



Conducting empirical research in virtual worlds

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Aims of the tutorial

- Share experiences of conducting research in 3D virtual worlds
 - three research projects since 2008
 - two domains: e-learning and business-to-consumer (B2C) e-business
 - <http://oro.open.ac.uk/view/person/sm577.html>
- Researcher's toolbox
 - data collection and analysis techniques
 - ethical considerations
 - guidance notes for the research process
 - resources related to this tutorial

Techniques that we have employed



- Semi-structured or structured interviews
- User-observations and post-observation discussions
- Focus groups with and without images
- Panel discussions with images and prompts
- Tours followed by group discussions
- Longitudinal studies involving a combination of focus groups, email interviews, individual semi-structured interviews
- Heuristic evaluations or guideline inspections
 - exploratory walkthroughs
 - task-based walkthroughs

How have we recruited participants?



- Students, educators and designers in virtual worlds
 - interactions in ISTE tours, events
 - messages in in-world groups
 - via the SLED or SLRL list
 - emails, if real-world identities are known
 - recruitment of students via educators
- Shoppers and designers of stores
 - approaching them in stores, shopping malls

Our communication modes



- Conversations in text: text in IM; or group chat in IM; *output* is a transcript
- Giving a notecard with prompts and asking them to write their thoughts in the notecard
- User-observations where the user carries out a series of tasks which are listed on a notecard
 - think-aloud protocols when the user talks (to himself) while performing the tasks
- Voice: in Second Life or over Skype and recording the audio; requires transcription
- Questions and options in text: response to images or discussion points



interview



interview





focus group

group discussion
aided by images



Techniques that we have employed for data analysis



- Descriptive phenomenology for narrative accounts
- Thematic or inductive analysis
Thomas, D.R. (2006). A General Inductive Approach for Analyzing Qualitative Evaluation Data, American Journal of Evaluation, vol. 27, no. 2, pp. 237-246.
- 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

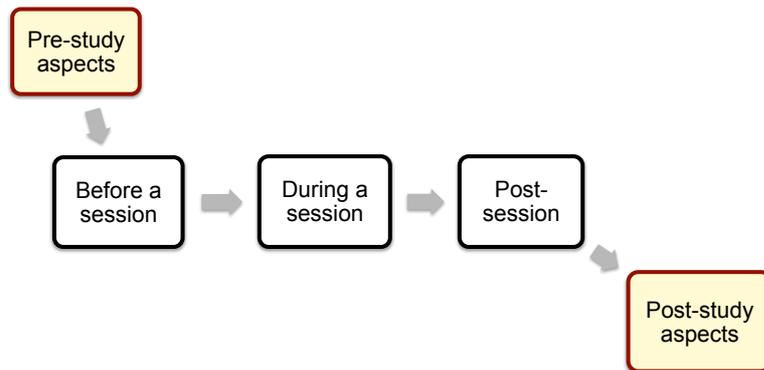
- Recruiting participants
- The consent process
 - project summary sheet
 - consent form
 - contact details of the project leader (including real-world information)
- Data collection and storage
- Retaining anonymity
- Approval of the research by the University's ethics committee
- Second Life images (snapshots)



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 codes of practice, etiquette, logistics, 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



Research design

Pre-study aspects



- Research design
 - choice of data collection and analysis techniques
 - 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
 - which ethical guidelines will be followed?
 - guidelines which are virtual world specific
 - keeping aside sufficient time for the committee to review and approve the study
 - taking the initiative of explaining to the committee about a 3D virtual world environment

Preparations for in-world interactions

Pre-study aspects



- Developing communication and other in-world skills
 - creating notecards with landmarks
 - taking snapshots without the clicking sound
 - how to send inventory items to participants
 - choosing between instant messaging, voice
- Creating a researcher's identity
 - customising avatar: clothes, appearance
 - profile with real-world identity, research project
 - maintaining the same avatar throughout the study
- Participating in the community
 - learning about the in-world etiquette, norms
- Audio recording devices and familiarity using them

Recruitment strategy

Pre-study aspects



- Target participants: where to find them?
 - venues, events; restrictions by land owners; gatekeepers
 - in-world groups
 - mailing lists
 - recruiting them via a survey
- Profiles of the participants
 - their background and interests
 - whether they would like to participate
 - alternative ways of contacting them
- Incentives for participation
 - guidelines of the ethics committee
 - nature of the study
 - what is acceptable (L\$ or real-world book tokens, for example?)

