablet.

> *'My favourite piece of technology is my pen tablet because it basically does away with the need to use a mouse to draw images onto a computer, and this helps me mainly because I can input images to a computer with analogue pressure, and very efficient accuracy rather than using a mouse' Male 2D Design, HE*

3.4 How do students use their personal technologies?

The supplementary questions which the project team asked the students in this area were about their own rating of enjoyment about using technology as opposed to their confidence ratings. As well as their use of their own technologies such as mp3 players, students commented on their use of social networks for social and academic purposes. One project student used her mobile phone to video record her lectures, she clamed she was familiar with it and thus preferred to use it rather than to download the lecturer's video of the lecture.

> *'I am more likely to watch what I have recorded [on my mobile] than to log on to StudyNet and to go through the long procedure of finding something that could have easily been put in [by] a simple method.' Female, Extended Degree, FE-HE*

Social networks have grown hugely in the last couple of years especially with the introduction of Facebook and some students reported using it to aid their learning in addition to the discussion groups on StudyNet.

> *'We have a Facebook group [for our] course which is really useful in posting things up to see when everybody is in, and keeping in contact with each other, and put our websites out there so we can get feedback up from each other. I think it works a lot better than StudyNet which can be difficult to find things on sometime.' Female, Digital & Lens Media, FE-HE*

3.5 Findings from the student focus groups

Following the first two set of diaries a researcher external to the STROLL team conducted a series of focus groups, picking up on general points noted by the researchers from the diary transcripts for group discussion. It was clear that student learning has changed over the years from college through to university, many claimed that they have matured with their use of technology, and also that they were becoming more dependent on technology for their learning as the years passed.

> *'When I first came here I was using books a lot more, but as I've gone along I've started using more journals, and database' Male, Humanities Student, HE*

> *'I've become more dependent on StudyNet as the years have gone on, and have found it more and more useful, and as time has gone on I can't imagine life without StudyNet' (All agreed) Female, Combined modular, FE-HE*

Students reported using personal technologies including social technologies (MSN /Face book /Mobile Phone) to communicate with other students and to aid their learning. A few students also used their own Dictaphones to record lectures.

> *'MSN and Facebook can be useful for learning by linking with other students. You can find ideas off each other like being in the same room.' Female, Modular Extended Degree, FE*

> *'I've bought a Dictaphone, so I can do that myself, if I know I've got a lecturer who's going to talk quickly or if there is an important lecture that I don't want to miss and I want to be able to revisit it. I can record it myself and take it home and use that.' Female, Humanities, FE-HE*

In terms of benefitting from the flexibility that studying online offers, students in the focus group were less categorical about the benefits of StudyNet as an MLE to support their time management

> *'In general, I don't think it can really help with your time management, I always think that's down to the individual the only thing that differs with e-learning is that you can receive something if you have a day off.' Male, 2D Design, HE*

> *'It could save you time, in that if you don't want to make the effort to go to uni because you can access it all and the reports that you get from professional bodies and access to Athens* [the online databases] *so that can save you time and might help manage your time.' Male, Business Studies, HE*

4. Discussion and conclusions

The STROLL project investigated students' uses of technology to aid their learning over an eighteen month period, by listening to these 'learners' voices' as they reflected via their video and audio diaries on the various questions posed by the research team. Students have on the whole shown great enthusiasm for the MLE platform (StudyNet) at the University of Hertfordshire with the materials uploaded by their lecturers, and the range of facilities to support their learning. StudyNet is available both to the FE students on programmes leading to a UH award and to the HE students registered on campus based undergraduate programmes.

