

## RESEARCH ARTICLE

# On campus, but out of class: an investigation into students' experiences of learning technologies in their self-directed study

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This paper presents an investigation into how students studying at university engage actively with learning technology in their self-directed study time. The case study surveyed 250 students studying at undergraduate and postgraduate level from a purposive sample of departments within one institution. The study has also conducted focus groups and a number of in-depth follow-up interviews with respondents to the survey. In this article we explore three emerging aspects of the learning experience, namely student expectations of the technology, their lecturers' engagement with technology and how the technology might support processes of transition in higher education. One key implication is that more academic guidance is needed on what and how to use the technology effectively for independent learning, even where ICT skills levels are high. The study also identifies the significant role that the lecturer plays in facilitating students' use of technology. The findings of this study will be of interest to those working to incorporate learning technologies more effectively in higher education, in particular for those who are looking to improve the engagement of students in self-directed learning.

**Keywords:** student experience; learning technologies; self-directed learning; blended learning; case study

## Introduction

This paper reports on an investigation into the experiences of students using learning technologies in their learning while studying on campus-based university courses. Particular attention is paid to the experiences of campus-based students outside formal classroom interactions in self-directed study. Self-directed learning (SDL) is 'a form of study in which learners have the primary responsibility for planning, carrying out and evaluating their own learning experiences' (Merriam and Caffarella 1991, 41). SDL occurs in both informal and formal learning situations and typical activities include peer discussion and collaboration, accessing library resources, reading, research and development and working through tutorial materials and workbooks. Within formal academic programmes in the UK, hours are allocated to self-directed study in addition to hours for lectures and seminar attendance. These hours are quantified in quality assurance documents and typically constitute a substantial proportion of an academic programme. We were, therefore, interested in investigating how students were using technology during this time, which is, at least notionally, at the disposal of the students. There is an expectation on the part of the higher education institution that students use the time for studying in depth and preparing their coursework. For the student this notional time is under threat. The threats can come externally from the demands of income generation to cover fees and living expenses, social pressures and an overloaded curriculum,

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together with a declining staff:student ratio. However, there are also internal factors, such as learner motivation, preparedness to study and conceptions of their student identity that affect how students approach SDL.

In an environment where solutions are sought to deal with the new mass higher education community, e-learning (in all its forms and blends) is seen as having potential. There is now unprecedented access to learning resources and information, data analysis and creative software, communication and collaborative technologies in support of learning in higher education. As e-learning practice develops as a field of inquiry distinct from distance and open learning and beyond 'projects by innovators' (Salmon, 2005), we are starting to discover more about how to embed technology, how to design and assess learning tasks, how to motivate participation and encourage co-construction of knowledge. Until recently, much of the research has been practitioner-led rather than from the perspective of the learners (Sharpe et al. 2005). However, the JISC is funding a UK research programme to explore the learner experiences of e-learning which is now producing interesting accounts of the student experience across higher education, further education and adult and community education.<sup>1</sup> This research programme is also developing new and robust methodologies for researching this complex field of inquiry. The present study explores a sub-section of the student learning experience, namely how learners make use of technology to further their independent learning within formal programmes of study and the role that academic colleagues and the institution plays in supporting such use.

We propose that the use of technology, both for campus-based and distance learners, requires a level of self-direction similar to SDL. This is particularly so in an increasingly blended learning delivery of higher education. The individual has to take the initiative and responsibility for what they select, manage and access in a limited time outside formal contact hours. Therefore, some of the research questions we wanted to explore in this study were: what is the reality of SDL for students today; how has learning technology pervaded out-of-class study time; who supports the learner in making sense of the technologies and what needs do they have; what expectations are there of academic colleagues in supporting SDL?

The present research attempts to explore these aspects, namely the use of technology that students on higher education courses make use of in their learning outside classroom activities. To understand more about some of these issues we conducted two focus groups, a survey and a number of in-depth follow-up interviews. A purposive sample of students studying at undergraduate and postgraduate level from a cross-section of departments and at different stages in their academic programmes was selected for the collection of survey data.

