Are our students digitally ready for HE study? Exploring student attitudes to blended online study in a campus-based university

Dr Amanda Jefferies
Professor of Technology Enhanced Learning
School of Computer Science
University of Hertfordshire

Email: a.l.jefferies@herts.ac.uk

Abstract:

The outcomes of a survey of Australian Engineering undergraduates on a campus-based blended course offer a snapshot of trends in student ownership of technologies and a view of student attitudes and preferred choices of hardware and software to support their learning experiences during their first year at university.

This paper reports that students in this cohort indicated high levels of prior digital literacy coupled with high personal ownership of multiple technologies. The ensuing conversations and the outputs from the survey indicated that students were keen to use digital technologies including the Learning Management Systems (LMS) to support their learning. They reported an increased use of social media for studying with other students. This was in addition to their prior personal use of social networks for staying in touch with friends and family. The students were however unfamiliar with both the idea and the expectation from their tutors of extensive online preparation prior to their face to face classes,

The discussion considers this study in the context of recent research into student experiences from the USA (Dahlstrom, 2012) and from the UK (Beetham and White, 2013). The latter recorded similar conclusions from their research into UK located students in terms of readiness to study at university, noting that students had *'indistinct ideas about how they will learn at university and what constitutes legitimate learning practice – especially digital practice – in a university context.'*

Key words: pedagogy, digital competence, student experience, technology ownership

1. Introduction and background to study

There has been an increasing emphasis throughout Western secondary education on using technology to support learning as in, for example, the use of iPads in schools (PEW, 2012) and the estimation that 70% of UK school children now use tablet computers (BBC News, 2014). It is therefore not unreasonable to expect that these students when embarking on university study will anticipate a wide use of technology for learning at university. However this anticipation of computer use is not necessarily matched by their anticipation of pedagogical approaches to university study. The changing pedagogic practices which have accompanied the widespread introduction of technology use (Dyke et al, 2007) have not necessarily made an impact on the incoming students' expectations. Students' prior experience of education has typically been undertaken in a small-class environment, even where the school or college attended before 17 or 18 years of age had a large number of students. Students will almost certainly have been known personally by name to their teachers and their progress will have been carefully monitored. Starting university whether it is a research-based or teaching–focused institution indicates a change of learning environment and for many students offers the opportunity to use additional technology to support their studies. The difference between university life and their prior educational experience has led to research in the UK *inter alia* on supporting students through the induction process (Hardy & Jefferies, 2010; Currant, 2009) for settling in to university. The benefits of providing some additional 'scaffolding' (Wood, 1976; Vygotsky, 1980) for helping students adapt to their new on-campus learning environment in their early weeks have been extensively considered (see for example Willis, 2007; Yorke & Longden, 2007). It appears that less emphasis may have been placed on preparing students for changing pedagogic styles, since it is not only the social transition from the smaller-scale home and school environment to the larger-scale environment of college and university which will be different but also the approach to individual study and the technology support for studying. This paper explores the phenomenon from the viewpoint of a small-scale study undertaken with students studying at a popular Australian university which has regularly featured in the top 70 of global HE institutions (2015). These students owned or had access to a range of types of technology for studying and for personal leisure. They self-described as technically

capable and keen to use technology to support their studies but as discussed below they appeared largely unprepared for the changing pedagogy they would meet in their first year of study.

Beetham and White (2013) have noted in their review of research studies into UK undergraduate students' readiness for university study, that many Western educated students exhibit strong digital competency on arrival at university. Few students, however, have previously encountered the wide use of LMS now prevalent across HE. While LMS may now be almost ubiquitous across US, UK and Australian Higher Education Institutions (HEIs) their popularity and availability in pre-university institutions from one country to another varies significantly and their availability and importance in other European universities, for example, is not as far-reaching. The students who took part in the survey and discussions described below had little prior experience of LMS use before their undergraduate studies.

The changes which have taken place in many areas of university pedagogy with the introduction of greatly increased use of online materials and a constructivist approach to collaborative working both online (Conole et al, 2004) and on-campus, appear to have taken these incoming students and possibly their educational advisors by surprise. Moreover the recent suggestion of adopting a 'flipped classroom' approach (as seen in the work of, among others, Koller for Coursera, and Fisch et al, (2010) and the Khan Academy, (2013) was not seen as part of the students' pedagogical expectations. The flipped classroom according to the Vanderbilt University Center for Teaching (2015) offers: '*a **reversal of traditional teaching** where students gain first exposure to new material outside of class, usually via reading or lecture videos, and then class time is used to do the harder work of assimilating that knowledge through strategies such as problem-solving, discussion or debates'* Furthermore, the actions by some academics keen to adopting a more learner-centered paradigm (Barr and Tagg, 1995) were rebuffed by students in the conversations noted below as not being a part of the experience they had expected.

The purpose of this study was threefold. It set out to investigate the level of student ownership of technologies for learning and their use of software to support their learning, in the context of their attitudes to a pedagogy which was based on frequent engagement with their university program's online study materials.

