



Project Information			
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Project Name	<i>Information Spaces for Creative Conversations / Middlesex University</i>
Report compiled by	<i>Bob Fields</i>
With contributions from	
Reporting period	<i>November 2008-September 2009</i>
Section One: Summary	
<p>The period covered by this report saw progress on a number of fronts.</p> <p>The main area was in exploring and trialling information space technologies in a number of ways both at Middlesex and City. These two sites provided us with different constraints and contexts, and hence revealed different aspects of the use of the trialled technologies.</p> <p>A number of more experimental investigations have been made to look at a range in interaction technologies for supporting the kind of conversational learning that is the focus of the project, including:</p> <ul style="list-style-type: none">- electronic pen-style interaction (using Nintendo Wii)- interactive surfaces (including MERL Diamond Touch) and a similar device constructed at City <p>While such technologies remain interesting and promising, it would appear that further development is required before they are able to provide a sufficiently stable platform for delivering improvements in learning. It appeared that electronic pen-style interaction at the table was, with the technologies tested, too unreliable, and therefore tended to be a disruption that tended to inhibit rather than enhance conversation. The interactive surface that was trialled suffered two problems. First, the surface area was too small for the kinds of design activities we wished to support. Second, and perhaps more significantly, while an interactive surface allows interaction with and recording of digital objects on the screen, much of the design activity involved the manipulation of physical or paper objects as well as digital ones displayed on the surface. It is the integration of these different media that should be supported and captured to create a successful information space.</p>	

Section Two: Activities and Progress

Two work packages have been active during the period of this report.

WP1: State of the art and current practice review

Lit review in key areas - aided by organising a workshop at the HCI2009 conference, which not only provided a dissemination opportunity, but also put the project team in contact with other researchers working in related areas.

Review of current practice – supported by extensive in-class observations. We have collected a significant quantity of video data from group design and similar situations, the analysis of which will develop our understanding and inform subsequent interventions.

WP2: Initial prototypes and explorations.

At City and Middlesex prototype interventions have been trialled, allowing us to explore different configurations of display and projection, writing and working space, recording, capture and playback. The two sites have provided opportunities for varying the technical set-up and for deploying the trials in different learning settings (e.g. different class sizes and staff-student contact patterns). Putting the technology in place has required the solution of a number of technical, logistical and practical problems, concerning video and audio capture, podcasting, server setup, and appropriate delivery into the learning context. However, having had the initial experience of this kind of setup puts the project in a good position to move more quickly in Year 2.

From a research point of view, having video data available via the blog server to all team members has proved very useful. Although not exploited to date, the possibility of data analysis by members of a distributed team is one with great potential.

Progress has been made on both these areas of work, though, because of staffing difficulties (described below), progress has been slower than originally planned. However, as discussed below, it is expected that progress through the second year of the project will be more rapid and will capitalise on a number of advantageous changes in project case studies.

The initial prototype activities at Middlesex and City are documented in notes available on the project web site. These describe the prototype setup, including details of the technologies involved in the trials as well as details of the learning setting.

See the documents *Information Space Technologies: Year 1 explorations at Middlesex* and *Information Space Technologies: Year 1 explorations at City* at <http://idc.mdx.ac.uk/iscc/docs.html>.

At an operational level, the project has been working well across the two partner sites. Project meetings are held with varying frequency (from weekly to monthly, depending on need) and have tended to alternate between Middlesex and City. While email and other conventional means of communication are essential, the internal project blog and wiki has been an invaluable communication and coordination tool, as it allows for the easy exchange and sharing of video and images as well as text.

Section Three: Outputs and Deliverables

A number of internal and external presentations have been made, giving high-level overviews of the project. Slides are available at: <http://idc.mdx.ac.uk/iscc>.

The first year's work on the project will result in a series of notes and documents available from the project web site.