## **Background**

Increasingly over the past decade the learning experience of students in higher education in the UK is one that is mediated, at least in part, by technology. Institutions have invested heavily in establishing a robust and integrated technical infrastructure not only to support their own administration functions, but also to enable computing access, e-mail communication, online information systems and virtual learning environments (VLEs). At the same time academic colleagues are increasingly expected, and in some cases required, to use the institutional technologies in order to deliver their teaching. In the UK by 2005 over 95% of institutions of higher education supported a VLE (Sharpe et al. 2006) and the term 'blended learning' is now commonly used to refer to the mix of face-to-face and e-learning that constitutes the higher education experience of students. There are many reasons for the growth in the use of learning technologies cited in the literature (for example: to manage larger numbers of students on modules; to serve the needs of a more diverse student population; the management imperative to become competitive in the new

online markets), however, there is still uncertainty over the impact of the introduction of technologies, as Bonk, Kim and Zeng outlined:

The promises (and, hopefully, the benefits) of blended learning are extensive. For instance, some promote increased learning, others point to the reduction in the need for brick and mortar, and still others allude to engagement, collaboration, success, ownership, and higher quality learning. Further research and innovation in the blended learning arena will help sort out the key contributions, benefits, and impact areas. (Bonk, Kim, and Zeng 2004)

Across the world there has been an upsurge in the use of learning technology in higher education, although the technologies themselves may vary, from video-conferencing to websites, CD ROMs and mobile phones. The prevailing technologies in the UK throughout the early 2000s, the VLEs, are characterized by the control that the lecturers have in shaping the online environment. More recently, however, the dominance of institutional VLEs has started to give way to more personalized, collaborative and student-centred environments made possible by Web 2.0 technologies, where the monitoring and surveillance aspects of VLEs (Land and Bayne 2005) give way to the individual control and personalization of technologies.

In this changing and complex higher education context learning technology has been the subject of much funded research in the UK (funded by JISC, the EU eLearning Initiative, the Higher Education Academy, to name but a few). With the ability to track aspects of student usage and the enthusiastic engagement of innovative lecturers it was hoped that some of the more elusive questions around the embedding of technology in learning might be answered. Research into the use by lecturers of e-learning has increased our understanding of pedagogy (Oliver 2006). In part this has been because the technology makes explicit the teaching, learning and assessment aspects that normally remain implicit, and unarticulated, except within a team delivering a shared module. This research has largely been from the perspective of tutored online material and activities, including the use of 'learning activity management systems' (Sharpe et al. 2006). The research literature focuses on the materials which are made available to students and how learners interact with set tasks, such as online discussions or group assignments. There have been many studies of distance learning and of informal learning, but reviews of the literature have identified gaps in studies into students' experiences of blended learning, i.e. of formal courses where there is a combination of face-to-face teaching and online activities (Sharpe et al. 2005). A recent set of studies commissioned by JISC are addressing this gap by focusing exclusively on the learners' experiences, for example the qualitative study of the learner experience of e-learning.<sup>2</sup> In this inquiry the research team derived five higher order categories, namely life, formal learning, technology, people and time. Within each category were five influencing factors: control, identity, feelings, relationships and abilities (Creanor et al. 2006, 23). These categories and influencing factors are derived from narrative accounts of learner experiences, prompted by mediating artefacts, and represent a rich account of the learner perspective, crossing over the boundaries between formal and informal learning and educational sectors. The present case study specifically explores the part played by self-directed study for students on campus-based programmes, since this constitutes a substantial proportion of the time learners in higher education are studying and remains largely under-researched. It is hoped that this present case study will complement recent learner-centred studies and provide some further insights into the expectations and behaviour of learners with regard to e-learning outside classroom activities.

## **Methodology**

The case study was carried out in early 2007, after receiving approval from the University Ethics Committee. The purpose of the research was to gain a greater understanding of patterns,

Table 1. Distribution and return rate of the survey.

Module	Level	Distributed	Return rate
Management research	M	9	100%
Management	M	29	93%
Journalism	1	24	100%
Advertising	2	26	92%
Multimedia technology	3	24	75%
Financial mathematics	3	72	97%
Social work	3	60	75%
Clinical psychology	3	23	87%

motivations and engagement with learning technology amongst students learning on campus on traditionally delivered academic programmes.