2. Methodological approach and data collection

The study adopted a mixed methods approach for gathering quantitative and qualitative data. An ethnographical approach (Levi-Strauss, 1963; Hobbs, 2006) to the collection, analysis and discussion of the qualitative data was adopted since the research sought to investigate the particular viewpoint of the student participants in their ownership and use of technology for learning and their attitudes to using LMS (Pink, 2007; Harris, 1968). The aim was to capture the "social meanings and ordinary activities" of the participants, technically known as the study's 'informants' (Brewer, 2000:10). Alongside the details of methods for qualitative data gathering and analysis described below, the study also gathered data on student ownership of technology quantitatively through a questionnaire administered immediately beforehand.

A voluntary sample of Engineering students (n=12), undertook a survey of technology ownership and participated in a qualitative research enquiry into their own use of technology for their studies. Ethical approval for the study was sought and granted. Each student gave voluntary signed consent for the anonymized results to be published. This was requested prior to their participation in the study. Material related to the study was accordingly kept in secure areas either virtually through online facilities or in physically locked locations. Students' responses have been anonymized and are related to their demographic details and the area of their studies.

The approach adopted for gathering participants was designed to allow open access to the proposed research for students. Posters were placed around the widely used First Year Engineering Learning Centre (FYELC) in advance to highlight the timing of the open sessions. These were held in a private room adjacent to the FYELC

with students invited to join a focus group to discuss their use of technology to support their learning and complete the technology ownership questionnaire.

Twelve Engineering students completed the questionnaire prior to taking part in focus groups, which then introduced a discussion about their use of technology both prior to and while studying at the University. The survey included questions relating to their prior digital competence and covered their personally owned technology and the technology (the hardware and software) that they might use to support their studies. The source of the questionnaire was the recent ECAR studies of student use of technology in HE, with a small reduction in the types of technology included (see Dahlstrom, 2012; Salaway and Caruso, 2008). The survey is similar to those used in other environments for measuring student use of technology, for example the University of Edinburgh's annual Freshers' survey (Haywood et al, 2008).The quantitative data from the surveys is discussed and presented below in graph formats.

The format of the focus group included a prepared script with a series of questions which were asked of the students in turn; no more than 6 students participated in each hour-long focus group to allow for fuller discussion of the topics. The importance of the script was to ensure that each focus group had a similar experience and set of questions. The focus groups were recorded using a digital video camera. . A transcript of the key points of the recording was produced and the responses were categorized by their themes and allocated the student's reference number. Analysis was undertaken according to the original themes determined by the researcher, who was also open to the possibility of new themes emerging. The student opinions from the focus groups are presented under the section of the 'Student Voice' below. Initial themes included: technology ownership, experience of university teaching styles, prior school experience, use of social media and LMS use.

3. Study Outcomes

### 3.1 Demographics and Technology Ownership

Three students were female and nine were male. All were under 30, eleven were aged under 23. Ten students were born in Australia, two were born overseas. None of the Australian born students was an indigenous Australian. Ten students spoke English as their mother tongue; two spoke English as a second language. Students were asked which of the following technologies (see Table 1) they owned:

Table 1 Device ownership

iPhone
Android Phone (eg Droid, Galaxy, EVO,)
Windows OS Phone(eg HTC)
Blackberry
Other smartphone
Other mobile phone
Digital point and shoot camera
Digital SLR camera
Digital Video camera
DVD Player
Blu-ray Player
HD TV/ set top box
3D TV
Mp3 player/music device other than iPod
iPod
Desktop Computer
Laptop Computer/Netbook
iPad
Other tablet(eg Galaxy Tab, Xoom) not iPad
E-reader (eg Kindle)
Webcam
USB thumbdrive/portable hard drive
Handheld/portable gaming device (eg Sony PSP, Nintendo DS Lite)
Stationary gaming device (eg Xbox, Sony Playstation)

Table 2 (below) presents a summary of device ownership among the students. All students owned either a laptop or netbook computer and at least one USB memory stick or portable hard-drive. Ten students owned either an iPhone or an Android phone. Another student owned a different smart phone; just one student owned a Blackberry. Just over half (58%) owned a desktop computer as well. The average level of device ownership from the ECAR listing among these students was greater than nine.

