Students blending learning user preferences: Matching student choices to institutional provision

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Abstract

Students at the Universities of Warwick and Northumbria were interviewed as part of a pilot study for a project identifying the range of student preferences for physical and technological learning environments when engaged in informal self-directed learning. Student choices for both institutional provision and personal provision were explored. From the interviews a range of different categories were established that describe student preferences for learning environments and the factors they identified for informing these choices. The intention of these categories is to structure further data gathering during the main phase of the project, and communicate findings to stakeholders, particularly service providers within the two institutions. Findings were that the preference for being a social or solitary learner was a central driver, but that this varied depending on whether the student was offline or online. There were two distinctive modes in which students used technology. Students also tended to use a few common technologies, unless there were specific external factors influencing their choices; a preliminary list these factors were identified.

Keywords

Learner experience, blending learning, service provision, elearning

Introduction

This paper describes the preliminary findings of the JISC (Joint Information Systems Committee) funded project BLUPs (Students Blending Learning User Preferences). The project is part of JISC's Learner Experience Programme and is a collaboration between the Universities of Warwick and Northumbria.
The aim of the project is to identify the range of provision for students with respect to these three dimensions:

- Social spaces and individual spaces
- Institutional provision and personal provision
- Physical environment and virtual environment

by means of developing an indicative typology of students which will define and attempt to explain how students make their choices regarding the types of provision. The purpose of the project is to provide information to academic staff and service providers to add to their understanding of the range of student requirements. This paper describes the project, and presents some of the results of the pilot phase.

The BLUPS Project

The project was inaugurated for the following reasons:

- The success of Warwick's Learning Grid in providing an environment for students to create their own blends of learning provision in a flexible learning environment (Edwards and Childs, 2006) had prompted a further expansion of student provision.
- The University of Northumbria had substantially invested in a library refurbishment enabling students to use books and IT in a hybrid manner. This refurbishment was based on student feedback which suggested a desire for more opportunities for informal and social learning
- There was a lack of knowledge about the learning activities of students outside of face-to-face contact time with teaching staff.
- Personal observations indicated that students use a range of communication technologies, use of which is initiated by themselves or their peers, not by their institutions.

The project was therefore aimed to focus on the activities of the students outside of their structured face-to-face provision, during their informal learning. The intention is to identify which physical environments

and technological tools students use and why, and what the students' ideas are regarding how the university could support these various engagements.

The project began in March 2007 and is due to finish in February 2009. The pilot phase interviews were conducted during July and August 2007 and the analysis took place between August and November 2007. The main phase of the project is taking place throughout the remainder of the 2007/08 academic year. Final conclusions and dissemination will take place during the final five months of the project.

Project methodology

The project is divided into two main phases; this paper deals with the pilot phase, in which the methodology for the project was tested and the categories for gathering and analysing data during the second phase were identified. The project is entirely phenomenological, in that the students' experiences and the elements that, in their perceptions, influence their choices, are the data collected. The project is interested in the range of the student experience, but the sample size, and the scope of the project, is too small to attempt to come to any conclusions about the relative proportions of students who have these different perceptions. However, the project will be developing propositions about students' choices and their rationale for those choices.

Twelve students were interviewed at the University of Northumbria and eight at the University of Warwick. Students were recruited through advertisement and were paid for their participation. The recordings of the Northumbria students were shared between the two authors and analysed for references to the students' preferences for learning environments and technologies, and their reasons for choosing these.

The original analytical model adopted for the project was a pattern methodology (Mor et al, 2006; 9). The hypothesis was that the students would adopt different learning activities at different points during their studies, and when linked together these would form trails, or typical sequences, of these activities. The aim was therefore to create a taxonomy of different informal learning activities; any individual activity would then be a single taxon within this taxonomy and the types of learners could be described by the different ways in which they linked these activities together.

During the first iteration of the analysis, however, it became apparent that this was not the case. The students interviewed had one dominant mode of working that was a blend of the various factors influencing them. The task of the analysis therefore became to cluster the students into groups with common attributes, in which the choices they made consistently correlated with the factors influencing them. The intention throughout this process was to create divisions that were detailed enough to provide a close approximation of the students' experiences and yet simple enough to be a practical tool to help practitioners. During this process several observations and decisions were made:

- The various categories would be grouped into dimensions (physical environments and technological preferences) that would be treated separately and independently. This was in part to simplify the analytical process, and also to ensure that each cluster would have a larger number of students within it. Correlations between preferences regarding physical learning spaces and technological choices will be revisited later in the project.
- Whether students preferred to work singly or in groups was a dominant factor in their choices, however students who were social online were not necessarily social offline, and *vice versa*. Whether students were social learners or not was therefore dropped as an independent third dimension and incorporated onto the other dimensions.
- Students' use of technology did not progress along a continuum of less literate to more literate, or less usage to more usage. Some sophisticated users of technology did not use the social networking sites of their peers, but they were using technologies that the social networkers did not. Students used one or other, or neither, of these sets of tools, but not both.
- A minority of students also used additional technologies, but in these instances there was *always* an identifiable factor behind this usage, which differed from student to student, but was consistent where the factor was present. This led to creation of the third dimension labelled "additional drivers".