Case study is a research approach that investigates real-life phenomena which can be based on qualitative and quantitative evidence (Stake 1995). Case study research is looking for particularization rather than generalization. Methods employed in this study included focus group research, questionnaires and semi-structured interviews with students. Coventry University has a relatively long tradition in using learning technology to support campus-based learning; all academic courses and modules at this institution have been supported by an institutional VLE since 1999. Usage of the VLE and associated technologies is widespread, thereby making this a suitable site to investigate the topic.

In scoping the inquiry two focus groups were held in order to understand the issues from a student perspective and thus inform the questionnaire design. Most of the survey questions were closed choices, with just three open-ended questions at the end which explored the likes and dislikes of learning technologies. The questionnaire was tested prior to the launch, which was in March/April 2007. Around 240 students were taken as a purposive sample for collection of data through the survey. The students were studying at undergraduate and postgraduate levels from a cross-section of departments. Table 1 shows the spread of responses, which were distributed and collected in class, with the cooperation of the respective lecturers. The chosen method of distribution increases the proportion of completed questionnaires in each class group, although some students in each group chose not to participate in the research, so of 267 questionnaires, 237 were returned (89%).

The student demographic was mixed in terms of gender (55% male, 45% female), ethnicity (50% white, 22% black, 19% Asian and 8% Chinese), status (55% home students, 45% overseas students). Less than 1% ( $n = 14$ ) declared a disability. The age range was between 18 and 64 years old, with just over half of the students (54%) in the 22–29 years old category.

Semi-structured follow-up interviews took place on campus with students from these groups who were willing to assist further in the research. An inductive, interpretivist analysis of the transcripts of the interviews was carried out by the two researchers independently, using a relatively simple mark-up procedure to identify themes in the student narratives. The themes were then discussed, clustered and agreed within the research team and subsequently validated through further analysis of the survey results, including the responses to the open-ended questions from the survey.

### **Preliminary findings**

Overall, the responses from the survey indicate that the students were in favour of using learning technologies to support them in their studies, with around 80% of the sample agreeing that the

technologies are important to their learning and around 70% agreeing that they do not experience difficulties using them. Sixty-four per cent agreed that learning technology has positive effects on their attitudes towards learning independently.

In terms of time spent on independent, self-directed learning, 10% of students in the survey reported spending over 21 hours per week and 47% between 11 and 20 hours per week. Thirty-three per cent reported spending between 5 and 10 hours and the remaining 10% spent under 4 hours per week. These UK findings closely match those of the US National Survey of Student Engagement, 2004, reported in Herrington, Reeves, and Oliver (2006, 100), which reported that of 163,000 students only

11 per cent of full-time students spend more than 25 hours a week studying outside their classes – the minimum number of hours academic staff expect students to study to be successful. A disappointing 44 percent of students surveyed reported studying less than 10 hours a week.

Whilst the context and scale of these two studies are different, there is close correspondence in the proportion of time that students spent on their independent learning.

Most of the use of technology is reported to be to access information (76%) or review course materials (73%), manage course information (65%) and communicate with friends (59%). Fifty-three per cent used technology for collaborative tasks and 45% of the students used it for self-assessment exercises. Less use appears to have been made of technologies to contact lecturers (39%) or other students (34%) or to revise for examinations (38%). This is shown graphically in Figure 1.

The behaviours reported by students in this study differ in this respect from the recent learner experience study by Conole et al. (2006, 156), which found ‘a marked lack of enthusiasm for VLEs’. In the present study the VLE was regarded as the first reference point for e-learning and was in general appreciated by students, although there are some issues arising with regard to the way in which the online environment is being used, which we discuss later in this article.

Overall, there appears to be little differentiation of response amongst students by gender, age, status or ethnic background. One area where some variation can be found is amongst usage by year of study, for example, only 26% of first year students, compared with 51% of respondents in other years, used the online library on a daily or weekly basis.