Table 2 Device ownership from greatest to least
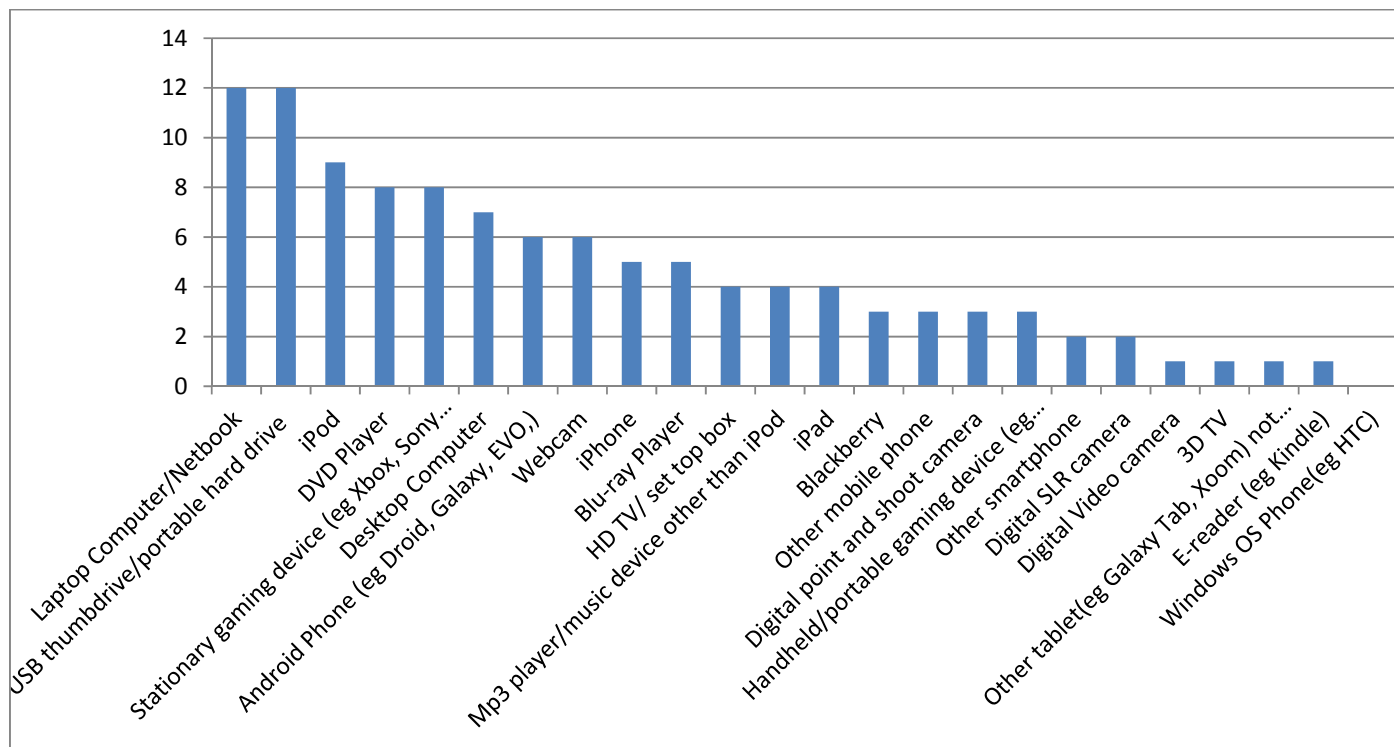
Five devices had greater than 66% ownership in the survey group (i.e. 8 or more students owned them) as shown in Table 3 below.

Table 3 Devices with greater than 66% ownership

Device	No. owners	% age
Laptop Computer/Netbook	12	100%
USB thumb drive/portable hard drive	12	100%
iPod	9	75%
DVD Player	8	67%
Stationary gaming device (eg Xbox, Sony Playstation)	8	67%

Several devices had less than 25% ownership (i.e. three students or fewer owned them) and of note were those

technologies which were apparently far less 'popular' than in other countries, see Table 4 below. In particular

the low-ownership of e-readers such as Kindles was noted (this was probably due to the lack of access to

Amazon products in Australia prior to 2013) There was also low ownership of non-iPad tablets.

Table 4 Devices with lower ownership

Device	No. owners	% age
Handheld/portable gaming device (eg Sony PSP, Nintendo DS Lite)	3	25
Blackberry	3	25
Other mobile phone	3	25
Digital point and shoot camera	3	25
Digital SLR camera	2	17
Other smartphone	2	17
3D TV	1	8
Other tablet(eg Galaxy Tab, Xoom) not an iPad	1	8
E-reader (eg Kindle)	1	8
Digital Video camera	1	8
Windows OS Phone (eg HTC)	0	0

3.2 Student use of communications software

Students were invited to identify the extent of their use of different communications and networking software which might form part of their regular studying or leisure time. The questionnaire included a scale from 1-5 on which to measure their use of software and communications networks. The scale was attributed a numerical value to show the average use across all students of each piece of software/hardware. In the following table the range is from 5 where the software would be used by all students several times every day to 1 where it is not used by any students at all. The outcomes are given in Table 5 below. It might be expected from research into digital habits of their generation, the so-called Millennials (Strauss & Howe, 1991:335) that the most commonly used software for networking and communication would be text messaging and sending instant messages (Hughes, 2015) and this was shown to be true amongst this group of students. The sending of texts and instant messages (IM) is now more common than email as acknowledged in a number of studies (see for example, Comscore, 2015) and affirmed here. Facebook was used extensively by ten (83%) of the students, with eight of them claiming to use it several times a day.

Of note in these results is the way that these mostly young adults were accessing their online content and games from a wide set of sources very regularly, but those seeking to create content to share with others outside their close network of friends were a small minority. This is evident in, for example, the fact that several read wikis regularly but none of them acknowledged that they had contributed to a wiki (leading to the score of 1.00). Likewise they would make use of downloading and streaming video material but hardly any of them ever posted videos to a video-sharing web-site (a score of 1.25). The students here were in the researchers' view surprisingly 'conservative' in their use of communications and networks because they did not appear to experiment widely with using other technologies, beyond sharing with their immediate friendship and family groups. There was little reported activity which supported online collaboration such as: 'Contribute to blogs' or 'Participate in online chats, chat events, webinars'.

