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Student perspectives on technology – demand, perceptions and training needs

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Foreword

Information and Communication Technologies (ICT) is now an integral part of the daily lives of many people. The percentage of UK households with access to the internet currently is around 65% having risen from 51% in 2007. The NUS/HSBC *Student Experience Report*[1] shows that 96% of students use the internet as a source of information and that 69% of students use the internet daily as part of their studies.

ICT is highly integrated into the whole higher education experience. The National Student Forum Annual Report 2009 called for "universities and lecturers to review their teaching methods… to assess whether they are sufficiently taking advantage of new technologies".

In June 2009, the Higher Education Funding Council for England (HEFCE) established the Online Learning Task Force. Chaired by Dame Lynne Brindley, Chief Executive of the British Library and independent of the Funding Council, the Task Force examined how to maintain and develop the position of UK higher education (HE) as a world leader in online learning. The four key initial areas of investigation included an examination into the level of demand from students – new and potential – for online learning provision in UK higher education institutions (HEIs) and student perceptions of online learning in UK HE. The Task Force commissioned the National Union of Students (NUS) to undertake a small research project to investigate this dimension in more detail.

The report is the output of that research project. The report looks at the research that currently exists, from that conducted by organisations like the British Educational Communications and Technology Agency (Becta), the view of the media and students to the academic research undertaken in various universities both in the UK and USA. The report then provides an overview of a series of activities undertaken by the project that explored student perceptions and demand in more detail. This included events bringing together current students, online discussions, a survey and focus group of further education (FE) students to explore the views of prospective students. The report then ends with some concluding comments and some recommendations as well as some suggested areas for possible additional research.

I would like this opportunity to thank the two Interns that we appointed to run the ICT project, Ed Whyman for providing the technological assistance and particularly Dr Alexander Hay for undertaking the research and writing the report. Thanks also to Victoria Passant and Alex Bols for their roles in coordinating many aspects of the project and overseeing the research.

Aaron Porter
National President, NUS

[1] NUS/HSBC Student Experience Report: Teaching and Learning (2009)

Executive summary

1. This study, produced by NUS, was commissioned by HEFCE on behalf of the Online Learning Task Force. Its purpose is to gain a broad overview of the level of demand from students – new and potential – for online learning provision in UK higher education institutions (HEIs), and student's perceptions of that learning. As part of this study NUS undertook research focusing on the perceptions, demand, and training needs of students in both further and higher education.

2. Desk research was carried out to explore the background and context to the issues, including an examination of available literature, media coverage and other academic discussion on student use of ICT and online learning. It was undertaken in parallel with a series of workshops, events and focus groups. A survey was also developed to capture the thoughts of students in further education (FE) colleges.

3. The short time frame required for the report's completion necessitated restricting the study to material published between 2007 and 2010. Even so, it was clear that this is an area of growing importance, with many people commenting on how to improve the student learning experience through the use of ICT and online learning. Major reports reviewed include ones from the British Library with UCL, the British Educational Communications and Technology Agency, the Joint Information and Systems Committee, and the Committee of Inquiry into the Changing Learner Experience. The NUS has also published on this issue previously, in its work with HSBC.

4. The literature review highlighted diverse opinions on e-learning and the use of ICT. Recurring themes were: effective use of technology, and not just technology for technology's sake; that many students still found conventional methods of teaching to be superior, but staff need to develop their own ICT skills to meet the requirements of their students; and that ICT has great potential to benefit the delivery of teaching, but harnessing that potential is the predominant challenge.

5. Between March and May 2010 we undertook a number of qualitative research activities focusing on higher education. We held consultation events with student representatives from a range of courses, a series of online discussions, and a symposium featuring input from a number of contributors from a range of students' unions – including staff and union officers.

6. The research highlighted a number of trends:

- *Students prefer a choice in how they learn* – ICT is seen as one of many possibilities, alongside part-time and traditional full-time learning, and face-to-face teaching.

- *Students are concerned about the ICT competency of lecturers and academic staff* – There are varying levels of ICT competence on the part of lecturers and staff and, whilst some are clearly skilled or at least able to function in an IT setting, others lack even the most rudimentary IT skills; 21% of students thought their lecturers needed additional training.

- *Opinions are fundamentally divided over e-learning*, especially taking into consideration course type and exposure to ICT – both significant advantages and disadvantages were raised in all of the qualitative research with the students.

- *Appropriateness of technology varies significantly from course to course* – students value the incorporation of ICT into their learning experience, but the demand in terms of the degree to which this occurs varies depending on course and type of study and assessment.

7. The study also addressed demand, perceptions and training needs of current and prospective higher education students across the UK. This part of the study focused on current and prospective HE students, including through several regional events for current students; a national one-day symposium and online discussion via Twitter and Facebook; and research into the views of prospective students through the FE sector, including the online survey and focus group.

8. 213 FE students completed the online survey. There was a wide age range of participants: from 16 to 51 and older, with three-quarters aged 16-18. It was felt that the young age of the majority of respondents reflected the current state of affairs regarding ICT in the student population and how it may develop in the next five years, as many of these students may be moving into HE.

9. The main findings from the survey are:

- 72.8% of respondents used ICT for both fun and for their studies, and 43.3% preferred to use a combination of both printed and electronic resources for their work.

- 90.1% agreed that the internet has benefited their studies. As to whether ICT has improved their learning experiences, 77.7% agree versus only 5.2% in disagreement.

- ICT skills – 81% agreed that their ICT skills were self-taught, with 88.6% agreeing that they were effective online researchers.

- Opinion was divided over whether mobile phones or PDAs should be used to assist learning – 37.3% agree, 35.4% disagree and 27.4% remain neutral.

- 42.9% would like academics and teachers to use ICT more.

- There was a common request for more skills training, particularly around how to effectively research and reference reliable online resources.

- Students seem concerned about a perceived lack of formal research skills instruction, which maybe suggests broader concerns with education and accountability beyond the ICT sphere. Training in specific programs is also commonly desired; however, primarily the skills required are not technological, but academic

10. Several themes came out of the regional meeting, national symposium and other events:

- There was dissatisfaction that the type of technology used in HE is increasingly outdated. This includes established technologies and software such as smartboards and PowerPoint, with older teachers continuing to favour old or outdated methods in a fashion that alienated students.

- Lack of staff engagement with the Virtual Learning Environment (VLE). Many participants remarked that VLEs are only intermittently updated by academics and do not contain useful and effective content. This reflects a larger debate around attendance, with teachers fearing low attendance numbers if material is available online.

- There was agreement that not every area of study needed or was compatible with e-learning, and so to assume it would grant blanket advantages was not accurate.

- FE students felt that a large investment was needed in order to correct the imbalance between school/college and higher education with regards to access to IT facilities – there is significant demand for improved ICT facilities.

- Participants expressed concerns over "surface learning" whereby a student only learns the bare minimum to meet module requirements – this behaviour was thought to be encouraged by ICT: students can easily skim-read material online, focusing on key terms rather than a broader base of understanding.

- Students could see some advantages to an e-learning approach. If it were presented as an option, as opposed to an obligation, it would avoid onerous undertones, and furthermore would be particularly useful for part-time HE students with other obligations.

Summary of recommendations

11. Based on the information collected throughout this study and the conclusions drawn, NUS makes a number of recommendations to ensure that student needs are met, and to suggest ways for institutions to offer high quality provision that makes effective use of ICT and e-learning:

12. **Institutional responses to ICT** – All institutions should have an ICT strategy that is revised every three years. Students should be actively engaged in the process of developing that strategy.

13. **Institutional organisation and planning -** Universities should appoint Senior Fellows responsible for new technologies, and support integrating such technologies into teaching and learning.

14. **Institutional funding strategies -** Faculties should have innovation funds to support academics to develop new ways of using ICT.

15. **Development of new courses and modules –** ICT usage in learning should be embedded into the design of new programmes through the validation process. Periodic reviews should be used to assess the extent to which a VLE, and ICT more generally, are used to enhance learning.

16. **Institutional VLE use and policies -** Institutions should review the use of their VLE to identify and share good practice of where it has enhanced the student learning experience.

17. **Use of ICT to attain greater efficiency and convenience** - Institutions should consider ways of making university administration more accessible through technology including e-submission of assessment, registration and course choices.

18. **Student training needs and provision -** All students should be offered training needs analyses of their ICT skills at the start of their programme to identify their training requirements. This could include an online test to identify skills gaps in common software packages like Word, Excel, graphics design packages and other products, such as Dreamweaver, InDesign, Endnote and Flash.

19. **Implications for module and course validations** - The course evaluation form/process should question the extent to which tutors have integrated ICT into courses.

20. **ICT and career development requirements for teaching staff-** ICT skills and usage in learning and teaching should be integrated into the UK Professional Standards Framework, institutional promotional criteria and selection for teaching awards. Institutions may also wish to consider whether staff could be paid or given time off to attend ICT training so that it is not seen as an added burden.

Project methodology

21. This study consisted of a combination of desk based and face-to-face data collection. The following pages discuss the research processes undertaken to gather the information upon which the recommendations are made.

Course representative regional events:

22. A number of course representatives from a variety of institutions were invited to take part in workshop-style sessions. Participants were divided into three groups, and each discussed one of the areas of the project: demand, perception or training needs. Each group then fed back their thoughts to the group as a whole which then stimulated further discussion. In addition, specific e-learning techniques were discussed, such as delivering assessment online, videocasts/podcasts of lectures and a complete transfer to e-learning.

Student Perspectives on Technology Symposium:

23. Student Union elected officers were invited to a one-day symposium. Three roundtable discussions were led by a facilitator, and recorded by the project Intern. Each lasted between an hour and 90 minutes, and focused on one of the main areas of the study: demand, perception or training.

24. During the day, participants also contributed to the Twitter discussion using the hashtag #studentict. These comments were later used during the analysis of the online discussions.

Online discussions:

Facebook

25. A primary component of the research project came in the form of online discussions. Using the NUS student course representative Facebook page, several discussions were stimulated relating to the focus of study. Specific questions were asked at the start, then course representatives would leave responses and debate the issues among themselves. The comments were later analysed along with other data collected to help formulate the recommendations of the project.

Twitter

26. Twitter was used effectively to view short comments and thoughts of students and those involved with the student movement, so providing the opportunity for a wide range of

contributions. The official Twitter discussions took place on the StudentICT account. By using the hashtag #studentict students' comments could easily be traced for later analysis.

Online FE survey:

27. The survey was conducted over a 6 week period. It comprised questions on topics including facilities, training, researching, plagiarism and potential of ICT. Respondents were asking to rate their opinions on a scale from strongly agree to strongly disagree. In total 213 FE students took part. The survey was distributed to colleges via email and used the survey service Survey Monkey.

FE consultative focus group:

28. Following the collection and analysis of the FE survey, a small number of FE student representatives and student union officers were invited to a focus group. The aim of the focus group was to discuss more thoroughly the trends that were found in the survey data. The agenda was similar to the symposium, and discussions covered the three areas of demand, perception and training but with an FE specific focus.

Recommendations:

29. The key themes emulating from the literature review provided a starting point for discussions for the course representative events. Once this stage of the study had been completed, a better understanding of student views was emerging and therefore discussions at events became more specific as the study progressed.

Section 1: Literature Review

Background

30. While this report's main goal is to research and discuss student use of ICT in 2010, a study of prior research and media coverage from the last three years (2007-2010) is useful. This is firstly to place the report in context, as part of a growing body of work that it both builds upon and contributes to, but also to establish that context and its more recent developments.

31. The period chosen for this study was selected because it offered a balance between broadness of range and contemporaneousness – sources from before this time risk both a lack of relevance and also fail to reflect the present situation.

32. The sources themselves can be split into five sections. The first of these covers existing research, which is to say, an appraisal of reports and published research in these areas, such as that undertaken by Becta, as well as by the English School Students Association (ESSA) and the NUS itself. The second examines media coverage, especially that in publications that have a particular focus on education – to whit, *The Guardian* and *The Times Higher Education Supplement* (THE). There was also some coverage of relevance found in the US publication *Chronicle of Higher Education*, which while not based in the UK, nonetheless contains material and commentary of relevance in this case. Then, there is an overview of developments on the part of universities in this sector and a summary of the NUS's own intentions in this regard.

33. The final area covered is academic. While initially a less relevant source of information, an initial study suggests that many major issues of relevance to this report, and the greater area of student ICT use, are raised and discussed in these works and, moreover, provide a strong intellectual underpinning to the debate.