The '21st century student' or the 'Net generation' learner increasingly slots studying into their lives alongside family and work commitments so that learning and information to support studying is sought and used 24/7. The use of an MLE enables the student to work and communicate asynchronously from the rest of their cohort. Lecture podcasts and videos, lecture notes, presentations and personal blogs are all accessed on the MLE. Students are also able to use SMIRK boards, discussion areas, check their rooms and timetable, download journals, check for books in the library, renew books currently on loan, and check email, personal messages and view the news area. As students are often on the move, some of them download lectures onto their MP3/4 players and listen to them on the go as they drive or cook or sit in the bus. Word documents are downloaded onto students' mobiles so they can catch up wherever they are. Students use social networks like Facebook and MSN to catch up at anytime of the day or night in addition to those facilities provided through the MLE. Voice recognition software is used to save time when writing essays or when reading text books. More recently Google Docs are reported as being used to aid group work on an assignment from different physical locations. There is an increasing reliance on the internet for researching background material on essay topics. There has definitely been a demonstration of this type of the 'Google generation' student, characterised in this research group of over 50 participants by widespread use of multiple types of software and internet use accessed throughout the day and night and throughout the week, both at home and on campus. Within the time span of the project the researchers have seen a huge initial growth in the use of social networks such as Facebook for social and learning purposes. Facebook was just appearing on the UK HE horizon when the original work was proposed in October 2006, By November 2008 there had been a levelling off for some students' enthusiasm in its use.

An important part of the students' reflections of carrying out the project diaries has been their personal realisations of the extent to which they now depend on technology. This is not just to aid their learning, and while many report that they are happy with the self-confessed high dependence on technology, others fear they may have become too dependent on technology.

> *'…this week it has really enlightened me [sic] that I am very, very highly dependent on the Internet and networks that the university runs.' Male, Business, HE*

One of the project's music students used his web cam to show all the technology that he uses in his room for learning and social use. This included a PC, MAC, Keyboard, Mini Keyboard, Mixers, Microphone, and Nintendo Wii™, which had been linked together by his own network.

These early findings from the STROLL project indicate that students will use both university provided technology and their own personal technologies for supporting their academic and social lives. There appears to be little separation out between the time spent learning and time spent in 'social activity', students report both activities happening in parallel for much of the week. Technology has become for most of these students an integral and ubiquitous part of their lives regardless of the programme of study for which they are registered. Reflecting on their use of technology has shown them in turn how much they have become dependent on it and thus reliant on being part of a 'connected world'.

The last stages of the STROLL project included a final reflective diary in October 2008 to review students' continuing and changing uses of technology in their learning and these are now the subject of further analysis, discussion and debate. Future papers will present an overview of the major lessons learnt through the investigation into the learners' reflections on their experiences and where the STROLL project's outcomes are also reflected in those of the wider JISC community's research into e-learning.

Acknowledgements

The authors would like to particularly acknowledge the cooperation and support of the other projects in the JISC funded Learners Experience of E-learning Phase 2 and the Support and Synthesis project run by colleagues from Oxford Brookes University. We would especially thank the students who have so willingly reflected and participated in the STROLL project.

References

Beetham, H. (2008)."Learners' Experiences of Learning: Experiences of UK Universities", Proceedings of 6th International Networked Learning Conference, Halkidi, Greece, April 2008

Bloom, (1953) "Thought processes in lectures and discussions" Journal of General Education, Vol:7, pp160-169

Creanor, L., Gowan, D., Howells, C., Trinder, K., "The Learner's Voice: a focus on the e-learner Experience", Proceedings of 5th International networked Learning Conference, Lancaster UK, April 2006

DfES E-Strategy (2005). *"Harnessing Technology: transforming Learning and Children's Services"*, accessed online at: http://www.dfes.gov.uk/publications/e-strategy/

LEAD project findings, from the Learners' Experiences of e-Learning wiki accessed online July 2008 at: https://mw.brookes.ac.uk/display/JISCle2/Video+Diaries

Oblinger D.,& Oblinger, J*., 'Educating the Net generation'* accessed online July 2008 at: www.educause.edu/eduatingthenetgen/

Sharpe, R., Benfield G., Lessner, E., De Cicco, E. (2005) "*Final Report: Scoping Study for the Pedagogy strand of the JISC e-Learning Programme"* accessed online July 2008 at:http://www.jisc.ac.uk/uploaded_documents/scoping%20study%20final%20report%20v4.1.doc