Cover Page

Title of submission: The Lonely Commuter's Orientation to Interaction Design

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The Lonely Commuter's Orientation to Interaction Design

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Abstract
In this paper we present a location-specific or locative game experience we designed, developed and deployed for new university students. Designed around a desired knowledge set, the experience moves away from traditional lecture-style introductory information sessions by incorporating activities involving learning by doing. The experience facilitates social interaction within the student cohort, and introduces the students to the style of work they will encounter and produce during their studies. We describe our design approach, provide an overview of the experience, reflect on two trials run during 2005 and identify further changes we plan to make for a trial in 2006.

Keywords
Design case study, location-based game, locative experience, educational, social computing, physical computing, responsive environments, university student orientation, experiential learning, task-based learning, skill sessions, belonging, team engagement

Figure 1: New students have to find their way

Project/problem statement

The goals of this project were to familiarize new students with the university, to facilitate social interaction within the student group, and to introduce the style of work we undertake.

When commencing a university degree, new students are expected to familiarize themselves with their new campus, and to sift their way through a plethora of information thrown at them from all areas of the university. Orientation activities attempt to introduce students to the university, providing them with general information and with information specific to their chosen degree, generally in a lecture-style format. This information is often essential to everyday student life within the university and it is essential that it be understood and assimilated quickly. However, the distribution of information through traditional lecture-style sessions and paper handouts has proven to be unreliable. The separation of context does not encourage a deeper understanding and the information is often lost [1]. Information is not retained and understood, which results in administrative and educational effort for reiteration throughout the semester.

Many students new to the university are also new to the local area and often travel from interstate or overseas to attend. Many are also new to a university environment and its conventions and practices. These include the teaching and learning style, the scale of the campus, often spanning a large site or multiple sites, the environment surrounding the campus, and, in some cases, the urban or suburban environment. Students may feel dislocated, operating outside their usual support networks. One of our aims was to provide a sense of belonging to something larger than self. We provided opportunities for social interaction, facilitating the generation of social networks within the cohort, and encouraging a sense of belonging to both the specific degree and to the broader university community.

We also wanted to give students an experience that would introduce them to the style of work they would subsequently be exploring and developing. The Information Environments Program in which we work takes a human-centred approach to the design of information technology. We explore new ways of interacting with information and the information infrastructure, with strong interests in social computing, physical computing, and novel forms of human-computer interaction. We wanted to introduce these interests to students in an experiential way so we decided to develop a location-specific or locative experience that was game-like.

Background

Team members, and their roles

The design and development team for the orientation experience consisted of four main members, from the Information Environments Program, in the School of Information Technology and Electrical Engineering, at The University of Queensland in Australia. While each member had particular roles and responsibilities, the group dynamics allowed for open discussion surrounding project decisions and development.

Lorna Macdonald is a doctoral student whose research interests encompass location-based services and games, and specific game design issues. Macdonald held the main role as project co-coordinator and

physical artefact developer, helping to facilitate the collation of content for the experience.

Escaping a previous career as a lighting designer and production manager, Ian MacColl teaches and researches in the overlap between social and technical aspects of IT, with an emphasis on mobile, distributed and pervasive computing in non-traditional contexts. MacColl had the role of technical coordination and digital artefact development.

With a background in installation, and new media arts, Ann Morrison is currently working with context containment interactive environments. Morrison also lectures studio process, interactive environments and visualization. With a role as an interaction and scenario designer, Morrison assisted in content development for the experience.

Matthew Simpson is an interaction and web designer with a background in architecture, researching collaborative design and locative experiences. Simpson lectures information technology, graphic design and studio process. Simpson was also responsible for scenario and interaction design, and assisted with content development.

Project dates and duration
This project has been through four iterations since an initial trial in February 2004 (the Australian academic year is aligned with the calendar year, running from February to November). This paper is mainly concerned with the version of the experience designed during the second half of 2004, developed during January-February 2005, and run during February 2005. A subsequent evaluation trial is also described.