34. Some caveats should be made at this point. Firstly, given the short period of time in which this report was researched and compiled for publication, a more thorough literature review would have been both impractical and counter-productive, given that it would interfere with the main research project. Moreover, this is an area that is constantly under discussion and about which an ever-growing body of literature is being written – a reflection, perhaps, of its increasing importance in regards to the future of our universities. This literature review must therefore be seen as an overall summary and contextualisation from which the report emerges and will contribute to. Nonetheless, as this report becomes part of that ongoing discussion, so it should also provide grounds for further research and involvement in this area.

Existing research

35. Of the existing research so far performed on the subject, there are several sources of particular interest. The first of these is the 2010 ESSA *Fit For The Future* report,[2] which, while it covers the effects of ICT on pre-university/FE education for 12-20 year olds, nonetheless demonstrates relevant concerns on the part of these students that ICT poses major questions regarding self-discipline, privacy and fears that technology was being used in the classroom "for technology's sake". Nonetheless, the panel interviewed for the report expressed a keenness to access a 'diverse range of learning environments' via ICT.

[2] Anna Leatherdale and Jessie Seal, *Report on the 1st Essa Fit For The Future Youth Panel Meeting* (London: Phoenix Education Trust and the English Secondary Students' Association, 2010).

36. The second source is the *Higher Education in a Web 2.0 World,*[3] published in March 2010. This argued that whilst ICT was an important development, many students still found conventional methods of teaching to be superior, but that staff need to develop their own ICT skills to meet the requirements of their students.

37. Another report was commissioned by the Task Force to look at the nature of online learning provision offered by institutions. This report, (*Study of UK Online Learning)*, produced by Oxford University's Department for Continuing Education[4], was published in October 2010. It reviewed approaches and attitudes towards ICT in nine universities and FE institutions, including the University of Essex, The Open University, Sheffield College and De Montfort University, especially in regards to distance learning and e-learning. Its conclusions were that while issues such as resistance on the part of staff, high costs and a 'lack of agility' on the part of institutions' infrastructure were of concern, recent developments suggest these problems are being addressed as successful strategies are developed.

38. The Joint Information Systems Committee (JISC) report *Effective Practice with e-Assessment*, published in 2007,[5] argued that ICT could be used to expand the amount of student material and coursework that could be assessed as 'cognitive and skills-based achievements', including through personalisation and by distance learning for students otherwise indisposed due to disability or work commitments.

39. Professor Ron Cooke's *On-line Innovation in Higher Education* report in 2008, submitted to the then Secretary of State for Innovation, Universities and Skills, called for:

> A core of open access learning resources organised in a coherent way to support on-line and blended learning by all higher education institutions and to make it more widely available in non-HE environments. This needs to be supported by national centres of excellence to provide quality control, essential updating, skills training, and research and development in educational technology, e-pedagogy and educational psychology. All HEIs should be encouraged and helped to exploit virtual education technologies as appropriate to their student's requirements and their strategies.[6]

40. In addition, Cooke also calls for investment in ICT to be structured in such a fashion as to ensure that it is applied and used more efficiently by institutions, via shared administration, with greater access to e-learning for international and non-traditional

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[3] Various, 'Higher Education in a Web2.0 World'*, (Committee of Inquiry into the Changing Learner Experience)*, <http://www.jisc.ac.uk/media/documents/publications/heweb20rptv1.pdf> [accessed 05 May 2010]
[4] David White, Nichola Warren, Sean Faughnan & Marion Manton, *Study of UK Online Learning* (Oxford: University of Oxford, 2010).
[5] HEFCE, *Effective Practice with e-Assessment* (London: JISC, 2007), p.7.
[6] Ron Cooke, 'On-line Innovation in Higher Education', <http://webarchive.nationalarchives.gov.uk/tna/+/http:/www.dius.gov.uk/policy/documents/online_innovation_inhe_131008.pdf> [accessed 05 May 2010]

students, and that student exposure to ICT is considerably greater than any formal training they presently receive.[7]

41. Similarly, the *National Student Forum Report 2009*[8] suggests that ICT be used to assist lecturers, students and assessment, referring to this principle as 'technology enhanced learning', while observing that actual ICT provision varies wildly from institution to institution and that this has particular implications for modern students. For example, access to large e-mail inboxes, access to online journals and the availability of assistive technologies were some of the main areas for concern. In addition, poor provision is aggravated by an institutional resistance towards online submission of homework and registration, alongside a lack of technical support.

42. Edge Hill University's SOLSTICE project, which aims to develop an integrated e-learning strategy, has also produced research of some relevance, including 2008's *'Mode Neutral' Pedagogy* paper. This argues that students should play a key role in shaping and constructing their understanding of knowledge – rather than passively learning it through traditional methods – via engagement with other learners and interactive ICT media. While it suggests that students should have 'ownership' of their learning, it also says this should nonetheless take place via a structured framework, in the form of a virtual learning environment (VLE), and 'empowering' lecturers.[9]

43. The British Library/UCL co-report, *Information Behaviour of the Researcher of the Future*,[10] has some surprising findings, including the gulf between students' assumptions regarding their ICT skills versus their real lack of understanding. It also looked at the notion of the 'Google Generation' (that all young people are confident and competent using ICT) and suggested it is broadly a popular myth, which has distracted debate from the real issue facing students, which is a lack of adequate online research skills, and a need to teach them from early childhood onwards.

44. The University of Leicester's SWIFT project[11] aims to develop student learning materials via the *Second Life* Web 2.0 system, whilst BECTA's 2010 *Understanding the Impact of*

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[7] Ibid.
[8] National Student Forum, ''National Student Forum Report 2009', <http://www.nationalstudentforum.com/wordpress/wp-content/uploads/2009/10/NSF_annual_report_2009.pdf> [accessed 05 May 2010]
[9] Brian Smith, Peter Reed & Chris Jones, 'Mode Neutral pedagogy', *Edge Hill University*, <http://www.eurodl.org/materials/contrib/2008/Smith_Reed_Jones.htm> [accessed 05 May 2010]
[10] British Library/UCL, 'Information Behaviour of the Researcher of the Future', *British Library/UCL*, <http://www.jisc.ac.uk/media/documents/programmes/reppres/gg_final_keynote_11012008.pdf> [accessed 05 May 2010]
[11] University of Leicester, 'Swift: Second World Immersive Future Teaching', *Le.ac.uk*, <http://www2.le.ac.uk/projects/swift> [accessed 05 May 2010]

Technology: Learner and School level factors report[12] concludes that school pupils may be assisted in autonomous learning by 'e-mature' teachers and schools that understand how best to use ICT to assist them in this goal. Another BECTA report, *E-access, e-maturity, e-safety: A learner survey*,[13] published in 2009, suggested that school children – and so, by extension, the student population in the next five to ten years – are both well-versed and comfortable with ICT, but continue to rely on their teachers and parents for ethical and practical guidance. Another BECTA report, 2009's *Can mobile phones be used to improve communication?,*[14] finds that disabled students can benefit from ICT support – in this case, deaf students, who can use texting and GPS to assist with their learning and to circumvent any problems caused by their difficulties. In a similar vein, the University of Southampton's *Exploring disabled learners' experiences of e-learning*,[15] published in 2008, recommended that students be able to customise their university online accounts in order to meet their particular needs, such as colour, font and accessibility, in addition to greater use of text-to-speech, Braille and optical character recognition. It also suggests better training for both disabled students and staff, alongside increasing awareness of alternative formats and necessary adjustment of teaching and learning materials available on VLEs.

45. JISC's 2009 report[16] on the ICT/VLE policies of King Alfred's College, latterly the University of Winchester, describe an effective use of technology to assist part-time and work-based learners by maintaining regular contact, and critical support, for distance learners, in addition to assisting in home learning via online seminar notes and teaching material. This has reached a point whereby the institution's postgraduate certificate in education (PGCE) program uses ICT as an integrated part of its modus operandi. The University of Derby's *Project on e-Accreditation of Prior Experiential Learning*,[17] published in 2009, also discussed how ICT and distance learning could be used to assist work-based and

[12] Jean Underwood et al, 'Understanding the Impact of Technology: Learner and School level factors', b*ecta.org*, <http://research.becta.org.uk/upload-dir/downloads/page_documents/research/understanding_impact_technology_learner_school_level_factors.pdf> [accessed 05 May 2010]
[13] Avril Keating, Clare Gardiner and Peter Rudd, 'E-access, e-maturity, e-safety: a learner survey', b*ecta.org*, <http://research.becta.org.uk/upload-dir/downloads/page_documents/research/e-access_e-maturity_e-safety_learner_survey.pdf> [accessed 05 May 2010]
[14] Margaret Uffendell, Mike Hefferan & Mick Finnigan, 'RNIB College learners get smart with their mobile phones', b*ecta.org*, <http://research.becta.org.uk/upload-dir/downloads/page_documents/research/reports/learners_get_smart_with_mobile_phones.pdf> [accessed 05 May 2010]
[15] Jane Seale, E.A Draffan & Mike Wald, 'Exploring disabled learners' experiences of e-learning', *University of Southampton*, <http://eprints.soton.ac.uk/64850/1/LEXDIS_ProjectReport_Dec08.pdf> [accessed 05 May 2010]
[16] JISC, 'King Alfred's University College Winchester', *Jisc.ac.uk*, <http://www.jisc.ac.uk/media/documents/programmes/buildmlehefe/winchestercasestudyfinal.pdf> [accessed 05 May 2010]
[17] Sarah Malone, 'Project on e-Accreditation of Prior Experiential Learning', *Jisc.ac.uk*, <http://www.jisc.ac.uk/media/documents/programmes/elearningcapital/eapel_final_report.pdf> [accessed 05 May 2010]

mature learners, allowing them to self-assess their prior experience as part of their application process, and streamline their entry into university education.

46. In regards to prior work undertaken by the NUS itself, the 2009 *NUS/HSBC Student Experience Report*[18] has a particular statistical emphasis. For example, it reveals that 96% of all students had used the World Wide Web as a source of information as part of their studies, that 61% used social networking sites compared to 45% using VLEs, and a large minority – 46% – who believe that ICT has enhanced their studies, however, only 54% of students said that they had been offered ICT training. 90% of students reported that they had adequate access to ICT facilities on campus; these statistics as a whole suggest a disjointed and uncertain approach by universities towards a truly electronic student culture that appeared estranged in some ways from the existing modus operandi of traditional establishments.

Media coverage

47. Even within the small timeframe used to establish relevance, news coverage of student ICT use is nonetheless considerable. It can be split into three sub-categories – positive, uncertain and ambivalent, all of which demonstrates considerable differences in opinion regarding the subject amongst the media, academics and students themselves.

48. Positive coverage is plentiful, as demonstrated by Russell Stannard's April 2010 editorial for the THE, which calls for greater access of quality material via the Web.[19] In March of this year, Jon Mair said that online audio material, or 'podcasts', present both excellent access and value for money,[20] while new software such as *Mendeley*, which allows academic papers to be indexed and published online, offers students immediate opportunities for greater access to hitherto inaccessible journal material.[21]

49. In 2009, the University of Leeds launched a social media campaign to recruit new students to its business school,[22] whilst Graham Manville and Janice Rippon suggested that university curricula should begin to resemble the interactive and immersive conventions of online gaming.[23]

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[18] NUS/HSBC/GFK, *Student Experience Report – Teaching & Learning*, (London: HSBC/NUS/GFJ, London, 2009)
[19] Russell Stannard, 'A wide-open web of potential', *THE*, <http://www.timeshighereducation.co.uk/story.asp?sectioncode=26&storycode=411353>, [accessed 05 May 2010]
[20] John Mair, 'A little more conversation, a lot more action', *THE*, <http://www.timeshighereducation.co.uk/story.asp?sectioncode=26&storycode=410851> [accessed 05 May 2010]
[21] THE, 'University of Leeds – Web to snare the best', *THE*, <http://www.timeshighereducation.co.uk/story.asp?sectioncode=26&storycode=409208> [accessed 05 May 2010]
[22] Ibid
[23] Graham Manville and Janice Rippon, 'Not just child's play', *THE*, <http://www.timeshighereducation.co.uk/story.asp?sectioncode=26&storycode=408880> [accessed 05 May 2010]

50. *The Guardian's* coverage of student ICT also contains many examples of proposals for or applications of educational technology. For example, one article in 2009 provided positive coverage of new online part-time courses,[24] while another broadly advocated a university that used e-learning exclusively, whilst reducing costs to students to a considerable degree.[25] Chris Davis argued that social networking actually empowers and assists young people, including students,[26] as new developments, such as a historical database of Anglican clergy, is portrayed as a useful application for students and academics alike.[27] The state of California's experiment with 'paperless classrooms' is also portrayed sympathetically, with an emphasis on both the convenience and economies this would grant.[28]