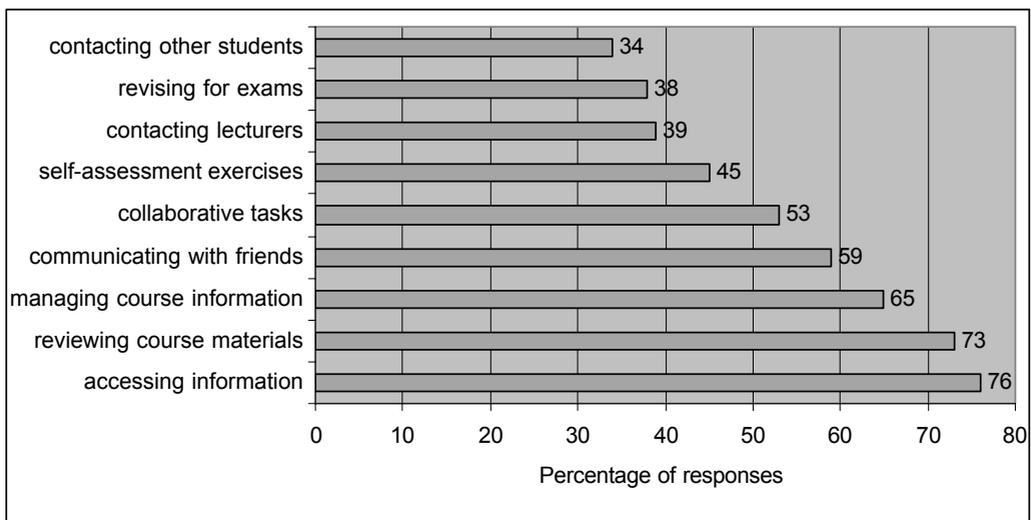


Figure 1. Summary of student responses on technology uses for self-directed learning.

Initial themes, derived from the interviews and the survey, include insights into student expectations of what the technology can facilitate and what the lecturers should be doing. Another area that has emerged is the students’ transition from a previous learning environment into their current stage of learning, which revealed emotional dimensions to the learning experience with technologies. Each of these themes will now be discussed.

**Discussion**

***Student expectations of technology for learning***

‘It has just made life easier and so much more enjoyable.’

Interviews with learners show the prevalence of the belief amongst students from a range of courses that e-learning is helpful. Although it might have been expected, this is supported by the survey results, where students cite numerous technologies that they use frequently, including CUOnline, the University’s virtual learning environment. Seventy-six per cent of respondents used CUOnline for their self-directed learning and a slightly smaller majority (65%) used learning technology to communicate with lecturers.

Students were asked to identify from a selection of activities what types of interaction they would like to have more of in their self-directed learning time. Most popular, with 71% selecting the option, was online discussion. Fifty-six per cent wanted more collaborative group work, 40% wanted interactive exercises, just 22% games and 17% simulations.

In response to a selection of skills they found the technologies most useful in developing, creative thinking was the most popular choice (see Figure 2).

Although learners welcomed online materials as an enhancement, the survey also indicates that students preferred face-to-face communication; 45% of respondents placed great value on face-to-face learning. This was also backed up by the interview data, for example, the comment by one interviewee:

But my issue is: its very good all this online learning but having somebody standing by my side is more beneficial. You get the personal feedback if you’re just stuck or having real difficulty.

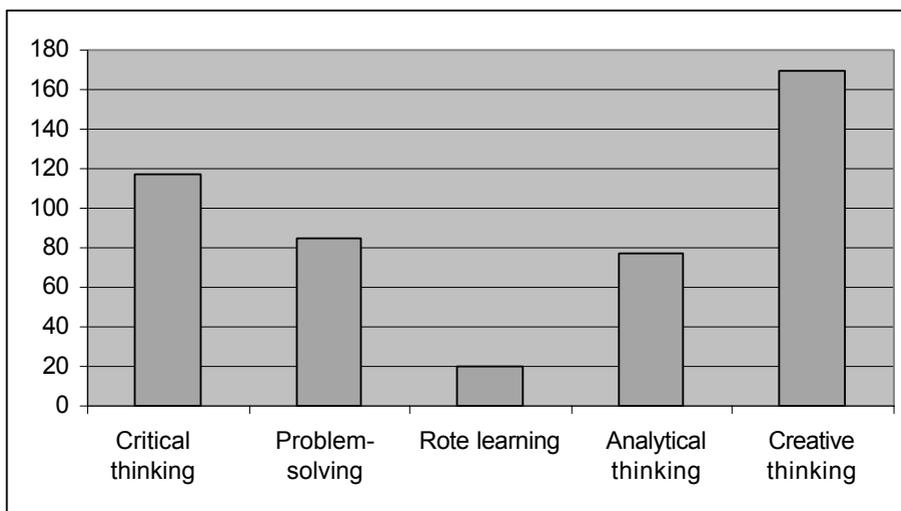


Figure 2. What kind of skills are technologies most useful for developing?

