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OF TECHNOLOGY



# A digital toolbox for presence design

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KTH School of Architecture  
2013



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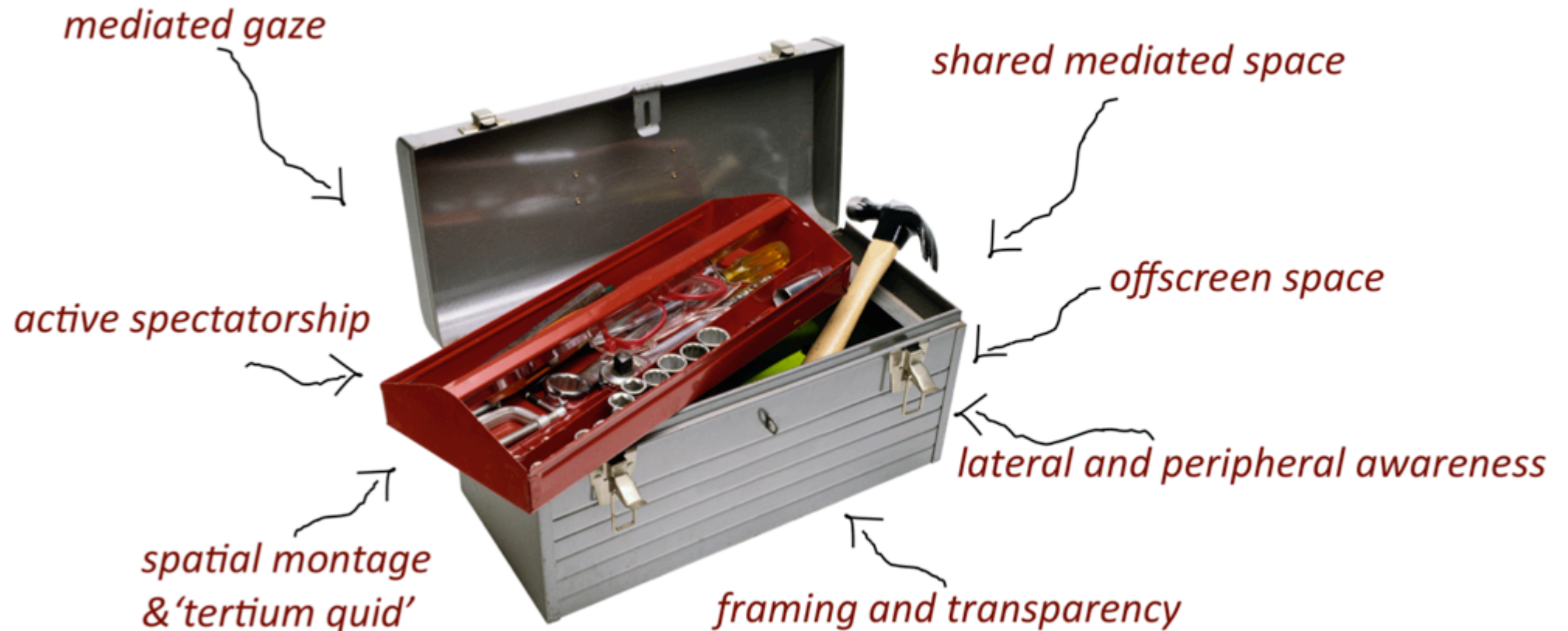
# Gullström (2010)



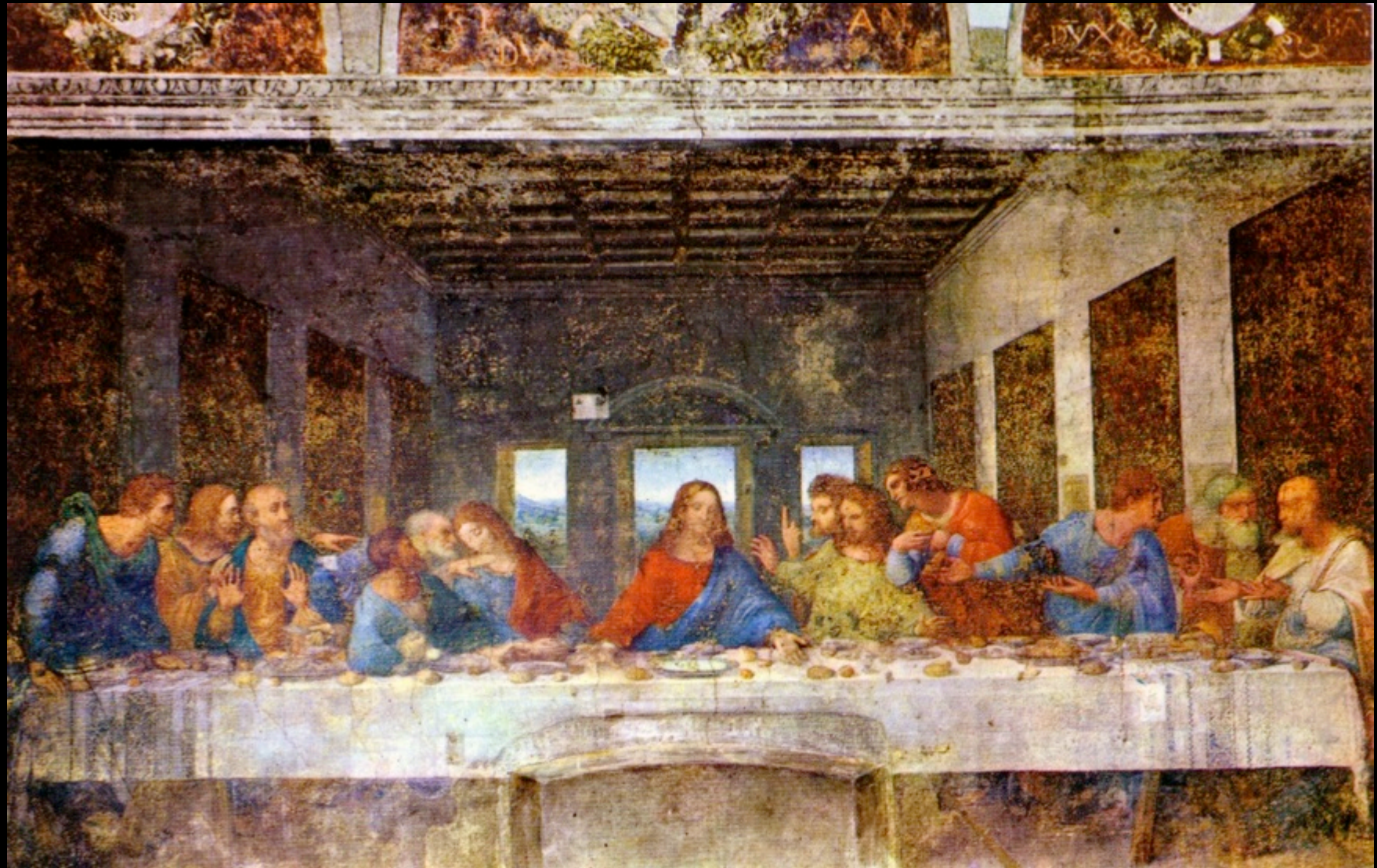


How are work and learning practices, in today's network society, supported by mediated ways of working?