51. The decision by the Texas-based Abilene University in 2008 to provide free iPods and iPhones to its students is seen as significant by *Wired*[29]. However, it also notes some scepticism, such as an article by Bruce Sterling questioning whether universities are capable of adapting to such new technology, and whether they are equipped to serve the needs of students who have grown up in an internet environment.[30]

52. *The Chronicle's* coverage also typifies much of the more sceptical coverage regarding student ICT use. For example, it notes that Utah's experiment in e-learning was disbanded after students seemed to favour traditional teaching methods,[31] an outlook apparently supported by other students rejecting e-learning elsewhere in the United States.[32]

53. *The Guardian* also carries sceptical coverage, such as critiques of some educators' embracing of ICT and web cultures,[33] and the announcement by Google that it would no

[24] Lucy Tobin, 'Distance learning gives you a new start', *Guardian.co.uk.* <http://www.guardian.co.uk/education/2009/oct/13/distance-learning> [accessed 05 May 2010]
[25] Harriet Swain, 'An online university – with no fees', *Guardian.co.uk*, <http://www.guardian.co.uk/education/2009/oct/06/online-university-no-fees> [accessed 05 May 2010]
[26] Chris Davies, 'Are social networking sites really infantilising our teenagers?', *Guardian.co.uk*, <http://www.guardian.co.uk/education/mortarboard/2009/feb/25/facebook-greenfield-social-networking> [accessed 05 May 2010]
[27] Lucy Ward, 'Seek and ye shall find', *Guardian.co.uk*, <http://www.guardian.co.uk/education/2009/may/19/clergy-cofe-database-ecclesiastical-studies> [accessed 05 May 2010]
[28] Helen Pidd, 'Paperless classroom becoming a reality', *Guardian.co.uk*, <http://www.guardian.co.uk/education/2009/jun/09/paperless-classroom-becoming-reality> [accessed 05 May 2010]
[29] Brian X. Chen, 'Texas University Hands Out Free iPods, iPhones', *Wired.com* <http://www.wired.com/gadgetlab/2008/10/texas-universit/> [accessed 05 May 2010]
[30] Bruce Sterling, 'The Many Challenges to the University'. *Wired.com*, <http://www.wired.com/beyond_the_beyond/2009/06/the-many-challenges-to-the-university/> [accessed 05 May 2010]
[31] Marc Parry, 'Utah Disbands E-Learning Consortium', *Chronicle.com*, <http://chronicle.com/blogPost/Utah-Disbands-E-Learning-Co/7167/> [accessed 05 May 2010]
[32] Marc Beja, 'Students Prefer Real Classroom to Virtual World', *Chronicle.com*, <http://chronicle.com/blogPost/Students-Prefer-Real-Classr/7189/> [accessed 05 May 2010]
[33] David Cohen, 'Nevermind the pedagogues, here's edupunk', *Guardian.co.uk*,

longer advertise essay-writing sites on its searches.[34] Also covered are privacy concerns regarding the use of Facebook by students, especially when it is used to critique universities.[35] This debate reflects a growing concern by students that universities can use social media as a means of intruding upon their private lives.[36]

54. In the *THE*, Tara Brabazon suggests that social media's potential usefulness is undermined by its tendency towards the ephemeral and self-indulgent.[37] Elsewhere, concerns are voiced that universities could even threaten their reputations if their use of web technology is incoherent or poorly organised, losing control of their content in the process.[38] Tim Birkhead, meanwhile, says that the use of computers in examinations would be both distracting and subject to concerns regarding security and cost.[39] This is in addition to concerns amongst some academics that e-learning removes direct human contact from the relationship between student and educator,[40] while at the postgraduate level, research students seldom make full use of ICT in their work.[41]

55. Ambivalent coverage is also relatively common. Examples include Nigel Shadbolt's description of the Web as:

> One of the most disruptive and transformative innovations we have ever witnessed. We must understand the forces that have shaped it, anticipate its evolution and determine its future social and economic impact.[42]

56. This suggests a view that is neither in favour of the Web nor necessarily against it, a tension that is manifested in other coverage. Jaron Lanier's critique of Web 2.0 and Web cultures suggest hostility, alongside a desire for a more authentic and less dehumanising experience.[43] Similar tensions exist between open-access advocates and the academic text

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<http://www.guardian.co.uk/education/mortarboard/2008/jun/16/punkormoreprecisely> [accessed 05 May 2010]
[34] Liz Ford, 'Google joins fight against student plagiarism', *Guardian.co.uk,* <http://www.guardian.co.uk/education/2007/may/23/elearning.technology> [accessed 05 May 2010]
[35] David Cohen, 'Students spite their Face', *Guardian.co.uk*, <http://www.guardian.co.uk/education/mortarboard/2007/sep/21/studentsspitetheirface> [accessed 05 May 2010]
[36] Stephen Hoare, 'Students tell universities: Get out of MySpace!', *Guardian.co.uk*, <http://www.guardian.co.uk/education/2007/nov/05/link.students> [accessed 05 May 2010]
[37] Tara Brabazon, 'YouTube has merit, but enough already of cat videos', *THE*, <http://www.timeshighereducation.co.uk/story.asp?sectioncode=26&storycode=409416> [accessed 05 May 2010]
[38] Hannah Fearn, ''Frankensite' monsters loom as universities lose control of content', *THE*, <http://www.timeshighereducation.co.uk/story.asp?sectioncode=26&storycode=410385> [accessed 05 May 2010]
[39] Tim Birkhead, 'Different type of problem', *THE*, <http://www.timeshighereducation.co.uk/story.asp?sectioncode=26&storycode=411235> [accessed 05 May 2010]
[40] Rebecca Attwood, 'Why offline? It's very personal', *THE*, <http://www.timeshighereducation.co.uk/story.asp?sectioncode=26&storycode=408779> [accessed 05 May 2010]
[41] Zoë Corbyn, 'Next-gen PhDs fail to find Web 2.0's 'on-switch'', *THE,* <http://www.timeshighereducation.co.uk/story.asp?sectioncode=26&storycode=408942> [accessed 05 May 2010]
[42] THE, 'Oxford/Southampton – Online predictions', *THE*, <http://www.timeshighereducation.co.uk/story.asp?sectioncode=26&storycode=411007> [accessed 05 May 2010]
[43] Tara Brabazon, 'Book of the week: You Are Not a Gadget: A Manifesto', *THE*, <http://www.timeshighereducation.co.uk/story.asp?sectioncode=26&storycode=410299> [accessed 05 May 2010]

publishing industry,[44] whilst certification for teachers to 'safely' use the Web suggests concerns if not hostility towards Web use in education.[45] This is perhaps emphasised by the rising use of anti-plagiarism software by schools and universities,[46] whilst California's aforementioned abandonment of print texts has also attracted condemnation from academics as well as praise.[47]

57. Elsewhere, fears that the wrong approaches might undermine e-learning coexist alongside hopes that it will prove beneficial are openly expressed, as controversy over it becomes widespread in US academia.[48] Martin Weller reflects both sides of the argument, suggesting that modern students are simply unwilling to accept increasingly old-fashioned approaches to education, despite it also providing them with a structure and security that remains necessary for their education.[49] This is summarised by some academics' fears that the advantages and disadvantages of e-learning – its accessibility and convenience versus its threat to integrity and a decline in traditional student work ethic – are intertwined. As demonstrated, no one narrative has yet come to dominate discussions on e-learning, certainly not amongst academics or universities.

University approaches to ICT

58. Beyond the examples cited elsewhere in this section, one institution's policies are worthy of some discussion. The University of York has successfully run a system called K-Roy which aims to assist students in the proper citation of their work and the prevention of plagiarism though ICT use. This is multi-platform, in that in addition to the main site[50], versions are provided on Facebook and Twitter, as well as a personal blog. It also provides key guidelines in using a variety of referencing systems used within the university, including Harvard and Chicago. It also clearly outlines a definition of plagiarism and the terms of its 'Academic Integrity' policies, complete with hyperlinks to pdfs and external sites.

59. What stands out here is the clarity of the prose, the layout and the directness of the language and intention. Here ICT is employed to answer any question a student may wish

[44] Zoë Corbyn & Matthew Reisz, 'Learning to share', *THE,* <http://www.timeshighereducation.co.uk/story.asp?sectioncode=26&storycode=409049> [accessed 05 May 2010]
[45] David Batty, 'Certificate in safe surfing for teachers unveiled', *Guardian.co.uk*, <http://www.guardian.co.uk/technology/2007/feb/05/news.schools> [accessed 05 May 2010]
[46] Anthea Lipsett, 'Schools sign up for software to tackle internet plagiarism', *Guardian.co.uk*, <http://www.guardian.co.uk/uk/2008/jan/19/schools.1419education> [accessed 05 May 2010]
[47] Anthea Lipsett, 'Education by ebook branded a 'cheapskate' plan', *Guardian.co.uk*, <http://www.guardian.co.uk/education/2009/jun/09/ebooks-arnold-schwarzenegger> [accessed 05 May 2010]
[48] Marc Parry, 'Chronicle Readers Debate the Merits of Online Learning', *Chronicle.com*, <http://chronicle.com/blogPost/Chronicle-Readers-Debate-th/7871/> [accessed 05 May 2010]
[49] Martin Weller, 'SocialLearn: Bridging the Gap Between Web 2.0 and Higher Education', *Mfeldstein.com*, <http://mfeldstein.com/sociallearn-bridging-the-gap-between-web-20-and-higher-education/> [accessed 05 May 2010]

to ask, in addition to providing all relevant information. Moreover, participation in a course on academic ethics is mandatory, with students needed to reach a set standard in order to proceed.

60. Moreover, the university's approach is proactive and directly contacts and engages with students from the commencement of their degrees:

> On arrival, students met 'seasoned' student skill facilitators who oriented and welcomed them via a free, three-day orientation which included a session on academic skills and integrity. This was followed by a series of 10 one-hour face-to face workshops on dealing with academic cultural differences and on developing key academic skills. The workshops were facilitated by a combination of an academic skills tutor and trained postgraduates who also teach. The workshops had an average of 70 participants per week. After the initial push, content was added to the website on a weekly basis to stimulate interest and maintain links. Usage statistics show that the students accessed many resources relating to critical thinking, academic integrity, independent learning and in particular academic writing.

61. The university also pays particular attention to views given by its existing student body, by directly involving both its SU and students:

> Following recommendations from student representatives, a dedicated website for students will be launched, which will include a student-monitored blog. A set of referencing booklets on all styles will also be available. To raise interest in the event, York University Students' Union (YUSU) has been running an advertising campaign across the university featuring posters and postcards to prompt students to address the issues of originality and personal integrity.[51]

62. York's approach may therefore be seen as a textbook approach to student ICT needs, but this must come with caveats. Whereas York has a top-down methodology, whereby the institution responds to what it sees as the needs of its students, there is no parallel movement going upwards, which is to say, the students are not proactively requesting greater ICT and research training outside of the structure York has already devised.

63. This should not of course be seen as a criticism of York's approach, which is exemplary and should be considered in any further discussion, as the conclusion of this report will state. However, as the following sections will demonstrate, there are many issues which students raise which York does not address, and which require further work.

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[50] University of York, 'K-Roy Referencing Help', *University of York,* < http://www.york.ac.uk/k-roy/index.htm> [accessed 31 May 2010]
[51] David Garner, 'York students take lead on academic integrity', *University of York,* <http://www.york.ac.uk/news-and-events/news/2009/academic-integrity> [accessed 31 May 2010]

64. Mention should also be made of the University of Bradford's Mobile Enabled Disabled Students (MEDS) system, which seeks to assist and augment disabled students' learning experience through mobile phones and similar portable technologies.[52] This project identified key shortcomings in disabled student ICT provision and then proceeded to identify and develop solutions, in conjunction with students themselves in the form of focus groups. It invited eight participants to test new approaches and applications and then proceeded to discover whether this enhanced learning for these students. One of its main conclusions, tellingly, was the maxim that "building in accessibility from day one is always preferable to later 'bolt on' solutions" and that "without forethought and support a useful tool can be rendered ineffective or create barriers for the user". This was the sort of result only possible if students were consulted and engaged from the start, and so both MEDS and K-Roy suggest viable paths of collaboration between students and their institutions.