Context of project
The Information Environments (IEP) Program within the School of Information Technology and Electrical Engineering (ITEE) at The University of Queensland in Australia focuses on design- and human-centred approaches to IT and emphasizes non-traditional interactions within environments involving ambient and pervasive computing technologies. The program hosts a Bachelor of Information Technology majoring in Interaction Design (formerly Information Environments), a Bachelor of Multimedia Design, a Masters in Interaction Design, and related postgraduate research. This project focuses on the undergraduate students in the two Bachelors degrees as they are typically new to the university and, for many, their orientation experience is their first introduction to university life.

The Program is situated at a well-equipped satellite campus. Many of the first year intake are new to the campus and local area, with a number traveling from interstate and overseas to attend, hence our interest in supporting students to quickly integrate themselves into their new social context.

At the start of the 2004 academic year, we conducted a treasure hunt game to engage students with the information essential to starting university. A series of contextualised activities were developed, based on assumed knowledge for first semester courses. This experience aimed to step outside the traditional lecture- and lab-based delivery of previous orientation experiences, using site-specific physically-based interactions.

Student engagement in the 2004 experience was low with most students not taking on board the information delivered through the game process. Reasons behind this were varied, with students stating that they did not understand the context of the game and that they attached little importance to the game content. Also, many of the activities in the 2004 experience were designed on the expectation that participants, new to the university, would complete tasks introducing the university context by revealing, interpreting and understanding hidden information. These issues of engagement and context form the basis of the challenges for the project.

Challenges

There are two levels of challenges in the design and deployment of this game-like experience. Project-related issues included over-familiarity with the context, tight schedules and coordinating across organizational boundaries. Student-related challenges include the accessibility and engagement of the experience.

Project-oriented challenges

The issue of familiarity with the site and the university context arose with respect to content development for the experience. Rendering the familiar unfamiliar to ensure that the experience was relevant to new students was a major challenge. Our main objective was trying to discover the important aspects of the context, which were confusing, unknown or conceptually different for the new students. Getting the content correct was paramount to the success of the experience.

Project and time management is a problem for academics with a variety of demands on their limited availability. In our situation, this is exacerbated working across multiple campuses, making physical meetings problematic, which often resulted in schedule slippages and last-minute changes.

As the project involved other areas on campus, staff in other departments, became involved as participants. Such participants, corresponding roughly to non-player characters (NPCs) in video games, are common in locative experiences. Work by Blast Theory and the Mixed Reality Lab, for example, incorporates non-player participants (actors) as integral to the experience of game play, especially in facilitating interaction between the player participants and the context [2]. However, briefing and coordinating the various non-player participants is problematic.

Student-oriented challenges

There were a number of challenges in creating the experience to ensure it was accessible to and engaging for all students. These included technological assumptions, participant costs and the tradeoff between enjoyment and learning.

Many pervasive gaming experiences explore the use of high technology by providing small numbers of participants with advanced equipment such as personal digital assistants, wireless networking and sensing hardware. Our experience involves up to 100 simultaneous participants, with no opportunity prior to the day for discovering what devices they possess. Based on technological trends, we assumed, therefore, that most, if not all, students would possess a mobile phone with at least SMS capabilities. This is based on

Australian Bureau of Statistics research showing that mobile phone ownership in households increased from 44% to 72% between 1998 and 2002 [3]. Although it would have been interesting to design interactions around the use of the rich-media capabilities of MMS, this would require students to possess a camera phone with networking configured prior to the day.

We also wanted to ensure that money was not a constraining factor on engagement by keeping costs to the students to a minimum. As a consequence we tried to restrict the number of messages any individual or group was required to send during the experience.

The time available to complete the experience was limited, as students were only scheduled for a single day of orientation activities. This was reinforced by the fact that the process should not be too drawn out as students would lose interest and not complete the activities. Despite our intention that this experience be fun, there was specific set of tasks that the students would need to complete, for us to be satisfied they had engaged with the information, which may not necessarily be as enjoyable. The tradeoff of this balance between the fun and informative aspects of the experience was a major design consideration when preparing the content.

