This is the published version of a paper presented at CHI 2013.

Citation for the original published paper:

Beyond Talking Heads – Presence Design Experiments.
Systems Paris: SIGCHI

N.B. When citing this work, cite the original published paper.

Permanent link to this version:
http://urn.kb.se/resolve?urn=urn:nbn:se:kth:diva-165611
Beyond Talking Heads – Presence design experiments

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ABSTRACT
Based on design-driven research and ten years teaching a Masters level course in presence design and production, an interdisciplinary team of researchers present a series of reflections. The topic of mediated presence requires that both teacher and student indulge in theory and practice from a range of disciplines. Over 200 student projects and 20 research installations have been designed and executed over the years, each addressing spatial and temporal strategies for producing presence, along with critical design concepts: how to establish trust in mediated environments and the formation of a tacit communication contract between participants. These will be key aspects for the future of personal video communication.

Author Keywords
Mediated space, presence design, spatial presence, mixed-reality space, presence, shared media experiences, social user experiences, shared activities, audio/video communication, mutual gaze

ACM Classification Keywords
H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms
Human Factors; Design; Measurement; Experimentation

INTRODUCTION
The reflections within are based on shared experiences within an interdisciplinary teaching team, located at three different universities. Intrinsically, the collaboration between our university sites involves mediated distributed teaching, which has in itself acted as a driving force to further develop the course pedagogy. The teaching concerns the design, production and support of a contextual situation for presence, where the participants are geographically separated. Our decade-long tradition of design-led research and an on-going prototyping process has also resulted in numerous mediated spaces, interactive windows and walls, i.e. design artifacts emerging from various contexts of use

Presence design thus emerges as a new field, exposing both media technology discourse and architectural design practice to radical new concerns. It can be argued that throughout history a broad range of practitioners – architects, artists, writers and filmmakers – have already contributed a wide range of hybrid design artefacts from a juxtaposition of real space and mediated space, and such references make welcomed contributions to the very core of our teaching. What is new, today, is that it has become possible to populate these architectural extensions; to inhabit them in ways that allow people to interact and collaborate closely; to see and hear each other, in other words: to be present before one another whilst remaining in different locations. Designing for presence therefore implies the design of shared mediated spaces that, enable people to experience mediated presence as well as they might in a conventional building, possibly designed by architects.
SHARED SENSE OF PRESENCE, AND VIVIDNESS IN THE INTERACTION

Our own design-driven research driven by participatory design methodologies has evolved from several related research projects, where the users in each context play important roles. Some examples:

• Centre of Excellence for Sustainable Communications, project areas "Mediated environments" (2007) and "Mediated Spaces" (2008-2010) (Goverment funding and industry partners).
• “The Mediated Conferences”, 2008
• The Mediated Museum - mediated access to cultural heritage (National Heritage Board, 2006-2011)

The purpose of Connected Performance Spaces was to allow performing artists and their respective audiences to share the same experience. Large back projection screens, chroma key, and multi-channel audio allowed musicians from two participating continents to experience a genuine notion of playing together, while being nine time zones apart. Another aim was that each respective audience would experience that they were together in a shared mediated space, and shared a mutual experience.

The Mediated Pub 2007

Our designs for a Mediated Pub extended a scientific conference venue to another location, enabling remote mingling and socializing at a conference in Stockholm, whilst some researchers remained in York. Using semitransparent mirrors, cameras and other audiovisual equipment remained hidden to enhance the notion of sharing a conversation as well as a pint of lager. The mediated window had a thin black frame, which disappeared into the evening atmosphere at the bar, thus allowing conference participants to experience an extension of space. As in the previous case, the experience of a spatial extension was strengthened by human interaction. Our observations confirmed that conference delegates had many interests and views to share. Our designs for The Mediated Conferences also used the informal meeting metaphor, but this time in a more formal shared space; that of an international conference with booths populated with researchers and their projects. One of these booths was in one sense empty, but extended the space by opening a window to another concurrent conference several miles away. Weeks prior to the event, several participants shared their grief that they could not participate at both events simultaneously – while, in effect, they could!

The Mediated Therapist 2008

In the spring of 2008, a mediated therapist treated twenty patients remotely, in a workplace designed to support remote presence. What is particular about this example is that it concerns a specific form of dialogic interaction, where trust is a core element and where any friction may be said to impact negatively on the experience of witnessed mediated presence [3 op cit].

The Mediated Museum 2008

The last example of case studies we frequently use in teaching, is from a six-year research project relating to how mediated presence can facilitate public access to cultural heritage environments. In this case, a Museum of National Antiquities was extended to an archaeological excavation site where, during two weeks in the summer of 2008, the general public was invited to engage in a collaborative process with archaeologists. We designed a mediated glass-door, (with a similar set-up as in the other examples in order to enable mutual gaze and natural forms of interaction), that enabled visitors to remotely experience presence and to interact between the museum and the excavation site, thus creating an architectural, mediated extension of space. [4].
Figure 3. The Mediated Museum. Visitors interact with participants at the archeological excavation site, standing in the mediated doorway

The project is an example of how museum can engage visitors in cultural heritage processes.