Data and handling

Pre-study
aspects



- Components of the data?
 - transcript, audio-recording, pre-interview questionnaire, images
- Who will have access to the data?
- How will you anonymise the data?
- How will the data be stored?
 - password protected folders on the network drive
 - secure and encrypted USB drives; and taking backups
- For how long do you require the data?
- Any data analysis software that is required?
- Does the analysed data require validation by the participant?
- Are you expecting any follow-ups with the participants?

Logistics ahead of the session

Before a
session



- Consent form and a project summary sheet
 - by notecard or via email
- Pre-interview questionnaire
 - background information about skills, experience, interests, choice of the viewer
- Arranging a time, location and mode of communication
- Choice of a location
 - permission to use the space
 - investigating access restrictions to a location
 - matching the design of the space with the nature of the session
- Interview templates or other research materials
 - hard and soft copies
 - text file for copying and pasting as an instant message (IM)

Checks before the session

Before a session



- Prepare a pre-session checklist
 - checking the recorder
 - choosing the viewer that matches with the participant's
 - checking the Skype connection
 - checking the location of the session
 - as per the stages of the session: a script for every stage
- Planning about data collection and storage
 - file of the transcript
- Planning the movement between locations if more than one venue is involved
- Arranging to speak to a colleague about your reflections
 - verbalising helps to view the session in 'hindsight'

The actual session

During a session



- Welcome/induction
 - reiterating the purpose of the session
 - mentioning the recording, images and re-seeking consent
- Going over to the meeting location (having a backup)
- Voice check or a Skype connection or an IM session
- In IM
 - Typing in 'End' to signify the end of an answer
 - using '...' to indicate that more thoughts are coming through
- Time: an hour at the most
 - 40-45 minutes main session
 - 10-15 minutes for de-briefing, reflection about the research as well as the process

Keeping the flow

During a session



- Maintaining the flow of the dialogue
 - by using short prompts, such as ‘interesting’, ‘I get it’, ‘can you tell me more’.
 - or using gestures such as nodding
 - avoid interrupting the participant while they are typing and giving participants time to think
 - whether or not to mimic the language and expression of the participant
- Making notes of what could be asked in the end to clarify
- Thanking the participant for their contribution
 - informing them what will happen next
- Reflecting on what should be changed in the next session

After the session

Post-session



- Data consolidation and storage
 - transcript (text) file, audio recording, notes during and after the session, snapshots
 - password protected folders on the network drive
 - secure and encrypted USB drives; and taking backups
- Thanking the participant in an IM or in an email

For the entire data

Post-study
aspects



- Planning the data analysis
 - working with the copy of the transcript or transcribed notes
 - choice of a data analysis software
 - highlighting or colour coding for thematic analysis (in Excel)
 - relating the images with the data
- Dissemination
 - does the analysis have to be validated by the participants?
 - format and nature of the feedback, if the participant has requested for it

Some key messages



- recruiting with care
- operating in an ethical and scholarly way
- following the codes of conduct
- realising that there is a person behind the avatar
- conducting pilot sessions
- trade-offs between using software for data analysis and delving in raw data and hand-coding it

“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”

Resources that might be useful



- notecard examples (in-world research materials)
- sample consent form
- sample project summary sheet
- researcher checklist for a user-based session
- online resources related to ethics
- annotated bibliography
- our paper that appeared in Journal of Virtual Worlds Research

Contributions are from colleagues Christopher Hardy, Ahmad Reeves and Minh Tran