

THE DESIGN OF VIRTUAL PLACE FOR CREATIVE COLLABORATION

A REPORT ON RESEARCH FOR THE HONOURS PROGRAMME IN THE
FACULTY OF INFORMATION TECHNOLOGY, UNIVERSITY OF TECHNOLOGY, SYDNEY

Conducted at the Creativity and Cognition Studios
Under the supervision of Prof. Ernest Edmonds & Dr. Yusuf Pisan.

Viveka Weiley, Spring 2007.



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THE DESIGN OF VIRTUAL PLACE FOR CREATIVE COLLABORATION
Question | Significance & Focus | Literature | Ethnographic | Practice-based | Results

RESEARCH QUESTION

Does the design of virtual place
affect the nature of creative
collaboration by distributed teams
in virtual environments?



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THE DESIGN OF VIRTUAL PLACE FOR CREATIVE COLLABORATION

OVERVIEW

- Question
- Significance & Focus
- Literature (in brief)
- Two Studies
 - Ethnographic (ethics & methodology)
 - Practice-based Research (methodology)
- Results



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SIGNIFICANCE

- Distributed collaborative creativity.
- Distributed teams have access to specialists and a more diverse membership (Edmonds et al. 1999)
- Diversity is a source of creativity (ibid.)
- Csikszentmihalyi on *Flow* (Csikszentmihalyi 1996) indicates that synchrony is a necessary component of creativity.
- Maslow and Mintz (1956) demonstrated effect of environment on engagement and creative behaviour.

Edmonds, E., Candy, L., Cox, G., Eisenstein, J.,
Fischer, G., Hughes, B. & Hewett, T., 1999,
'Individual and/versus social creativity (panel session)',
*Proceedings of the 3rd Conference on Creativity &
Cognition*, ACM Press, New York, NY, USA

Csikszentmihalyi, M. 1996, *Creativity: Flow and the Psychology of
Discovery and Invention*. Harper Perennial, New York, NY, USA.

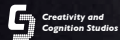
Maslow, A. & Mintz, N. 1956, 'Effects of Esthetic Surroundings',
Journal of Psychology, no. 41, pp. 247-254



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FOCUS

- Engineering problems well covered
- Many VEs, not much evidence of C
- Design and human factors outstanding: the transformation from *space* for *interaction* to *dynamic place* for *creative collaboration*.
- Space and Place identified in literature, but not comprehensively investigated - further opportunities



LITERATURE REVIEW

CVES AS TOOLS FOR COLLABORATION

Geographically Distributed Teams		
Synchronous	Instant Messaging Phone/Audio Conferencing Video Conferencing	CVEs Media Spaces
Asynchronous	Email, Fax, Post Groupware	Document sharing
	Coordination	Collaboration

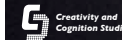


TWO STUDIES

- Ethnographic: Action Research (Lewin 1946)
 - * interventionist ethnography
- Practice-based Research (Candy 2007)
 - * reflective practice

Lewin, K. 1946, 'Action research and minority problems', *Journal of Social Issues*, no. 4, vol. 2, Blackwell Publishers, Malden, MA, USA, pp. 34-46.

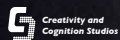
Candy, I. 2007, 'Practice-based Research',
<<http://www.creativityandcognition.com/research/practice-based-research.html>>



LITERATURE REVIEW

QUESTIONS

- The Design of Virtual Place
- What theories lie behind existing designs?
- What do we know about creative collaboration?
- How are we designing for collaboration now?
- How is virtual collaborative place studied?
- Where do we go from here?



LITERATURE REVIEW

THE VIRTUAL OFFICE IS STILL DOMINANT

SPATIAL APPROACHES TO CSCW

Usability through natural metaphors - an attempt to exploit people's natural understanding of the physical world, including spatial factors in perception and navigation, as well as general familiarity with common spatial environments, in order to construct cooperative systems which can be more easily learned and used (e.g. the frequent use of the Virtual Office metaphor [4]).

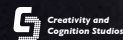
Benford, S., Brown, C., Reynard, G., Greenhalgh, C., 1996, 'Shared Spaces: Transportation, artificiality and spatiality', *Proceedings of the 1996 ACM Conference on Computer Supported Cooperative Work*, ACM Press, Boston, MA, USA, pp. 77-86.

Usability through natural metaphors, i.e. an attempt to map people's understanding of the real world onto virtual counterparts.

