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# **Research methodological issues with researching the learner voice**

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## **Handbook of Research on New Media Literacy at the K-12 Level: Issues and Challenges**

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### **Abstract**

This chapter provides a summary of current research exploring students' use of technologies. It focuses in particular on a case study carried out in the UK, which explored the use of technologies by students in four different disciplines. The case study included an online survey, audio logs and interviews. The findings suggest that students are now immersed in a technology-enhanced learning environment and use technologies extensively to support their learning activities. It points to changing digital literacy skills and has profound implications for educational institutions in terms of how courses are designed and delivered and in how students are supported in their learning.

### **Introduction**

There is currently a lot of interest in exploring students' use of technologies and how they are appropriating new technologies for learning. The chapter provides a review of some of the current work being conducted in this area, concentrating in particular on work from the UK (including projects funded through the JISC Learner Experience programme and the HE Academy e-learning pathfinder programme) but also draws on research from the States and Australia. Although the research drawn upon is primarily in a tertiary level context, the findings and implications are still of considerable relevance to the K-12 sector. In particular the chapter will critique the different methodological approaches that are being adopted and discuss how this influences the research findings. The chapter will draw in particular on research data, which the author has collected through the JISC-funded LXP project. The chapter will conclude by summarising some of the themes, which are emerging from this research and consider the implication of these findings for educational institutions and the changing skills set of both academics and students.

### **A shift to the learner voice**

It's interesting to reflect on the parallels in the evolution of technologies and their use. Early use of the web was dominated by a focus on content, on information presentation, whereas the emergence of web 2.0 tools has shifted focus to user-

generated content, communication and collaboration. Many are arguing that we are seeing a profound shift in the ways in which technologies are being used in education, and that we need to evolve new pedagogical paradigms to best meet these needs (Alexander, 2006; Downes, 2006).

Research activities follow interesting and difficult questions – no more so than in e-learning research. Although one could argue that it is technologically deterministic to take such a stance, in reality the profound and fast changing nature of technologies cry out for dedicated research to understand these changes and their implications. E-learning research covers a broad church of interests: pedagogical, organisational and technical research interleave (Conole and Oliver, 2007, Conole, 2008). Within pedagogical research the focus ranges from questions about how to design appropriate educational interventions which best utilise new technologies, through to understanding the changing literacy skills needed by teachers and students to use these. The perception that new technologies are having and will continue to have a profound impact on students and the way in which they are learning has led to the growth of interest in research which focuses on the student voice. How are students using technologies to support their learning? Is there an indication of the ways in which learning is changing as a result? What is the impact of this: on teachers – in terms of how they design and support educational activities? What is the impact on the educational organisation? In terms of providing a flexible and evolving learning environment for students, how can institutions make good use of new and emerging technologies? What might be appropriate enabling, future-orientated strategic and policy frameworks?

### **A timeline of some key learner experience research**

This section highlights some of the key research looking at students and their use of technologies over the past five years. In the space permitted I cannot hope to do justice to the wealth of literature on this topic; instead I have cherry picked a few examples, which typify the general trends being observed across most of the studies. Oblinger and Oblinger's book (2005) provides a useful starting point in terms of recent research in exploring students' use of technologies. It acted as somewhat of a watershed in terms of tuning into the increasing research interest in studying how students were interacting with technologies and how this might be changing the ways in which they were learning. Terms such as "Netgeneration", "Nintendo kids", "Millenials" (amongst others) typify this movement (see for example Tapscott, 1998; Prensky, 2001; Kennedy et al., 2006, Baird and Mercedes, 2006; Oblinger and Oblinger, 2005, Morice, 2000). In the introduction to the book 'The NetGeneration' Oblinger notes "We hope this book will help educators make sense of the many patterns and behaviors that we see in the Net Generation but don't quite understand" (Oblinger and Oblinger, 2005:7). The general arguments the book puts forward are that:

- Technologies are 'interwoven' through all aspects of the lives of the netgeneration
- Today's netgeneration have grown up with technology
- Use and ownership of technologies is becoming near ubiquitous
- Students use the web extensively for homework.

Students view technologies as ‘part of our world’ and ‘embedded in society’. They feel that technologies help ‘makes things faster’ and ‘enable them to learn better’ (in their view). The variety of communicative channels enables them to connect more with family, peers and teachers; to communicate and collaborate more effectively. Oblinger and Oblinger make some bold statements suggesting that children born post 1980 are different.

Individuals raised with the computer deal with information differently compared to previous cohorts: “they develop hypertext minds, they leap around.” A linear thought process is much less common than bricolage, or the ability to piece information together from multiple sources (Oblinger and Oblinger, 2005:15).

A key argument they put forward is that these students are digitally literate; that they are intuitively able to use and navigate around the internet. It is suggested that they are more visually literate than previous generations, but also that their approach to understanding is more surface level and multifaceted. Other characteristics of this generation include the fact that they are virtually connected and more socially orientated. The affordances (Gibson 1979, Conole and Dyke 2004, Gaver 2006) of technologies offer immediacy and hence students expect quick responses to queries posted and operate very much on a ‘just in time’ basis. They are more experiential in their approach to tackling problems. Oblinger and Oblinger see clear implications arising as a result of these trends:

Whether the Net Generation is a purely generational phenomenon or whether it is associated with technology use, there are a number of implications for colleges and universities. Most stem from the dichotomy between a Net Gen mindset and that of most faculty, staff, and administrators. (Oblinger and Oblinger, 2005:21)