Table 5 Student Usage of Communications and networking software

|	
Text message	4.5
Instant message (Facebook, chat, AIM etc)	4.67
Use Facebook	4.42
E-mail	4.17
Download or stream web-based videos (YouTube etc)	4.17
View a text document on a mobile computing device (smartphone, iPad, tablet PC etc)	3.83
Read Wikis (Wikipedia, course wiki, etc)	2.92
Use telephone-line communication over the internet (Skype, Google Voice, Video Chat, etc)	2.5
Recommend/share an article or information online by tagging/bookmarking/liking	2.25
Use online forums or bulletin boards	2.08
Read blogs	1.92
Play online multi-user computer games for recreation, not education (World of Warcraft, Call of Duty, Black Ops, poker)	1.92
Watch podcasts or webcasts	1.67
Use Twitter	1.58
Use other social networking websites (eg MySpace etc)	1.92
Post videos to a video-sharing website (YouTube etc)	1.25
Contribute to blogs	1.25
Participate in online chats, chat events, webinars	1.17
Use geo-tagging, geo-tagged environments (eg FourSquare, Gowalla, Foodspotting etc)	1.17
Use LinkedIn	1.08
Contribute to Wikis (Wikipedia, course wiki, etc)	1.00
Use photo sharing website (eg Flickr, Shapfish, Picasa etc)	1.00

3.3 Student Use of Social Media

Facebook has dominated the social networking arena for students and the rest of the 18-25 age group up to the end of 2015 and beyond. Only two of these students had contributed to any of the other social networks. A recent PEW report from the United States on technology use among teenagers indicates that previously popular social networks such as MySpace had seen a marked decline in the previous couple of years (PEW report, 2013). Likewise while all of these students contributed to Facebook, only one of them occasionally contributed

to LinkedIn. While the latter is promoted as a professional network and participation may not be expected at this stage of these students' careers, an informal focus group discussion with UK students indicated a keen awareness of their need to develop a professional profile online prior to seeking employment and while still an undergraduate. Given the digital competence and confidence with technology expressed by all of these (Engineering) students, it was surprising to the author that overall there was not a wider contribution to other networks and groups online. The use of technology by the Australian undergraduates in this study could be categorized in terms of being a significantly more passive than active approach with low levels of engagement in networks beyond their immediate social and study groups (Saward, 2012, Littlejohn, 2013).

3.4 The student experience of software applications used for studying

Students were asked to rate the frequency of their use of different pieces of software either provided by the university, for example, through the University's LMS Blackboard™, or personally owned on their computers. This was graded on the same scale as for the communications and networks used in the previous section; see Table 6 below for the outcomes. The systems most used are shown to the left of the diagram and the lower numbers indicate that they are most frequently used by the highest number of students.

Table 6 Student experience of software for studying
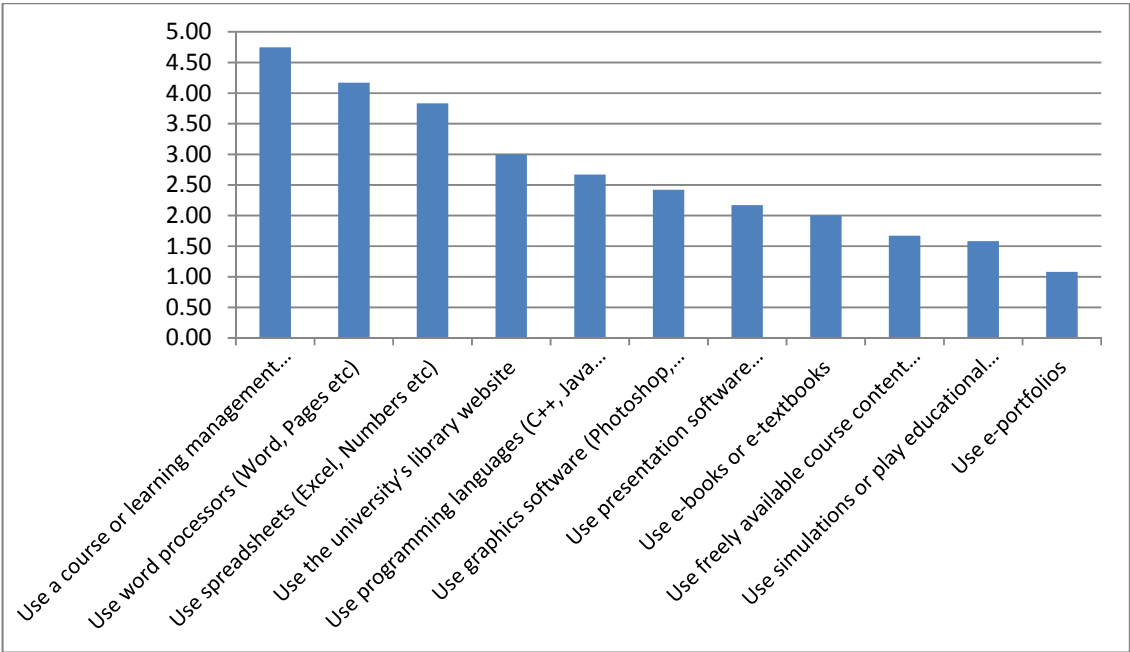
It is perhaps not surprising given the large quantity of study resources online that the most commonly used software application was Blackboard™. Also used very frequently were word processing software and the university's library website. Once again it is more useful to consider the software which is used least. Three areas feature here, the freely available course content from off-campus sources such as the Khan Academy and other similar university websites. Educational games and simulation software were unlikely to be used by these students. Finally, only one of the students claimed to have ever used an e-portfolio for reflecting on and assembling their learning material. E-portfolios have figured strongly in recent UK-based research on digital use (Hartnell-Young et al, 2007; Jisc, 2008)