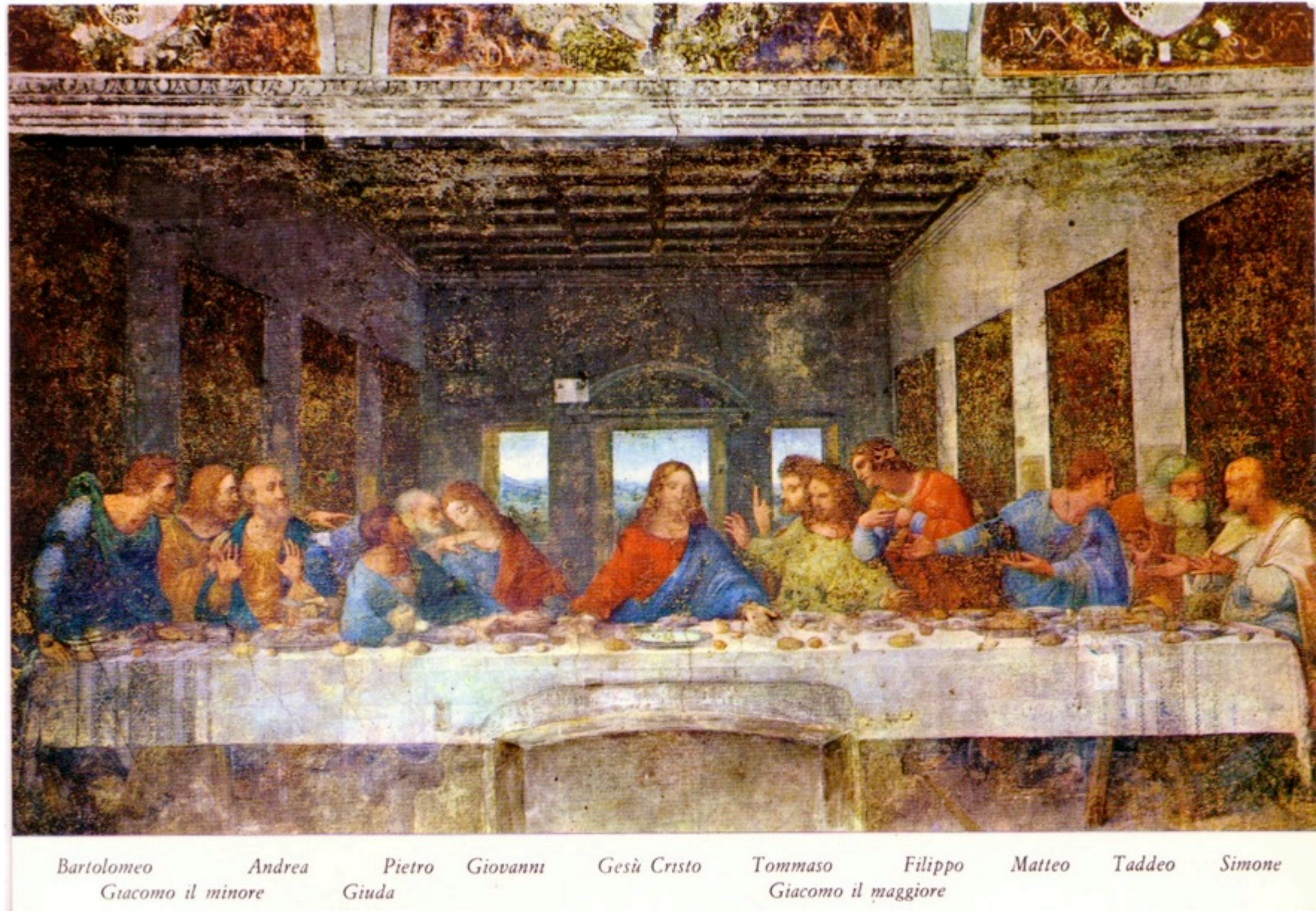
# A conceptual toolbox of presence design







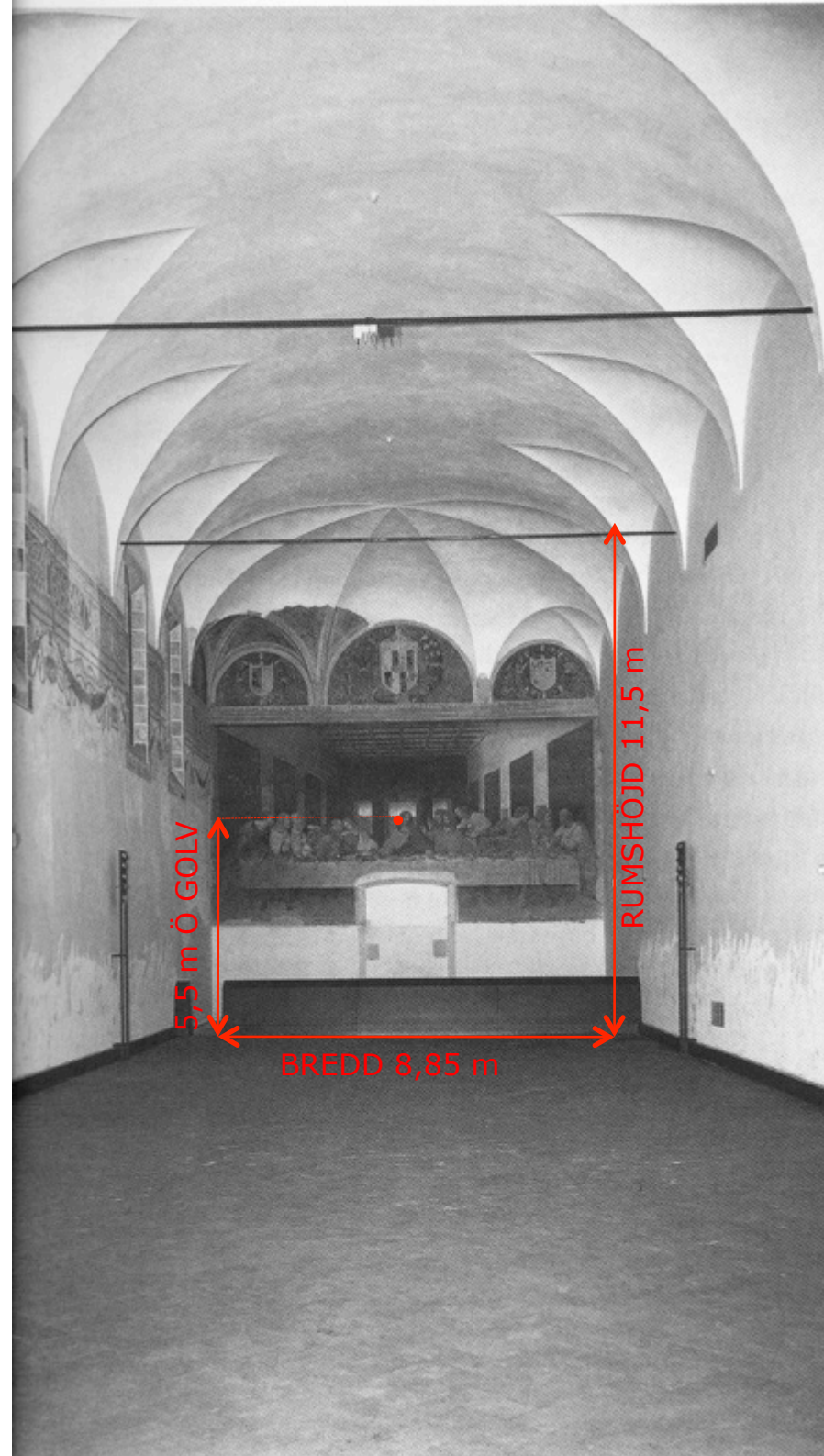




*'The Last Supper'* by Leonardo da Vinci 1498, depicting Jesus surrounded by his disciples. (Postcard, Ed. L Scrocchi, Milano)