In a related study in Australia, Kennedy et al. (2006) had comparable findings and came to similar conclusions. They used a survey to gather quantitative and qualitative data about students’ use of technologies. Published three years later, it was evident that the trend identified by Oblinger and Oblinger (2005) continued: with increasing levels of access and use of a range of technologies. The study found that students were ‘overwhelming positive’ about the use of technologies, indicating that they used them for all aspects of their studies (finding information, communicating with teachers and peers, course administration and general study purposes). Although published before the current wave of web 2.0 technologies really took effect, the study nonetheless shows evidence that students were starting to use social networking sites such as MySpace and the use of wikis and blogs were beginning to increase. However the study found that patterns of use were not homogenous:

[Student were] very tech-savvy. Many students are using a wide range of traditional and emerging technologies regularly in their daily lives. However, there are clearly areas where the use of and familiarly with technology-based tools is far from universal among first year students. (Kennedy et al., 2006:8)

This strikes a warning – suggesting that as we move nearer and nearer to near-ubiquitous access to technologies; the digital divide may be narrower, but is becoming ever deeper (Warschauer, 2003).

In terms of use of particular technologies – two patterns of responses were evident. The first were those that the majority of students wanted or were using, such as manipulating text and data, finding information on the web, communicating via email, chat and other tools, accessing basic course information or university administration systems. For the second group of technologies, there were more divergent views. The technologies in this group included tools that were not being used by the majority, but rather by a sub-set of students. These included social networking tools, mobile devices, web conferencing systems, RSS feeds and blogs. This suggests that there is a core set of technologies that all students are using and that additional technologies are taken up (or not) depending on personal preferences and individual ways of working.

In a similar vein to the Oblinger and Oblinger work, Kennedy et al. concluded by considering the implications of these findings for their university.

[This study] has significant implications for individuals, faculties, support units and the University as a whole. At the time of growing interest in the attributes of the so-called 'NetGeneration', it is particularly important for universities to ensure that decision-making about how to enhance the learning of incoming university students is evidence-based and empirically informed. (Kennedy et al. 2006: 13)

In parallel to the work being undertaken by Oblinger and Oblinger in the States and Kennedy et al.'s work in Australia, in the UK a review of learner experience literature (Sharpe, Benfield et al. 2005) suggested that there was a scarcity of studies focusing on the learner voice (beyond that of simple course evaluations). However, Thorpe et al. (2008) point out that there is a rich literature focusing more broadly on the learner experience, citing in particular Richardson (2006,) and Entwistle and Ramsden (1983). Sharpe et al. argued that far more emphasis on e-learning research to date appears to have been given to the practitioner perspective and to course design. The Sharpe *et al.*'s report distilled out a number of overarching themes. In terms of the student voice they highlight three aspects: *Emotionality* (students mixed views on the pros and cons of e-learning), *Time Management* (the contradiction between the tutor-centric view of the flexibility technologies afford and students' concerned about the additional time requirements), and *e-learning skills* (a wider range of skills than just IT skills are needed for students to make most effective use of technologies to support their learning). In terms of the factors affecting the e-learning experience they highlight literature on: the influence of the *tutor*, the influence of *pedagogy*, *learner differences* – gender, culture, learner preferences, language, disability, etc, and *effectiveness as an e-learner*.

As a result of the Sharpe et al. review, JISC commissioned two projects - the LEX and LXP studies; the latter is discussed in more detail in the next section. The focus of LEX was across both formal and informal learning. The aim was to 'investigate learner's current experiences and expectations of e-learning across the broad range of further, higher, adult, community and work-based learning (Creanor, Trinder et al. 2006). The study focused on three main questions: characteristics of effective e-learners, beliefs and intentions, and strategies for effective e-learning. The findings led to the development of a conceptual framework, which mapped five high level categories (life, formal learning, technology, people and time) against five influencing dimensions (control, identity, feelings, relationships and abilities).

This first phase of the JISC Learner Experience programme generated considerable interest in the e-learning research community and seemed to strike a timely nerve as individuals and institutions began to realize that we are in the midst of a paradigm shift in terms of the use of technologies by students and hence the associated implications for institutional structures, processes and strategy. JISC (through the Phase Two Learner Experience Programme)<sup>1</sup> has now commissioned a second phase of work, which consists of seven projects:

- Hertfordshire - STROLL (Students reflections on lifelong e-learning)
- Warwick - Students' Blending Learning User Patterns (BLUPs)
- Open University - Learners' experiences of blended learning environments in a practice-based context (PB-LXP)
- Oxford University - Exploring the Experiences of Master's Students in Technology-Rich Environments (THEMA)
- Northampton University - e-Learning for Learners (e4L)
- Edinburgh University - Learner Experiences across the Disciplines (LEaD)
- Southampton University - Disabled Learners' Experiences of e-learning (LExDis).

Other related JISC-funded projects include

- SPLASH (Student Personal Learning and Social Homepage)
- Myplan (Personal Planning for learning throughout life)
- WALES (Work based access to learning through e-Services)
- eLIDA CAMEL (e-learning Independent Design Activities for Collaborative Approaches to the Management of e-Learning)
- Isthmus project (linking the personal and institutional in learning technologies), exploring the technologies that students use and the technologies offered by academic institutions.