Section Four: Outcomes and Lessons Learned

A key part of the intervention being trialled was to support video recording of significant parts of the student-tutor encounter, when students and tutors come together to critique and further develop students' project work. This has meant that, as a matter of course video records are made that can serve as data for research. It also has meant that a consistent process has been established for initiating the recording in each session and for storing and making available the recordings for students, tutors, and the ISCC project.

The analysis of year 1 data has necessarily been only partial, and has been based on the experiences of tutors, informal discussions with students, and a rapid review of video data that led to a deeper examination of a small number of selected episodes that had occurred throughout the study. Several preliminary themes have emerged from the experiences of the first year, including:

Achieving a balance between structure and flexibility

Early design and crit sessions tended to be relatively unstructured, and would often end up being long and lacking in focus, resulting in video records that were less than ideal for supporting later reflection. While flexibility is often useful, it was decided to limit the time of each session and define a semi rigid structure for each session that consisted of phases of reporting, discussion, and target setting. This appeared to result in more effective use of the time available, and more engagement at key points in the session.

Integrating technology into activity

In one trial at City, students were given a free choice about which elements of technology they would use to support their activities. It was observed that video recording, for example, was, potentially for a number of possible reasons, rarely used. In the Middlesex case study, on the other hand, the use of projection and recording and the set-up of other information space elements was more closely integrated into the routine of the classes and more actively promoted by the tutors. Choosing not to video record, for instance, was not an option in class, and therefore students were provided with a resource they could (and did) make use of outside the class.

Understanding the dynamics of information space use

A number of interesting phenomena were observed about how students and tutors made use of the information space around them. For instance, it appeared that the writable table space is segmented in practice into different, relatively distinct regions. People may write in a personal (though not private) space close to themselves, into which others do not write. This personal space may be directly referred to in later conversation, either by the 'owner' or by others. Public space, on the other hand, tends to be in the central area of the table, and can be written by all. One person's annotations on the public area may legitimately be altered or added to by others.

The importance of reliable recording

If the video and audio recordings of sessions are sufficiently reliable and of adequate quality, then students are able to develop a trust in the recordings as resources. So, for instance, if a reliable video or photographic record exists, students appear to rely less on taking notes (which would take them out of the conversation) or may make notes directly on the table (which can then provoke further conversation).

Packaging the technology

The setup in Year 1 was rather experimental and ad-hoc (for example, see *Information Space Technologies: Year 1 explorations at Middlesex*, available on the project web site). In order to widen the appeal of the technology, to two key stakeholder groups – staff and students - it will be necessary to package the technology in a way that reduces setup time and complexity, and allows tutors and perhaps groups of students working independently to flexibly set up digitally enhanced conversation spaces.

The year 1 studies have helped us to understand better what should be contained in such a packaged 'unit' of technology. In the Year 2 studies, we will develop a more packaged version of the technology, that will be documented in a way that others could use.

Section Five: Communications and Dissemination Activities

A number of dissemination opportunities have arisen that have allowed us to engage with both internal stakeholders and external parties.

At HCI 2009, an international conference on Human-Computer Interaction held in September 2009, the project team ran a workshop to explore the themes of this project. See <http://www.cl.cam.ac.uk/conference/hci2009/workshops/Wkshp2-Jones.pdf> for a description of the workshop themes and aims.

The workshop brought together an interesting group who spend the first half of the event presenting their respective projects. The second half of the event allowed participants to engage in some creative design activity with the aim of envisioning information spaces to support communities of practice. Many interesting ideas were generated and were captured in a way that will be disseminated to participants in future.

A key group of project stakeholders are members of academic staff who are not directly involved in the project, but whose curriculum areas may benefit from the kinds of information space technologies being proposed on this project. Initial explorations in the first year of the project were done in the context of MSc programmes at both Middlesex and City. In the second year, however, discussions are underway to engage members of staff involved in the undergraduate curriculum in Product Design and Computing Science.