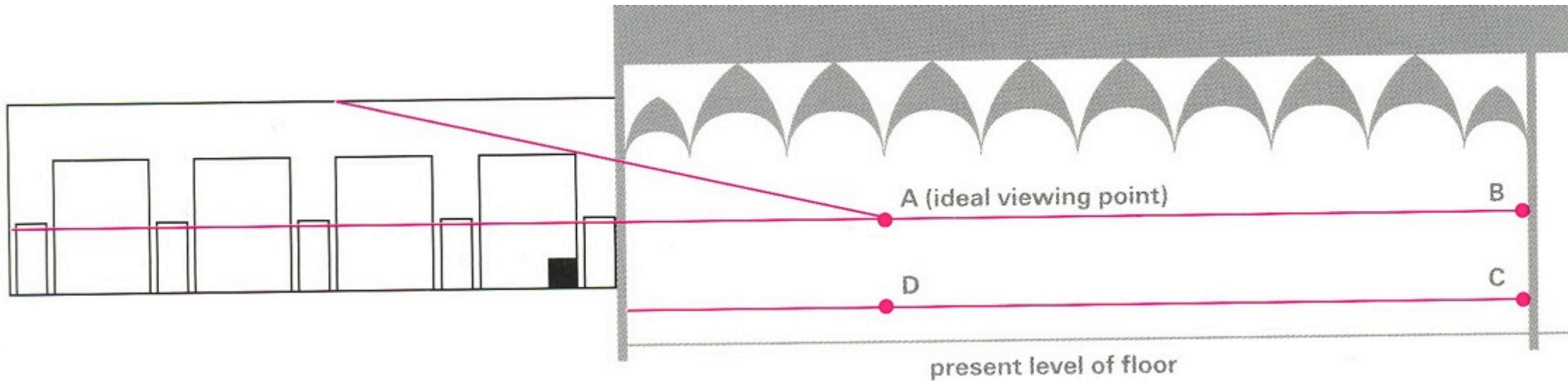


5,5 m Ö GOLV

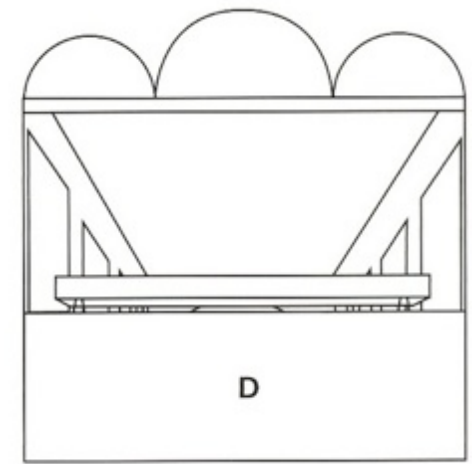
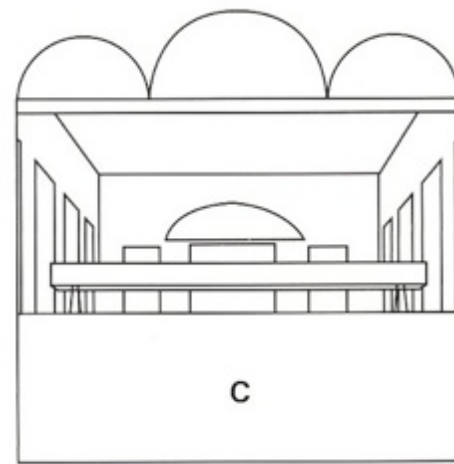
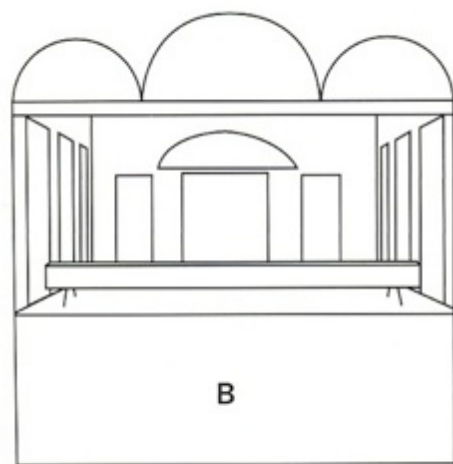
BREDD 8,85 m

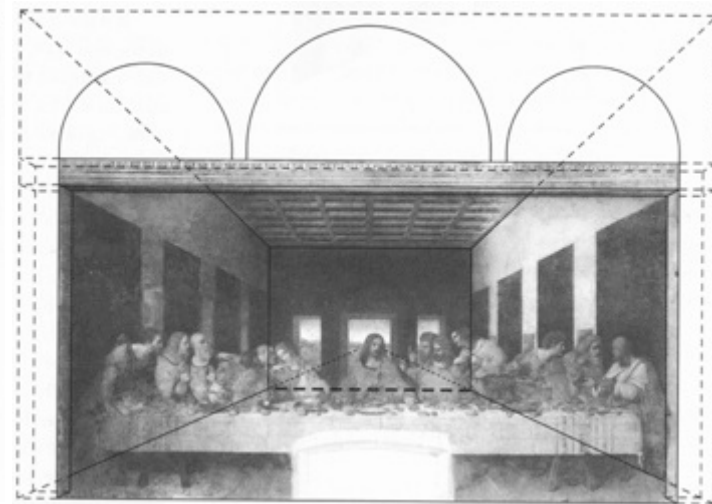
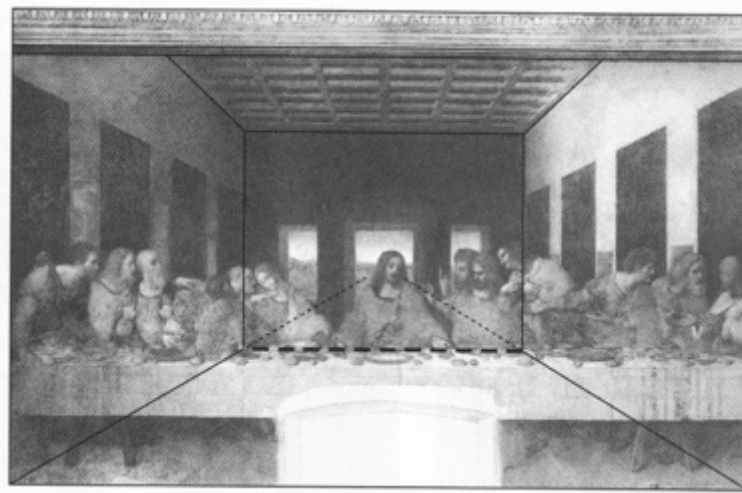
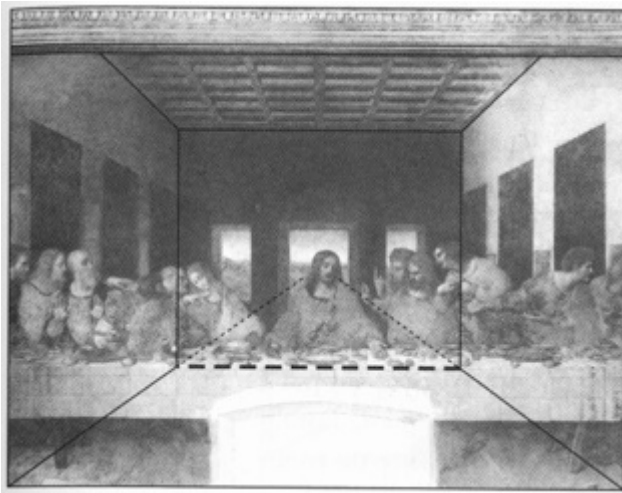
RUMSHÖJD 11,5 m