Whereas, JISC has a focus on technologies per se and the ways in which they are used to support teaching and research in tertiary education, the HE Academy has a broader learning and teaching remit, furthermore "the student experience" is an identified core part of the HEA's mission. The HE Academy have funded a number of studies focusing on similar issues, including:

- Evaluating systematic transition support into HE (Bradford University)
- ADDER (Assessment and Disciplines: developing e-tivities research), (Leicester University)<sup>2</sup>
- Making Connections: using e-learning data to improve retention rates in higher education (Middlesex University)
- The Alignment between Design, Implementation and Affordances in Formal and Informal eLearning (Portsmouth University)

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<sup>1</sup> Further information and links to each of the project websites is available from the JISC Learning Experience Programme website

[http://www.jisc.ac.uk/whatwedo/programmes/elearning\\_pedagogy/elp\\_learnerexperience.aspx](http://www.jisc.ac.uk/whatwedo/programmes/elearning_pedagogy/elp_learnerexperience.aspx)

<sup>2</sup> [http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/adder\\_page](http://www2.le.ac.uk/departments/beyond-distance-research-alliance/projects/adder_page)

- Enhancing the student experience of workplace-based e-learning: a systematic review and best practice framework (Sheffield University)
- Learning from digital natives: integrating formal and informal learning (Glasgow Caledonian and Strathclyde Universities).<sup>3</sup>

Two surveys on patterns of technology use of relevance to this discussion are the SPIRE report (SPIRE, 2007), which focused on the use of web 2.0 technologies and the JISC Ipsos MORI poll (JISC, 2007), which looked at school leavers' views of technologies and their expectations of the kind of technological environment they expect at university. Crook and Harrison have just completed a study of the use of web 2.0 technologies in schools (Crook and Harrison, 2008). The Institute for Prospective Technological Studies (IPTS) have just completed an extensive study of Learning 2.0 practices across European educational and training sectors. These provide complimentary findings to the more context specific case studies described above.

Results are beginning to emerge from these projects - see for example a seminar (Beetham et al., 2008) covering four of the phase two JISC projects at the Networked Learning conference in May 2008. Findings echo those of the early studies discussed here and are beginning to provide more detailed, richer accounts of actual use as well as an aggregate body of empirical data from which we can begin to extrapolate future trends and patterns of use.

### **Focusing on an in-depth study: findings from the LXP project**

The previous section provides a summary of some of the key research exploring students' experience and use of technologies. This section provides a summary of the findings from one in-depth study within this wider body of research.

The LXP project (Conole et al., 2006, Conole et al. 2008) was funded by the Joint Information System (JISC) in the UK as part of a wider programme of research looking at learners' experience of using technologies. The main research questions addressed were:

- How do learners engage with and experience e-learning?
  - What is their perception of e-learning?
  - What do e-learners do when they are learning with technology?
  - What strategies do e-learners use and what is effective?
- How does e-learning relate to and contribute to the whole learning experience?
  - How do learners manage to fit e-learning around their traditional learning activities?

The project was particularly interested in extrapolating out subject discipline differences in the use of technology and worked in conjunction with four of the UK's HE Academy subject centres: Medicine, Dentistry and Veterinary Medicine; Economics; Information and Computer Sciences; and Languages and Linguistics. These centres were chosen because they gave a good spread of subject areas and because they were centres who had a track record and interest in research on both the way in which students learn and the use of e-learning. Data was collected through a

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<sup>3</sup> <http://www.academy.gcal.ac.uk/ldn/>

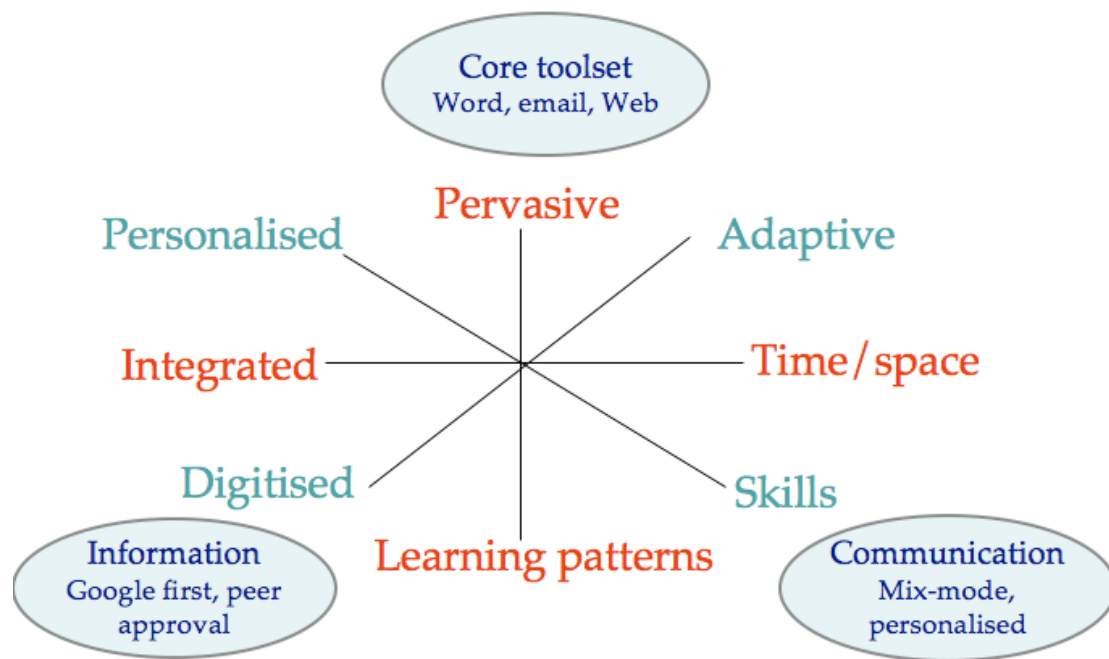
detailed online survey, which gathered both qualitative and quantitative data about how students are using technologies and a series of in-depth case studies chosen to represent interesting instances of technology use. The students were required to send in audio logs at various points during the study to describe how they were using technologies, towards the end of the study semi-structured interviews were conducted.