This leads on to the next theme emerging from the data, namely what the expectations are of lecturers.

### *Student expectations of lecturers for facilitating learning through technology*

Our analysis so far has revealed contradictory expectations by students of the role of the lecturer in facilitating student learning through technology. Whilst the students did seem to be applying themselves adequately in terms of time spent on independent study, as reported in the preliminary findings above, and wanting more technology-based activities in their courses, they did not seem to be working on their studies independently. There appears to be a strong reliance on the module tutors for information and guidance on learning at all levels of study.

The interviews revealed variations in the amount of guidance offered by lecturers. Whilst one student (performing arts, year 1) reported that she and her student peers had to work out for themselves what and how to study, another (engineering management, postgraduate) had been provided with a workbook that offered highly detailed guidance on weekly activities, similar to that expected on a distance learning course. Within this range of tutor direction other support mechanisms were also mentioned. For instance, one of the students ‘couldn’t praise the library staff highly enough; couldn’t fault them’ in their level of support for her, and yet she did not see this as providing sufficient support in the module and more face-to-face encounters were wanted with the lecturers.

Amongst the students interviewed there was a high expectation of almost instant tutor feedback, and frustration when this was not received. The lecturers were the first resort for assistance, and only when they were unavailable did the students report turning to other sources of help with their learning, e.g. their friends, colleagues on the course and others. For example, one student (information technology for engineers, postgraduate) regretted the fact that the lecturer was not online simultaneously with the student when he logged on at midnight. In these circumstances he had to contact his friends for advice.

Another indication of student reliance on lecturing staff is the declared dependence on the supplied reading. For example, one student stated that the most useful independent learning strategy for him was to read the handouts and books provided by the lecturer. In order to pass the module it was felt sufficient by another student to read the directed reading, although he also acknowledged that to get a good mark more independent research through the library portal was required.

Further contradictions emerge with respect to contact with lecturers. On the one hand, students felt that the computer was being used as a substitute for contact. As one student put it: ‘CUOnline is fine but sometimes it’s nice to talk to a person instead of a computer’. They reported that they wanted feedback from lecturers regularly, yet only a relatively low number of the respondents (23%) contacted their lecturers on a weekly basis. Also, the students in the interviews reported that they did get feedback if they asked for it. However, it appears from both the survey data and the interviews that feedback received via e-mail or CUOnline does not have as high a value placed on it as face-to-face feedback.

The final point with regard to student expectations relates to how much the lecturers engaged with learning technologies. When asked in the survey what improvements they would like to see with regard to learning technologies many of the students wanted lecturers to place more information in CUOnline. There was also a call for more direction from the lecturers about what to do in the online space. One of the students recounted how the online systems were presented at the start of his course and ‘looked really good’, but he then found that the lecturers supporting the part-time course he was on did not make use of it and it was ‘just an empty web page’. These accounts of student experiences suggest a need for the development of metacognitive skills and

management of learner expectations and, at the same time, a need for greater consistency of usage across educational programmes.

### ***Using technologies to ease transition***

‘I’m not afraid of learning if I know the direction.’

There appears to be a further issue around the provision of guidance in the use of learning technology, relating to the process of transition. There was evidence of this in the shift from college/school into university, as well as from employment onto postgraduate courses.

The interview data reveal the wide-ranging expectations and needs of first year students toward the university experience as a whole. Students reflected on their prior learning experiences as compared with university: ‘I find it very strange, coming from a very structured kind of life at college, coming to university is very, very strange’ and ‘It’s different from high school you don’t get a lot of help from teachers’. Another student had come to study after years working in an industrial environment where he had been coached in time management, research skills and prioritizing assignments. He found that his expertise in these metacognitive skills meant that he was prepared for the course, although he wondered how others coming directly from education were managing, since the part-time postgraduate course did not to him seem to provide development in these skills.