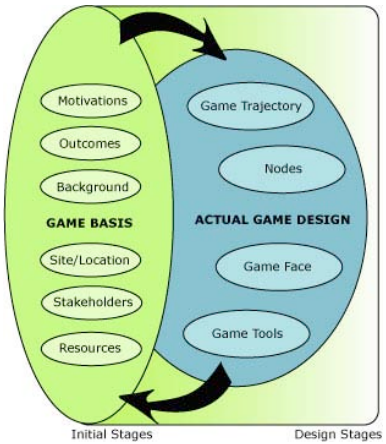

Figure 2: Framework overview

Solution

Process

Our approach to designing locative experiences is influenced by Aarseth's analysis of computer games [4]. Aarseth identifies three dimensions for computer games: *game-play*, consisting of the players' actions, strategies and motives; *game-structure,* consisting of the rules of the game; and *game-world*, the fictional content providing the arena for play. Aarseth's dimensions encompass the components of a design framework we are developing.

The lead author of this paper is extending and evolving a framework for designing locative experiences [5] (see Figure 2). The current version of the framework distinguishes aspects for the *basis* or context of such games, as well as their actual *design*. The basis aspect of the framework is concerned with identification and analysis of resources, locations and participant, including *motivations*, *outcomes*, *background* or precursor, *stakeholders*, *site* and *resources*. The design aspect of the framework is concerned with tools for conceptualizing the interactions and scenarios of play, including *theme*, *narrative*, *trajectory*, *nodes*, *tools* and *face*.

Aarseth's dimensions inspired many of the components in our framework. For example, Aarseth's game-play dimension encompasses players and what they do, both individually and socially, and incorporates aspects of the trajectory and narrative components of our framework. Aarseth's game-structure incorporates aspects of our game trajectory, which outlines the rules of play, sequences of events, and consequences for actions. Finally, Aarseth's game-world incorporates a game's face and narrative, although in locative games, worlds can occur in different modalities, including crossing the physical-digital divide.

A further influence on our approach is Fitzpatrick's Locales Framework, developed in the field of computer-supported cooperative work (CSCW) as a basis for resolving the tension between understanding and

designing for "wicked problems" [6]. The primary unit of analysis and design in the Locales Framework is a *locale*, relating a social world and its interactional needs, to the site and means that the members of the world use to meet those needs. The Locales Framework has two guiding principles: *perspectives* or points of view, and *centres*, with associated notions of distances and boundaries. The Framework is comprised of five aspects that are used to characterize different perspectives on understanding and designing:

- Locale Foundations
- Civic Structures
- Individual Views
- Interaction Trajectory
- Mutuality

Nodes are the central component of the game design aspect of our framework. The inspiration for nodes as a core component is drawn from the idea of *centres*, as described in Fitzpatrick's Locales Framework, combined with the notion of a node as a site or intersection for exchanging game information [7]. Nodes describe the individual interactions that occur during a game, allowing designers to break down a design into manageable parts. As well as being physical or digital places where the artefacts of game play are found, nodes also incorporate aspects of the Locales Framework dealing with public face, site, and means of interaction and the relationships between centres. We will focus on nodes in the remainder of this paper.

Nodes are intended to form the stop point descriptors for interactions or events that occur during the game. They can also be thought of as the 'ideas' that form together to create the game. The granularity or detail of each node depends upon the current stage of the game design. A node can be considered almost as a puzzle piece, each one describing a particular part of the whole. Especially in the initial stages of game design, it is easier to conceptualise small pieces of the game rather than trying to form a complete picture from start to finish. The game's narrative and trajectory provide context for the nodes as they evolve through the design process.

Nodes are formed around a centre that may be a particular location, object, or person within the site, or even an idea for an interaction. For each node, defining the centre, the core of the idea, allows designers to maintain the 'zen' of the node. Each node can be described in terms of the site in which it is placed, the game tools required, external influences, positive and negative outcomes, inner trajectory, public face, type or theme and relationships to other nodes. The relevance of these aspects will depend upon the style of node that is being described.

The site aspect describes the node's positioning in the game's physical or virtual world. This may include description of the environment and artefacts surrounding the node. If the node resides in a virtual setting, description of the virtual nature of the node, it could be that it is part of a website or an SMS message. For every interaction or event that occurs within the game, there is be a set of tools that is required. In the case of nodes, identifying the tools that a player needs in order to traverse the node successfully allows developers understand fully the technological requirements of the game. In terms of tools, it is not enough to say that a particular device or technology will be used, designers need to specify the type of actions that required to ensure the tools are suitable. In

considering this, designers are also able to define the types of responses the game provide for player actions. This clarifies game infrastructure needs, for example, by identifying a requirement for an SMS gateway and software for processing player SMS message on the basis of a node expectation that players SMS responses as part of their game interactions.