The study yielded both expected and unexpected findings in terms of students' use of technologies. The expected findings are useful in terms of providing valuable up-to-date empirical evidence of students' current learning environment. The unexpected findings give a hint of the student learning-environment of tomorrow and raise a range of important implications for policy and practice.

Across all subjects the students made extensive use of personally owned technologies including mobile phones, laptop computers, personal digital assistants and USB memory sticks. In terms of expected findings the study revealed that students are using a range of standard packages (Word, PowerPoint, etc) in creating and presenting learning artefacts and assignments, and for manipulation of textual and numerical data (Excel, statistical software).

The Web is unequivocally the first port of call for students – with extensive examples across the study of how students are using search engines, dedicated subject-specific sites and e-journals to find information of relevance to their studies. What is surprising perhaps is the extent to which this is common practice amongst the students and the sophisticated ways in which they are finding and synthesising information and integrating across multiple sources of data. Similarly, technologies are used extensively by students to communicate with fellow peers and tutors, with students demonstrating the use of a variety of tools (email, MSN chat, skype, mobile phones, etc) to support a range of different forms of communication. Again the level and type of communication is notable – there is strong evidence of peer support and peer community, resonant with the rhetoric inherent in the idea of social networking and the world of Web 2.0. The key picture that emerges is that students are appropriating technologies to meet their own personal, individual needs – mixing use of general ICT tools and resources, with official course or institutional tools and resources. The above findings point to a profound shift in the way in which students are working and suggest a rich and complex inter-relationship between the individuals and the tools.





**Figure 1: The LXP framework**

The following eight factors (Figure 1) emerged from the data in terms of the changing nature of the way students are working.

- *Pervasive and integrated:* Students are using technologies extensively to find, manage and produce content. They use technologies to support all aspects of their study. Students are using tools in a combination of ways to suit individual needs. There is evidence of mixing and matching. They are comfortable with switching between media, sites, tools, content, etc. They said that technologies provide them with more flexibility in terms of being able to undertake learning anytime, anywhere.
- *Personalised:* They appropriate the technologies to suit their own needs. They use the computer, the internet and books simultaneously. Their learning is interactive and multifaceted, and they use strategies such as annotation and adaptation of materials to meet their learning needs.
- *Social:* Students are part of a wider, networked, community of peers. They are members of a range of communities of practice - to share resources, ask for help and peer assess.
- *Interactive:* Students' perception of the nature and inherent worth of 'content' is changing: they have access to a rich variety of free material that is easily downloaded via the Internet. Students expect high quality, interactive materials with a preference for 'byte' sized and condensed forms of information that can easily reviewed anytime, anywhere and store on handheld devices. Content is no longer 'fixed' and 'valued', it is a starting point, something to interact with, to cut and paste, to adapt and remix.
- *Changing skills set:* Students are demonstrating new skills in terms of harnessing the potential of technologies for their learning. These include developing new forms of evaluation skills and strategies (searching, restructuring, validating), which enable them to critique and make critical decisions about a variety of sources and content. Students are becoming

sophisticated at finding and managing hybrid forms of information drawn from a multitude of traditional (text books), existing (Google search engines) and emerging (blogs, Wikipedia) sources.

- *Transferability*: They see the PC as their central learning tool. They are used to having easy access to information (for travel, entertainment etc) and therefore have an expectation of the same for their courses. There is evidence of the transfer of practices of their use of technologies in other aspects of their lives to their learning context: for example MSN chat, Amazon, ebay and Skype.
- *Time*: The concept of 'time' is changing – both in terms of expectation of information and results on demand. There is evidence that despite the fragmentation of the learning timetable, technological tools (email, mobile phone, MSN, Skype, WebCT) are mediating and allowing students to remain connected and synchronised.
- *Changing working patterns*: New working practices using an integrated range of tools are emerging. The use of these tools is changing the way they gather, use and create knowledge. There is a shift in the nature of the basic skills with a shift from lower to higher levels of Blooms' taxonomy, necessary to make sense of their complex technologically enriched learning environment.

Students are evidently comfortable with using technology and see it as integral to their learning. They are generally sophisticated users, using technologies in a variety of different ways to support different aspects of their learning. They are critically aware of the pros and cons of the use of different technologies and 'vote with their feet' – i.e. they don't use technologies just for the sake of it – there needs to be a purpose and clear personal benefit. They have an expectation of being able to access up to date and relevant information and resources and see this as vital. They don't see the technology as anything special; but see it as just another tool to support their learning.

Reflecting on the findings from LXP and LEX projects and the emergent findings of the phase two projects, Beetham (2008) notes that 'effective e-learning involves complex strategies in which personal beliefs, motivations and affective issues are a factor as well as access and skills.' She argues that although the general trend in terms of the findings from these studies is that students are becoming increasingly digitally literate, it is also true that there is a large diversity of literacies and in particular that although students may be digitally literate this does not necessarily mean they are able to appropriately harness these for academic purposes.

### **Methodological issues**

A number of methodological issues arise from this work. Sharpe et al. (2005) raise the issue of methodology in terms of researching the student voice and Mayes (2006) provides a contextualized methodological review related to the LEX project (Creanor et al., 2006).

I am arguing here that there is a distinct difference between directly researching the learner voice as opposed to focusing on different aspects of activities around learning and teaching such as academic practices, organizational issues or conceptual aspects of learning (i.e. pedagogical frameworks or technical architectures). The reason is that students are at the centre of the educational process; courses are designed and

delivered *for* them, student engagement is monitored and assessed through formative and summative mechanisms, quality assurance frameworks are designed around the course lifecycle and are predicted on the assumption that students progress through the system from induction through to graduation. Therefore shining a research lens directly on the student is problematic. The student has a vested, personal interest in their studies and their successful completion and any responses they make under research scrutiny must be understood in that light.