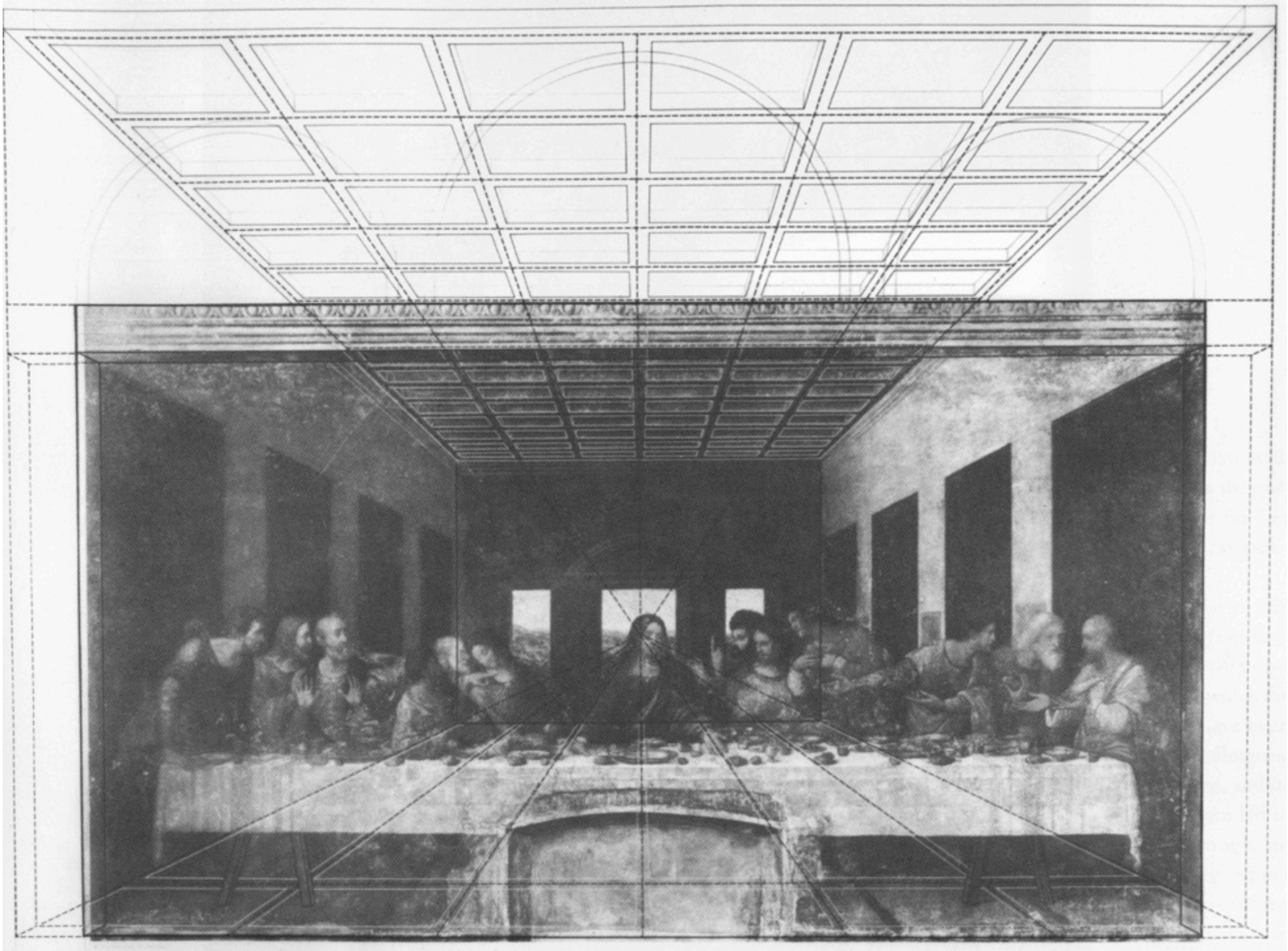


*Ladwein (2007: 56f) has drawn a longitudinal section of the refectory (based on Pedretti 1980) and, below, a three-dimensional reconstruction of the pictorial space, as seen from the viewing-points B, C, D. (Based on Naumann 1979)*





*Attempts to analyze the pictorial space in relation to the refectory had failed. Steinberg illustrates the effect of locating the base of the rear wall too low (left); the effect of levelling the base of the rear wall with the far edge of the table (centre); the base of the rear wall at its only possible level (right ). (Steinberg 2001: 165)*



Nauman (1979)



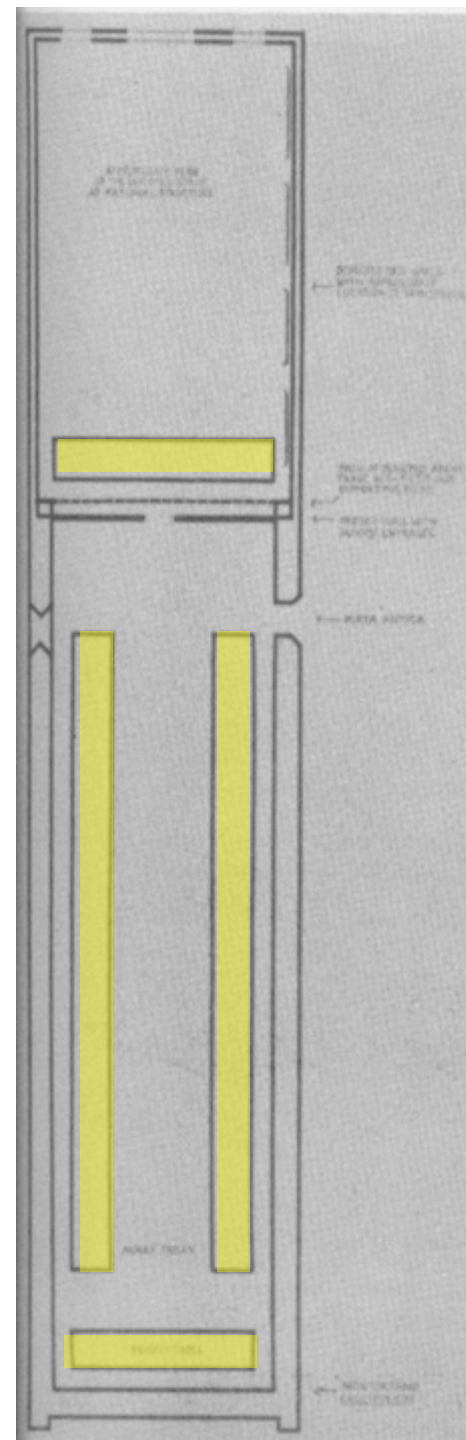
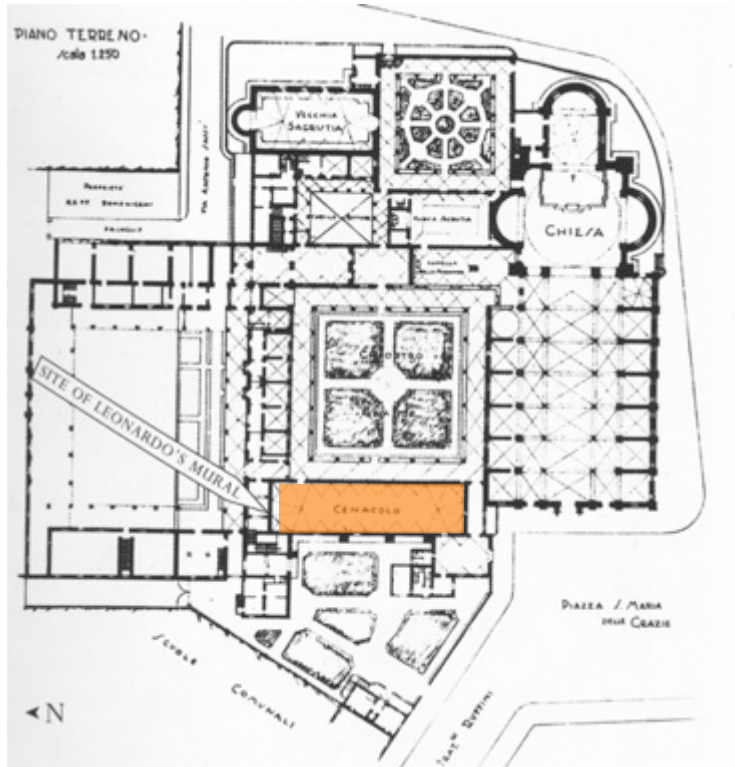


Fig. 9. Refectoriets grunnplan med projeksjon av Nadverdens billedrom. (Etter Steinberg)