3.5 Listening to the student voice

The purpose of the focus group discussions was to elicit further detail about the students' use of technology during their university studies and their preferences in terms of usage and usefulness. All the students asserted that with regards to their level of digital literacy, they were competent and generally confident in using technology. In their experience of university entrance many had chosen to apply for an elite local institution rather than travel further afield. Students compared their previous experience at secondary school or college with their current experience. This experience divided between those who had been taught in small traditional classrooms which used static whiteboards, whilst some had been taught in schools where teachers had used tablets and interactive whiteboards. Most were making greater use of technology to support their learning now than they had used previously when at school and noted the changing methods where they were now encouraged to research their own answers,.

> *'It's better here as it's not being spoon fed to us at uni [sic] and it's all there on Blackboard™'*
> *'There's a lot more on the web than in the classroom.'*
> *'I really like Lectopia™ so I can watch the lectures again and pause it to review the recording.'*

Students who needed help with using technology noted that they could access a variety of sources. For software applications they were likely to ask their friends first or perhaps find out for themselves by going online via a

user noticeboard or YouTube, this again demonstrated a high level of digital self-reliance and competency with technology.

The use of Blackboard™ was commented on widely. The students expressed enthusiasm for the idea of an LMS and the notion of being able to access all their necessary materials online. Opinions varied about its usability however.

'The use of Blackboard™ is good as they put pre-reading videos and materials up.'

'Everything is quite usable when you know where to find it'

'It's pretty easy to navigate but some courses are not very organized in the way they use it.'

They were not generally full of praise for the way that material could be accessed nor of the overall reliability of the local version of Blackboard™ being used, which they claimed was liable to crash frequently when there was a large cohort due to hand in an assignment.

'Blackboard™ has a bad user interface and it crashes a lot'

'My opinion is that it [the LMS] is rather jumbled up and things are not put into separate folders.'

The major improvement that most said they would like to see for the future was that material on the LMS should be organized in a consistent way by all courses. Some suggested that a template for using Blackboard™ should be introduced so all academics could follow it. This would ensure the LMS was used in a supportive way, similar to the Learning Pathway which had been introduced for their Engineering Studies.

4. The Students' Experiences of a learner-centered approach to pedagogy

The Engineering Faculty was encouraging a clear 'learner-centered approach' (Anderson et al, 2004) to learning instead of a teacher-based transmission approach. This was clearly understood by the students but not especially appreciated. In spite of an earlier positive comment about 'not being spoon-fed' the benefits that the learner–centered pedagogical approach would bring were not fully appreciated and they complained about the need to rely too much on their own reading and preparation for practical work. Some of the first year students

expressed a feeling of resentment that they had been left to get on with directed reading on their own and lacked sufficient direction. This was not what they had expected from a university course.

'[the learner-centered approach] it's an excuse to not teach us!'

'To an extent I agree you have to learn it for yourself but you do need the answers to what you have been studying, when you are doing independent learning'

Their prior expectation of university study, had been anticipated along the lines of the traditional didactic lecture and tutorial framework where knowledge was imparted and clear direction would be given in a face to face environment in a 'sage on the stage' format. The discussion over pedagogical design indicated unwillingness by some students to accept the difference.

'It was not the university experience you were really expecting'

'[We] needed more telling us what was happening[sic].'

When asked what the best use of technology had been in their past year of studying, the answer proposed by a majority of participants independently was surprising. It was the use of Facebook for their major project teams. Why should Facebook be so popular? Their responses proposed that there was a cohesiveness to the learning community which the online environment offered including the speed with which their questions were answered and supporting material was posted.

'– the one thing that has been useful for me is Facebook, not only do you have groups on there for study to collaborate but you can also create a little study group for your project and share things with them.'

Some students commented that they would have preferred to use a discussion group on Blackboard™, in particular those less keen on using Facebook daily.

For the other courses Facebook has provided an avenue of support and to discuss (and I don't actually like Facebook but it is really useful). If they set up Blackboard™ with blogs and so forth people could use that if there was a student private area on Blackboard™.' Mature Student

The point here is that while the academics were keen to encourage use of the LMS for discussion, the students preferred to use Facebook for convenience, speed and a sense of immediate community support. This compares

with an earlier UK study where one graduating Philosophy student commented that she had not really understood the way to benefit through studying online until her final year.