The inner trajectory of the node outlines the sequence of intended actions within the node and the rules that surround these. For example, a node may require a player to swipe a card in order to access a particular area. The trajectory defines the player actions and game responses to this. Linked with the nodes outcomes, it defines what happens when the result of the action matches an intended outcome and also what will occur if the result does not match the outcome. In the case of a swipe card, for example, if the swipe card matches the access list, the game responds by opening the door. If it does not, there are a number of different responses that the game could return, it may send an SMS to the player directing them elsewhere, or it may simply not open the door and leave the player to figure out why. Game designers can use the wrong/undesirable outcomes as ways to lead players to alternate nodes, or punish them by sending them on to dead ends.

The external influences upon the node may have an impact on its inclusion and manifestation within the game. Areas to consider here are time of day, local restrictions on such things as noise and light, transport timetables, or business hours. It is highly dependent on the style of interaction or event that is intended for the node. As nodes begin to evolve, dependencies between them will become evident, as outcomes from a particular set of actions may affect the flow or format of other nodes. These relationships may be defined through the game trajectory or in the reverse can help to define the trajectory itself.

A key factor in describing a node is defining how it will be made known to the player. It is the public face of the node that will alert players to its existence, it may be that it is made known through the traversal of a connecting node, in which case this would be described further as a relationship of the node. Nodes in the game can be made known to players through a variety of different media, brochures, SMS, posters, radio. In later stages the format of the public face can help to distinguish betweens different levels of players. The nodes theme or type will influence the style of face that the node may have. Theme is described previously in terms of the overall game design, but can be applied to nodes to create variety in interactions and game events.

The design process for this project operated on two levels: an iterative approach to designing a system in a team, and at a lower level focused on the interactions within and implementation of individual nodes. The approach that we used for the design and development of the orientation experience involved:

- Defining the goals of the experience
- Identifying resources for completing activities
- Defining desired outcomes
- Defining the nodes
- Iteratively refining and implementing the nodes

In keeping with our design framework, we started by identifying game-basis aspects of motivation, outcomes and background. These led to our goals of providing

information in an engaging way, fostering social interaction and previewing later work.

We then identified the resources we would be able to use in order to implement and deploy the experience, including exploring potential technologies and evaluating their suitability for deployment. The evaluation was in terms the overall context, site and participants, and led to our assumptions about the base level of technology students would have available, as a design constrain.

We use the terms *experience* and *event* to express a distinction about the level of technology available to participants. By *event*, we mean a trial or demonstration that pre-defines technology required, typically at a high level. Events typically require the supply of technology to participants. In contrast, by *experience*, we mean a trial or demonstration where the participants' existing technology is exploited. In addition to issues of cost and security, we believe that working at the level of participants' existing technology increases the potential for appropriation through familiarity.

Based on the goals, available resources and our understanding of the site, we defined specific outcomes as competencies to be achieve by the students. These were based on informal consultations with existing students, and on reviewing our experiences with previous first-year students. This review included marketing interviews conducted over several years, investigating resource locations, procedures and skills, cultures of habit, and general knowledge. The initial list of competencies was categorised into those related directly to the Program, and those related to other areas of the university. This ensured any overlap with other orientation activities was deliberate, reinforcing the importance of the information rather than overwhelming the students.

Based on the expected competencies, we defined nodes within which students could achieve those competencies. We used various representations of nodes during the design and development process. For example, in early January 2005 (approximately six weeks before the trial), nodes were represented in a tabular form, documenting:

- Node name
- Competency achieved
- Player trajectory through the node
- Non-player trajectory or responsibility
- Token indicating completion of the node
- Related nodes
- Location of the node
- Interaction style of the node
- Details of result of node

The trajectory is a key attribute within a node. The trajectory within a node must balance a degree of effort to maintain interest, while still being understandable and achievable. It is also used as the basis for implementing the node, for example, defining interaction as occurring via SMS.