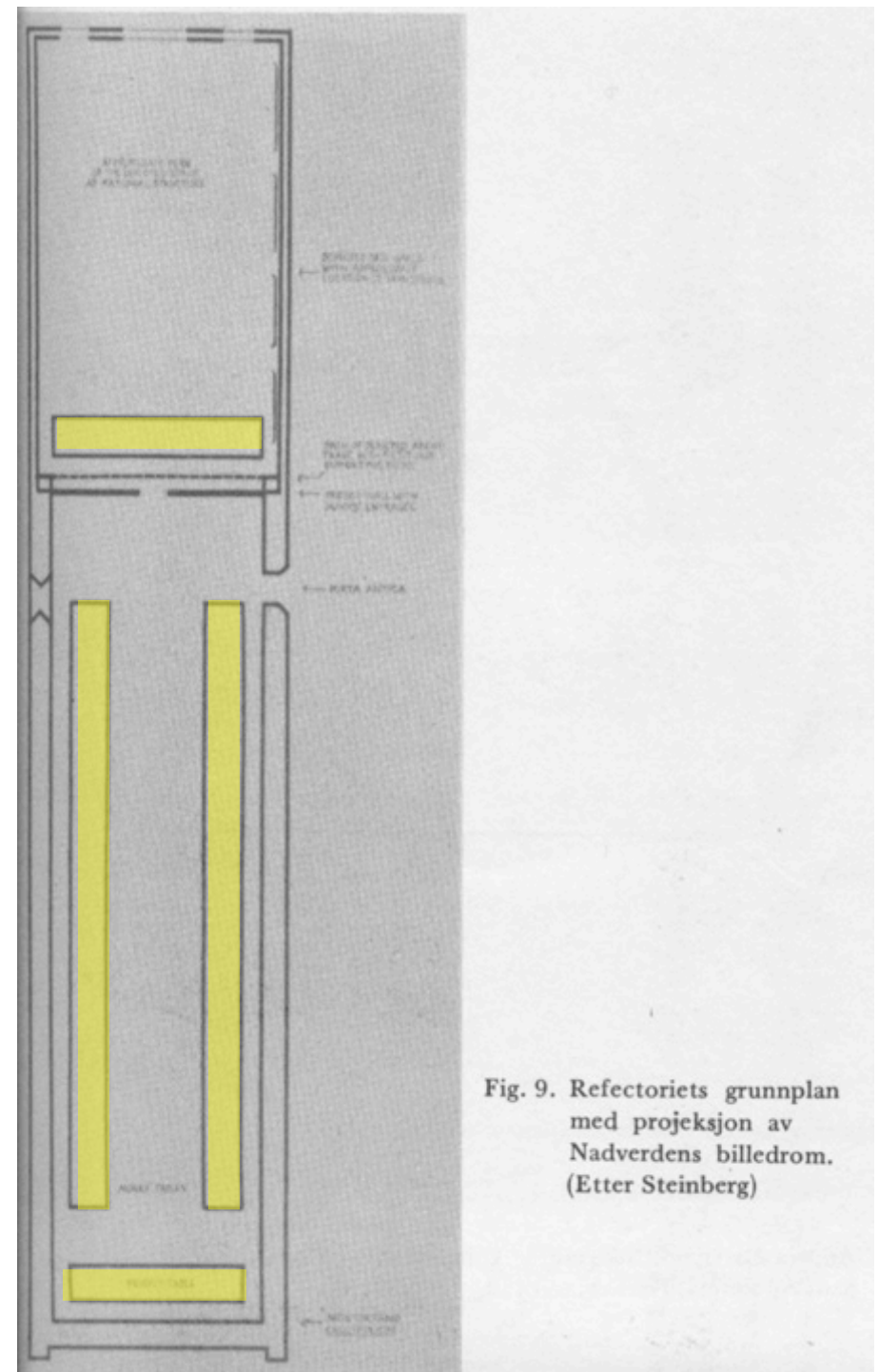




# Shared mediated space



*Danbolt's (1979) floor plan and projection of the virtual pictorial space, following Steinberg (1973). This is how the tables in most refectories were placed. The monks were seated opposite each other at long tables while the senior priests would face Jesus and his disciples.*



# Medierad närvaro – förlängda rum

## Munkarna lika vana som vi...

*Munkarna intog varje dag sin måltid i detta rum som förlängts med ett virtuellt bildrum*

*De delade faktiskt rum med Jesus och lärjungarna, åt middag tillsammans med dem...*

Den individuella upplevelsen av att dela rum var sannolikt mycket stark (Jesus, liksom Judas, synlig i ögonvrån vid varje måltid) och skapades med den tidens medieteknik i kombination med en genomtänkt arkitektur:

- *Upplevelse av närvaro - **presence***
  - *Medierade rum - **shared mediated spaces, presence design***
  - *Skillnaden mot idag? Idag kan dessa rum befolkas...*
-

# That was:

- *shared mediated space*
- *mediated gaze*
- *active spectatorship*
- *spatial montage & 'tertium quid'*
- *framing & transparency*
- *offscreen space*
- *lateral and peripheral awareness*





# Mediated spaces

= real space + virtual space

"*Real space* is the space we find ourselves sharing with other people and things; *virtual space* is space represented on a surface, space we 'seem to see'. In fact, space can only be represented visually as virtual, but at the same time we always encounter a virtual space in a real space." (Summers 2003: 43)

...da Vinci was...a presence designer

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# Mediated gaze



*'Las Meninas' by Velázquez, 1656.  
(Museo del Prado, Madrid)*

“The painter is looking, his face turned slightly and his head leaning towards one shoulder. He is staring at a point to which, even though it is invisible, we, the spectators, can easily assign an object, since it is we, ourselves who are that point: our bodies, our faces, our eyes. The spectacle he is observing is thus doubly invisible: first, because it is not represented within the space of the painting, and, second, because it is situated precisely in that blind point, in that essential hiding-place into which our gaze disappears from ourselves at the moment of our actual looking.” (Foucault, *The Order of Things* 1966; 1989: 5)



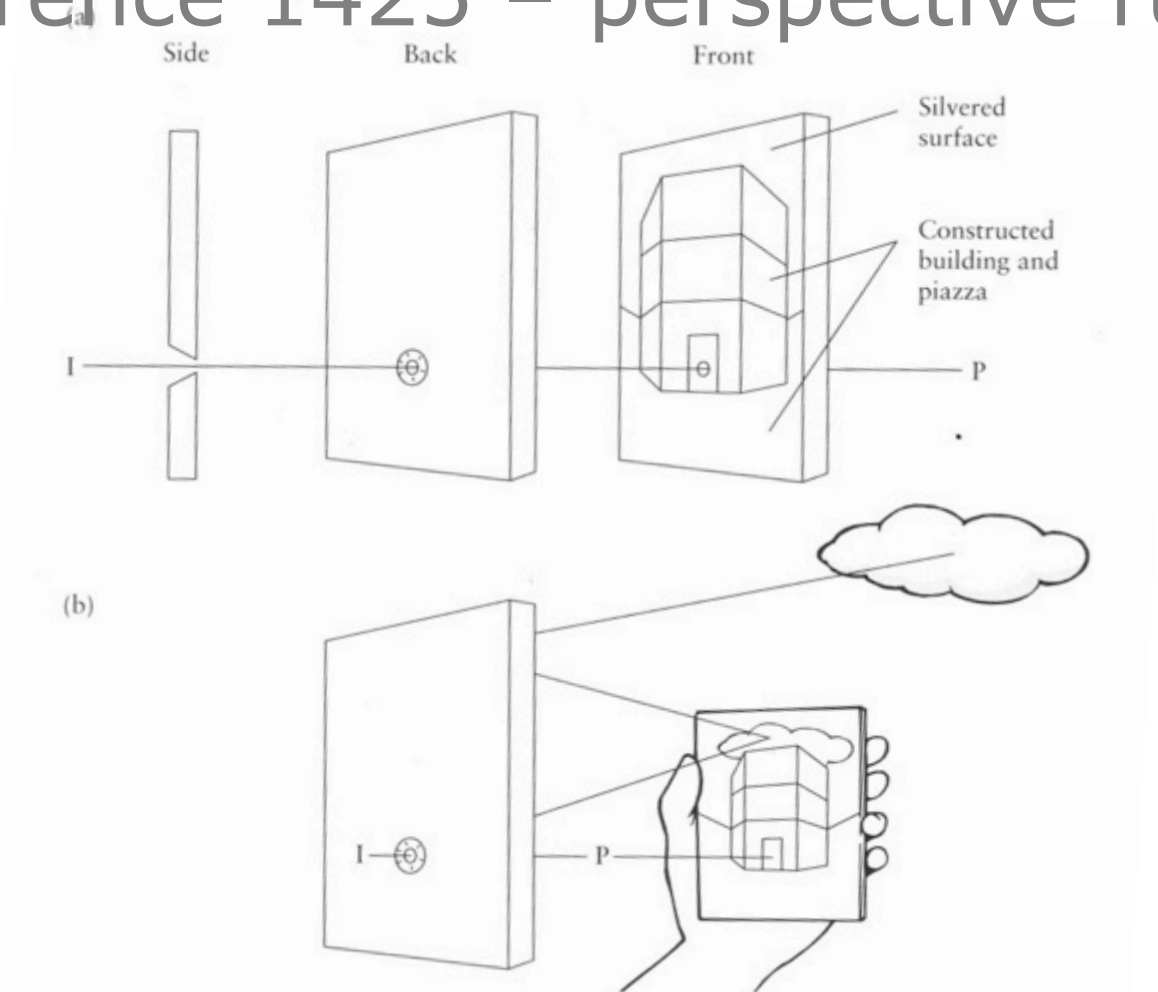
*‘Las Meninas’ by Velázquez, 1656.  
(Museo del Prado, Madrid)*

# Mediated gaze in virtual pictorial space

“the game of dodging, of hiding, of illusion, or elision that administered occidental representational painting since the *quattrocento*”  
(Foucault 2004: 23).