How can we ensure that the responses we get from students about their expectations and experiences are valid, unbiased? Is there a need for new methodological approaches to try and elicit the real learner voice? Where the researcher is an insider-researcher, involved in the design/delivery of the course being studied, does this add an additional layer of bias? Can we develop better ways of analyzing the digital traces that students leave when traversing through their courses?

Surveying the literature shows that a range of methods are being used to study the student voice. Methodologies are predominantly interpretive in nature; there has been a move away from experimental approaches. In terms of methods a range are evident – interviews, focus groups, observation, surveys, student journals, video and audio diaries, document analysis, and web tracking. In-depth case studies are popular, as are large-scale surveys. In terms of web tracking there is surprisingly little evidence of innovative methods on analyzing the digital traces left by students, and this is certainly an area worth exploring.

Video and audio diaries have gained in popularity in recent years, as a means of letting the students tell their own stories in their own words. In our LXP study we used audio logs to good effect (Conole, 2007). Students were asked to phone in at critical moments in their study and were asked to describe what they were doing, what tools they were using and how they were feeling. Although short (between 30 seconds and 2 minutes in length) the audio logs proved to be a surprisingly valuable source of data. They gave a rich picture of what the students were doing with the technologies and associated affective issues. The audio logs were in situ, emotive responses, as opposed to interviews or video logs, which provided more reflective and retrospective account of students' experiences.

Video logs tend to be of three types: recorded interviews, student self-reflections or post-research summative accounts of an individual and their use of technologies. The latter was a technique used as a means of summarizing the research findings from the JISC LEX project. These video logs have proved to be very powerful as a means of conveying research findings to a wider audience. For example “Laura” a young student who demonstrates that she is technological savvy and that technologies infiltrate all aspects of her life, “Jenny and Emma” who describe how they used e-portfolios and blogs during their teacher training programme. Short 2 or 3 minute video clips of individual students and their interaction with technologies seem to be able to convey the essence of the research findings, encapsulating the key aspects of student-technology interaction. They have proved to be very powerful images, which have struck a cord with those watching.

At the risk of over generalizing it seems that there are two predominate approaches to research in this area: use of surveys and in-depth case studies.

Surveys appear to be a very common technique, widely used in research in this area and group into two categories – those surveying within an institution and those adapting a broader sampling strategy – across a particular subject area, sector or level of student. Many of these are now being routinely collected on an annual basis providing a valuable growing body of longitudinal data which can be retrospectively queried, giving us the opportunity to see changes in technology uptake and use, identify emergent trends and make predictions for future directions. Edinburgh University for example has been doing a survey of students' use of technologies since the early nineties (see for example Hardy, 2008 and associated references) and the annual ECAR survey of undergraduates in the States is now in its fourth year (ECAR, 2007), with an impressive 28, 000 student responses. The general trends and patterns of use from the surveys through the quantitative statistics, along with the more descriptive statistics from the qualitative responses, give a rich overall picture of students' engagement with technologies.

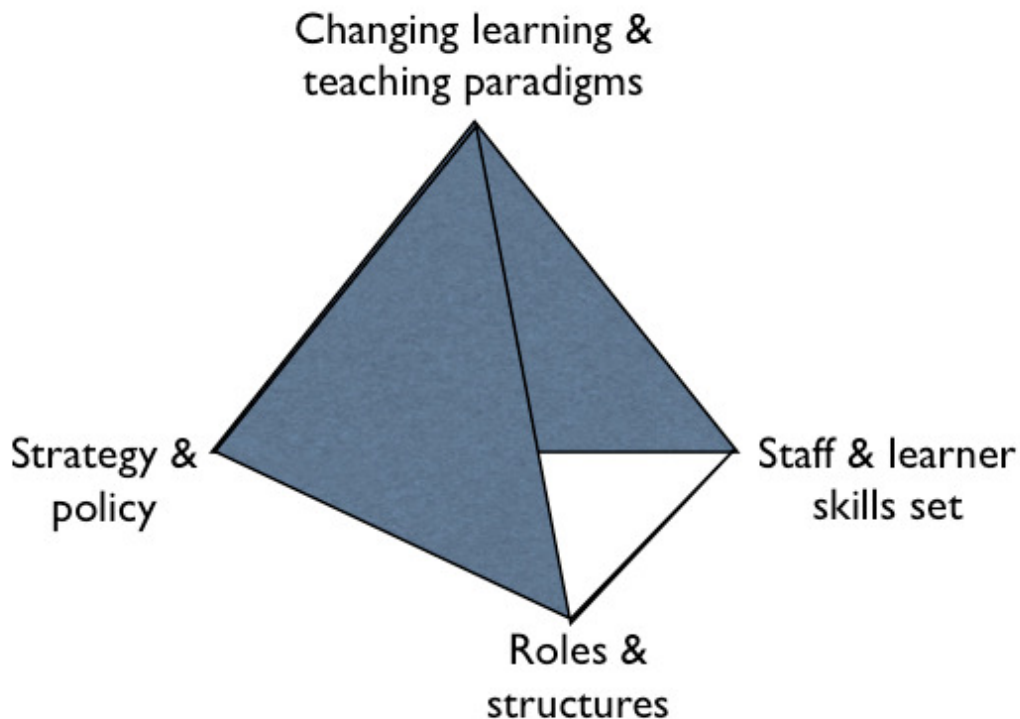
In-depth case studies provide an alternative to survey collection as a means of understanding the student voice. All of the JISC learning experience programme projects are adopting a case study approach, as are many of the other studies cited earlier in the chapter. The details of the case studies vary of course – in terms of the research questions, and data collection and analysis. Some focus purely on the student perspective, others cast a wider lens looking at the teacher perspective, how courses were designed and wider contextual issues. Different theoretical frameworks are used which give a different focus for the interpretation of the results; two theoretical perspectives that seem to be particularly popular are Activity Theory (Engestrom et al., 1999) and Wenger's Community of Practice (Wenger, 1998). Activity Theory has been appropriated by for researchers who want to get a better understanding of the context within which the learning is occurring and its impact on students' experience of using technologies, whereas Wenger's work is drawn on where the interest is more on the social interactions and collaborations that are occurring.