The trajectory is also a key attribute between nodes. Within a node it leads to the result or exit point of the node that, in turn, links to the entry point of the next node or nodes. The node trajectories and results are important for helping participants to feel in control of and to make sense of the overall experience. For example, asking students to go to the Library to borrow

Figure 3: CD materials for students

an item makes sense in the context of an experience designed to equip students with information, while asking them to go to the Library to buy a coffee may seem arbitrary (which may be appropriate in some circumstances, but not for our specific experience).

Based on the definition of the nodes, particularly the node trajectories which can be viewed as scenarios, we proceeded to iteratively refine and implement the nodes. This involved two parallel streams of work, one based on physical artefact development, and the other focused on the digital experience and the underlying infrastructure. Throughout the development process team members responsible for the two streams interacted closely to coordinate details of the implementation of scenarios. Details of the implementations are presented in the next section.

Solution

As introduced above, the aims of the 2005 orientation experience were:

- To promote greater retention and understanding of key introductory information through experiential learning
- To facilitate social interactions amongst the cohort to engender a sense of belonging with the group, the Program, and the general university community
- To introduce students to the particular nature of the degree through participation in an experience indicative of the styles of work they would be exposed to over the course of their study.

Physical artefacts were created to implement some aspects of node trajectories and to reinforce the learning experience by providing an ongoing reference for students. The trajectory artefacts included customised items to be borrowed from the Library, markers to be located within buildings, and cards for collecting stickers on completing particular sub-tasks. The reference material took the form of a set of cards detailing key information, links and resources, housed in a CD case. The cards deliberately repeat information presented during the experience and include additional information, which, while useful for everyday functioning within the university, was not seen as important enough to include in the experience.

All artefacts and promotional material for the experience were created with an overall game identity or 'branding'. This ensured that the experience and people associated with it were visually identifiable.

The digital implementation involved developing an initial infrastructure for orchestrating locative experiences. We extended a text- and WWW-based virtual environment, a Multi-user dungeon, Object-Oriented (MOO), to incorporate a messaging framework to communicate with physical-digital transducers. The MOO provided a simple way to enable partial automation of orchestration, avoiding the risks and faulty inferences of a fully automatic system. The transducers were small pieces of code that acted as digital-physical and physical-digital sensors and actuators, communicating with the MOO to update the state of play. Examples of transducers include borrowing of a book, swiping a magnetic stripe or reading a barcode, sending and email, submitting a form, sending or receiving and SMS, and so on.

Figure 4: DVD case borrowed from Library and used to locate staff

Our use of a MOO for orchestration is inspired by the work of Thompson et al in the EQUATOR IRC in the UK [8], although it differs in several ways. At a technical level, they used a proxy to communicate with a Multi-User Dungeon (MUD), whereas we embedded the communication framework directly into the MOO. At a conceptual level, they treated participants as non-players whereas we treat them as full players in the MOO environment. Finally, they developed their MUD using a strong geo-spatial orientation by tracking participants using Global Positioning System (GPS) and repositioning participant representations accordingly. The digital spaces in our MOO map more closely to our game nodes, some of which were digital, and some of which were physical but defined via non-Cartesian relations such as containment and connection, rather than a coordinate system.

Students started the experience in a classroom session where they are taken through basic technical information, such as how to logon in the labs, submit helpdesk jobs and join course discussion groups. This is the only session delivered in a traditional mode. At the end of this session, students were split into small teams for the remainder of the experience, and due to numbers the teams were started on two sequences of tasks.

The 'Library Sequence' involved the students visiting the library, searching for and borrowing a particular item that corresponds to keywords given. This item, a DVD case, contains instructions that direct the students around the Program building where they familiarize themselves with the building layout and with teaching staff they will encounter during first semester.

The 'Journey Sequence' involved the students visiting areas of interest around the campus using a set of pictures to guide them. At the destination, students are required to send a ‘magic word’ to the game system via SMS to progress to the next stage.

On completing both sequences students had completed various tasks that had been identified as important for first year students. They had borrowed a library item, identified staff and where to find them, navigated around key places on campus, and handed in information to the program office.

Communication with the teams was through interaction with tutors in the labs during the initial session, contact with non-player participants at various points, and via SMS. At the completion of their initial sequence they swap over, so teams doing the first sequence then do the second sequence, and vice versa.