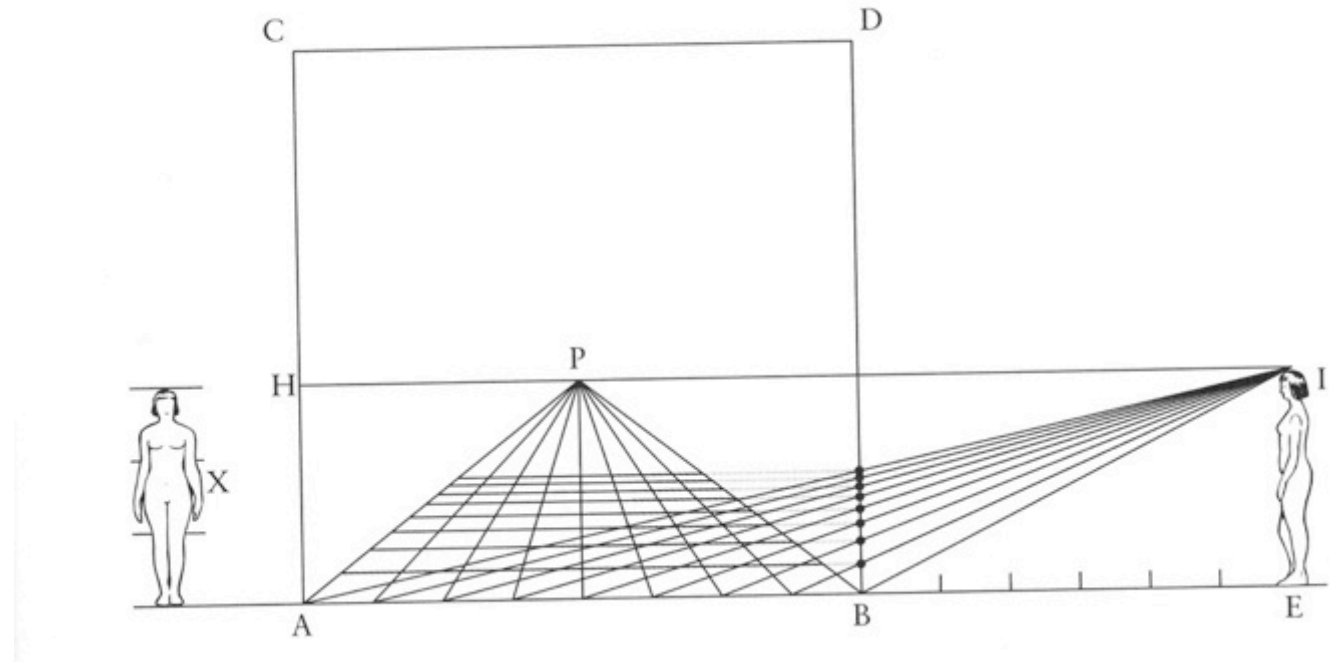


# Brunelleschi's demonstration in Florence 1425 – perspective rules



“The clouds over the actual Baptistery, reflected on the silvered surface of the top front of the panel, and the constructed building and piazza are united in the reflection on a small plane mirror held at arm’s length.” (Summers 2003: 515)

# Art as 'windows onto the world'- Alberti



Alberti's 'reticolato', as illustrated by Summers (2003: 521).

The rays which extend from the artist's single eye pass out through the cells of the artist's grid and form 'a visual pyramid' along their way to their final destination: an array of planes that background the figure. The artist would transfer the contents of each cell onto the gridded notepad.

## Releasing the spectators: Manet



*Manet's 'A Bar at the Folies-Bergère' from 1882.  
(Courtauld Institute of Art, London)*



# Incoherences built into the painting



1. We assume that the painter stands **in front** of the barmaid, **and on our left**, since we both can see the barmaid *and* her reflection: "incompatible spaces, incompatible reflections, and incompatible lighting reflections. The woman behind the bar and the spectator simultaneously occupy different spaces and make it impossible to discern where exactly to place the painter." (Boyer 2008: 62)
2. The man who appears in the mirror (and seems to be speaking to the barmaid) **should also be visible in front of the bar**, which he is not. The painting distorts what the viewer may have assumed to be a normal reflection.
3. The barmaid and the man are both looking downwards - we might have **expected his and her gaze to meet**, or each of their gazes to meet our own (Shapiro 2003: 312f).
4. Since most of the picture is occupied by a large mirror behind the bar, the painting constitutes a '**double negation of depth**', both because it is a painting and because the mirror flattens the scene it reflects (Foucault 2004).

# That was:

- *shared mediated space*
- *mediated gaze*
- *active spectatorship*
- *spatial montage & 'tertium quid'*
- *framing & transparency*
- *offscreen space*
- *lateral and peripheral awareness*