3 A REAL-LIFE SCENARIO

In the middle of the meeting room, there is a table with chairs around it. There is also an overhead projector and a screen in front of the table. The project leader is

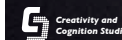
Frécon, E. & Nôu, A., 1998, 'Building distributed virtual environments to support collaborative work', *ACM Symposium on Virtual Reality Software and Technology (VRST) 1998*, ed. Shieh, J., ACM Press, Taipei, Taiwan, p. 109



ETHNOGRAPHIC STUDY

- Ethics (Human Research Ethics Committee Guidelines)
- Proposal
- Participants
- Survey (Result 1)
- Virtual Places
- Results

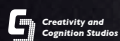
<http://www.gsu.uts.edu.au/policies/hrecpolicy.html>
<http://www.gsu.uts.edu.au/policies/hrecguide.html>



LITERATURE REVIEW

THEORETICAL FRAMEWORKS

- Computer Science
- Human/Computer Interaction
- Social Sciences
- Cultural Geography
- CSCW



LITERATURE REVIEW

MORE QUESTIONS

- Collaborative Virtual Environments (CVEs)
- Virtual Environments, but where's the Collaboration?
- Computer Supported Cooperative Work (CSCW)
- Space, Place (Harrison & Dourish 1996), and 場 (ba) (Shimizu 1995)

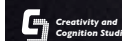
Harrison, S. & Dourish, P., 1996, 'Re-placing space: the roles of place and space in collaborative systems', *Proceedings of the 1996 ACM Conference on Computer-Supported Cooperative Work '96*, ACM Press, Boston MA, USA, pp. 67-76.

Shimizu, H., 1995, 'Ba-Principle: new logic for the real-time emergence of information', *Holons*, vol. 5, no. 1, pp. 67-79



Ethics | Proposal | Participants | Survey | Virtual Places | Results

- Honours projects - generally no formal submission required
- Nonetheless - follow guidelines
- See handout



Email to Supervisor (Prof. Ernest Edmonds), June 2007

- I propose an exploratory study on the effect of the design of virtual place on creative collaboration.
- I've found a group of research subjects; [...]. They are a geographically distributed group, with the chair in Tokyo and other members on the east and west coasts of the USA and in Canada. They have a number of collaborative projects under way.
- The [...] has agreed to participate in a virtual ethnographic study, and each member has filled in a survey on their existing use of technologies for virtual collaboration and communication. They've undergone orientation in the virtual environment we're using; their experience ranges widely.
- I'm using Second Life; it forms a baseline spatial experience with a number of useful affordances and a good variety of places with different embedded cultural meanings. I will take the [...] members to a number of different kinds of places in Second Life. For example: a commercial place, a social place, a /ba/ (that is, the virtual home of one of the participants), a collaborative place. I will provide the place and in some contexts tools for collaboration, and observe.

Answers

1. Time Zone?



MSN, iChat/
 AIM, IMVU, iVisit. Only iChat/AIM

Answers

4. Other Groupware? Successfully?

	1	2	3	4	5
Yahoo Groups	X				
Google Docs		YES			
Vid. Conf.			NO		
There.com				X	
Project Entropia					X

- A distributed team - a volunteer committee of an association; develops programs, online activities, academic publications
- Five members: one in Toronto, one in Los Angeles, two in New York and one in Tokyo. They meet in person twice a year in pursuit of their common goals.
- Much of their communication takes place over email, which they no longer consider reliable due to spam and anti-spam mitigation measures.
- They have a demonstrated need for better remote collaboration tools.

Answers

2. Convenient time to meet?



MSN, iChat/
 AIM, IMVU, iVisit. Only iChat/AIM

Answers

5. Second Life?

	1	2	3	4	5
Frequently					X
Once				X	
Never	X	X	X		

Questions

1. What time zone are you in?
2. What times (in your own local time) are most and least convenient for you to meet online?
3. Which Instant Messaging protocols do you have accounts with?
4. What are the accounts, and to what extent do you use them?
5. Do you use any other groupware or multi-user VR platforms?
6. Have you ever used Second Life, and if so what's your account name?

MSN, iChat/
 AIM, IMVU, iVisit. Only iChat/AIM

Answers

3. IM Platforms?

	1	2	3	4	5
MSN	X				
iChat/AIM		X	X		
IMVU			X		
iVisit				X	

Notes

- All but one of the participants are unfamiliar with the virtual environment, its modes of interaction, affordances and constraints.
- Early meetings spent from 6 to 10 minutes from first contact to assembling in the same virtual place, and up to 30 minutes in total on orientation for new participants.
- We therefore established the orientation period as the first agenda item for each meeting.

