iBorrow
laptop borrowing scheme

iBorrow Research Report
(Pedagogic)

Dr Lynne Graham-Matheson
8.12.2009

JISC

UCISA
Award for Excellence
Winner 2009

Canterbury
Christ Church
University

1. University context

Canterbury Christ Church University (CCCU) is the largest centre of higher education in Kent for the public services – notably teaching, nursing, policing, health and social care – and a significant provider of programmes in a wide range of academic and professional areas. CCCU offers over a thousand academic and professional study programmes at undergraduate and postgraduate level.

As well as Canterbury, the University has four other campuses in Kent – Broadstairs, Folkestone, Chatham (part of the Universities at Medway project) and Tunbridge Wells (Salomons). The rapid expansion of the University meant that the library on the main Canterbury campus was struggling to meet demand. Library services was an area which had been subject to criticism in the National Student Survey. The University needed to improve its library and information services provision in order to provide a better student experience and compete with other institutions.

CCCU currently has over 15,500 students. The majority of students (56.3% in 2007/8) are aged 25 and over and 44.8% are part-time. Over half (57.3%) come from Kent and 71% are female. Although many of the students are what Prensky (2001)[1] has described as 'digital natives', particularly as an institution committed to widening participation we have a large body of students for whom the digital world is an alien place. The University has, in common with others in the sector, recognised the challenge that the interactive and highly socialised nature of the 'digital native' may present and the likelihood that they would be less inclined to spend a significant amount of time in large lecture halls, preferring more flexible and informal learning spaces (Johnson and Lomas, 2005)[2].

Augustine House is a very significant development for Canterbury Christ Church University – a £35m 'state of the art' library and learning centre to meet the needs of the University's diverse student groups at the beginning of the 21st century. The iBorrow project, funded by JISC and match-funded by the University, is providing 200 thin-client notebook computers for students and staff to borrow and use within Augustine House (AH) as easily as picking a book from a shelf. The use of location-aware technology in conjunction with other data will provide information on how students use virtual and electronic resources as individuals or within a group context.

2. Context of research into large-scale learning spaces

We were aware through contacts with SCONUL and AUDE, as well as other JISC-funded projects that many institutions, like ours, have found it difficult when approaching the planning task to find a disappointing shortage of resources to support planning. In order to approach the task of planning, delivering and monitoring the use of new learning centres, architects, designers, estates managers, finance officers and IT staff, as well as librarians and teaching and learning specialists all need information, ideally organised within a framework. The iBorrow project is a test-bed for exploring the effectiveness of thin-client technology on low cost netbooks and the potential of location-awareness systems to track the use of these. Thus it will provide quantitative data which may support insights into the

---

[1] Prensky M (2001) Digital Natives, Digital Immigrants, *On the Horizon,* 9(5)

[2] Johnson C and Lomas C (2005) Design of the Learning Space: Learning and Design Principles, *EDUCAUSE Review,* July/August p16-28

use of on-line resources in large, technology enhanced learning spaces. The resulting information should facilitate both institutional decision-making and intelligent building management.

The pedagogic research element within the existing project plan explores the issues around students' use of mobile technologies and will demonstrate the potential of modelling rich data sources to develop a better understanding of the impact on learning in the new facilities and on the experience of academics, learning support staff and estates managers. The timing of the publication of the final report of the JISC JELS Project has been most fortuitous. There have been a number of contacts between the two projects and discussions identified areas of interest that iBorrow is uniquely placed to address. The JELS meta study of other project evaluations found little evidence of an iterative design process in which the results of evaluation or monitoring are used to adjust aspects of the usage of the learning space or IT and other technical provision, or to help staff to adjust their work practices. A key finding to emerge from the study was:

"..most evaluations occurred as part of an internal institutional process, typically prompted as part of a student satisfaction survey, of which the outputs were not ordinarily deemed to be for external consumption. Arguably, this has limited the extent to which tacit knowledge sharing about learning spaces has been promoted across the whole educational community."(p. 3)

An international perspective is emerging from the "SKG: Learning Spaces Project" in Australia and recent publications from the USA, e.g. from Ohio State University and Rochester University. NY. The proposed Pedagogy-Space-Technology (PST) Design & Evaluation Framework from University of Queensland most closely demonstrates that this extended iBorrow project is addressing a need which has been identified globally. A number of JISC funded projects have placed the sector close to shaping a UK response to this need within the Institutional Innovation Strand.