Despite the methodological differences between surveys and case studies the data emerging from both is very complementary and indeed many studies incorporate aspects of both and use this as an important means of triangulation within their analytical cycle.

### **Implications and future trends**

A retrospective review of the timeline of technology developments (Cook et al., 2007) showing a series of peaks and troughs in terms of the impact of technology. It is evident that there are key critical moments, step-changes, new waves – the shift from mainframes to PCs, the introduction of the Internet or the update of Virtual Learning Environments/Learner Management Systems for example. Each 'wave' acts as a catalyst – sparking a range of new innovations and developments and ultimately settling down and becoming embedded in practice and policy. The findings from the student experience research described in this chapter show that the impact of these various technologies is cumulative – student are now immersed in a rich, technologically enhanced learning environment, where technologies are core tools for learning. The most recent wave, so called web 2.0 technologies, it could be argued is somewhat of a 'tidal wave'; the spread of uptake and appropriation of these new technologies in the last few years has been phenomenal. The impact on students –

their patterns of use, the nature of their digital literacy is not yet fully understood but is likely to be profound. Figure 2 argues that there are four areas where these technologies are likely to have a significant impact: teaching and learning practices, staff and student skills sets, roles and structures, and strategy and policy.



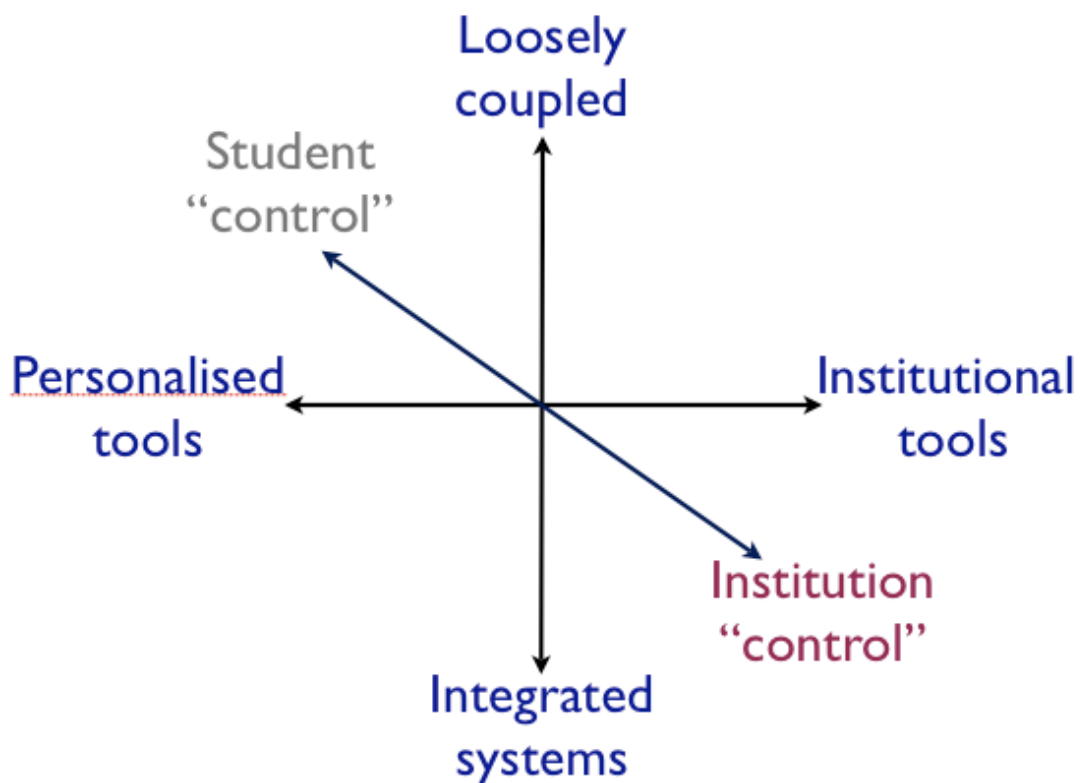
**Figure 2 Implications of new technologies**

The term disruptive technologies (Sharples, 2003) has been around a long time, but is a particularly apt description in terms of what is currently happening within education - as institutional control and IT systems come head to head with the loosely coupled, user-centred, personalised power of web 2.0 technologies. Just as educational institutions were beginning to feel they were getting to grips with mainstreaming technologies and developing coherent strategies which assumed that technologies were core to all aspects of institutional business (and not simply peripheral innovations relevant to early adopters), along came a tidal wave of web 2.0 technologies which raised a whole set of new questions and issues:

- If excellent tools for managing information and facilitating different forms of communication are now available free (GoogleDocs, GMail, free wiki and blog software, twitter, etc) is there a need to replicate this with an institutional VLE that arguably has a more limited functionality?
- What are the implications for teaching of exciting and immersive virtual 3D worlds such as SecondLife or rich, peer-supported, collaborative gaming environments, such as World of Warcraft?
- International research evidence shows that students are increasingly digital in all aspects of their lives – what are the likely demands on institutions of this born-digital generation?
- As both students and teachers migrate to enveloping themselves in their own personalised environment of tools, how does this relate to and integrate with institutional tools?