Once the categories were identified, they were applied retrospectively to the case studies produced as part

of the Learner Experience Project (Conole et al, 2006), to see if these were open to analysis using this model. In most cases, they were, and the differences were easily accommodated through one slight revision to the categories and one addition. The final step in the analysis was to apply the categories to the analysis of the Warwick students. These also conformed to the previously identified categories with the exception of one more additional driver identified.

The BLUPs categories

The types of provision students select, and the preferences that inform them, have been divided into the dimensions of the physical environments and the virtual environments students use. Within both dimensions, one of the determining factors that drive choice is whether the student prefers to learn through socialising or through independent study. Within the virtual environments, degree of familiarity with, or exposure to, different technologies is also a determining factor. In addition, a set of drivers that independently add other uses of technology to the blend have been identified. These are shown in figure 1.

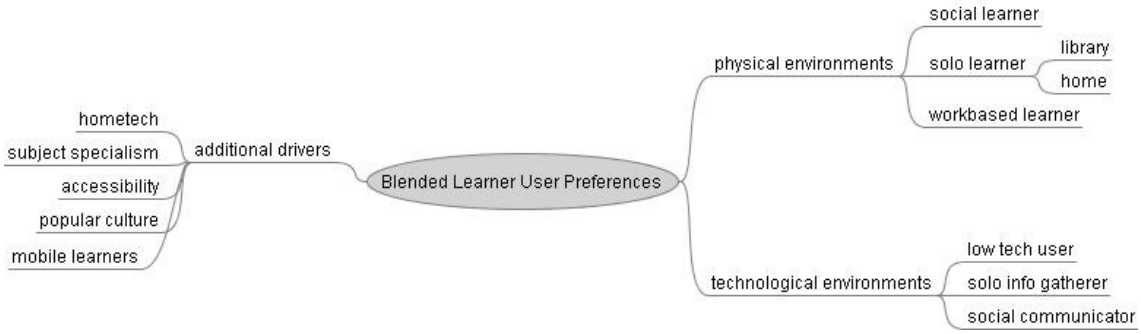

Figure 1. The categories of user preferences

Physical learning preferences

Social learner
These students make sense of the content of their studies through dialogue with other students and lecturers. They also find out information about the content and the university from discussion with others. These students will attend workshops in groups and use libraries collaboratively, sharing book references and looking up information together with other students. Social learners will use cafés to meet and discuss as well as collaborative areas in libraries.

Some students learn to become social learners through the design of the tasks and assignments given to the students. These activities are designed to encourage communication and collaborative working.

> If you do it by yourself you find yourself sticking and struggling, but whereas if you talk to your friends and try to collaborate and share ideas you find it easier.
>
> You get an idea about books and which book is best you get all of these ideas rather than do it by yourself.

These students prefer all the elements they require for learning in one collaborative learning space in which they can talk. This includes library books, computers around which they can all gather, and coffee (some students have placed coffee above library books in their list of the elements that are most important to them in a learning space). The study was careful to differentiate between the group working that is assigned by lecturers and that which is initiated by the students. This category is specifically about those students who *choose* to work in a group.

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Solo learner: institutional spaces.
These students like to work alone, they need to do so in order to concentrate on their work. They find the quiet spaces in the library help them do this. Some of these students find the distractions of home prevent them from working effectively.

> There's something about the atmosphere. They've created an environment that is relaxed, it's not too formal. It's a particularly clean space.

> I come into university because there are a lot of distractions at home.

This group usually state they have their needs met by the university's service provision, but some students have raised concerns about the move towards more collaborative learning.

> I'm happy to work with other people, but learning is a very personal thing. The medical school is very keen on us learning in groups and I don't find that useful at all. … There isn't really an accepting that there are people who want to do it by themselves. I know that if I said that I didn't want to do groupwork, I just wanted to learn by myself they would throw a wobbly.

It could be that in the move towards more participative forms of learning, the needs of this group may be being overlooked.

Solo learners: personal spaces
Other students prefer to work independently at home, either because they find the presence of others too distracting or demanding because everyone is working at a different pace, or because they find the comfort or convenience of home supports their learning.

> I do it (revision) by myself because I need to concentrate and stuff, but I know pretty much all my friends do meet up and ask each other questions and talk about it that way. xx lived in the library and so did xx and talked to each other about all the questions. I'm different I need to do it independently because of the way my mind works.