Section Six: Evaluation

The project plan outlined three key objectives against which the work of the project will be evaluated:

- Productive conversations
Do interventions stimulate creative conversations? Do such conversations continue beyond the classroom? Do students' ability to engage in creative conversation develop?
- Engaged participants
Do students engage in the critique of others? Do students use elements of the technology of their own volition?
- Wider impact, uptake and sustainability.
Can innovations be used in different subject areas and with different class sizes and contexts?

The previous section outlined some of the lessons that have been learned about the effective use of information space technologies as a way of learning through creative conversation. Several of these emerging themes and lessons speak directly to the objectives listed above, and work is progressing to map current findings and data collected so far onto the evaluation criteria.

For the future

A number of activities in the second year of the projects will allow us to address these evaluation points.

A large quantity of video data has been recorded in design crit sessions, and analysis has already begun to show interesting patterns in the ways that participants interact. A more detailed analysis will be able to take this forward on a number of fronts:

- Analysis of conversation structure, to investigate which information space features and actions are linked with conversation.
- A longitudinal analysis of individual students or teams to investigate the ways their involvement in conversations has changed during their use of the supporting technologies. The longitudinal study will be based around observational methods, and video recordings will form the basis of this study. However, other methods are also likely to add significant benefits, for example, interviews with these students at several points during their journey through the project.
- Investigation of applicability in other contexts. In the second year, the project will deploy the approaches on other contexts (Product Design and human-Computer Interaction at undergraduate level, and Creativity in Design at MSc level) where the curriculum, students, class sizes and contact patterns are different.
- Practical issues concerning deployment will also be investigated. As mentioned above, packaging the technology is likely to be one part of making it more easily usable by others. Another significant issue for investigation is likely to be the cost implications of the approach.

The case studies for Year 2 are documented in the note *ISCC Year 2 – the case study landscape*, available from the project web site at <http://idc.mdx.ac.uk/iscc/docs.html>.

Section Seven: Issues and Challenges

Two key events have impacted the Middlesex part of the project in the first year. The first of these has been the failure, for a variety of reasons, to appoint a research assistant to work on the project. The second has been the fact that the MSc programme around which the investigations were based has recruited poorly and will not run for the 2009/2010 academic year.

There has been an immediate impact on the project of both of these events: The first has required more input from the project manager and other Middlesex staff than had initially been expected, meaning that production of the first progress report and first deliverable has been delayed. The second event has meant that second year of case studies at Middlesex can no longer focus on the MSc as originally intended, and the team have had to consider alternative deployment plans.

However, both these challenges have proved to be rather positive for the project.

The original plan budgeted for a research assistant to be in post for only a year in the middle of the project. The delay in hiring means that the RA will, instead, be in place for the final year of the project allowing them to spend more time on evaluation and analysis activities and the extraction of disseminable lessons for practice, and so forth, in the later stages of the project. The RA will therefore have a greater input into the later project deliverables than might have originally been envisaged.

Furthermore, the School has agreed to fund the RA post beyond the duration the ISCC project. This will provide an excellent opportunity for continuing the development and evaluation work and embedding lessons learned into practice within the school and disseminating the lessons more widely.

The second challenge, the cancellation for the coming academic year of one of the case study programmes, has resulted in a broader outlook for the second year case studies. The current approach will be to trial Information Space technologies in two alternative settings: undergraduate modules in Product Design, and Human-Computer Interaction. In addition to the element of challenge, this will present the project with a great opportunity to broaden the scope of the trial and evaluation activities by considering curriculum delivery across more disciplinary areas, with different student contact patterns, group sizes and constraints.

The departure of Dr Zaphiris, one of the academics involved in the project at City University, had a significant impact on activity at City for the latter part of the year. It had been planned that Dr Zaphiris would assist in analysing data from evaluations carried out in the first year of the project and planning further trials in year 2. However, it has been agreed by the programme manager that funds allocated to pay for Dr Zaphiris' time can now be used to pay a research assistant to support this activity. Dr Zaphiris's departure also means that trials of Information Space technologies at City in the coming year will be carried out in a different module from that used in year 1. This is seen as an opportunity to gain broader experience and lead to overall findings that have more generality.