Presence Design reflections

A fusion of architecture and media technology, videomediated spaces facilitate collaborative practices across spatial extensions. An often-referred-to definition of (tele-) presence includes a reference to architectural design: “the use of technology to establish a sense of shared presence or shared space among geographically separated members of a group.” [5]. To date, however, an architectural design perspective has been lacking in presence research. One of its main contributors, IJsselsteijn, proposes a presence theory, which acknowledges that a spatial relationship is established when mediated presence occurs. It concludes that “for presence to occur, we first must direct our attention to the media environment at hand. Second, the environment itself needs to have spatial extent, putting requirements on its immersive qualities in terms of necessary depth cues, field-of-view, etc. Third, the ongoing construction of our sense of place is based on a limited number of ‘reality tests’. If what is ‘out there’ responds in a fast, consistent and reliable way to our real-time sensorimotor probing – transforming appropriately as we move our heads and bodies, changing predictably as we interact with elements of the immersive environment – this will establish a basis for our perception of being part of the environment.” [6]. Our own design-led research similarly confirms that mediated spaces can provide sufficient audiovisual information about the remote space(s) and other person(s), allowing the subtleties of nonverbal communication to inform the interaction. Based on our shared design experiences, Gullström [2 op cit] showed that in designing for presence, certain spatial features have an effect on the user’s ability to experience a mediated spatial extension (sense of a shared mediated space), which in turn, can facilitate the experience of mediated presence. She identifies spatial design concepts (e.g. mediated gaze, spatial montage, shared mediated space), which, unaddressed, may be said to impose friction, and thus impact negatively on the experience of ‘witnessed’ [7] or mediated presence. Mediated presence cannot be ensured by design, however, by acknowledging that certain features are related to spatial design, a presence designer can monitor them and, in effect, seek to reduce the ‘design friction’ that otherwise may inhibit e.g. trust and knowledge-sharing. The conclusion is that certain spatial tools play an important role in the process in which trust and truth is negotiated, hence with an impact on knowledge-sharing. Such designer observations comply with the general requirements for mediated presence and it has been our concern to further substantiate such observations, not by further claims that mediated spaces can work, but rather by showing how many of the issues Nevejan and IJsselsteijn raise, precisely are spatial design considerations. Mediated presence cannot be ensured by design. However by acknowledging that certain features are related to spatial design, the presence designer can monitor them and, in effect, seek to reduce the ‘friction’ that otherwise may inhibit the experience of mediated presence. Through design-led research our team has explored the potential of presence design over several years, by refining ‘what works’ and by developing our design prototypes, from applying them to new contexts, following the generic prototyping methodologies that characterize design practices. One could say that in each new project, we ‘tick off’ criteria such as proposed by IJsselsteijn [6 op cit], to check that everything still ‘works’. As designers, our focus is on refining the combination of spatial and technical design that facilitates mediated interaction, seeking each time to support the individual’s presence experience. The figure below provides an overview of our analysis of design-driven presence research:
OUR GOALS FOR THIS WORKSHOP
To discuss and reflect on the above experiences and to meet other designers, researchers and practitioners working in this field of research/application, and to discuss our research and ideas for the future where we see the need for more collaboration between disciplines and calibration of concepts.

SHORT BIOGRAPHIES OF THE AUTHORS

Charlie Gullström
Charlie Gullström, PhD, Architect SAR/MSA, is a University Lecturer and Head of Programme at KTH School of Architecture. Her design-driven research and practice over twenty years address the fusion of architecture and media technology facilitated by new information and communication technology (ICT-mediated architectural design, mediated spaces). Her particular interest concerns the contribution from architects to a highly-mediated society, given that new digital tools have thoroughly changed the way humans interact and communicate (presence design). Recent projects include a Mediated Museum; Shared Mediated Workpaces for collaborative environments.

Gullström’s current platform for research is EIT ICT Labs, where she has been Activity Leader of Mediating Presence since 2011. A European network of prominent technical universities and industry partners, EIT provides an interdisciplinary context for research in ICT-mediated architecture and presence design. Current focus areas include Mediated Hospitals and Mediated Courtrooms across Europe as part of a programme that addresses smart spaces and digital cities under the heading: how to improve quality of experience in mediated spaces designed for professional collaboration and shared leisure activities.

With Leif Handberg, Gullström is active in the development of KTH R1 Experimental Performance Space and Presence Lab (www.r1.kth.se).

Leif Handberg
Leif Handberg is an Associate Professor in Media Technology at KTH. He has a background within production management in the graphic arts industry. As a university teacher he has been working with development of KTH education programmes in Media Technology, and has been involved in projects to improve the learning situation for students. In current research he is working in collaboration with other disciplines (mainly architecture and the arts) to study presence production in mediated spaces. He is also responsible for the development of the disused reactor hall at KTH into KTH R1 Experimental Performance Space and Presence Lab (www.r1.kth.se).

The authors belong to the The Mediating Presence team which is an interdisciplinary research group within ICT Labs of the European Institute of Technology (EIT) and its action line Smart Spaces. EIT ICT Labs is a partnership between leading companies, research centres and universities across Europe to promote technical innovation and the commercialization of results from ICT research and development activities.

REFERENCES