> I prefer to work at home rather than come to University, because at home you can do whatever you want. You can listen to music on headphones and get food from the fridge.

These students make requests for additional support from the university for their distance working.

Workbased learners
Work-based learners may have some of the issues of access experienced by the home learners, but they may also have support from colleagues at work (Conole et al, 2006:36)

Comments on this section
The students interviewed described their dominant preferred mode of working; this does not mean, necessarily that they adopt this mode exclusively. However, in our interviews only one interviewee stated that he switched from one mode to the other; this was a joint honours student (mathematics and economics) and he adopted a different mode for each subject, shown in these two quotes:

> I just study with my friends. It's not like we have to hand in a project as a group, we have to hand in a project individually, but because I've never done economics before, and all my friends haven't either, so we sit together and then we can help each other out.

> For maths we get an assignment every week. The lecturer teaches the material in the lectures and you should be able to do the problems and hand in the assignment sheet. So that's very straightforward. The only time I do that with someone else is when I've missed the lecture or when I didn't understand it.

Technological learning preferences

Low technology
Some students use only email, SMS and Internet search engines, and may use these with difficulty. However, this is the base level of technology usage; all students used these to some extent.

> When I started the course I was going through a nightmare. I was not computer literate. If the kids were at school I couldn't turn on the computer.

> *How do you get in touch with everybody else?*
> Mainly email, haven't done much MSN yet because I have still been working out what how it works.

Solo learners – information gathering
These users use the networks that are available through online services, such as JISCmail to gather information. They may also be competent users of subject specific portals (e.g. medline and mBase in the LXP case studies (Conole et al, 2006;26). These students are effective at synthesising and blending information from many sources, but use the technologies to gather information, rarely for collaboration with their peer groups.

> I've got about five networks for different reasons. For example a network for part time PhD students. That kind of information exchange is really important.

These students do not necessarily use social software, though. For these students, online interaction is for information gathering only.

> There's a discussion room and, I'm just not interested. Everything is important in face-to-face that you just can't replicate any other way.

> He doesn't use MSN or blogs as he doesn't have the time. (Conole et al, 2006; 28)

Social learners - communication
These students use Facebook and MSN Messenger for communicating socially, and these tools are then adopted for their learning.

> I got a lot of emails saying "help" and texts and people ringing me up and on MSN.

> I know quite a few people who just sit on MSN and wait for people to talk to them. It's instant and it's free.

There may be some indication that using technology to gather information may be more difficult for these students.

> Gathering information (is the most difficult thing). There is so much information everywhere. First thing, you have too much. Second thing, you don't know where to look for it. Third thing, even if you've gathered some information there's too much and you have a limit, you can't use all of them.

> People say that IT is helping us, but in a way it's making us more confused. It's taking more of our time because we have too much information. It's a pain to look through all of them, structure all of them

Examples from the LXP project were statements from students such as: "one of the main disadvantages of the web was that it contains too much information." (Conole et al, 2006; 31) and "used WebCT to get the basic course work (lecture notes, seminar notes, learning aids, module booklet etc) information but didn't find it so useful, particularly because not many other people seemed to be using it (Conole et al, 2006; 18). These are both descriptions of students who were very comfortable with using MSN. There may be some indication that the use of ICT to gather information or to communicate collaboratively is mutually

exclusive amongst students, or at least, if students tend to use one, they are less likely to be confident at the other.

Additional drivers

The modes preferred by the students described above described the basic different modes of students. On the whole they tended to favour one or another of these modes, and all students fell into one or other category. However, a set of additional drivers were identified that meant that the students adopted a range of less common technologies or learning modes *in addition to* the modes observed above. The frequency of these additional drivers is difficult to ascertain from the small sample size used in this study, however, in all cases the identified technologies were coincident with one of the correlated factors.

Hometech
Some students use additional technology to their university peers due to drivers in addition to their social network inside the university. These can be technologies used in friendship networks from before they started university. These technologies will be quite various, depending on a range of factors. For example, students from countries where there broadband is uncommon may use MMS and SMS texting as the dominant mode. Other students who have a social network that runs across several timezones may use blogging as a communication medium.

The term "hometech" has been coined to group together a variety of circumstances, but which all revolve around the need to stay in touch with people from one's home or homeland, whether this is another country or another part of the UK. This can be a technology adopted before joining university, or after, but since this is driven by external circumstances to the university, the milieu will be more varied. Examples include the use of blogging, Skype or PDAs.

> It is better to use Yahoo Messenger because they can respond quickly.
>
> Sometimes I chat (in a blog) about my life here so my friends in Vietnam can know what I am doing. Sometimes I write about my lectures, what I have understood or not and then my friends can discuss more about my lectures and can answer my questions.
>
> The only time I've used Skype for any educational purpose was I had a problem out of term time with something I'd learned in school, so I Skyped my maths teacher from school, and she went through it and she put the webcamera on the board.