The NUS perspective

65. At this point, a summary of the NUS's own policies towards ICT is useful, not least because it places in context the other sources cited here and the greater remit of the project overall. Also, it should be stated at this point to establish the aims of the research project and its context.

Motion 306, passed at the April 2010 NUS National Conference states that:

> 1. Successful use of technology by higher education institutions is now critical to ensuring a quality student experience.
>
> 2. Students' Unions should be given access to existing ICT arrangements to integrate their course representation systems.
>
> 3. All students should have access to ICT training if they require it.
>
> 4. The provision of e-learning should be utilised as a tool for learning, in all institutions, but that should not merely be used as a method of reducing costs and should be in conjunction with, not instead of, other face-to face teaching methods.
>
> 5. Technology should complement good teaching, allowing students to benefit from the additional value of e-learning but should not be used as a substitute for face to face contact and good teaching.
>
> 6. All students should have the opportunity to benefit from technology-enhanced learning delivered by confident and capable practitioners.
>
> 7. The purpose of research is wide dissemination and cultivation of knowledge.

[52] Chris Dearnley et al, 'The Mobile Enabled Disabled Students (MEDS) Project', *University of Bradford*, <http://www.alps-cetl.ac.uk/documents/JohnFairhallMEDS.pptx> [accessed 31 May 2010]

66. Moreover, the NUS is presently resolved to:

1. Provide a briefing for unions on how institutions can integrate innovative approaches to teaching and learning.

2. Lobby for greater opportunities for online academic skills training for students.

3. Lobby institutions to allow greater access to specialist software for all their students.

4. Lobby institutions to use ICT for modernizing coursework submission and assessment.

5. Lobby institutions to train and develop academic staff so they can use new technology effectively.

6. Lobby institutions to make ICT training compulsory to all academics who teach.

7. Campaign for greater use of e-learning facilities by academics, within all institutions, in conjunction with face-to-face teaching.

8. Issue guidance to students' unions on the benefits of contact time and how e-learning should act to compliment face to face learning rather than replace it.

9. Work with Students' Unions to lobby institutions to ensure that they adequately train staff to confidently use accessible e-learning to aid curriculum delivery, allowing all students to benefit from technology-enhanced learning.

10. Call upon HEIs to recognise that Open Access makes the result of scholarly research available online for free, immediately upon publication, and removes barriers for scholarly and educational re-use, and to call for universal adoption of policies like that of Harvard and Stamford Universities.

67. The NUS perspective is important, but should not be seen as superior to or more informed than that of the students that it represents. Certainly, however, it should be seen as the foundation upon which this report is built.

Academic discussion

68. Yet it is amongst academics that some of the most intriguing discussions are taking place. The number of books being published in this field continues to grow, with at least five or so to be made available in the months following this research project. An overview of the literature so far published suggests less distrust towards ICT but a concern for unexpected consequences or a strong desire to devise the means and language required for it to be realised.

69. An example of this would be Gary Hall who wrote in 2008 that ICT provides an excellent opportunity to enhance learning resources for both universities and students:

> Yet as both institutions and students have found it harder and harder to purchase texts [due to their rising costs], the traditional market for the scholarly book has been substantially eroded. This fact, together with the acquisition and merger of many publishing houses by transnational media conglomerates who frequently expect their publishing divisions to operate according to the same kind of profit margins as other areas of their business... has led a number of publishers of academic texts to cut back sharply on their commissions. In some areas, in some areas, many publishers have decided to focus on introductions and readers for the relatively large... first year undergraduate "core course" markets, and hardly produce books for second-and-third-year students, let alone research monographs or even edited collections of original scholarship aimed at postgraduates and other researchers, at all.[53]

70. Hall's answer for this is to use online media and new formats of journal and academic research publishing to make learning materials more accessible.[54] Rollin C. Richmond meanwhile suggests that ICT will not do away with academics, but rather redefine their roles as 'facilitators' and developers of educational multimedia:

> What will this mean for the role of faculty when so many instructional opportunities are available via the internet? I predict the development of groups of faculty, some perhaps in private organizations that will be primarily responsible for the development of online applications. Other faculty will assume the roles of facilitators to assist students in learning to use the online materials and helping their institutions identify the most effective online solutions for their programs. Will the traditional class room disappear? Probably not. It will be reserved for the richer interactions that occur among people who have already learned the basics of a discipline probably primarily from online applications. Faculty who keep their teaching skills and content current through research and scholarship will be the first to recognize the value of virtual worlds to bring together people, including students, studying similar topics throughout the world without regard to language barriers. Faculty continuing to use the strictly lecture paradigm will be left behind.[55]

71. Freeman A. Hrabowski, III sees student use of ICT as a way for access to be expanded to and beyond the present reach of universities:

> New technologies will play a central role in extending higher education's reach, not only making postsecondary education more accessible, but also improving how we teach, learn, and do business.... Online instruction has enormous appeal to growing numbers of students who not only are juggling work and family obligations, but also are deeply concerned about reducing their energy consumption and related costs.

[53] Gary Hall, *Digitize This Book! The Politics of New Media, or Why We Need Open Access Now*, (Minneapolis: University of Minnesota Press, 2008) p. 42
[54] Hall, p. 44
[55] Rollin C.Richmond, 'The Future of the University is Change', from *The Future of Higher Education*, ed. by Gary Olson & John W Presley, (Boulder: Paradigm Publishers, 2009) p. 33

> Some also argue that new technologies can make students' learning experiences richer, serving as a catalyst for more critical thinking and reflection....[56]

72. Nonetheless, many concerns are also articulated in the academic sphere. Roseann O'Reilly Runte says that ICT can both alienate students but also reflect the tensions that emerge from 'regional' institutions developing the potential for a global reach:

> It is ironic that education, regarded as the "Great Equalizer," is itself perhaps one of the least democratic of systems. It is ironic that just as we need the socialization brought about by education, we turn to technology which, although it opens us to the world, isolates us in our cubicles before our screens. It is ironic that we outline the resolution of conflict as a reason for education when perhaps education itself is the source of such tensions. Education, of necessity reflects a region and yet is expected to be global in thrust....[57]

73. Warren Arbogast also argues that the expense and relative ineffectiveness of university IT programs has not only failed to capitalise on ICT's potential, but has also a direct impact on the finances of students, who ultimately fund these developments in the US via fees, or in the UK by a combination of fees and taxation:

> The numbers that make up the comprehensive cost of technology have been too hidden for too long. Today, as commercial services offer countless cheaper options, the pressure will mount to utilize them. In the US, median family income has increased 127% since the early 80s yet tuition and fees have increased 375% over the same period. How much of the increased costs of operations for colleges in the past twenty years is due to our collective, staggering investments in technology? How many schools had student technology fees in the early 80s? How many of them have them today? If we don't change the way we do things *starting now*, how much will it all cost us in 2028?[58]

74. Certainly the cost of ICT will be of increasing concern if it is not brought under control and may affect how students use ICT on campus and, indeed, if IT costs are passed on to their main consumers, the students themselves.

75. Indeed, as Sheila Stearns says, the student experience will become ever more central in an ICT context, as it will be on their terms that material will be consumed and used:

> Beyond books, in 2025 college students will consult electronic, ephemeral, but extremely useful sources, extract the information they need, and then move on. The

[56] Freeman A. Hrabowski II, 'Expanding Access for America's Future', from *The Future of Higher Education*, ed. by Gary Olson & John W Presley, (Boulder: Paradigm Publishers, 2009) p. 159
[57] Roseann O'Reilly Runte, 'The Future of Higher Education', from *The Future of Higher Education*, ed. by Gary Olson & John W Presley, (Boulder: Paradigm Publishers, 2009) p. 174.
[58] Warren Arbogast, 'Technology in Higher Education: Planning for the Year 2028', from *The Future of Higher Education*, ed. by Gary Olson & John W Presley, (Boulder: Paradigm Publishers, 2009) p. 127.

> college students of the open-source, open-content era will distinguish themselves from their peers and competitors, not by the information they know, but by how well they convert that knowledge to wisdom, slowly and deeply internalized.[59]

76. In that sense, Hall is in agreement with Stearns, as he notes that the free and easy access and transfer of information between students and their universities promises to transform the existing structures of academia itself:

> With participants now able to give and receive information more or less for free, open access is perceived as enabling the emergence of a global public information commons in which access to knowledge and ideas is available to everyone who is connected to the internet: rich and poor, privileged and underprivileged alike. This enables the breaking down of the barriers between the university and the rest of society....[60]

77. Nonetheless, as Cary Nelson warns, such developments are threatened not only by bureaucratic structures in universities that are resistant to change, but also issues regarding both free expression and ownership of data:

> As new technologies appear, the effort to secure them as appropriate terrains of academic freedom requires both policy work and political struggle. Administrators in the corporate university often assume that traditional academic freedom does not, for example, apply to e-mail or to college and university web sites. Ill-advised state regulation... can restrict faculty use of email in public institutions.... Although email is certainly subject to discovery in legal proceedings and loses confidentiality if it is forwarded, it should otherwise have the same privacy as first-class mail. Faculty and graduate students should have the same freedom to publish on university web sites that they have in journalism and books, despite administration claims to the contrary.[61]

78. Therefore, the issue of student ICT use touches on a wide range of areas, from matters of integrity and quality through the right of access to social and cultural change in our society through technology. With this in mind, the report is timely as it will gauge how far students in the UK have already proceeded down this path and how best to respond to it and the challenges it poses.

Section 2: Overview of project activities

79. As the literature review demonstrates, there is much discussion on the subject of ICT use on-campus. Yet one set of voices remains missing in these discussions, where academic

[59] Sheila Stearns, 'Literacy in the University of 2025: Still A Great Thing', from *The Future of Higher Education*, ed. by Gary Olson & John W Presley, (Boulder: Paradigm Publishers, 2009) pp. 98-99.
[60] Hall, p. 190.
[61] Cary Nelson, *No University Is An Island – Saving Academic Freedom*, (London: New York University Press, 2010) pp. 55-56.

speaks unto academic, namely the voices, thoughts and opinions of students themselves. In part, this has been addressed by some of the reports cited in the previous section; yet such information loses its relevance quickly, leaving us with one major question: Where do students stand on ICT provision as of 2010? By definition, all previous discussions either refer to their own timeframe or discuss the matter in the abstract. As chief consumers, users and learners, their views must be key in any such discussions regarding ICT. This should have implications for HE providers, investment strategies and also, perhaps most importantly, the role of ICT itself in the post-tertiary learning environment.

80. The research undertaken for this report took place between March and May 2010. A variety of methods were used to compile data and each sub-section addresses one of these main areas. Firstly there were a series of events targeted at existing students who are representatives for their course. These four course representative events took place in various locations across the country, attracting a wide range of students from a variety of courses. Secondly there was a symposium held at the University of London Union in May 2010, featuring input from NUS representatives on a range of subjects including demand, perceptions and training needs touching on a wide range of topics and issues from the use of iPhones and similar devices to recommendations for institutions, including minimum standards for academic staff.

81. Next, there were a series of online activities from discussion on the NUS Course Representatives' Facebook page, a Wiki and a Twitter account set up specifically for the project. Finally the project looked at the views of FE students as a way to gauge the views of prospective students. This included an online survey that generated some surprising results, and also raised broader issues regarding the student experience and training available. There was also an interesting focus group which explored the results of the survey in more detail.

82. The main section of this report approaches the issue with both the breadth and depth it requires and offers a thorough and contemporaneous insight into FE and HE ICT and the students that use it.

Regional events for Course Representatives

83. As part of the project there were four regional events bringing together hundreds of Course Representatives from across the country. The events in Lincoln, Salford, Newcastle and Bucks New University provided an interesting opportunity to explore the issues with existing students. The sessions looked at Course Representatives perception of ICT and

their views on a greater incorporation of ICT into the curriculum. Also discussed were their general attitudes towards student expectation and potential obstacles to e-learning. All the Course Representatives agreed that they already used ICT as part of their studies, mainly for online searching of information, Virtual Learning Environments, e-mail and social networking.

84. The predominant topics which came out of the session are listed below:

- All representatives were in agreement that there is a **changing expectation** of prospective students attending HE. As young people are increasingly taught with ICT at school level, and as ICT is now incorporated into the daily lives of most school leavers, the demands of those entering HE are also changing. One representative mentioned that ICT creates an "instant" and "on demand" attitude to learning where those who use ICT regularly expect constant access and instant results.
- There was a concern that ICT enables some students to take **the easy option** – One rep explained that an over reliance on ICT and overly accessible information means that students become weak researchers and less engaged in finding out information for themselves.
- Reps seemed to still value the first hand delivery of knowledge, and the opportunity this gave for questioning and clarification of information. However, they also emphasised the benefit of e-learning in terms of access to wider information and the access to a larger number of people and ideas.
- **Staff competency** with ICT was one issue which was raised by a number of the reps. Firstly, some staff may have a weaker grasp of 21st century ICT mechanisms and the "social web". Therefore before any major integration of ICT, staff training would be a priority. Secondly, the issue of intellectual property (IP) may mean that some academics are unwilling to upload their work to an online arena.