Each team’s progress was tracked throughout the game and once all tasks were completed, they were sent an SMS instructing them to meet for the grand finale. The ‘Egg Challenge’, conducted in the initial teams, forms an introduction to first semester classes and the style of visual thinking, rapid prototyping and problem solving the students encounter throughout their degree, particularly in studio-based courses.

At the conclusion of the experience, the students had collected various notes, contained within a CD case, documenting the tasks they had completed and providing other information for future reference.

Results

The results presented here are derived from the February 2005 orientation, and from a subsequent session run with second-year students who had completed the initial treasure hunt game in February 2004. Feedback regarding the experience was gathered through discussion with non-player participants and through surveys distributed to the students involved. The feedback gathered was qualitative and the survey distributed to the second years was altered to enable a comparison with their orientation experience in 2004.

2005 First-year Students

Of the 91 commencing students, 79 participated in the orientation experience on 23 February 2005. Surveys were distributed in classes a week later. Unfortunately, only 6 participants responded to the survey, suggesting improvements are needed in the feedback process as we had expected substantially more responses. This is most likely due to the fact that surveys could be returned at a later date and may have been forgotten after class.

Despite the lack of response, the feedback gained was positive with all respondents stating they had enjoyed the experience and found the information packages to be useful. Those who had not visited the campus prior to the experience now felt familiar with navigating the campus. Respondents stated they had been able to meet new people, and suggestions were made for the experience to include more activities that would allow them to get to know others in their cohort.

Discussions conducted with library staff, involved as non-player participants within the experience, highlighted the need for more comprehensive pre-experience briefing. Providing an overall picture was needed to give them a clearer understanding of the impact of their role in the experience and to enable them to better support the participants. Problems were encountered when students were unable to locate the library catalogue, and suggestions were made that an extra step be included that provided students with an introduction to the online system.

We were also approached by a UQ Guide, a current student employed to help new students during orientation, who suggested that the Guides should also be made briefed on the experience as they had been approached by participants asking questions specifically linked to tasks. In addition to this, UQ Guides and library staff also suggested that students be identified in some way as being participants within the experience, to allow for them to be identified and given support in the context of the experience. This would also enable students to recognize each other as participants and encourage further socialization within the cohort.

From a logistical standpoint, our experience and feedback from non-player participants indicated that greater consideration of communication with designers was needed to ensure the experience ran smoothly. More formalised testing prior to the deployment would have highlighted the need for a back-channel communication process and also for more formal and widespread briefing and promotion of experience.

At the start of the experience, the MOO system wasn't working due to a misconfiguration. Consequently, the teams for the experience were formulated manually. For participants, this meant that they were assigned teams and given instructions for the first task verbally.

The lack of a physical representation of this caused confusion amongst some participants. Some found themselves at the wrong end of campus as they had misunderstood where they were to meet their teams. SMS interactions had to be temporarily redirected to one of the designers' mobiles, which slowed the response and tracking process down considerably.

In the weeks following the experience, administration staff commented that they had received fewer enquiries from first year students regarding common information distributed through orientation than in previous years. This suggests that the students engaged with the information and activities within the experience and came away with a more comprehensive understanding of university life. From a teaching perspective, the experience enabled us an initial insight into the cohort and student personalities in a lightweight setting.

2005 Second-year Students

Students in their second year were asked to participate in a rerun of the orientation experience in a studio course, firstly, to expose them to alternative forms of game interactions as part of the studio, and, secondlym to enable a comparison to be drawn with the 2004 trial experience. Adjustments were made to the experience to reduce the amount of time it would take to complete and to enable new aspects to be introduced. Individual puzzle pieces were introduced as a way to form groups for the experience. As each group was identified by color, puzzle pieces were colored accordingly and provided students with a visual clue when searching for others in their team. These also provided teams with a tangible reference point, as when put together they formed the instructions for the first task.

The final design task was not included in this iteration to reduce the duration of the experience although many participants felt this should have been included as it had been the highlight of their orientation in 2004. A barcode scanning system was introduced to mimic assignment submission procedures.

Of the 58 students enrolled in in the studio course, 53 participated in the experience and 25 responded to surveys distributed directly after the experience. Responses showed that a majority of students found this experience to be better than their 2004 orientation experience. The information was presented in a more engaging manner and, while some may not have enjoyed the experience, it was considered to be useful and informative. We were surprised to find that some of our second-year students learned some of the information for the first time during the rerun experience.