- As students, as a whole, become ever more digitally literate, is the digital divide smaller but deeper for those who can't or won't use technologies?
- Although generally digitally literate, what is the evidence that the students know how to appropriate these technologies for *academic purposes*?
- Many argue that to 'get' web 2.0 you need to do it - is there a widening chasm within our institutional of those who 'get' it and those who don't?

This 'clash' between institutional systems and web 2.0 (Figure 3) has profound implications across all aspects of work within educational institutions – from future directions for policy and strategy, to the design of appropriate support infrastructures for students, to the way in which we design and deliver courses.



**Figure 3: Tensions between institutional and student control**

### Conclusion

What is clear is that technological developments are having an increasing impact on all aspects of institutions – from structures and processes, through to the role of academics and the nature of the student experience. Research which focuses on the student voice and what students are doing is vital to ensure we keep a close eye on developments and take account of the implications of the emergent findings. This research needs to feed directly into practice – to course design, to how students are supported, into staff development opportunities and also into institutional and national policy and strategy directives. These are challenging times, this is a fast moving area – there is a real need for continued research in this area and for new methodological innovations and fresh insights into both identifying and addressing the profound implications which are going to continue to arise as technology becomes more and more integral to the student experience.

## Acknowledgements

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## References

- Alexander, B. (2006), 'Web 2.0: A new wave of innovation for teaching and learning?', *Educause review*, 41(2): 32-44.
- Baird, D.E and Mercedes, A. (2006) Neomillennial user experience design strategies: utilizing social networking media to support 'always on' learning styles. *Journal of educational technology systems*, 34 (1): 5-32.
- Conole, G. (2007), 'Briefing on the use of audio logs', LXP project report, Southampton: University of Southampton, [www.jisc.ac.uk/elp\\_learneroutcomes.html](http://www.jisc.ac.uk/elp_learneroutcomes.html) [21/08/09]
- Conole, G. (2008), International perspectives on e-learning: mapping strategy to practice, paper presented at the CIDER Pan-Canadian E-Learning Research Agenda online conference, available online at <http://scope.lidc.sfu.ca>.
- Conole, G. and Dyke, M. (2004) 'What are the affordances of Information and Communication Technologies?', *ALT-J*, 12(2): 113-124.
- Conole, G. and Oliver, M. (2007), 'Introduction', in G. Conole and M. Oliver (eds), *Contemporary perspectives in e-learning research: themes, methods and impact on practice*, part of the Open and Distance Learning Series, F. Lockwood, (ed), RoutledgeFalmer.
- Conole, G., De Laat, M., Dillon, T. and Darby, J. (2006), 'JISC LXP: Student experiences of technologies', Final report of the JISC-funded LXP project, Southampton: University of Southampton, available online at [www.jisc.ac.uk/elp\\_learneroutcomes.html](http://www.jisc.ac.uk/elp_learneroutcomes.html) [21/08/09]
- Conole, G., De Laat, M., Dillon, T. and Darby, J. (2008), 'Disruptive technologies', 'pedagogical innovation': What's new? Findings from an in-depth study of students' use and perception of technology', *Computers and Education*, Volume 50, Issue 2, February 2008, Pages 511-524.
- Cook, J., White, S., Sharples, Davis, H. and Sclater, N. (2007), The design of learning technologies, in G. Conole and M. Oliver (eds), *Contemporary perspectives in e-learning research: themes, methods and impact on practice*, part of the Open and Distance Learning Series, F. Lockwood, (ed), RoutledgeFalmer.
- Crook, C. and Harrison, C. (2008), Web 2.0 Technologies for Learning at Key Stages 3 and 4: Summary Report, Becta commission research study, available online at [http://schools.becta.org.uk/upload-dir/downloads/page\\_documents/research/web2\\_ks34\\_summary.pdf](http://schools.becta.org.uk/upload-dir/downloads/page_documents/research/web2_ks34_summary.pdf) [11/11/08]
- Creanor, L., K. Trinder, Gowan, D., and Howells, C. (2006), 'LEX: The learner experience of e-learning - final project report', [http://www.jisc.ac.uk/uploaded\\_documents/LEX%20Final%20Report\\_August06.pdf](http://www.jisc.ac.uk/uploaded_documents/LEX%20Final%20Report_August06.pdf) [21/4/07].
- Downes, S. (2006), 'E-learning 2.0', *eLearning magazine: education and technology in perspective*, <http://elearnmag.org/subpage.cfm?section=articlesandarticle=29-1> [20/04/07]