85. Generally, the course reps who attended the events appeared to think that the use if ICT in teaching and learning was a good idea. More interestingly, they seemed to see it as inevitable. They echoed opinions found in the literature on this topic by saying that increasingly students *expect* and *assume* that there will a high level of ICT incorporated into their academic studies. The demand and opinion on how much ICT is used to facilitate learning however seemed to vary between course reps, depending on their course and the demographics of their students.

86. The workshop at Salford was specifically for those reps on professional courses and those with placements (predominantly teaching and medical students). This discussion

forum had 50 reps from a dozen institutions. There were similar themes of discussion to the other event; however some points relevant to placement students are listed below:

- The majority of course reps agreed that the incorporation of e-learning into the curriculum would be extremely useful for them whilst on placement. It would **allow easy access to resources whilst not studying on campus**. Furthermore, the nursing reps present raised the point that whilst on placement, and working shifts, the students could access the course information as and when they needed it.
- The relevance and practicality of ICT to specific courses was also discussed. Nursing and medical reps felt that e-simulation and online tasks had **limited relevance to their course** as it does not fully replicate actual "hands-on" practice.
- The benefits of **alternative ICT methods of assessment** were highlighted during discussion as a positive aspect of incorporating ICT into the curriculum. The course reps were largely in agreement that PowerPoint, videos, or alternative methods of assessment to essays may be of benefit to those students on practical courses.
- The most important issue the course reps raised was regarding the nature of their courses and subsequent careers and the **extent to which e-learning is appropriate**. It was felt that e-learning would create a one-way learning environment, and as nurses, paramedics, doctors and teachers it's important for students to learn interpersonal skills. Concern was expressed that a reliance on e-learning would mean an omission of the teaching and learning of some key skills.

87. Generally, the course reps who attended the Salford event appeared to think that the use of ICT in teaching and learning was a good idea but only in certain situations. The benefits for distance learners and placement students emerged as the main reason of support, but the use of ICT for the facilitation of simulated lab work or practical scenarios was not so greatly supported. Additionally, there was concern over course fees. If the majority of teaching was transferred to e-learning, students may feel like they are not getting value for money.

88. The course reps at the Salford event also highlighted the importance of ensuring **equality of access** if e-learning was widely used. The "digital divide" (JISC 2009) between those who have a good knowledge of ICT and those with the ability to access the internet needs addressing.

Student perspectives on technology symposium, May 2010

89. As part of the research undertaken for this project, NUS organised a one day symposium to gauge student perceptions of ICT. This section summarises and details the

issues raised and sets them into the appropriate context. The event took place at the University of London Student Union on the 12th of May, 2010. The format involved a series of round table discussions amongst the attendees, alongside a presentation by Dr. Alexander Hay, the NUS ICT Project Intern, at the start of the event and a closing presentation from Aaron Porter, Vice-President and member of the Online Learning Task Force. The three main areas discussed, in order, were: Student Demand, Perceptions and Training.

Discussion One – Student Demand

90. The first major question asked was what student ICT provision actually meant in practice, and moreover how much was wanted and needed by students. It was observed that this varies on the nature of a student's degree pathway. For example, Geography's requirement for GPS software is quite unlike the comparatively 'low tech' needs of History.

91. Another factor to be considered, and this took the form of a recurring theme throughout the discussions, was the wide range of attitudes amongst academics, ranging from the "Digital Native" to the Luddite. Nonetheless, students seem very receptive to lecture material being made available online before the lecture, e-submissions, e-feedback and other similar innovations.

92. Some academics fear ICT may render them obsolete, while some students – it was claimed – don't attend lectures at all and rely instead on any online material supplied. Students who preferred or were most familiar with traditional lecturing methods also might feel cheated if the course was provided mainly online.

93. There was a certain level of demand for videocast, particularly for those subjects where it is necessary to work through a problem using a screen, however generally speaking audiocasts were more popular – perhaps due to the ease of being able to listen to them wherever the student chooses. However, some departments have resisted this over IP concerns. The example of YouTube was provided whereby students can watch a tutorial online with a series of questions next to video where by clicking on the question the student can go straight to relevant part of the discussion.

94. Two disparate examples of this are Edinburgh University's policy on providing default audiocasts, using existing lecture theatre recording facilities, versus the widespread view in some institutions that this is no real substitute for 'live' education.

95. Nonetheless, people with hearing difficulties find online material helpful as do other students during revision periods, and its provision is both cheap and easy, but more formal research is needed before any firm conclusions on ICT's benefits in this regard are possible.

96. Certainly, putting material on the web may save time and so allow for more face-to-face contacts between them and their lectures, yet the real issue seems to be a clash (real or assumed) between academic freedom and the needs of students.

97. Next to be discussed was the issue of university Blackboard/VLE systems and how they should best be used. It was noted that too much information before a lecture can be problematic too, in that it could deluge some students with too much information. It was suggested that whilst it might be important that notes from the lecture be put on the VLE this would never replace the lecture where explanation can be provided and specific questions answered.

98. Also raised was the future of examinations. It was agreed that students used to working with electronic media may find written tests to be more difficult than previous generations have done. This, alongside a belief that assessment should be based on relevant working practices was seen as supporting greater use of ICT in exams. However, it was also observed that one institution had done some research showing that lecturers marked handwritten essays higher than typed essays, partly due to the perception that hand-written seemed less finished and so a certain amount of assumed knowledge was taken into account whereas a typed essay felt more finalised. The possible implications for e-examinations and the results students could expect should be given further thought. In addition, the investment required for computer-based exams, alongside installation and logistical issues, had to be resolved first.

99. Some institutions have 'innovation funds' for such purposes. This is good for initiating new projects but short-termism was seen as a problem. For example, contract IT staff may be taken on, released when they are seen to be surplus to requirements but then may be needed again to resolve unforeseen problems.

100. Another issue touched upon was the wide variations in expectations amongst foreign students regarding ICT. For example, South Korean students come from a society with considerably greater takeup of IT and Web technologies than the UK, and may find any level of ICT provision in UK institutions to be inadequate. This lead on to another issue – should other languages be installed on computers? It was also suggested that providing access to students of new tools such as Turnitin could also help students in the learning process,

especially for international students that are sometimes more likely to fall foul of academic misconduct regulations.

101. Perhaps this demonstrates a need for universities to agree on a fundamental level of ICT provision, and there is certainly a great deal of demand for electronic collaboration. At its best, ICT can provide information at the user's convenience, such as outside office hours. Furthermore, there is a great deal of assistive software presently available, much of which students are not aware of. This demonstrates a clear need for more guidance, but universities may have to assume that student ICT skills are virtually non-existent.

102. Yet students with a working understanding of ICT may have a transformative effect on teaching practices, no longer being passive, but actively involved, and educating lecturers en route. This includes software such as Anatomise which provides medical students the possibility of dissecting cadavers from the comfort of their own computers and learning through trial and error rather than having to be in the classroom and the limited practice opportunities that result. This type of software also provides interesting future opportunities for e-research collaborations between institutions. Software such as Second Life may therefore be seen as a cost-free model. However this may not take into account the high environmental cost via energy hungry server farms, which may in turn clash with the environmental policies. Nonetheless, greater efficiencies gained through e-learning may negate this to a degree.

103. However, perhaps ICT should not be seen as a 'cost-saver' investment, not least because previous experience suggests otherwise. For example, even Second Life requires a certain investment – as in, buying your 'island', paying for staff time and training, and so on. How ICT is used to engage students may be seen as more important, especially as more and more people go online, but it should not be forgotten that many universities are culturally conservative.

104. Another issue raised is how universities now issue and store records, given the widespread take-up of electronic database systems. This raises questions, like whether students still really have to come from abroad or travel to their campus simply to perform administrative tasks, although there was a comment that students queuing for hours to register could be seen as part of the ritual and provide an opportunity to bond with other students. Institutional responses to new technologies are also problematic in other regards. University takeup of, for example, Facebook has been slow, though most of Bucks New University traffic is through that site, whilst joint academic network’s (JANET's) recent

blocking of 'Fitfinder.com' is very controversial and suggests a clear gulf between university and student sensibilities.

105. The symposium also discussed the growing use of iPhones by students and the public as a whole. How might this change learning experiences as a result? It is not certain whether students would even wish to use these devices to assist their education or to be contacted and engaged through them. Moreover, whilst a convergent technology, iPhones have not replaced nor show any sign of replacing specialist devices such as televisions, computers and traditional means of web access. In that sense, the much heralded era of 'convergence' has broadly not yet happened. This issue led to considerable debate. Perhaps, it was agreed, we should only do things with iPhones that only iPhones can do and exploit the advantages they bring.

106. Regardless of this, it is plain that society is getting ever more wired, though the panel agreed that it and its perspectives were, technologically speaking, self-selecting. In any case, universities should always try to develop more options, which means investment in a correspondingly stronger network overall will be needed. And while it may take too long to develop applications for all platforms, the answer may lay in a Web-only approach. Other issues mentioned briefly included the possible uses of emergent technologies such as Augmented Reality, or Withered Technology, whereby existing technologies are applied in a new and innovative fashion.

Discussion Two – Perceptions

107. The symposium then proceeded to discuss student perceptions of ICT. Firstly, why might students want this technology? The most immediate answer is that the rest of the world is moving in that direction. Also, young people find interaction through ICT to be both more enjoyable or engaging, and furthermore as an extension of their lives. Students also valued the transferable skills of using technology that would be expected in their future workplace.

108. Nonetheless, there are implications for learning overall. For example whilst ICT allows greater access to journals, does this mean they are still 'read' the same way if on a screen? It is true that many younger users 'skim' rather than read, which suggests that ICT may be making many facets of life too easy.

109. In such circumstances, what is the purpose of a degree? It was argued that degrees are not so much about the transmission of information as social transition and the skills needed to use that information effectively; it was commented that if all the information was

already available online then universities might become little more than bodies to accredit knowledge.

110. Such concerns also ignore one agreed maxim, that users define technology, and not the other way around. Moreover, as long as the information is available, then that should be the yardstick by which it is judged. Open Access is already backed by the League of European Research Universities, but if academic publishing goes electronic, then why should articles be 'in' journals? Publication does nonetheless bring prestige, branding and filtering and, perhaps in such circumstances, a panel of thousands is better than an academic peer review board of 10. But is this a move away from peer review to academic review? One solution would be to limit the 'panel' to academics as a whole.

111. Some delegates suggested that a flaw of the Open University model is its lack of face-to-face contact, a problem greater ICT provision may only exacerbate. Universities must provide value for money, and key to this is good customer service. In that context, institutions still matter in a physical as well as an electronic sense.

Discussion Three – Training

112. The final discussion addressed training issues facing both students and institutions. As a rule, ICT courses are separate from main courses and are also voluntary. This sits uneasily with the differences between our assumed IT literacy and our actual level in that regard. Despite this, generic computing skills are now taught as standard at most primary schools and beyond. With that in mind, should universities be expected to teach future students those skills too? However, there should be consideration for those students that do not have these skills and perhaps compulsory training may be necessary. This does not answer the question of what skills are needed in the first place. It was commented for example that most students are self-taught in using applications likes Word and Excel and whilst they may consider themselves able to use these tools, and therefore unlikely to attend training, they might not be able to do more advanced things and so a training needs analysis of all students may thus be necessary, even if this was just an online test. Students will certainly need to know how to identify good sources online, and concerns about whether ICT does in fact help in developing good critical skills were raised. Developing these more advanced skills was a possible area for more training.

113. Of similar interest were the training needs of academics and their willingness to further this. As a rule, 'those who care' already know how to use ICT, but there are genuine fears by some academics that their job security may be undermined by students accessing more material online than in the lecture hall. Despite this, there seems to be a perceived clash

between modernisers and institutional 'dinosaurs', intermingled with growing animus between senior management and academics as well as between the latter and students. It must be acknowledged, therefore, that some academics will not reform or expand their ICT repertoire. The answer may lay in incentives and rewards for those who will put in the effort, perhaps making ICT skills and lifelong learning part of a contractual obligation or as part of the Professional Standards Framework, as part of the promotion criteria. Other academics promoting ICT to their colleagues may also be useful, alongside student pressure.