'When I was in the first year I was on the computer because I was on Facebook, but by my final year I had worked out how to search for my material using the online journals and organize my references'

(Jefferies & Hyde, 2010)

The issue here may be one of immaturity in study skills among the students, and possibly an absence of digital scholarship, since the results discussed above indicate their obvious digital competence. Thus, for the students to engage more they would need to see the overarching requirement for approaching their studies with a pedagogical maturity which could embrace different online and collaborative learning styles.

There were surprisingly few dissenting voices about the Facebook platform being a good use of technology for learning, in addition to its use as a social network; all the students agreed they had found it helpful. Additionally, of those students who had actively explored other technologies, one suggested the use of Dropbox for sharing files and pictures and another was using his phone for accessing everything.

'I really like Dropbox to separate out our materials and hold them there.'

'The best use of technology has been my smartphone, because I can access Facebook from it'

'I use my phone for everything.'

In more recent interviews with students at a UK based university the anecdotal point was made that an estimated 50% of students on one Engineering degree programme preferred to keep their use of Facebook for social purposes separate from their use of Facebook groups for learning. It was suggested that up to 5% of students had made a conscious decision not to join Facebook and this was because of concerns arising from the impact on their future employability opportunities, rather than a lack of technical competence. This has been more widely reported together with a drop in Facebook use by this age group (Forbes, 2014)

5. Discussion of the student viewpoint

While the student participant numbers in this study are too low to draw fully generalizable conclusions there are several points which link the experiences reported here with recent research studies undertaken in the UK and the USA, which raise questions about the direction of future work. The intention behind the research into the student experiences via the focus groups and the short survey were to provide a snapshot of technology use in a section of the Engineering student population and to start a discussion about the digital literacy they bring with them to their studies and any pedagogical changes students experience when they move into HE. Hence the researchers' somewhat unexpected conclusions that for these technically and digitally competent students their preference was to continue with the social network with which they were already familiar and that their pedagogic preference was to experience a more didactic approach to their studies, controlled by their lecturers. To the researchers it was illuminating to see the similarity in the patterns of technology use across the students and be able to match up these with earlier experiences of students in using technology, see for example the study by Steel and Andrews, (2012) and more recently in the Beetham and White study (2013). Familiar themes emerging from the discussions and the survey analysis suggest that students expected that the university LMS, where used, would be designed to support their learning and should be easily and readily accessible. These students were already confident users of technology but appeared to expect a university experience where information was pushed towards them and where they did not have to seek it out. Student expectations of the use of technology for learning appeared surprisingly conservative for the researchers and indicated a more passive approach to learning technologies than anticipated. Their ownership of items listed was wide and tied in closely with the results from the latest ITS report into student ownership of technology (ITS, 2012) but these first-year undergraduate students had not typically explored the wider use of open educational resources to supplement their learning such as Open Courseware and the Khan Academy. Few of these students engaged actively in Twitter other than as consumers. Littlejohn (2013) has categorised online learners in terms of whether they are 'active, passive or lurkers' and these students seem to display many of the characteristics of the passive learners.

In an environment where the greater use of online learning is extending worldwide and where Massive Open Online Courses (MOOCs) whether traditional or connectivist (Milligan et al, 2014) are offered by many globally important universities, there is now a greater opportunity for campus-based and online learners to experience courses and materials online from around the world. Massive Open Online Courses (MOOCs) have been developed by many education providers in HE, (see for example Coursera, FutureLearn and Ed-X) to enable students to benefit from academic expertise without having to attend in person or to pay extra for the course materials themselves. There are two main different models: xMOOC courses provide a more traditional pedagogic approach with videos of lectures and online tutorials and a link to other materials. cMOOC or the connectionist MOOCs described by for example McCauley *et al* (2010), provide an online platform with links to many sources of materials that students can choose from. They encourage students to share their questions and understanding online and peer-review each other's work. This suggests a future of learning which can happen increasingly online.

The campus-based students in this study expressed a clear preference for increasing their current amount of face-to-face learning but also expressed their preference to keep the blend with the online support provided by the campus LMS and supplemented by opportunities to share group working through a major social network. Their prior view of a university fitted a general if outdated stereotype of a campus-focussed institution. These students were not seeking out a broader online experience and preferred the familiar comfort of regular opportunities for tutor meetings. Their general expression was that they would prefer greater face to face tutor contact to support their learning and not less, because they sought reassurance that their understanding of concepts was correct. This reassurance can of course be met very satisfactorily by the universities in the virtual environment (as demonstrated by the growth of online degrees) but it is the students' perception after 12 years of personal contact in school that the face-to-face model was both what they wanted and what would improve their learning, as well as the fact that this is what they felt they were paying for. The students appeared to ignore

the availability of their tutors online via the LMS and sought access to materials and discussion groups which offered them peer support on a 24/7 basis through social networks.