At a detail level, it was felt that some instructions should be made clearer. In particular the path-finding exercise caused confusion as some students thought they had to collect a letter from each photo-point to create a password rather than collecting it at the destination. Many students were not impressed with the amount of walking involved in the experience, some put this down to the timing of the event after a long lecture, while others attributed it to their familiarity with campus or to pure laziness.

2006 Orientation – Future Work

The experience will next be deployed for orientation in February 2006. As a result of the previous iterations, a number of key refinements have come to light related to pre-experience preparation, participant identification,

Figure 5 We designed an experience to introduce students to each other and to the university

team formation, task clarity, evaluation and transferring to other contexts.

A clear process for moving from design to development needs to be defined to ensure that the implementation does not become fragmented and that it runs to time constraints. This should include a formalised approach to testing to minimise technological and logistical issues on the day. For non-player participants, a formal briefing should be conducted and they should be involved in pre-experience testing. This should be supported by greater pre-experience promotion to generate an understanding of what the students will be doing, ensuring a wider support network on the day.

To further this awareness, students should be 'visually marked' as being participants to provide context for campus staff when providing support. This branding of students, in the form of lanyards, badges or some such, will also serve as a recognition device for other participants allowing more opportunities for socialization. Mixing teams during the experience and encouraging collaboration between teams will further support the desired social outcomes of the experience.

The use of a physical artefact, such as the puzzle pieces, for forming teams will be carried through to the 2006 experience. The ability for students to have a tangible reference for tasks and a visual clue for team formation reduces confusion and supports their engagement with the experience. In terms of the tasks, the clarity of the instructions needs to be revised, whilst maintaining a balance between intrigue and obviousness.

Evaluating the experience proved difficult given the methods chosen, surveys and discussion generated more questions than those answered. Formalizing the current evaluation methods and support of these through follow up discussions and focus groups would improve the quality of responses. Interactions within the experience needed to be observed and catalogued to support the evaluation and inform future refinements.

As the experience evolves, its portability to alternate contexts is under consideration. There is interest currently from other schools on campus to adapt the experience for use in other orientation experiences. Discussion has also occurred around its packaging as a marketing tool for use with high school students considering tertiary study.

Conclusion

In this paper we have presented a case study, documenting our experiences designing, developing and deploying a locative experience for new university students. The aims of the experience were to provide introductory information, facilitate social interaction and preview the nature of the work the students will undertake. We designed the experience using a developing framework for such experiences, and we presented the node aspect of the framework in detail. We described the experience, comprise of Library, Staff and Journey Tasks and an Egg Challenge, and we detailed the evaluations we have conducted, both with new students and with students who have previously undertaken a related experience. We concluded by describing the main changes we plan to make for the next version of this experience to be run in February 2006.

Acknowledgements

TBA

References

[1] J. Seely Brown, A. Collins, and P. Duguid, "Situated Cognition and the Culture of Learning," *Educational Researcher*, vol. 18, pp. 32-42, 1989.

[2] M. Flintham, S. Benford, R. Anastasi, T. Hemmings, A. Crabtree, C. Greenhalgh, N. Tandavanitj, M. Adams, and J. Row-Farr, "Where on-line meets on the streets: experiences with mobile mixed reality games," presented at Human Factors in Computing Systems (CHI), 2003.

[3] Australian Bureau of Statistics, "8146.0 Household Use of Information Technology, Australia," 2004.

[4] E. Aarseth, "Playing Research: Methodological approaches to game analysis," presented at Digital Arts & Culture, 2003.

[5] L. Macdonald, "Location-dependant games: A framework for design," (in preparation).

[6] G. Fitzpatrick, *Locales Framework: Understanding and designing for wicked problems*: Kluwer, 2003.

[7] D. Poison, 2004 (personal communication).

[8] M. K. Thompson, M. J. Weal, D. T. Michaelides, D. G. Cruickshank, and D. C. D. Roure, "MUD Slinging: Virtual Orchestration of Physical Interactions," University of Southampton ECSTR-IAM03-007, 2003.