In general all of these projects highlight a sector-need for:

- strategies which allow a range of stakeholders including administrators, academics, architects, students and technology providers to reflect at each stage on what they are doing throughout the conception, development and realization of new learning spaces.
- strategies which allow institutions to generate management information from their existing learning spaces with minimal changes to staff duties. It is important to monitor not simply satisfaction, but also the direct benefits in terms of a change in pedagogic uses and learning outcomes.
- a framework which captures lessons learned for future projects.

The iBorrow concept could identify how students, academic staff and support staff react as groups to the different spaces, with a deliberate eye towards tying together "space, pedagogy and curriculum." Whereas the JELS Project focussed on evaluation strategies the emphasis of iBorrow is upon providing practical and accessible methods of auditing and monitoring the changing usage of technologically enhanced learning spaces for pedagogic and management purposes.

3. The research

Before AH opened (September 2009) we undertook research in the then existing library with a view to establishing a baseline of information about library use which could be compared with work in the new building. This took place between April and July 2009. The research was opportunistic - resources were limited and so surveys and observations had to be carried out when researchers (members of staff and student volunteers) were available. The timing was dictated by the removal of some staff from the library building and the closure of the library as part of the building development work.

Throughout this report the library is referred to as the (old) library, to avoid confusion with the new facilities in AH.

Data were gathered through:
- observations of students using the library
- a student survey
- an online staff survey (academic staff)
- interviews with AH staff.

3.1 Benchmarking: observation
The observation study took place in the week of 26 April and involved 17 observations, ie staff walking around the old library and filling in an observation sheet. For the purpose of the study, the library was divided into six areas:

- loans and returns
- ISS help desk
- general library
- open access
- quiet study
- group study

The aim of the study was to establish how many students were using their own laptops and other computers. In the open access area at the beginning of the week and on Wednesday afternoon all the fixed computers were in use and at some points there was a queue of people waiting. At other times it was less busy, and on Wednesday before 10am it was only about a third full. Most of the time the perception was that students generally were working – at one time they were all using PowerPoint – but on another occasion students appeared to be using YouTube and at the same time looking at books, so it was unclear whether this was work or social. A few students were seen using Facebook.

Other use of the library across all the observations was as follows:

Library area	Writing/using book	Using laptop	Seeking book	Using laptop and book	Using laptop for work
General library area	195	130	93	53*	61*
Quiet study area	220	381	50	288	347

* These are not accurate figures because one observer had additionally noted that 80% of those observed were using a laptop and book and 75% were using a laptop.

Although the figures are unfortunately not complete, due to the difference in recording, it is clear that significantly more of the observed students were using a laptop in some way than were writing by hand or using a book.

3.2 Benchmarking: student survey

The survey was undertaken by researchers standing outside the entrance to the library and asking students questions, responses to which were entered on an OMR form. A total of 275 completed forms were returned. All but 15 of the respondents were based in Canterbury. There were 164 female and 110 male respondents, with 22 part-time students and 27 postgraduates, the rest full-time undergraduates. The majority of the respondents were aged under 30.

Most of those in the survey visited the library every day or a couple of times a week. The results are obviously skewed by the fact that we were surveying students who were using the library, not all students. The most popular reasons given for visiting the library were, not surprisingly, to take out a book (37%) or to use a computer (28%). Asked if they regularly worked with others in the library, 71% said they would do so if more facilities were available.

Students were shown an iBorrow laptop and asked if they thought they would use one in AH. Of those who bought their own laptop to the library, 82 said they would use an iBorrow laptop and 22 said they would not. For those not using their own laptops the figures were 130 and 32 respectively. So of the 274 respondents to this question, 212 (77.4%) said they would borrow a laptop, 54 would not and 8 were unsure. 32 (19%) of those who do not bring their own laptop would not borrow one, compared with 22 (21%) of those who do bring their laptop. There were no significant differences in the demographics of those who would or would not borrow the laptops:

Comments on the iBorrow laptop:

- Liked the laptops (4)
- Would prefer to use own computer at home (3)
- Think there are not enough computers generally/in the library so good idea (3)
- Liked the idea but not the laptops (3)
- Laptops great for people just wanting to use internet/check email (2)
- Having the laptops will make more room for people wanting to work
- Laptops will be great around exam time
- Liked the idea of being able to take a laptop and sit somewhere just to go online
- Current PCs are slow
- Has this laptop at home and doesn't think it will work
- Good idea but not sure would use it
- Would not use it as previous damage would be attributed to me
- Would not use it in case it broke while using it
- The laptops are not a good idea
- Laptop too slow

3.3 Benchmarking: staff survey

The online survey was undertaken at the very beginning of the autumn term, just before AH officially opened. There were 80 responses. Staff were asked about their own use of the library and about their library use with their students. The most popular responses for use with students were directed activity to find subject resources (37), session with a Faculty Liaison librarian (28) and library tour (26). Comments from students on the library resources were said to be mostly negative and concerned with insufficient stocks of books and journals, problems of access for part-time students, issues around accessing the e-library and online journals and the lack of quiet study/group work areas.

Only 29 respondents said they felt fully informed about the resources for teaching and learning which would be available in AH and only 23 said they had plans on how they would use the new facilities/resources with their students. General comments concerned the building itself and how it would work for students, not how staff could use it in their teaching. Around a third of the comments were don't know/not sure/not enough information. The remaining comments were very positive, commenting on the light, modern professional environment offering more resources and a variety of spaces/equipment for students to work on their own or in groups. Asked how they thought their work with students might change once AH had opened, most comments were that it was too early to tell or related to the logistical issues and distance from the main campus. Others were more positive – while some said they needed time to work out how to use it to best advantage, others referred to having space for group working, setting more directed tasks or research tasks and using a wider range of activities to help students become independent learners.

Ten respondents thought AH, with its flexible learning spaces and the availability of enhanced information technology was likely to result in improved student learning, 24 said probably and 32 maybe. None of the respondents said definitely not. Most of the comments were positive, referring to the flexible space, opportunities for group working, the modern building being a good place to study and encouraging students to be there. Many comments referred to independent learning, group study, flexibility, meeting a variety of needs. Several staff praised the cafe facilities, which they thought would encourage students to stay and work for longer periods rather than just dropping in to return a book.

3.4 Benchmarking: key staff interviews

Semi-structured interviews were conducted with 14 support staff from six departments in August 2009. Most of the comments were about the implications for staff of working in the new building, including the problems of working in open plan offices. There were positive views about the new facilities for students, including new book stock, with the physical (building) changes perceived to lead to cultural changes in teaching and learning. The distance between AH and main campus was seen to be a problem for students and it was felt that academic staff had shown little interest in making use of AH to engage with students' learning because they were not permitted to book a room themselves and therefore felt that they did not have teaching space.

3.5 Benchmarking: Augustine House pre-iBorrow observations

As the iBorrow laptops were not available for use when AH opened, we were also able to carry a week long observation study of the way students were using AH pre-iBorrow

Observations took place in AH over a week when the building first opened to look at students' use of the building and of fixed computers or their own laptops within the learning spaces. These observations were represented diagrammatically and show that there is a peak of activity in the building for a few hours around lunch time. Although much activity was dictated by the seating or availability of fixed computers, it did seem that students favoured particular areas of the building. These observations will be re-visited when we have comparable observations using the iBorrow laptops.

These various activities were intended only to provide a benchmark to use as a comparison with the iBorrow data and we did not expect to draw any firm conclusions. A particularly interesting finding was the way in which many staff appeared not to have thought about the impact that AH could have on their teaching, except perhaps in a negative way, focusing on the distance between main campus and AH, which they saw as limiting their opportunities to, for example, set tasks whereby students needed to find information in the library and report back.