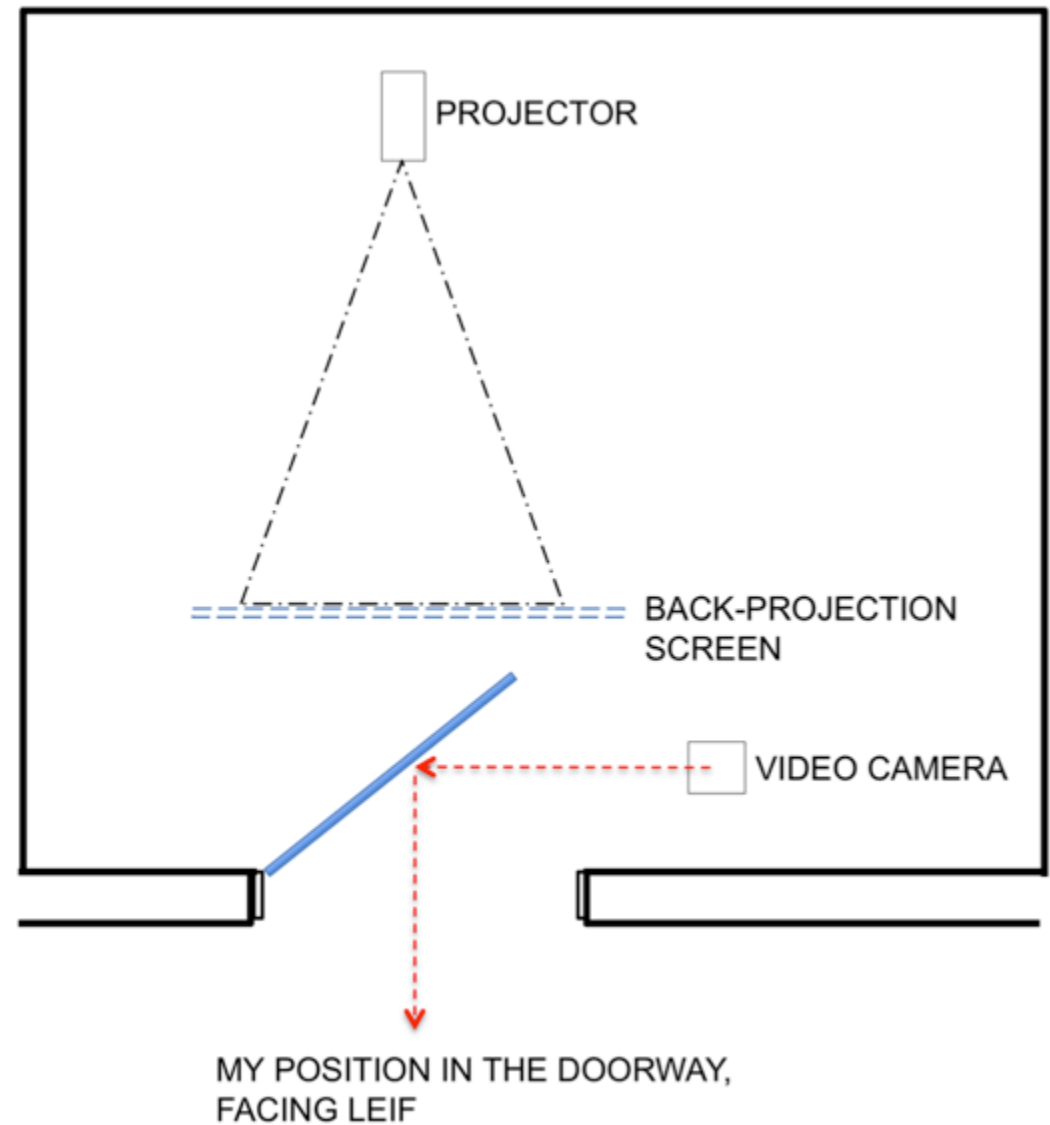






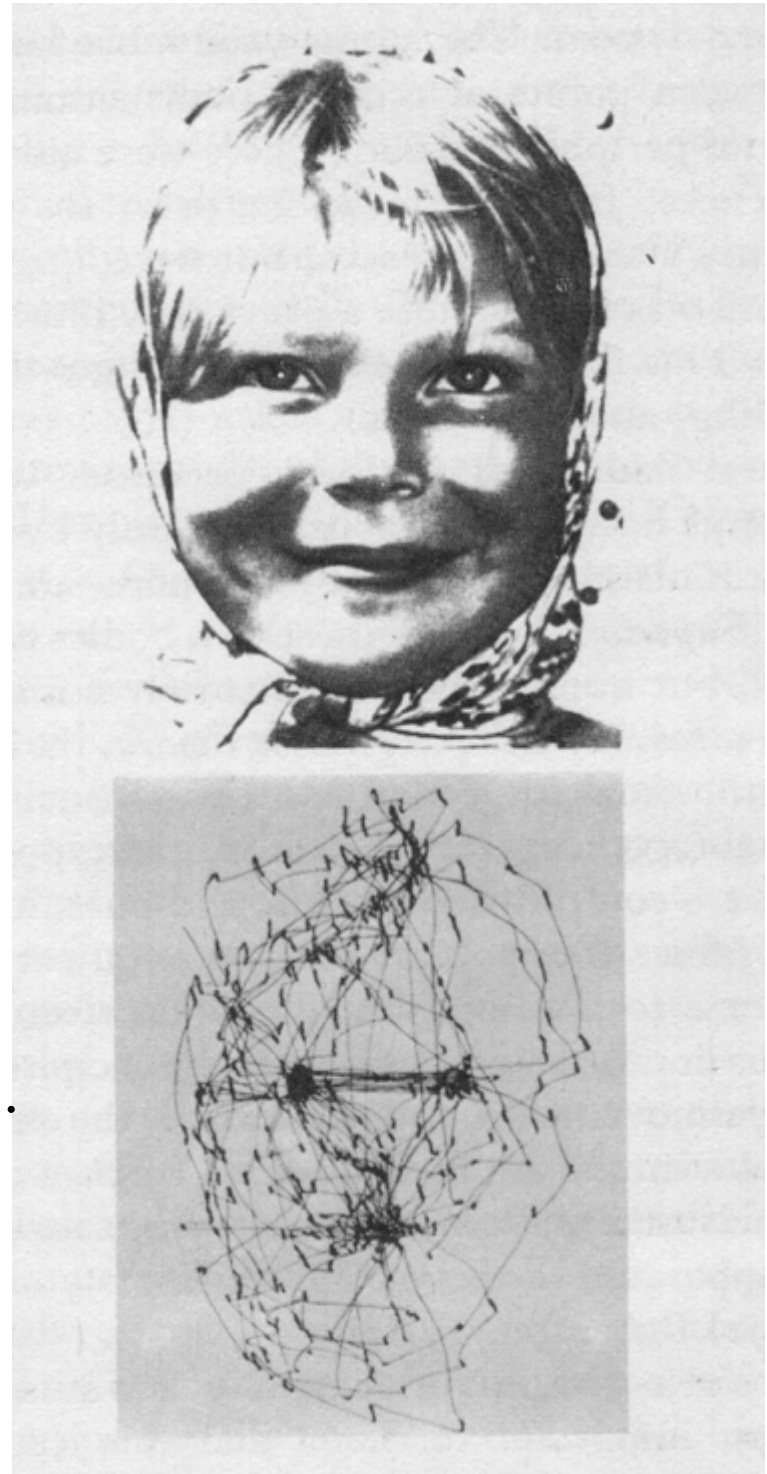
Ericsson ViPr group conferencing

# Mutual gaze



FLOOR PLAN

*The eyes are most frequently chosen as fixation points, but gaze moves across the face. Based on Yarbus (1967) who recorded eye-movements while a person looked at a photograph for three minutes. (Picture from Argyle & Cook 1976: 19)*



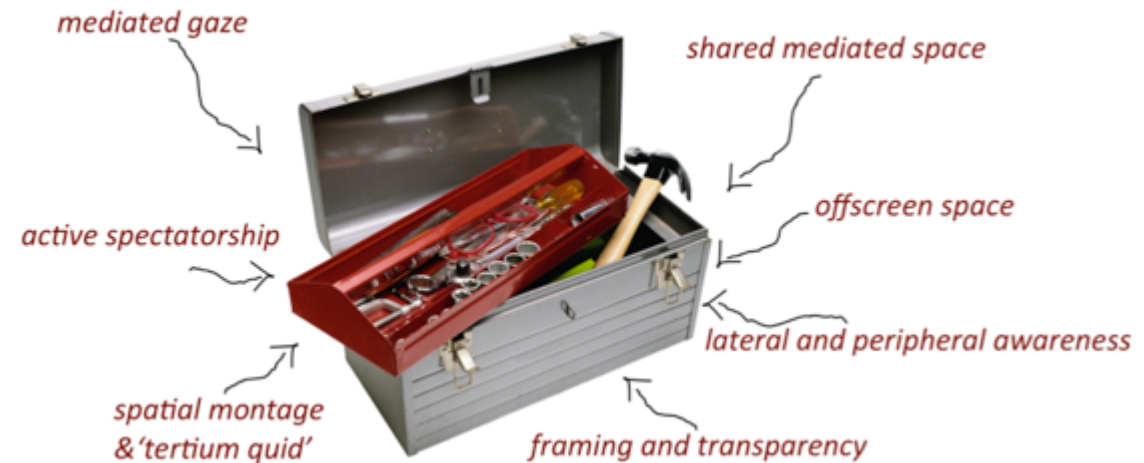


## 'Poorer synchronizing'

Telephone conversations in which participants are not visible to one another show evidence of *poorer synchronizing*, which means more pauses and other signals:

We react to such cues, by saying more, or saying less, possibly without always being aware of them. If we cannot see the person, one of two things will happen. He may replace the smiles and nods by audible equivalents – such as ‘mm-hm’, ‘that’s right’, ‘how interesting’ – or else we will remain in ignorance of his reactions to what we are saying. (Argyle & Cook 1976:154)

# Design friction



Research has determined factors that may contribute to *poorer synchronizing* (Argyle & Cook 1976) and *frictions* (Davenport & Prusak 1998), which may inhibit knowledge sharing in collaborative co-present contexts. Unless, for example, mutual gaze and trust can be established as part of dialogic interaction, **the subtleties of nonverbal communication are easily lost**

(Gullström 2010, chapter 5)

# Presence design

Spatial features have an effect on the individual experience of *spatial extension, mediated presence, negotiation of trust, and knowledge sharing*

(Gullström 2010) *Design friction, presence-in-person paradigm, conceptual toolbox for presence design*

(Nevejan 2007) *Witnessed presence*

(Ijsellsteijn 2004) *Reality tests*

1. *Attention* on behalf of the remote participant who is about to experience mediated presence;
  2. *Feedback* from the remote environment should be *swift, consistent and reliable* in response to real-time sensory motor probing;
  3. The environment itself needs to have *spatial extent* and immersive qualities allowing a user to understand the remote location (depth cues, field of vision);
  4. An *ongoing construction of sense of place* has to be triggered
-





# Rapid prototyping and theoretical discussions

- Shared collaboration spaces:  
The Mediated Corridor – Crossroads – Octagonal Hangout



# The Mediated Sketching Table





To Humb.