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A Social Place | A Commercial Place | A Sacred Place | An Inhabited Place (場ba)
 Welcome Area 2, where many avatars gather to greet new arrivals, gossip and flirt.



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[19:54] LC: im more savage in type anyway
 [19:54] AD: You don't have to stay
 [19:54] GG: typefag
 [19:54] LC: FINA CLOSE UR MIC ASSRABBIT
 [19:55] JJ: have you ever seen the movie
 my fair lady
 [19:55] GP: are you jewish
 [19:56] JJ: is who jewish
 [19:56] GP: SPAGHETTI
 [19:56] JJ: oh
 [19:56] GP: are you jewish
 [19:56] GV: no voice?
 [19:56] GP: your avatar looks sort of jew
 [19:56] JJ: i'm catholack
 [20:00] RB: Hey, Nudee. Bye!

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 In a shopping mall, the context overrode the intent of the participants

[19:14] KC: thank ya. I just want to buy stuff for myself... another realm in which to spend money..sigh
 [19:15] PW: I'll consider spending some bucks.

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 This was the only place in which collaboration occurred.



[19:32] PW: I like the idea of a custom meeting place suited to us, but we'd need to frequent it.
 [19:33] KC: True. We could create something like a studio that held our works in progress. Images on the wall that showed what we were doing. something like a blackboard.

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 In a shopping mall, the context overrode the intent of the participants

Participants met in a churchyard; intended as a sacred place, there was no mention of this by participants. Instead it was remarked "this is nice and quiet". However permissions were set so that it was not possible to build, so participants quickly lost interest. Some coordination, no collaboration.

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 lack of integration between the virtual environment and familiar tools was a problem for creative work:



[19:35] PW: I'm not personally a 3D guy.
 [19:35] VK: What kind of tools do you like to work with?
 [19:35] PW: I'm expert in 2D design and imaging.
 [19:36] VK: What are your favourite tools? Would you like access to them here?
 [19:36] PW: Photoshop, Illustrator, InDesign...
 [19:38] KC: I can model... I'm just not sure if my Maya licence has expired... I was given it when they made me one of their so called 'artists' - which I'm really not...I'm an architect
 [19:38] PW: Collaborating on a [...] portal design.

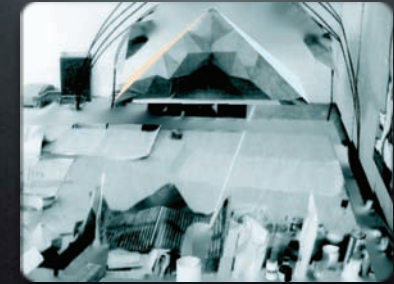
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A Social Place | A Commercial Place | A Sacred Place | An Inhabited Place (場)ba
Nonetheless this session which included active creative collaboration was by far the best received by the participants.



[19:45] KC: I should probably go as well... but I'm coming back to fool around.
[19:45] KC: this is really cool



- An inhabited place, from the perspective of its inhabitants, is most conducive to creative collaboration.
- Familiar interaction design methodologies such as guided observations can be applied in this virtual environment.
- Some kinds of collaborative support that have been demonstrated in the literature to be important such as ad-hoc collaboration and integration of familiar tools are lacking, at least in Second Life.



WHICH PRINCIPLES FROM REALITY APPLY?

- The 場(ba) Principle (Shimizu 1995)
- The Theory of Loose Parts (Nicholson 1974)
- Low Road Architecture (Brand 1994)
- Pattern Languages (Alexander 1977)

Shimizu, H. 1995 "Ba-Principle": New Logic for the Real-Time Emergence of Information, *Holonics* vol. 5, no. 1 pp. 67-79

Nicholson, S. 1974 "How Not to Cheat Children: The Theory of Loose Parts", *Alternate Learning Environments*, (ed.): G. Coates, Dowden, Hutchinson and Ross Stroudsburg PA

Brand, S. 1994, *How Buildings Learn*, Viking, New York, NY, USA.

Alexander, C., Ishikawa, S., Silverstein, M. 1977, *A Pattern Language*, Oxford University Press New York (1977)



KEY RESULTS

- Yes, Place effects Creative Collaboration
- 場(ba) is a useful way to think about collaborative place
- Other design theories are worth investigating for CVEs