6. Conclusions

Many universities are considering a move into a wider virtual world of online learning as a means of being able to better manage large cohorts of campus-based students and offer similar experiences to online students, but an online learning experience is much more than just accessing academic content online. The recent extensive online discussions over the different pedagogical approaches and thus the style and types of materials used in MOOCs (see for example Littlejohn, 2013) have highlighted the wide variety and quality of online materials available. To provide an excellent student learning experience it is as essential to support and facilitate academic staff online as in face-to-face sessions. One of the side issues identified here is that academic staff need to be supported to manage the changing pedagogical experience of the increased blending of the face to face and the online as they plan the learning. This will result in an equity or improvement in the student experience online with what it had formerly been in the face-to-face environment. Online tutor contact can take many different forms, for example teaching presence in chats, discussions boards, virtual classrooms, or feedback on learning activities such as reflective journals. There is additionally great potential to use the LMS for more efficient management and administration of large cohorts.

It was observed here that these students' approaches to changing styles of pedagogy could be summarised in an unwillingness to change from a familiar teacher-led pedagogic style, especially among those who have entered university straight from school. In conversation they implied that they chose to study at a campus-based university because of the opportunity it offered them to receive regular personal contact with experienced tutors and professors. The reality of their experience had sometimes been less than their expectations. This may be due to a mistaken stereotype of what the reality of studying in a large cohort at a globally leading research-led university is like. The changing shape of university teaching towards a cycle of 'Knowing, Acting, Being' as

proposed by Barnett and Coates, (2005) was not generally anticipated by these students prior to them arriving on campus. Similarly the current moves in universities towards delivering more materials solely online to campus-based students, simultaneously with distance learning online students in the same cohort would seem to require further explanation and justification to students, who have purposely sought out a face-to-face experience blended alongside their online learning.

The term 'flipping the classroom' was first reported as a new style of approach in 2008 but proponents of blended learning would suggest it was an approach already adopted from the late 1990s. It has recently become a more popular approach to encouraging greater student engagement with their studies as noted above. Desai et al (2008:237) have stated: 'Technology is often assumed to be the catalyst of new pedagogical change' but the reactions from the digitally competent students reported above suggest that some follow this pattern reluctantly, at least to start with. As the LMS have offered more opportunities for engagement with and between users, they have been used as far more than mere digital repositories for study materials. They now typically present opportunities for group work, wikis, blogging and social interaction as well, as discussed in the wide ranging review of the UK experience of LMS by Walker, Voce and Ahmed (2012).

These students who were confident with using technology were expressing an expectation to be taught whilst at university and this is at odds with some predictions of the changing HE world (PEW study, 2012). In their recent survey of 1,021 Internet experts, researchers, observers and users, 60% agreed with a statement that by 2020, 'there will be mass adoption of teleconferencing and distance learning to leverage expert resources … a transition to 'hybrid' classes that combine online learning components with less-frequent on-campus, in-person class meetings.' This vision of the future of HE was far less evident from the experiences that this cohort would like to embrace, in spite of their digital confidence. The author therefore suggests that preparation for mature digital scholarship may need to become part of the learning process for students entering HE to enable them to benefit fully from the online environment.

References

Anderson, T. (2004) 'Toward a Theory of Online Learning' in T. Anderson & F. Elloumi (Eds.), *Theory and Practice of Online Learning*, available from: http://cde.athabascau.ca/online_book/ch2.html

Barnett , R. & Coates, K. (2005). *Engaging the curriculum in higher education*, Buckingham, SRHE & Open University Press

Barr, R. & Tagg, J.(1995) 'From Teaching to Learning - A New Paradigm for Undergraduate Education,' *Change Magazine*, Nov/Dec. pg. 13-25

BBC News (2014) Available online at: http://www.bbc.co.uk/news/education-30216408

Beetham, H & White, D. (2103) available online at: http://jiscdesignstudio.pbworks.com/w/file/70265022/Executive%20summary%20FINAL.pdf

Brewer, John D. (2000). *Ethnography*. Philadelphia: Open University Press

ComScore (2015) Available online at: http://www.comscore.com/Insights/Presentations-and-Whitepapers/2014/Multi-Platform-Majority-Insights-into-Todays-New-Digital-Consumer

Currant, B and Keenan, C. (2008) *Learning from learners about developing e-learning resources to support transition to HE* Proceedings of SEEL conference, July, Greenwich

Conole, G., Dyke, M., Oliver, M., & Seale, J. (2004) 'Mapping pedagogy and tools for effective learning design.' *Computers & Education*, 43, p. 7–33.

Dahlstrom, Eden (2012). *The ECAR Study of Undergraduate Students and Information Technology'* Louisville, EDUCAUSE Centre for Applied Research, available from http://www.educause.edu/library/resources/ecar-study-undergraduate-students-and-information-technology-2012

Desai, M., Hart, J., & Richards, T. (2008), *E-learning: paradigm shift in education.* Education, 129 (2), 327-334

Dyke, M., Conole, G., Ravenscroft, A. & De Freitas, S. (2007). 'Learning theory and its application to e-Learning: Contemporary Perspectives' *E-Learning Research: Themes, Methods, and Impact on Practice* pp 82-97.

Fisch, S.M., Lesh, R. Motoki, E., Crespo, S., and Melfi, V. (2010) *Children's Learning from Multiple Media in Informal Mathematics Education* , Educational Broadcasting Corporation.