4. Understanding learning centres through iBorrow

4.1 Location tracking potential

- To what extent is iBorrow use a snapshot of student use of IT in the library -could you correlate from netbook use to overall use of the learning centre?
- The mix of IT resources within AH across space and time?
- Student choice – specific groups who make extensive or little use of mobile resources.
- Do particular 'groups' of students gather in certain spaces i.e. near subject resources?
- Pattern of use of specific zones – e.g. individual vs group, café, flexible spaces
- Disabilities & gender patterns-use of zones
- Phase of the day - use of zones
- Age profile - use of zones

4.2 Direct observation and interview

- Where, more precisely are netbooks used?
- Do groups use a mixed economy of fixed and netbooks?
- Are particular applications favoured on the different devices?
- How do groups use IT resources and the space
- How are mobile devices being used in comparison with desktops and own mobiles

4.3 Facebook vox pop on iBorrow

4.4 Pedagogic Scenarios: staff-student-building

Once the building opened it quickly became apparent that some staff were turning this to their advantage, planning their teaching so they could organise a visit to AH for several hours, perhaps including lunch, and organising research activities, discussion groups and tutorials. A few examples:

- PGCE students are directed to use the curriculum resources area for a set task. While working they take time to have lunch and to meet with tutors about their learning journals
- Students taking the same course at Broadstairs and Chatham meet for a study day with collaborative tasks at AH
- The tutor assigns students a task, and sits and works in the coffee shop, so is available for any students who need help
- First year students are given an assignment task, taken to AH to find books and resources and begin to plan their assignment – the tutor is on hand to help if needed
- Individual tutorials can take place while students are working on individual or group tasks – tutor can be in the coffee shop working, no 'dead' time waiting for students to arrive (although probably not an appropriate space to deal with difficult issues)
- Taking a group of part-time or mature students to work in AH, have coffee together etc can help them to bond as a group and feel part of the university.
- Students spend the day working in AH to prepare a group presentation using the whiteboards, video etc and then present to the other groups at the end of the day.
- Students in parallel teaching groups are set a collaborative task to work on in groups in AH. Tutors determine the groups so that the students have the opportunity to work with fellow students they have not met before.

With the help of Prof Betty Collis we have developed the attached pro forma, for staff to record their teaching activities. These will be analysed into a set of 'scenarios', which can be used for staff development purposes. An example of how this might be done is as follows:

A group of students (Dimension 1c) in nursing are getting ready for an initial practicum experience in a local hospital (Dimension 4c) and need to anticipate issues and problems that they will confront (Dimension 2a). Each student has prepared a list of key problems that he/she expects to have to confront and submitted them in advance to a shared workspace (folder) in the VLE (Dimension 7a). Before their group session they read each others' lists (Dimension 3a) and come prepared to take the lead on discussing what to do about one of the issues if members of the group confront it in practice (Dimension 5b). The instructor has requested that each group submit a brief report via the VLE about the issues that were discussed (Dimensions 6a and 7a) which she will in turn use as a basis for discussion in the next face-to-face session of the module. The instructor indicated that the students could contact her by phone or chat if they needed help and if she was available she would reply directly (Dimension 7b). The students arrange to meet in a semi-enclosed collaborative area for their discussion (Dimension 8, Zone 4).

4.5 Linking iBorrow data to direct observations

As patterns emerge from the data analysis and the observations the gains of cross referencing and correlating the information from these two modes of data collection will be illustrated for the sector.

Appendix A: Augustine House Pedagogic Scenario

Name ....   Date ....

Course/study group ....

Question	Coding	Notes
How many students are involved?	a 1 b 2 c a group (how many?)	
Type of activity?	a – process (studying, discussing, deepening understanding etc) b – product (producing something for assessment)	
Study resources used?	a – developed by the group or individual b – located in AH/online	
What activity?	a – catch up, review, study for exam b – project work c – prepare for field work or placement d – short exercise/task	
Focus for communication?	a – for organisation/info needs b – for peer feedback/learning dialogue	
Who chose how to use AH?	a – tutor b - student	
Role of tutor during AH use?	a – planned availability (face to face, virtual or phone) b – unplanned availability but can be contacted c – not available	
What technology being used?	a – iBorrow laptop b – own laptop c – fixed computer d – interactive whiteboard e - screen	
How is technology being used?	a – to capture, work on, share knowledge, knowledge products (group archive, group resources, group memory etc) b – to access study materials from expert sources c – for individual needs (note taking, accessing Blackboard, writing, printing etc)	
Which zone(s) of AH is most useful?	a – individual reflective b – group reflective c – enclosed collaborative d – semi-enclosed collaborative e – open lounge collaborative f – flexible interactive g – stand up IT h – printer/copier i – coffee area j – other area for informal contact	
Any comments:		