Conclusions

114. Several conclusions may be drawn from the event. Firstly, ICT provision must not only involve students but universities as a whole. Coordination and cooperation, or otherwise pressure, must be sought in order to enable this involvement to happen. Generational differences between student ICT use and that of lecturers was also notable and may have to be resolved through NUS advocacy or by simply 'grandfathering' the least open academics until they retire whilst ensuring that lecturers starting their careers are obliged to have similar levels of ICT skills to their students.

115. Other proposals included that each faculty should have its own ICT fellow, who would be responsible for new technologies and their integration into use. Furthermore, that each institution should have its own ICT strategy, including funding for innovation funds and training needs analyses for new students, and that staff should be encouraged to train in new ICT products by being paid for the undertaking. Also, that ICT should be considered in regards to course evaluations, periodic reviews and Professional Standards Framework.

116. Training issues remain contentious as the level of training provided varies from institution to institution whilst perceptions regarding what skills are needed by students vary widely too. Further research needs to be undertaken in order to establish what those training needs are and should be, alongside how best to provide them.

117. The cost and infrastructure required for university ICT take-up was also seen as an important issue, given the falls in university funding and a danger that money may be spent on 'white elephant' projects rather than facilities that provide both students and universities with value for money. Even practical issues such as the number of power sockets in lecture theatres should be considered.

118. Issues of language, the growing number of international students at UK universities and their needs, access and use of new technologies were also raised. It was proposed that

all institutions develop and agree upon a set of minimum standards, but this will require further discussion and lobbying.

Online discussions, April-June 2010

119. In addition to the events this report has already covered, another primary component of the research project came in the form of online discussions. These took several forms including discussions on Facebook and Twitter.

Twitter feed

120. The official Twitter discussions took place on the StudentICT[62] account and by using the hashtag #studentict. Here students, including those who attended the research symposium, could post comments.

121. There were some interesting tweeted contributions:

> ICT should create added value not value for money. It should enhance the existing quality of education. #studentict (the Twitter "hashtag" for the event)
>
> Risk and reward of new technology need to be continually assessed
>
> How ICT includes and excludes teachers and students in different ways is key.
>
> Just as fans go to see live music gigs students will still go to see live lectures!
>
> Students want more for their money as fees rise and ICT enables sharing. Exam ICT formats could affect results too
>
> ICT can cater for different learning styles & needs in new ways.
>
> Each faculty to have a senior fellow for integrating technology into Teaching and Learning
>
> Teaching teams of researchers, pedagogy experts and learning technology experts to develop best teaching
>
> Need to understand unique and situated characteristics of learners to identify form of technology and pedagogies

[62] NUS, 'StudentICT', *National Union of Students*, <http://twitter.com/studentict> [accessed 22 May 2010]

> Students highlighting audio function and also spell-check of mobile and PDA
>
> Laptops too slow to boot-up and cumbersome, mobile phones and PDAs much more accessible
>
> Mobile Enhanced Disabled Students, delivering assessments online and via mobile devices #studentict
>
> So who hates PowerPoint? In just a couple of years students will know little different
>
> The balance of information to discourage surface skimming learning. Compare HEIs and the OU
>
> Will ICT hinder social mobility and interaction?

Facebook

122. Input on the subject of ICT was also encouraged on the NUS Student Course Representatives Facebook page[63]. Here there were several key quotes of relevance. As one participant said:

> I do believe that institutions should provide more materials online, but nothing will ever replace face-to-face teaching. In-person seminars/tutorials are vital for critical discussion and analysis – there are pitfalls to doing this in an online-only format (e.g. students may not want to read 5,000 words of discussion, but they'd happily listen and contribute to an hour discussion in a classroom). All these resources should supplement traditional teaching; I don't think technology is quite ready to entirely replace the quality face-to-face contact that students should expect in the Higher Education sector.

123. This echoes similar views given by the students themselves in the survey, suggesting an ease with ICT but also an active desire for continuity. Another post stated that while ICT had many positive contributions, namely efficiency, economy and accessibility, it also had pitfalls:

> My only worry with this approach would be that students expect face-to-face lecturing and thus when promoting courses to prospective students it would need to be clear about teaching methods.

[63] NUS, 'NUS Course Reps network', *National Union of Students*, <http://www.facebook.com/group.php?gid=35109673469&v=app_2373072738_-!/group.php?gid=35109673469&v=wall> [accessed 22 May 2010]

124. This defence of the traditional alongside an advocacy of the new was a common issue raised by the participants, the human element of the educational experience again being prized:

> Back to ICT, yes, there are all the advantages of speed and ease of access, but one thing such delivery methods lack still is the face-to-face personalisation of learning. Social media allows for quick feedback, but in a lecture theatre, if you don't understand something, you can ask there and then and have it clarified. When you give feedback, you get feedback yourself instantly, and it's personalised and from speaking to others on a range of different courses, nothing can yet replace this. I wouldn't be remotely as keen on studying for my degree if the content was all made available online in PowerPoint presentations, and I'm a Computer Scientist!

125. This commenter also observed that ICT may make certain issues facing students worse; namely, poor value for money and limited pastoral support, not to mention ongoing controversies, such as the cost of education itself:

> I would actually like to move away from the ICT side of this for a moment, because I do believe institutions should provide prospective applicants with an overview of the teaching, facilities and resources they will receive as a student on a particular course, regardless of teaching method. There are students in full-time university education getting as little as 5 hours of contact time per week, an hour per day, but they're not made aware of this pre-enrolment. I believe universities need to be clear about what they're offering students for their [currently] £3225 pa tuition fees.

126. The consensus therefore was that ICT should be seen not as a replacement for traditional lecturing methods, but rather as a supplement. This again suggests that ICT is part of a broader range of concerns amongst students. A related discussion thread held similar views, with one poster saying the two should in any case be combined:

> Why can't we combine the two? Web technologies are growing at an incredibly rapid pace, quality is continuously improving, capacity and speed is effectively doubling every year and a half, and ideas and innovations are coming through thick and fast. I remember the days when online music was unheard of, and watching films online was unforeseeable. This has changed in a relatively short space of time: we have podcasts and lecture audio uploaded; we have full lectures recorded on video and uploaded in minutes, with full commentary; we have message boards and feedback forms and anonymous questionnaires all in place to give feedback and obtain support. Lecturers can be just as inspirational and motivational in their videos and audio samples, and of course, people can still sit in on these recordings if they wish. I'm not so sure the whole pros/cons system can be applied to 2 options that aren't mutually exclusive. Let's not decide; let's have both.

127. Another poster observed that there were limitations to ICT as well as advantages:

> The main thing that I don't like about the use of e-learning is that it makes note-taking difficult. We are faced with the choice of either looking at everything on a screen, printing out everything (which is not cheap) or laboriously writing everything out from a PowerPoint.

128. One poster reported that the ICT strategy at his university was poorly implemented, emphasising that co-ordination would in any case need to be core to any such projects, in addition to another established concern – the level of training lecturers should have:

> A lot of new ICT has been implemented over the last 5 years and there hasn't been a shred of strategy attached to the way it's been done. We use Moodle (with messaging), SITS e:Vision (with messaging), Intranet (with announcements), internet, email, Facebook, Twitter, Vimeo, SMS... It's all a bit much! If you roll back the clock, people used to travel to campus and they used to know where their messages would be and they would check their specific noticeboard. I'm not saying we need to revert to that; on the contrary we should make the best use of what's available. But making the best of what's available doesn't necessarily mean use everything that's good. It's a case of picking and choosing what's right for the course and what's right for communication; careful consideration should be given to how things are done and proper training should be given to ALL staff.

Conclusions

129. What the online discussions therefore reveal is a student population with views and outlooks that both challenge preconceptions but also establish clearly the terms of the challenge facing institutions. Certainly, if these examples are taken as indicative, ICT should be a key part of every institution, and yet it is seen by students as part of a wider range of concerns which must also be addressed.

Views of prospective students: FE survey

130. By the time the online survey was closed on the 27th of May, 213 students had replied. The age distribution of respondents was as follows:

Age	16-18	19-21	22-25	26-35	36-50	51 +
%	75.4	16.1	2	3.5	2.5	0.5

The results were at times surprising, demonstrating a student relationship with ICT that was conservative and ambiguous in some ways as well as open and innovative in others. Its main advantage was also down to the young age of the majority of respondents they reflect

the current state of affairs regarding ICT in the student population as it will develop in the next five years.

131. The first question asked was to ascertain what students primarily used their computers for. 13% of respondents said fun, 14.2% said for their studies and 72.8% said they did both. This certainly suggested a broadly electronic student experience, but other answers contradicted this. For example, 43.4% said they preferred to use electronic and printed materials equally, but 29.7% said they preferred printed materials, slightly more than the 26.9% who preferred online sources. Tellingly, while 45.3% of students trusted print and online material equally, only 15.1% trusted online sources most of all, under half the percentage of students (39.6%) who said print materials were more trustworthy.

132. Other results suggested a broad ambivalence:

Is the internet a distraction to your studies?	**Strongly agree/agree**	**Neither agree/nor disagree**	**Disagree/strongly disagree**
%	47.2	23.6	29.2

When asked if the internet was a distraction, 47.2% of students either agreed or strongly agreed, 29.2% disagreed or strongly disagreed, and just under a quarter (23.6%) were neutral on the matter.

133. This extended to matters of privacy, which seems to be in a period of transition in a Web 2.0 context. 33.6% of students agreed or strongly agreed that they have concerns for their online privacy, whilst 38.4% disagreed or strongly disagreed. Again a large slice of the sample – 28% - was uncertain either way. By contrast, 41% of students strongly disagreed or disagreed that their institutions had a right to monitor their internet use, versus 34.4% who agreed or strongly agreed that they did. Once more, ambivalence was a common response, however. 24.5% – as much as those who agreed to the question – were uncertain.

134. Similar surprises can be seen in student attitudes to copyright. 79.8% of students either agree or strongly agree that copyright should be respected whilst only 7.5% disagree, and only 12.7% remained neutral or undecided.

135. Students are also very confident in their use of technology. 56.6% disagree that technology has caused them difficulties, with only 16.2% in agreement or strong agreement.

Skills and Training

%	Strongly agree/agree	Neither agree/nor disagree	Strongly disagree/disagree
Web skills are self-taught	81	11.8	7.2
I am satisfied with ICT training available	59.2	31.8	9
The internet has benefited my studies	90.1	6.6	3.3
ICT has improved my learning experience	77.7	17.1	5.2
I feel I am effective at researching online.	88.6	6.2	5.2

136. Most students are also happy to agree that their web skills are self-taught – 81% – whilst a mere 7.2% disagree. Most students are also satisfied with their ICT training, 59.2%, with only 9% being dissatisfied. 90.1% think the internet has benefited their studies, with only 3.3% disagreeing. As to whether ICT has improved learning experiences, 77.7% agree versus only 5.2% in disagreement, and most students believe themselves to be effective online researchers, 88.6% expressing such confidence and only 5.2% disagreeing.

Perceptions

137. Attitudes towards the more controversial areas of ICT use in institutions are also varied:

%	Strongly agree/agree	Neither agree/nor disagree	Strongly disagree/disagree
I know students who have used the internet to plagiarise	28.1	29	42.9
I think it is ok to text during a lecture/class	30.2	27.4	42.2

Interestingly, one student commented:

> There needs to be a certain level of respect in regards to the use of mobile phones and personal web browsing during study time, lectures or seminars.

138. There is however some disagreement, despite the overall consensus:

> I think texting is OK in lectures as it's not a proper lesson as long as it's in moderation… [But] I don't think mobile phones should be incorporated into education as then people will just be secretly texting all the time, and not everybody has a phone that is technologically advanced to help in lessons.

139. Students seem divided over whether mobile phones or Personal Digital Assistants (PDAs) should be used to assist learning: 37.3% agree, 35.4% disagree and 27.4% remain neutral. One student expressed concerns that they could in fact be a serious hindrance:

> I do not think computers are a distraction if used properly but mobile phones/PDAs should never be allowed to be used in classes because they do cause a distraction. [However] phones should be allowed to be kept on vibrate in special circumstances.

140. Perhaps this is also linked to an overall satisfaction with ICT facilities available – 78.9% – whilst only 8.6% expressed dissatisfaction. Finally, 49.8% of students think their lecturers' ICT skills are in fact adequate, with only 21.4% saying that they should receive more training. Nonetheless there is a small but vocal undercurrent of dissatisfaction regarding institutional use of ICT:

> Teachers use PowerPoints far too much and don't know how to do anything else on the computer. I prefer learning when the teacher writes on the board things we can

> copy down as it goes in better rather than just reading it off a PowerPoint which doesn't get sent to us.