Forbes (2014) Available online at:
http://www.forbes.com/sites/parmyolson/2015/01/27/facebook-active-users-decline/

Hardy, J. & Jefferies, A. (2010) 'How Learners Change: Critical Moments, Changing Minds', in Sharpe, R., Beetham, H. & De Freitas, S. '*Rethinking Learning for a Digital Age'*, ISBN 13978-0-415-87542-4, Routledge, Abingdon

Hardy, J., Haywood, D., Haywood, J., Bates, S., Paterson, J., Rhind, S. & Macleod, H. (2009), *ICT and the Student First Year Experience - LEaD Final Report*. Available online at:
http://www.jisc.ac.uk/media/documents/programmes/elearningpedagogy/leadfinalreport.pdf

Hartnell-Young, E., Harrison, C., Crook, C., Pemberton, R., Joyes, G., Fisher, T. & Davies, L. (2007) *The impact of e-portfolios on learning,* BECTA. Available online at:
https://drive.google.com/file/d/0B6psyHRq0wqPZFQ0dFJRR2tIQ1U/view

Harris, M. (1968) *The Rise of Anthropological Theory*. New York: Crowell.

Haywood, J., Macleod, H., Haywood, D., Mogey, N. & Alexander, W. (2004) *Student Views of E-Learning: A Survey of University of Edinburgh WebCT Users 2004,* University of Edinburgh.

Hobbs, D. (2006) in Victor Jupp (ed.)*The SAGE Dictionary of Social Research Methods*, SAGE

Hughes, S. (2015) Available online at: http://www.iriworldwide.com/insights/news/New-IRI-Research-Dispels-
Myths-about-Millennials-

Jefferies, A. & Hyde, R. (2010) *Building the Future Student's Blended Learning Experience from Current Research Findings.* Electronic Journal of E-Learning, 8, 133-140.

Jisc (2008) E-portfolios Available online at: https://www.jisc.ac.uk/full-guide/e-portfolios

Khan, (2013), available from The Khan Academy online at http://www.khanacademy.org/

Lévi-Strauss, C. (1963) *Structural Anthropology* Tr. by C. Jacobson and B. Schoepf, New York: Basic Books

Littlejohn, A, (2013), *Charting Open Territory* available online at :
http://elesig.ning.com/video/prof-allison-littlejohn-charting-open-territory and
http://littlebylittlejohn.com/open-educational-practice/

McAuley, A., Stewart, B., Siemens, G., & Cormier, D (2010) *The Mooc Model For Digital Practice.* Available online at: http://www.elearnspace.org/Articles/MOOC_Final.pdf

Milligan, C., Littlejohn, A. & Margaryan, A. (2013) *'Patterns of engagement in connectivist MOOCs'* Journal of Online Learning and Teaching, vol 9, no. 2, pp. 149-159.

PEW report (2012) available online at: http://pewinternet.org/Reports/2012/Future-of-Higher-
Education.aspx

PEW report (2013) *Part 1: Teens and Social Media Use* available online at :
http://www.pewinternet.org/Reports/2013/Teens-Social-Media-And-Privacy/Main-Report/Part-1.aspx

Pink, S. (1968) *Doing Visual Ethnography*. London: Sage Publications, 2007, 22

Salaway, G. & Caruso, J. for Educause (2008) *The ECAR Study of Undergraduate Students and Information Technology* available online at: http://www.educause.edu/library/resources/ecar-study-undergraduate-students-and-information-technology-2008

Saward, G. (2012) '*Challenges in Extending the Virtual Learning Environment into Social Networks - Keeping Staff and Students Together'* In Beldhuis (Ed) Proceedings of ECEL 2012 pp.505-514 ACI

Steel, C. & Andrews, T. (2012) 'Re-Imagining Teaching for Technology-Enriched Learning

Spaces: An Academic Development Model' in *Physical and virtual learning spaces in Higher*

Education, Keppell, Souter and Riddle (Eds), IGI-Global, Hershey, PA

Strauss, W. & Howe, <u>N</u>. (1991) Generations: The History of America's Future, 1584 to 2069. Harper

Perennial.

Vanderbilt University Center for Teaching (2015) Available online at: http://cft.vanderbilt.edu/guides-sub-

pages/flipping-the-classroom/

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*.

Cambridge, MA: Harvard University Press

Walker, R., Voce, J. & Ahmed, J. (2012). 2012 *Survey of Technology Enhanced Learning for*

higher education in the UK. A JISC/UCISA funded survey.

Available at: http://www.ucisa.ac.uk/en/bestpractice/surveys/tel.aspx

Willis, L. (2007) *Enhancing the First Year Experience for Engineering Students.* Available online at:

https://www.heacademy.ac.uk/sites/default/files/enhancing-first-year-experience.pdf

Wood, D., Bruner, J. & Ross, G. (1976) The role of tutoring in problem solving. *Journal of*

Child Psychology and Child Psychiatry, 17, 89−100.

Yorke, M. and Longden, B. (2007) *The first-year experience in higher education in the UK*. The Higher

Education Academy. Available online from: www.heacademy.ac.uk/ourwork/research/surveys/fye