- Engestrom, Y., Miettinen, R. and R.L. Punamäki (eds) (1999) *Perspectives on activity theory. Learning in doing: social, cognitive and computational perspectives*, Cambridge, Cambridge University Press.
- Entwistle, N.j. and Ramsden, P. (1983) *Understanding student learning*. London: Croom Helm
- Gaver, 'Technology Affordances' available online at <https://www.cs.umd.edu/class/spring2001/cmsc434-0201/p79-gaver.pdf> [22/02/07]
- Gibson, J.J. (1979), *The ecological approach to visual perception*, Houghton Mifflin: New York.
- Hardy, J., Haywood, D., Bates, S., Paterson, J., Rhind, S., Macleod, H. and Haywood, J. (2008), Expectations and Reality: Exploring the use of learning technologies across the disciplines, Proceedings of the 6<sup>th</sup> International Networked Learning Conference, Helkidi, Greece.
- IPTS (2008), Review of Learning 2.0 practice, Learning 2.0 – the impact of web 2.0 innovations in education and training in Europe, IPTS research study, IPTS: Seville
- JISC (2007), Student expectations survey, JISC Ipsos MORI Survey, Bristol: JISC, <http://www.jisc.ac.uk/publications/publications/studentexpectations.aspx>
- Kennedy, G., Krause, K., Gray, K., Judd, T., Bennett, S., Maton, K., Dalgarno, B. and Bishop, A. (2006), 'Questioning the net generation: A collaborative project in Australian higher education', *Proceedings of the ASCILITE conference*, Sydney, December 2006, [http://www.ascilite.org.au/conferences/sydney06/proceeding/pdf\\_papers/p160.pdf](http://www.ascilite.org.au/conferences/sydney06/proceeding/pdf_papers/p160.pdf) [21/4/07]
- Mayes, T. (2006), 'LEX methodology report', The JISC-funded LEX project, Glasgow: University of Strathclyde, available online at [www.jisc.ac.uk/elp\\_learneroutcomes.html](http://www.jisc.ac.uk/elp_learneroutcomes.html) [21/08/07]
- Morice, J. (2000). Skills and preferences: learning from the Nintendo generation. International Workshop on Advanced Learning Technologies: Design and Development Issues, Palmerston North, New Zealand, IEEE.
- Oblinger, D.G. and Oblinger, J.L. (2005), *Educating the net generation*, An Educause e-book publication, <http://www.educause.edu/ir/library/pdf/pub7101.pdf> [20/04/07]
- Prensky, M. (2001), 'Digital natives, digital immigrants', *On the horizon*, 9(5).
- Richardson, J.T.E. (2006) Investigating the relationship between variations in students' perceptions of their academic environment and variations in study behaviour in distance education, *British Journal of Educational Psychology*, 76, 867-893,
- Sharpe, R., Benfield, G., Lessner, E. and DeCicco, E. (2005) 'Final report: Scoping study for the pedagogy strand of the JISC learning programme', [http://www.jisc.ac.uk/uploaded\\_documents/scoping%20study%20final%20report%20v4.1.doc](http://www.jisc.ac.uk/uploaded_documents/scoping%20study%20final%20report%20v4.1.doc) [21/4/07]
- SPIRE (2007) Results and analysis of the Web 2.0 services survey undertaken by the SPIRE project. Report for the JISC-funded SPIRE project, [http://www.jisc.ac.uk/media/documents/programmes/digital\\_repositories/spiresurvey.doc](http://www.jisc.ac.uk/media/documents/programmes/digital_repositories/spiresurvey.doc)
- Tapscott, D. (1998). *Growing Up Digital: The Rise of the Net Generation*. New York: McGraw Hill.



- Thorpe, M., Conole, G. and Edmunds, R. (2008), Learners' experiences of blended learning environments in a practice context, Proceedings of the 6<sup>th</sup> International Networked Learning Conference, Helkidi, Greece.
- Warschauer, M. (2003), *Technology and Social Inclusion: Rethinking the Digital Divide*, Cambridge, MA: MIT Press.
- Weller, M. (2007), 'The distance from isolation: Why communities are the logical conclusion in e-learning', *Computers and Education*, Volume 49, Issue 2, September 2007, Pages 148-159.
- Wenger, E. (1998) *Communities of practice: learning, meaning and identity*, Cambridge: Cambridge University Press

## **Key terms**

**The learner voice:** This is a term which had come into use in recently years to describe research which is exploring the ‘learner voice’ or student experience. In particular it has been appropriated to refer to students’ use of and experience of technologies.

**Methodological issues:** This refers to the methodological issues that arise specifically with trying to understand what students are doing with technologies. It includes references to the typical methodological approaches that are being used and the associated methods.

**Audio logs:** Collecting data on what students are doing with technologies via audio logs is a relatively underused but very effective method for collecting data. In particular it has proved useful in terms of eliciting students’ emotive and in situ experiences.

**Web 2.0:** This is a term coined in 2005 by O’Riley. It refers to the recent wave of technologies and tools associated with the web, which emphasis the user-focused, collaborative aspects of the affordances of these technologies. It contrast with the first phase of web technologies which were essentially information focused. Social networking is a term also used to describe many of these technologies.

**The LXP project:** The JISC-funded LXP project was a project funded under the first phase of the JISC learner experience programme. It is a case study that is included in this chapter.

**Affordances:** ”Affordance” refers to the perceived and actual properties of a thing, primarily those functional properties that determine just how the thing could possibly be used. It originates from work on Gibson in the 1970s and has been used in relation to technological affordances in the last decade or so.

## **Biography**

**Gráinne Conole** is Professor of E-Learning in the Institute of Educational Technology at the Open University in the UK. Previously she was Professor of Educational Innovation in Post-Compulsory Education at the University of Southampton and before that Director of the Institute for Learning and Research Technology at the University of Bristol. Her research interests include the use, integration and evaluation of Information and Communication Technologies and e-learning and the impact of technologies on organisational change. Two of her current areas of interest are focusing on the evaluation of students’ experiences of and perceptions of technologies and how learning design can help in creating more engaging learning activities and Open Educational Resources. Updates on current research and reflections on e-learning research generally can be found on her blog [www.e4innovation.com](http://www.e4innovation.com).

She has extensive research, development and project management experience across the educational and technical domains; funding sources have included the EU, HEFCE, ESRC, JISC and commercial sponsors). She serves on and chairs a number of national and international advisory boards, steering groups, committees and international conference programmes. She has published and presented over 300

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