Conducting empirical research in virtual worlds

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Conducting empirical research in virtual worlds

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Research being conducted in virtual worlds

1. as a platform for interacting with participants on real-life research problems
   – similar to using Skype, phone for interviews, surveys
   – recruiting for real world projects
   – collecting requirements for real world projects

2. to study the experiences in virtual worlds to draw inferences about their real world behaviour
   – consumer behaviour: brands, advertising, e-commerce
   – replicas of buildings and spaces
   – social science experiments, studying crowd behaviour
Research being conducted in virtual worlds

3. to study about the virtual world behaviours in order to understand user expectations in the real-world
   – consumer behaviour in virtual worlds and their expectations from 2D e-commerce
4. to study inworld initiatives
   – student experience with learning resources
   – design of learning spaces; designing for navigation and wayfinding

Research being conducted in virtual worlds

5. inworld phenomena
   – inworld communities
6. effects on ‘self’ or about ‘self’
   – gaining skills, e.g. communication, leadership
   – studies on ‘identity’
7. effects of variables in the research design
   – obese interviewer-avatar vs. a thin avatar
   – virtual space design (formal vs. informal)
Our projects

- in two domains: education (3) and e-commerce (1)
- researcher’s toolbox and resources
  - data collection and analysis techniques
  - ethical considerations
  - the research process
- paper in Journal of virtual worlds research, 2010
  [http://oro.open.ac.uk/25134/](http://oro.open.ac.uk/25134/)

Team working in a Computing course

introductions, training and tours

one-to-one meetings with tutors
Examples of meeting locations

focus group

interview
Levels of visual realism in a learning space

- Photo-realism
- Artistic realism
- Metaphorical realism
- Abstract + functional realism (hybrid)

Group discussion aided by images

Interviews
Designing for navigation and wayfinding

- Directional signs at intersections
- Teleport instructions
- Labels embedded within maps and a "You are here" to help orient the user
- Path legibility

An excerpt from the heuristics:

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Prerequisite</th>
<th>Expected Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>How can we create a user-friendly interface for a virtual environment?</td>
<td>Understanding visual spatial relations</td>
<td>Enhanced user experience</td>
</tr>
<tr>
<td>How can we design an effective wayfinding system in a complex environment?</td>
<td>Analyzing user behavior patterns</td>
<td>Improved navigation efficiency</td>
</tr>
<tr>
<td>How can we ensure that telepresence is seamless and intuitive?</td>
<td>Evaluating telepresence technologies</td>
<td>Enhanced immersion and interaction</td>
</tr>
</tbody>
</table>

In each scenario, the core objective is to facilitate effective navigation and wayfinding, ensuring a smooth and engaging user experience.
guideline/heuristic walkthroughs

tour and interview

user observations

retrospective protocol
E-commerce in virtual worlds

phenomenological interviews

semi-structured interviews and laddering interviews
Techniques that we have employed for data analysis

- descriptive phenomenology for narrative accounts
- thematic or inductive analysis
  

- using frameworks such as definitions of concepts, e.g. usability and its constituents, efficiency, effectiveness and satisfaction
- recording (counting) the options that the participants suggested

Ethical considerations

- the consent process
  - project summary sheet
  - consent form
  - contact details of the project leader including real-world information
- data collection and storage
- retaining anonymity
- approval of the research by the University’s ethics committee
- Second Life images
Challenges

• international nature of the online medium
• anonymity of the medium demands greater investment of time to establish a mutually beneficial trust relationship
• the research process in a virtual world is influenced by etiquette and ethical guidelines of conducting research in – real-world (offline) and online
• a virtual world researcher requires the skills and training of conducting both offline and online research

The Research Process

Preparations for in-world interactions

• developing communication and other inworld skills
• creating a researcher’s identity
• participating in the community
  – learning about the inworld etiquette, norms

Research design

• strategies for recruitment of participants
• pre-study information from participants
  – do you need to know their real-life identities?
  – do you need their real-life demographic information?
• ethical implications
Data and handling

• Components of the data?
  – transcript, audio-recording, pre-interview questionnaire, images
• For how long do you require the data?
• Does the analysed data require validation by the participant?
• Are you expecting any follow-ups with the participants?

Virtual does not mean “not real”

• emotional attachment to the avatar
• protecting privacy of the persons and avatars through anonymisation
• risks:
  – emotional and financial damage
  – disruption of the community
  – loss of access, reputation, researcher credibility
• strive for transparency by identifying yourself as a researcher
Some key messages

“Any avatar is subjectively a second self, so its reputation becomes important to the owner even if its deeds cannot be traced back to the person in the real world.

“The internet or the virtual world does not inherently transform the accepted protocols.

The technology connects people to people via a network, and therefore we must be sensitive to the rights of the participants behind the connections”
Toolkit for researchers: would be useful

- scripts for surveys
- survey bots
- possibility of recording real-time user behaviour
  - tracking object interaction, avatar location and avatar behaviour
  - ethical considerations; how it would affect behaviour
- payment scripts for awarding incentives in Linden dollars after completion of a research study