<p>Section Eight: Collaboration and Support</p> <p>Programme meetings have provided an excellent opportunity to gain an overview of what other projects are working on and to get views from outside the programme, from JISC and elsewhere.</p> <p>The cluster group meetings have been particularly useful forums in which to get to know a subset of the overall programme group. In the cluster meetings, it has been possible, to an extent, to see some of the other projects ‘from the inside’, and this has been very insightful. Some projects (in particular Atelier-D) share thematic common ground with ISCC, so we are very fortunate to have had the opportunity to make contact. Even where there is little thematic common ground, the interaction has been very useful, indicating that we sometimes face common problems and issues. The cluster meetings have, thanks to our critical friend, Peter Chatterton in collaboration with the projects hosting the events, have been very well organised to expose these common areas and the potential for exchanging ideas.</p> <p>The programme manager and other colleagues (e.g. from the Support & Synthesis project) have been a valuable source of feedback and critique. As part of the feedback at various times they have provided excellent pointers to other work that we should be looking at. For instance, some of the recent suggestions have been to other work on tools to help organise and manage collections of video and other media, and to projects whose focus is directly on feedback. Both of these suggest new possibilities and open up new possible lines of investigation.</p>
<p>Section Nine: Financial Statement</p> <p><i>In this section you should detail the expenditure of the project so far. Against the budget headings you should set out the expenditure for the reporting period, noting any significant over/under spend giving reasons for this. You should also state the total expenditure to date against each budget heading. The table below is designed to help this reporting process. Additional budget headings may be added to fit an individual project's budget. Projects may find it more appropriate to use a spreadsheet to report financial information.</i></p>

Total Grant	██████████	Duration of project	24 Months
Reporting Period	Nov 08 to Sep 09		

Directly Incurred Staff	Current Year Nov 08 to Sep 09			
	Carry Forward (A) Nov 08 - Mar 09 £	Year Budget (B) Apr 09 - Sep 09 £	Actual Expenditure (C) £	Variance ((A)+(B))-(C)
Post, Grade & % FTE	██████	██████████	██████	██████████
Payments to City University	██████	██████████	██████████	██████████
Etc.	██████	██████	██████	██████
Total Directly Incurred Staff (A)	██████	██████████	██████████	██████████
Non-Staff				
Travel and expenses	██████	██████████	██████████	██████████

Transforming Curriculum Delivery through Technology Programme

Hardware/software				
Dissemination				
Evaluation				
Recruitment				
Consumables				
Total Directly Incurred Non-Staff (B)				
Directly Incurred Total (A+B=C)				
Directly Allocated				
Staff				
Estates				
Other				
Directly Allocated Total (D)				
Indirect Costs (E)				
Total Project Cost (C+D+E)				
Funds Received from JISC				
Institutional Contributions 34% of overall cost				

Nature of Institutional Contributions

Directly Incurred Staff				
Post, Grade & % FTE				
Directly Incurred Non Staff				
Hardware/Software etc.				
Directly Allocated				
Staff, Estates etc.				
Indirect Costs				
Indirect Costs				
Total Institutional Contributions 34% of overall cost				

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Checklist:

Before you return this report:

- Ensure that your project webpage on the JISC site is up to date and contains the correct information. Attach details of any required amendments to this report. Project webpages can be found from: www.jisc.ac.uk/curriculumdelivery
- If there have been any changes to the original project plan and/or work packages, ensure that amended copies of the relevant sections of your project plan are attached to this report.
- Identify and name any areas within this report that you'd like removed before the report is made public (*see below)

***Please note** the interim reports will be made available on the JISC website and on the Circle site with the budgetary information removed. We recognise that projects may occasionally address very sensitive issues. We would like you to present as full a picture in this report as you can as the lessons you learn are valuable to us. We assure you that any issues you identify as confidential are removed before the report is made public. Where such issues do represent valuable lessons for the community we will involve you in further discussion as to how they could be passed on without identifying institutions or individuals.