141. One student even went so far as to claim:

> Some of the tutors aren't very good with computers but I can usually help them.

142. Fittingly then, students also think their lecturers should make better use of those skills: 42.9% want more ICT use by academics and teachers, with only 26.9% disagreeing.

143. The survey therefore demonstrates a student population that is in some ways in flux, in that it is at times contradictory in its views and remains uncertain over some of the implications emerging from ICT, yet freely accepting of it in others and also maintaining continuity in surprising areas.

144. Regarding what ICT skills students would like to be taught, one particular area is given importance by its frequency. Students wish to know how to cite both web sites and print sources, how to research using libraries and the Web and also how to identify useful, reliable material. As one comment left by a student said:

> Just more tips and advice on how to use the internet more effectively to find out what you need because I, for example, often spend a huge amount of time scanning through material I don't need until I get to the useful and required information.

145. This was a common request by the students, a lack of initial research and referencing skill training seen as a particular concern. One student also requested guidance in copyright law, while another asked for "how to know what material to trust".

146. Another common request was for training in specific skill sets, for example, using software such as Adobe Photoshop, HTML coding and web design. One participant also requested career-specific ICT training:

> [I would like] more specific courses geared [to] and linked more closely to skill sets that businesses need from their staff.

147. Another demonstrated the many variations in training policies between institutions:

> My college operates a system where training only takes place when either a GCSE in IT is not present or where a grade below a C was achieved.

148. Whereas, one student asked if any ICT training at all was now necessary, given that many were now so familiar with it:

> I think 99% of people my age know how to use a computer very well indeed. Therefore, there is no need for any teaching for the students on computers, although for teachers it would be very good.

149. This has implications beyond ICT – students seem more concerned about a perceived lack of formal research skills instruction, which suggests broader concerns with education and accountability beyond the ICT sphere. Training in specific programs, as mentioned, is also commonly desired, but primarily the skills required are not electronic, but as stated, academic.

Views of prospective students: FE focus group

Introduction

150. Towards the end of the research project, a one-day focus group event was arranged with similar goals to the earlier symposium and also explored some of the responses from the survey, but this time with a focus on the FE sector. As before, here follows a summary of the event and the key findings it featured.

Venue & Format

151. As mentioned, the event was intended for representatives of FE students, including an apprentice, at the NUS headquarters in London. Again, the format was that of a round table discussion where the main points of discussion were introduced by the chair and which were then discussed by the focus group. Again, the atmosphere was informal but highly motivated, and the group that attended were for the most part readily open about their views and personal experiences. Concerns about the announced closure of BECTA by the government earlier that day were also mentioned and animated the attendees to some degree.

Section One – What Place Is There For ICT In An FE Context?

152. One major area of concern for the representatives, and in a fashion that marked their experiences out as being different from HE students was the use of technology by lecturers and teachers. A certain dissatisfaction was made clear with the observation made that much of the technology used in FE is increasingly old fashioned. This includes established technologies and software such as smartboards and PowerPoint etc, with older

lecturers/teachers continuing to favour old or outdated methods in a fashion that alienated their students.

153. This is manifested by teaching staff continuing to use whiteboards or standard classroom techniques – in one example, a lecturer used a smartboard as a whiteboard and only realised his mistake some time later. Progress is therefore slow, and certainly too slow for many students and their representatives.

154. The worst examples of this include, according to the focus group, of cases where conferences still offer the chance to learn to use smartboards despite their established use in education and the relative age of the technology. Teachers/lecturers are still trying to maintain the status quo and seem to affect a disdain or ineptitude regarding new learning technologies. This is unfortunate as it risks alienating the very large number of students who are far more comfortable with information technology.

155. Even if new technology is adopted, it also seems that the use to which it is pushed is again unsatisfactory. VLEs remain only intermittently updated by academics and even many students pay them no attention unless they provide useful and effective content.

156. This is unfortunate. Whilst lecturers and principals prefer not to upload material onto the VLE, arguing that this would discourage students from attending classes and lectures, the point was made that since students were often paying for their education they should expect "value for money". In that sense, it ought to stand to reason that they should wish to see education offered in a variety of ways, including online.

157. Moreover, would it really affect attendance? The delegates doubted this, and suggested that academics be more amenable to flexible, open teaching practices. In FE, there were also many students on apprenticeships who almost never see the inside of a classroom as they are being educated offsite. Online learning materials would therefore be of great use to them. Yet other apprenticeships do require attendance at practical classes and demonstrations, meaning that the matter is not as clear-cut as might at first be assumed.

158. On the matter of devices such as iPhones, again opinions were mixed. They were seen as potentially useful, but only if they communicate via applications rather than directly contacting and so perhaps annoying them. As pointed out, however, this could possibly disadvantage those who still didn't have iPhones and similar products, and so would have to be considered in that light. Nonetheless, the possibility they could provide information such as academic records, course information and contacts were clear, and so further discussion

was needed, depending on whether the uptake of this technology continued in a similar fashion.

159. It was debated, however, whether every course could in fact benefit from e-learning. There was some agreement that not every area of study needed or was even compatible with e-learning, and so to assume that it would grant blanket advantages was not accurate. For example, as one delegate observed, land-based courses, such as game-keeping and forestry would at the very least require an equal amount of physical and class-based learning by definition. Yet, ICT could nonetheless be used to assist if not completely transform studies in these areas, and could be used to research subjects such as international agriculture through online applications, for example.

Section Two – Resources

160. One particular complaint was the lack of parity between the facilities available for FE students and those in HE. Many of the delegates felt that university/HE students had better ICT facilities as a rule, despite some institutions providing equivalent resources.

161. This was seen as unjust and an impediment for FE students, the delegates agreeing that a large investment in facilities would be required in order to correct this imbalance and ensure every student had reasonable ICT provision. In some extreme cases, graphics and design students at FE level were even denied access to software such as Adobe Photoshop, despite its widespread availability for undergraduates. There was also a sense that HE students on their campuses were better treated as a rule, being able to access web sites such as Facebook even when FE students were unable to, owing to institutional firewall policies. This seemed to indicate a 'jelly mould' mentality, named after the practice of allowing commissioned officers in the military access to petty amenities like jelly moulds in barrack housing, whilst non-commissioned personnel had to provide their own. In that sense, poor ICT provision was seen as proof that FE students were seen as the 'Cinderellas' of post-secondary education, whilst HE students studying in FE colleges benefited unduly from a two-tier system.

Section Three – Perceptions of ICT Amongst FE Students

162. Needless to say, the main area of agreement at the event was that there was considerable demand for ICT facilities at institutions and that this needed to be met in order for FE students to benefit.

163. Yet there were questions over whether this would necessarily benefit all concerned; would help or distract? The panel said both; however this would depend on how the

individual student approaches these facilities and how they were promoted and advertised – if the underlying preconception was that ICT was to be recreational or casual in tone, then students would approach it accordingly.

164. Another area of concern was that any future ICT policy could also imposed on students despite their wishes and best interests, meaning that they would be forced to use ICT regardless of their own personal needs. The possibility that forcing students to use a new system without proper training was also voiced, any benefits being cancelled out by the problems this would cause and the ill feeling it would result in.

165. ICT also has another implication. 'Surface Learning', whereby a student only learns the bare minimum to pass tests and meet module requirements, is particularly encouraged by ICT, which enables easy 'skimming' of the text and focussing on key terms, rather than a broader base of understanding. (This could be used as an argument for textual as opposed to electronic sources overall.) The delegates agreed this was an issue and provided some anecdotal examples to demonstrate the extent of the problem. A return to more traditional methods of learning, such as a problem-solving based approach to education, was offered as one possible solution, again hinting at the broader issues facing education beyond the ICT debate. As the focus group said, there has been a cultural shift in recent years that has lead to conflict between the axioms of learning and simply passing exams, ICT being only part of this bigger issue.

166. Similarly, it was emphasised that students needed to know more about plagiarism, why and how to avoid it and to encourage a greater culture of honesty. This would go hand-in-hand with stronger and better-disseminated guidelines, the implications of the present system being that if these requirements were not widely known, by staff or students, then cheating would be both more widespread and less easy to detect. A tendency towards outright apathy or lack of interest by lecturers and teachers on this issue was criticised, and was seen as simply encouraging these problems. This is combined with a lack of clear guidelines and leadership from college authorities and staff alike, suggesting that action needs to be taken in this area quickly.

167. The discussion then segued briefly on the subject of completely distance-based learning. This was not popular amongst some of the delegates, including one on a practical apprenticeship, as many students prefer the physical classroom and the advantages face-to-face learning can bring. This caused some good-natured dissent from other representatives who stated that they were perfectly happy with the Open University courses they were presently undertaking.

168. Nonetheless, it was plain that the idea was not entirely popular, not least because it seemed to clash with the role FE plays in personal development and the gaining of transferable skills beyond that of the main curriculum. This would be aggravated by the fact that many would be put off by e-learning for precisely these reasons, the implication being that a lack of diversity in the FE student body would result, threatening something that is presently highly prized.

169. Nonetheless, the focus group could see some advantages to an e-learning approach. If it were presented as an option, as opposed to an obligation, it would avoid any onerous undertones and furthermore prove to be particularly useful for part-time FE students with other obligations. These groups would include parents with young children or similar family commitments, such as caring for elderly or ill relatives, whilst those with full-time work obligations or similar requirements might also benefit most from this. Of course, not all individuals in these groups would necessarily welcome e-learning. Many community centre-based informal courses are particularly social and indeed are excuses for many to socialise, often if they are from marginalised groups or if this has become their main point of contact with the rest of society. Nonetheless the concept of being able to choose how to learn is popular, which is the main conclusion that should be drawn in any case.

Section Four – Student & Staff Training

170. Of similar interest was the matter of training for both staff and students. The amount of compulsory courses for students varies widely from college to college, and based on whether the student is at a certain level or not. This should be considered as part of institutions' obligations to provide 'functional skills' classes. These courses are seen at times as a waste of time or simply patronising, do not take into account that younger people already have good ICT skills, and may come at the cost of teaching independent living, strategies for dealing with disability and other basic skills. Yet compulsory ICT training is still considered a good idea, as long as it comes with the proviso that it should be relevant to each student's needs. It should also be remembered that FE basic skills classes are a response to Confederation of British Industry (CBI) concerns, and so should demonstrate some benefit in regards to a student's employability.

171. Also criticised was training in how to use VLEs, the provision of which was often seen as lacking or inadequate. The approach taken was also seen as very user-unfriendly and counter-productive to most student needs. Another problem, as emphasised also in the survey results, was that not only were referencing systems irregularly applied and taught, but the very need to reference varies from institution to institution, raising issues for

students who wish to proceed to HE level. One answer would be to provide better teaching of correct research and referencing methods, alongside shared standards in the use of citations in student coursework.

172. One valid concern raised at this point was that students who need extra tuition may be stigmatised by this, especially if they have to take extra classes that in doing so make them appear 'different' and so vulnerable to abuse by others. Leaving aside the issue that people over 16 ought to be mature enough to have abandoned these attitudes by now, students in need of extra tuition should have their concerns taken into account and so extra tuition should be discreet and not too blatant.

173. Another area of contention is 'Independent Learning', where the students are in effect left to their own devices. This is seen as simply a waste of time, which could be better spent on more teaching and guidance. Key skills courses were also seen as being imposed arbitrarily, based on the age of the student rather than their actual proficiency in the area the course was meant to cover. In practice this means 17 year olds with excellent computer skills are forced onto ICT classes whilst students over 20 are not obliged to do so, regardless of whether they would benefit more. To their credit, some teachers and lecturers do try to integrate key skills into their courses, and this should be encouraged.

Conclusions

174. As the session drew to a close, the focus group discussed how students viewed ICT's usefulness. As a rule, students do value training though they may find Key Skills teaching tedious or taught by unwilling lecturers. There was also ambivalence amongst the delegates about the extent of lecturer ICT skills. With some implications for the findings in the survey, it was observed that students who say their lecturers' IT skills are adequate may not themselves know what good ICT skills are.

175. In addition, many lecturers are part-time and consider ICT, and setting it up for each lesson, to be the college administration's responsibility and not theirs. This needs to be resolved so again a national strategy may need to be agreed upon.