In the LXP case studies the single example of the use of Skype was that of a student keeping in touch with friends and family in China (Conole et al, 2006;40).

Subject specialism
Students that are on courses that involve computing have the highest demands on the university, and often do not have needs met. These students will have specialist software that they require for example, C, Java, etc. They will also not only use the software online social learners use, they will also use other technologies such as Skype to communicate.

An issue that students in this category have is the limited places in which the specialist software they need is loaded. They also find they have to use their own equipment because of limitations in the specification of university machines.

> Outside of the school we'll keep contact with phone, Messenger or Skype. Conferencing with Skype - can't use that with mobile phone.
>
> At home I prefer to use MSN Messenger, Skype to chit-chat to my members.
>
> Sometimes the capacity of my project is too big (for the University computers)

> I (use) generally books…I use the internet in the university as well …because my dissertation actually is going to be on hacking and I have to use the internet quite a lot anyway.

Accessibility
The one student so far self-identified as having a disability stated that he uses podcasting because of his dyslexia.

> I have been listening to podcasts from another university...I have been to Berkeley University in the USA... because they have...they record their lectures and I found sometime that useful... because they record their lectures and put them on the internet.
>
> I don't think I use the papers, I tend to use a lot of audio information.
>
> I find it I find it easier listening to audio than actually reading… maybe because I am dyslexic

Popular culture
Some students have also indicated that the presence of their subject specialism within popular culture also results in additional communication outside of their study.

> Quite possibly we're sick of the content that we've learnt formally. But in terms of something like television, medical students are very big into *House* and *Scrubs* and *Grey's Anatomy* and people would be surprised and worried at how much medical students try to learn from that. And discussions will stem from that.
>
> *How much of that is actually plausible?*
> Well they do have someone there who is reading it. But of course it's all exaggerated. But that's very often what the students will be discussing.

Mobile learners
The students that choose (or for whom circumstances dictate) to be mobile learners display a range of different tactics for enabling their mobility and this category has the widest range of observed technologies employed. To date we've identified three main types of mobile learner, dubbed the virtualiser, the podcastee and the scribe.

In the interviews, the virtualiser we spoke to worked by transferring all of her material to a single place (her laptop) which then meant she could work on all that material in any location.

> I could do it anywhere. I'm portable. I could go and sit in a café and do what I do as long as I have wireless access."
>
> Carrying a wireless laptop. I don't carry books with me. It's pretty much that I stack my day up to be able to work within that region with a laptop and the virtual world.

Podcastees are those students who have identified their preference to use podcasting for listening to lectures on mp3 players. One student in the LXP data mention this (Conole et al, 2006; 18) and one of the students at UNN has already adopted this mode of learning. Although this student was also dyslexic, he stated his desire to be a mobile learner was also a driver for him adopting podcasting as a mode of learning.

> I use podcasts and download my podcasts on to my mp3 (player) and I can actually listen to them when I come here.

"Scribe" describes a student who learnt by copying the course content out on paper and re-reading it, thereby learning it by rote. He preferred to do this while walking, however.

> I like to move about otherwise it's quite depressing. I do it on the move. I usually walk about with a sheet of notes.

The category of mobile learner therefore seems to fall into both a category of technological usage and preference for physical location, hence the labelling of this dimension as additional drivers, rather than additional *technological* drivers. As the project progresses, we may uncover further factors that influence student choices, technological, physical and other blends of both.

Notes on above categories

The above dimensions are independent of each other. For example, a solo learner in a physical setting might be a social learner in a virtual environment. A mobile learner may also be a low tech user. Also, although within a particular category, a range of technologies, or physical spaces, will be used, there will be other factors that may cause one technology to be favoured over another. The cost of SMS will mean that students on a more limited income will use MSN or email. The location of a students' home will mean some physical spaces will be chosen over others. Another finding of the project so far is the notion of social and individual learner needs to be updated, in that this may change depending on whether we are looking at online or offline situations.

Conclusions and future research

The characteristics of these groups are provisional, as are all of the statements in this document since they are based on a very small sample size. Our aim at this stage in the project was to develop a framework from which to conduct the research in the main phase of the project. During the main phase of the project a further 40 students will be recruited for interview. In addition, a selection of these interviewees have been asked to keep logs of their learning and these will also be analysed. Through this process, the project will seek to test these classifications, expand on these definitions and look for the specific requirements each category of students requires of their institution. There is also a rich set of data being gathered incidentally regarding feedback about institutional provision, individual strategies for using the physical spaces and technologies and students' impressions of the learning and teaching provision, which is all of value but outside the research questions of the project. Our main focus will continue to be to develop and test the sophistication of our categories. It is hoped that, through developing a coherent and simple means to describe the range of student preferences, this will be a tool for communicating and planning service delivery within our respective universities.

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