Overall, the students felt that more support should be provided to ease the transition, although the students were not very clear what this should comprise. The interviews revealed a reliance on the support of friends to help them through identified crisis moments.

With regard to learning technology, there appears not to be a skills deficit (e-mail, web-searching, chat). The reported skill levels from the survey are encouragingly high, with 95% of respondents rating their skill level in using technology for self-directed learning as intermediate or above, leaving just 5% as beginners. However, there appears to be a lack of orientation in the use of the learning technologies preferred by the university, including confusion over how to use the new CUOnline, the library portal for e-journals and an ePortfolio system (PebblePad) for personal development planning.

### **Conclusions and further work**

‘I don’t know what we would do without it ... to be honest.’

Within the context of this study we have explored the experiences of students in relation to their use of learning technology on campus-based courses. The focus on self-directed learning has been helpful in drawing attention to what students are actually doing when they study, rather than to what they feel they should be doing. This focus enabled us to highlight three themes: student expectations of technology, of their lecturers’ use of technology and the role of technology in easing the transition stages of learning. Within each of these themes we have identified implications for the institution, the lecturers and the students.

The number of hours spent on self-directed study is reportedly quite good for the majority of students (although self-reporting of estimated time is not a true measure) and the skill levels to work with technology are largely present. However, there seems to be a lack of direction in what they are meant to be doing in this self-directed time and there is frequent mention of the role of the lecturers in determining the activities that are undertaken. This suggests that we are some way from Merriam and Caffarella’s (1991) notion of self-directed learning, where the learner takes responsibility for their own studies. It also highlights the crucial role that tutors play in the learning process at this university, whether face-to-face or mediated by technology.

Interestingly, this was also the case where a detailed study pack was provided. The key to this appears to be the high importance given to lecturer feedback. Feedback tells students how successfully they have tackled their academic work. It also provides an indication of the quality of their work and raises motivation among students towards their learning. We have found, however, that learners appear to have high expectations of the speed at which lecturers can provide feedback to students and the detail included and these expectations are perhaps not managed sufficiently within the blended learning process, which still accounts mainly for face-to-face 'contact hours'. There is also perhaps a case for developing a greater appreciation of online feedback.

The research furthermore indicates that there is a need for more direct guidance on what and how to use technology for learning more independently. The significance here is that this advice is appreciated and acted upon by students if it comes from course tutors (as distinct from librarians, for example). Where this plays out most appears to be in the transition stages of learning. Students need help in adapting to university life and becoming autonomous learners. Pitkethly and Prosser's (2001) research into the 'first-year experience' advocated that universities need to understand the specific needs of their learners and develop appropriate courses of action. Our research implies that these needs are present at different stages in the learning cycle, not just in the first year. With regard to learning technology usage, our analysis is starting to indicate what might be a useful line of development.

In this paper we have presented some of the findings of our study. We were attempting to gain a greater understanding of what the reality of SDL is for students today. In this we have explored students' expectations of the technology itself, the role of the tutor and a particular aspect of the learning experience in higher education, namely transition. The use of technology is pervasive, but the use of technologies for learning is more problematic and there is a need to clarify how students are using them successfully and creatively in order to give a sense of which direction to take for those who are still finding their way.

It is hoped that the findings of this study will suggest some guidelines for students about the use of available learning technologies. Another outcome of the study will be guidelines to lecturers in improving the opportunities for students to use learning technology in their self-directed learning.

## Notes

1. JISC learner experiences of e-learning Phase 1 (see [http://www.jisc.ac.uk/whatwedo/programmes/elearning\\_pedagogy/elp\\_learneroutcomes.aspx](http://www.jisc.ac.uk/whatwedo/programmes/elearning_pedagogy/elp_learneroutcomes.aspx)).
2. LEX: learner experiences of e-learning ([http://www.jisc.ac.uk/whatwedo/programmes/elearning\\_pedagogy/elp\\_lex.aspx](http://www.jisc.ac.uk/whatwedo/programmes/elearning_pedagogy/elp_lex.aspx)).

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