176. One idea proposed was an event run by students where lecturers are taught how to use ICT properly. In jest, it was suggested that they be shown bad examples of ICT use which echoed their own poor performance, but the idea was nonetheless considered promising. Certainly, it was the inconsistency of many institutions that was seen as a problem. For example, Moodle uptake is variable and random, and its effectiveness depends more on individual effort than shared aims and goals.

177. Therefore, a proposal for minimum national standards was popular amongst the delegates, with proper E-learning training made compulsory for lecturers. Most importantly, however, students should make clear their grievances and requirements, and be willing to make suggestions whenever possible.

Section 3: Conclusions and recommendations

Summary

178. The report's main points are as follows.

179. *ICT provision can vary widely.*

- One recurring theme from the discussions was that the level of ICT provision varies widely from institution to institution. Whilst some universities and colleges provide considerable resources, others are lacking. This would suggest that overall trends are hard to discern given the sheer level of individual variation.

180*. Individual experiences vary widely.*

- One of the running themes in the research project and its findings is that the range of ICT experiences each student faces is considerable. Part-time and mature students have quite different requirements and experiences from those on apprenticeships or those who are undergraduates, for example.

181*. There is a marked difference between FE and HE experiences.*

- A major factor to consider is that the experiences of FE and HE students are noticeably different. The former complain that their access to ICT is limited in comparison to the HE sector and HE students studying in FE, and that they are often subject to greater restrictions on web use in addition to poor access to necessary software such as Adobe Photoshop. The transition to HE should therefore be considered.

182. *Student views on ICT and copyright can be surprisingly conservative.*

- Contrary to many media depictions, students have profoundly conservative attitudes to subjects related to ICT. They profess a respect for the concept of copyright, frown on the act of texting in a lecture, use print and electronic sources in equal measure and esteem books over online sources.

183. *Students express concerns over more than just ICT.*

- Any discussion of ICT takes place within a greater narrative over other student concerns. Students are concerned as much about referencing and research as with ICT and these discussions take place in a context where the cost of education has risen over the last 14 years.

184. *Lecturers and staff have widely varying levels of ICT competence.*

- One common area of concern for both those who took part in the survey and the discussions was the varying levels of ICT competence on the part of lecturers and staff. Whilst some are clearly skilled or at least able to function in an IT setting, others lack even the most rudimentary ICT skills.

- This has major implications for learning experiences as more and more students arrive at the post-secondary levels with modern requirements and sensibilities.

185. *At present, most students are self-taught.*

- The majority of students have learned to use computers in their own time, with skills dependent on what they have chosen to learn over a broader curriculum that more formal training would grant.

- This is problematic, not least because it implies major gaps in the skill sets of most students, though increasing provision at primary school level upwards may remedy this in the next 10-15 years.

186. *Opinions are divided over the use of hand-held devices.*

- The use of iPhones, PDAs and similar technologies is viewed with a considerably broad range of opinions. Whilst some believe them to be useful sources of information if the correct applications are installed, others consider them to be a potentially intrusive nuisance.

- There are some grounds to believe that they can be useful for disabled students too, but any thoughts of convergence should be shelved as students prefer to do things with iPhones that only iPhones can do, using computers – for example – for a range of other tasks.

187*. ICT has implications for how students learn and use information.*

- Not only do students acquire information differently from ICT – often in a more cursory and less detailed fashion – but they often lack the necessary research and citation skills required to make the most out of such sources.

- Training in these areas is therefore considered very important and can also be seen as a way of protecting and maintaining academic integrity.

188*. Opinions are divided over e-learning.*

- The relative merits of e-learning are widely debated by the student body, with some considerable differences reported at the focus groups. The fear amongst some is that e-learning will not only undermine the quality of teaching but also the amount of information available and the social benefits of a physical classroom or lecture hall experience.

- Others however argue that e-learning has many advantages, not least convenience for full and part-time workers alongside those with family and other responsibilities. Also, that students should be able to learn in a fashion best suited to them and their circumstances.

Main findings

189. These are the report's main findings:

190*. Students prefer a choice on how they learn.*

- As mentioned above, students are most responsive to a range of possible learning methods rather than one or two prescribed options. ICT is in this context seen as simply one of those many possibilities, alongside part-time and traditional full-time learning.

- Flexibility seems to be of more importance in this case than ICT skills, again implying that there are broader issues worthy of debate in this case. ICT is seen as potentially useful in that it could enable this to happen, though the other benefits it grants should not be discounted.

191*. Virtual Learning Environments are often poorly run and students are not always offered training to understand how to use them.*

- A common complaint encountered during the project was how variable the extent and use of Virtual Learning Environments and Blackboard functions were, and how these often lacked the information students wanted.

- In part, this seems to be due to academics withholding some information over concerns that if students are given 'too much', they would lose their motivation to attend lectures and seminars, and so lose the benefits that attending these bring. Student views on the matter suggest this is not the case, but it is a conflict that must be resolved.

- The level of training available to students using VLEs is also lacking in many cases and so they are not used to full effect because of this. Similarly, there are academics that also lack equivalent training.

192*. Many academic staff need better ICT training.*

- This highlights the fact that many academics lack suitable ICT skills, and so a solution for this problem needs to be devised. (Please see the next section.)

- Conversely, many students seem satisfied with their lecturers in this regard, and while this may reflect students' own lack of ICT knowledge, it also suggests a broad variation in competencies amongst HE staff.

193*. Online publication has many benefits with several caveats.*

- Online publication of journal articles and other examples of academic publishing would be cheap, effective, widely available and allow considerably wider dissemination of information.

- Nonetheless, this means that the traditional peer review system would be undermined, raising questions as to what system may replace it adequately.

194. *ICT is not a 'cost-saver' but does bring other benefits to institutions.*

- While ICT has not brought the cost-savings many thought it would bring, the added convenience, interactivity and ease of access it has brought mean the benefits are more than compensation enough.

195. *Better research skills are needed to avoid plagiarism.*

- Students remain perilously uninformed about correct research and referencing skills. However, some lecturers seem content to let their students learn through trial and error. This is undesirable as students have access to a vast range of information on the Web, and they are seldom aware of how to make best use of it. Alongside better ICT training, formalised education in these areas is also necessary.

196. *Proactive institutions are successful and resolve many issues.*

- As the example set by the Universities of York and Bradford show, proactive engagement with students and co-ordinated efforts by institutions allows for a marked improvement of standards and accountability.

- These institutions should therefore be seen as exemplars by others, with their ideas and findings adopted and disseminated when and as required.

197*. Generational conflict between Web-native students & Web-immigrant staff*

- The ICT issue does highlight a growing generation gap between students, who tend to be web native, and the staff who teach them, often web immigrants at best, or completely inept at worst.

- Better education and training is needed to resolve this.

- However, conflicts between students/universities and 'Institutional Dinosaurs' seem inevitable at this time, the best hope being that the worst offenders can be 'grandfathered', whilst the rest are encouraged to adopt ICT through proper training.

198*. Students use an equal combination of old and new media sources.*

- Students still attach importance and value to printed materials and prefer to use them in conjunction with ICT rather than favouring one over the other.

- This again suggests a desire amongst students for continuity as well as progress, and this should be borne in mind by both institutions and researchers when further discussing or planning for ICT.

Recommendations

199. Given these findings, the report makes the following recommendations.

200. *Institutional responses to ICT.*

- All institutions should have an ICT strategy that is revised every three years and students should be actively engaged in the process of developing that strategy.

201. *Institutional organisation and planning.*

- University faculties should appoint Senior Fellows responsible for new technologies and integrating them into teaching and learning.

202. *Institutional funding strategies.*

- Faculties should have innovation funds to support academics in developing new ways of using ICT.

203. *Development of new courses and modules.*

- ICT usage and learning should be embedded into the design of new programmes through the validation process.

- Periodic reviews should assess the extent to which VLE and ICT is used to enhance learning.

204. *Institutional VLE use and policies.*

- Institutions should review the use of their VLE to identify and share good practice of where it has been used to enhance the student learning experience

205. *Use of ICT to attain greater efficiency and convenience.*

- Institutions should consider ways of making university administration more accessible through technology, including e-submission of assessments, registration and course choices.

206. *Student training needs and provision.*

- All students should be offered training needs analyses of their ICT skills at the start of their programme to identify their training requirements. This could

include an online test to identify skills gaps in common software packages like Word, Excel, graphics design packages and other products, such as Dreamweaver, InDesign, Endnote and Flash.

207. *Implications for module and course validations.*

- The course evaluation form should question the extent to which tutors have integrated ICT into the courses

208. *ICT and career development requirements.*

- ICT skills should be integrated into Professional Standards Framework, in institutional promotional criteria and also selection for teaching awards.

- Institutions may also wish to consider whether staff could be paid for or given time off to attend ICT training so that it is not seen as an added burden

Suggestions for further research.

209. With the report's findings in mind, and given the considerable amount of work that still needs to be done in order to understand this subject, the report ends with a list of suggested areas in need of further research insofar as they relate to student ICT.

210. *Surveys concerning the ICT needs and interests of postgraduates and mature students.*

- It would be productive to pursue research into the specific ICT needs of undergraduates in their second and third years, postgraduates and students over 30.

- Given the at times surprising results of this report's research, any information gained from this secondary research would no doubt be very interesting if not predictable.

211. *What are the implications for part-time learners?*

- Despite the fact that part-time students constitute over a third of the student population, and that this share may increase as applicants enter the job market to at least partially afford their education, this report lacks much data in regards to their actual circumstances.

- With this in mind, a research project gauging part-time student attitudes towards the subject matter of this report would be useful and also involve part-time students in NUS and institutional decision making.

212. *How may the recommendations in this report be best realised?*

- Even if the report's suggestions are realised, this does not necessarily guarantee success. A research project monitoring the implementation of its findings would be constructive and allow suitable 'pressure testing' of ideas and conclusions featured in this report.

213. *How is ICT employed in foreign institutions?*

- It would also be instructive for research to be carried out into how ICT policies are implemented by foreign institutions, and what lessons can be learned through the experiences of other nations undergoing the same transformation and debate.

214. *To what extent does ICT assist or undermine learning?*

- Whilst this report uses anecdotal evidence and personal input to develop its findings, there has so far not been a research project that seeks to discover if this is actually true.

215. *What lessons can be learned from the last 20 years of HE ICT?*

- Given that the period of time from 1990 to 2010 has seen considerable change, it seems strange that no analysis of this period's developments and their implications has as yet been undertaken.

- Such analysis would be advantageous in that it would examine the evolution of computer use over this time and how long-term trends in the area affect student learning experiences as a result.

216. *How will new and emergent technologies affect student experiences?*

- The past decade has seen a great many technological innovations, particularly in the last five years or so. How will new developments continue this trend, such as the recently released iPad and how best to integrate these new devices into a large yet cohesive university structure?

217. *What effects does ICT have on specific subjects?*

- The requirements of a History student will be quite different from those of a Biology student. Research needs to be undertaken in order to assess and establish what these needs are.

218. *Digital Humanities and hypertext: what can they do for students?*

- Digital Humanities is a viable research area where technology is used in order to further assist research and study. Hypertext, which uses electronic media's freedom to reinterpret text and textuality accordingly, should also be seen as an area worthy of exploration as part of student ICT requirements.

- Research into how these can be used to assist students may be one possible avenue for further work, in particular how beneficial they and their theories are to an ever-changing student population.

219. *What effect will this report's recommendations have on ICT in the next 10 years?*

220. Finally, if the recommendations of this report are adopted, how best to track its progress or lack thereof?

- Another viable research project would be to study and critique implementations of the findings and determine to what extent they benefit the students.

221. In all, this report not only provides a thorough picture of student ICT needs and interests, for its findings are also opportunities for further research, not only on the part of the NUS but other institutions and academics. Beyond this, its main findings are of deep relevance and all universities and colleges should seriously consider them as part of their own ICT strategies.

Glossary:

Becta	British Educational Communications and Technology Agency
CBI	Confederation of British Industry
ESSA	English School Students Association
FE	Further Education
HEFCE	Higher Education Funding Council for England
HEI	Higher education institutions
HE	Higher Education
ICT	Information and Communication Technologies
IP	Intellectual Property
JISC	Joint Information Systems Committee
MEDS	Mobile Enabled Disabled Students
NUS	National Union of Students
PDA	Personal Digital Assistant
PGCE	Postgraduate Certificate in Education
SU	Students' Union
THE	Times Higher Education Supplement[64]
VLE	Virtual learning environment

[64] For the purposes of this document, all references to the Times Higher Educational Supplement are abbreviated to THE