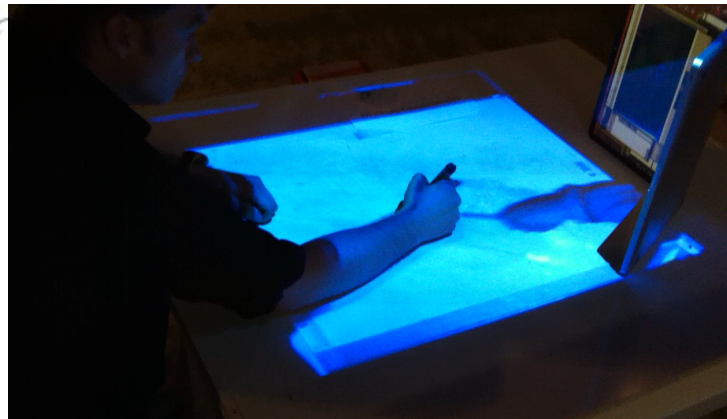
I.D. Living Room  
- A 3-month Presence Lab Space?



individual  
workspace

shared  
work/drawing/negotiation  
surface

















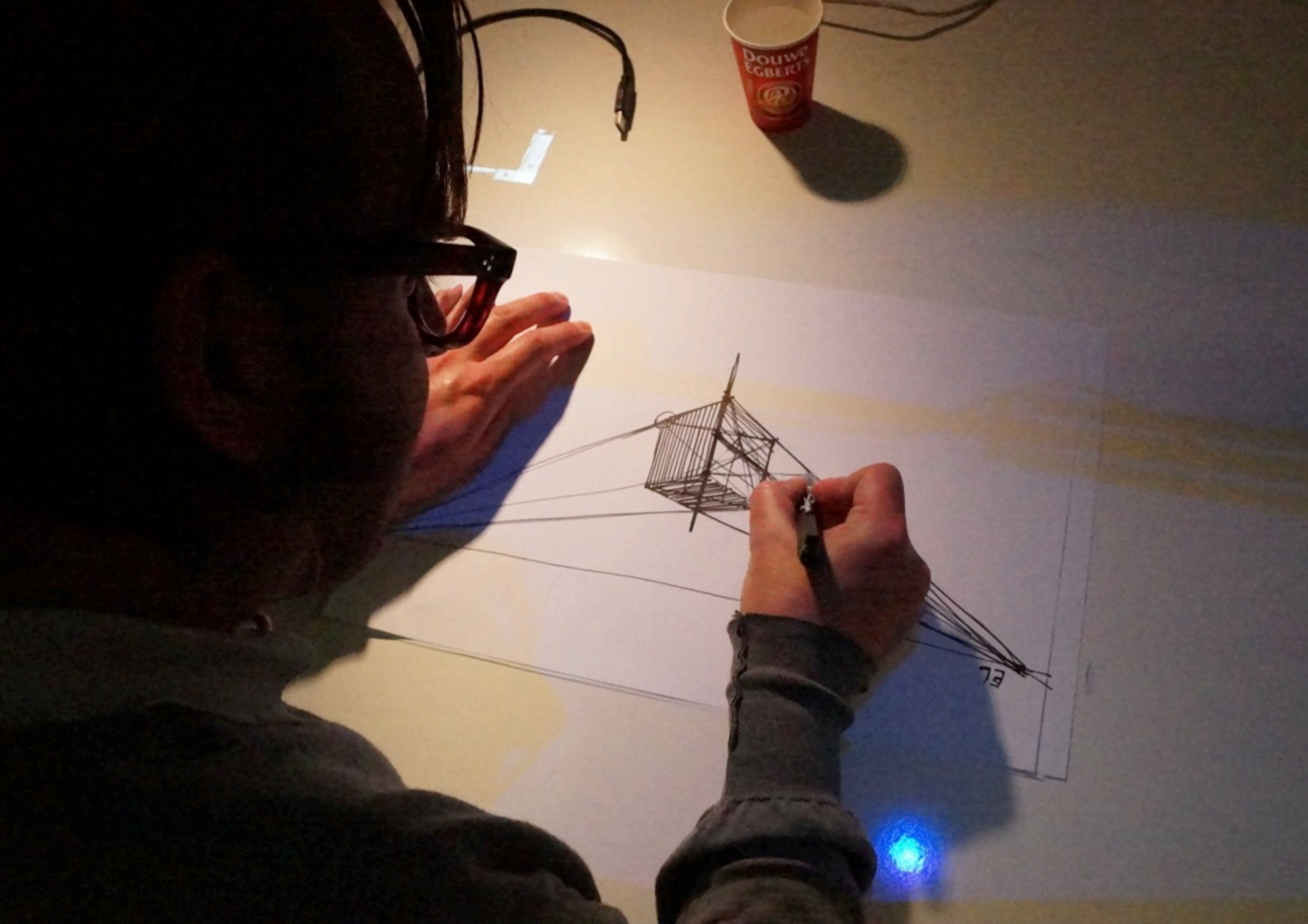




VREDERMAN

(1548-1620) served Maurits and wrote "V...  
sichtighe (perspective), verschaeuwing (...  
in his book one can find also the hint to lo...











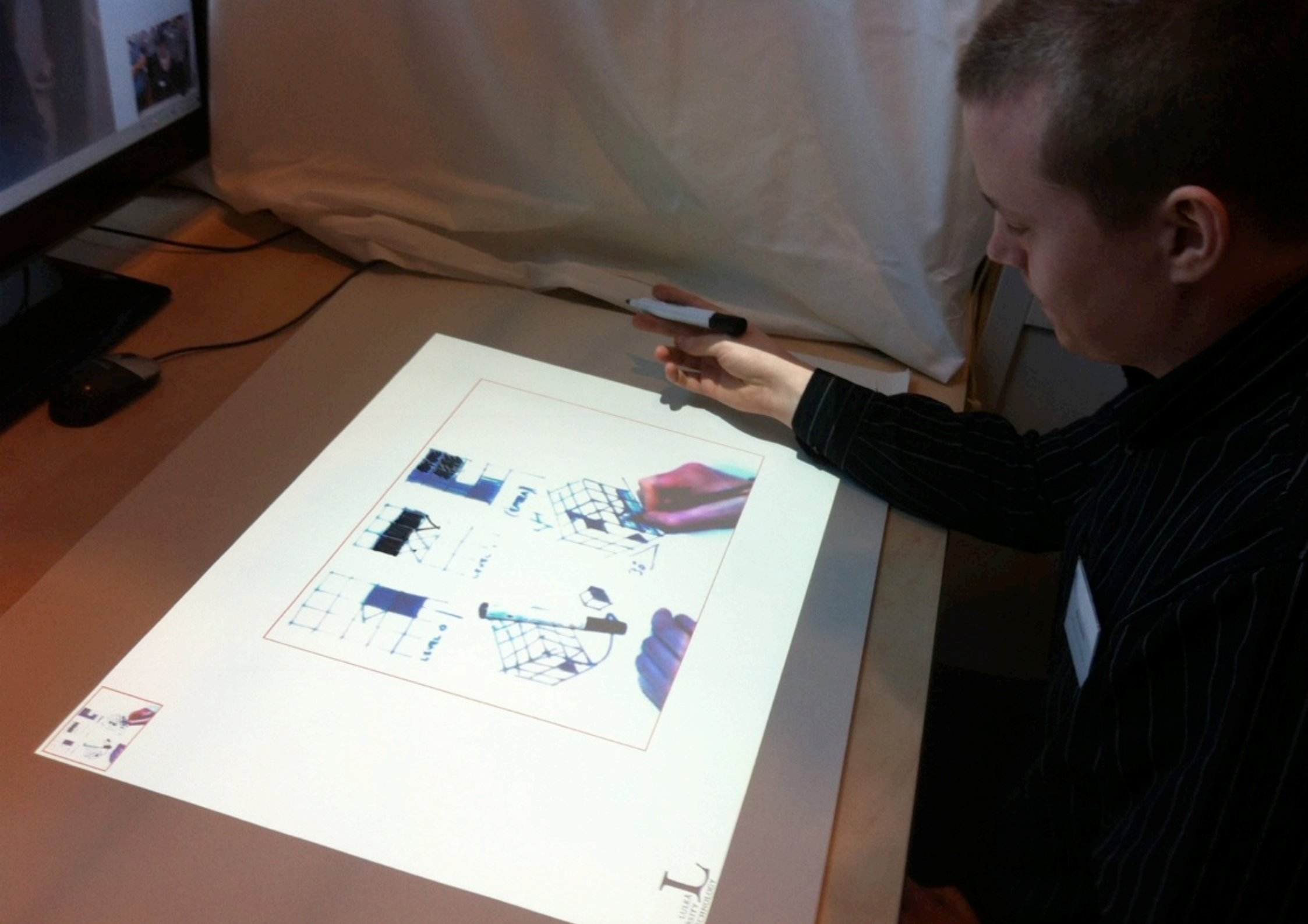


**3-party collaboration workspace,  
A distributed presence between: TU Delft, KTH, Luleå**

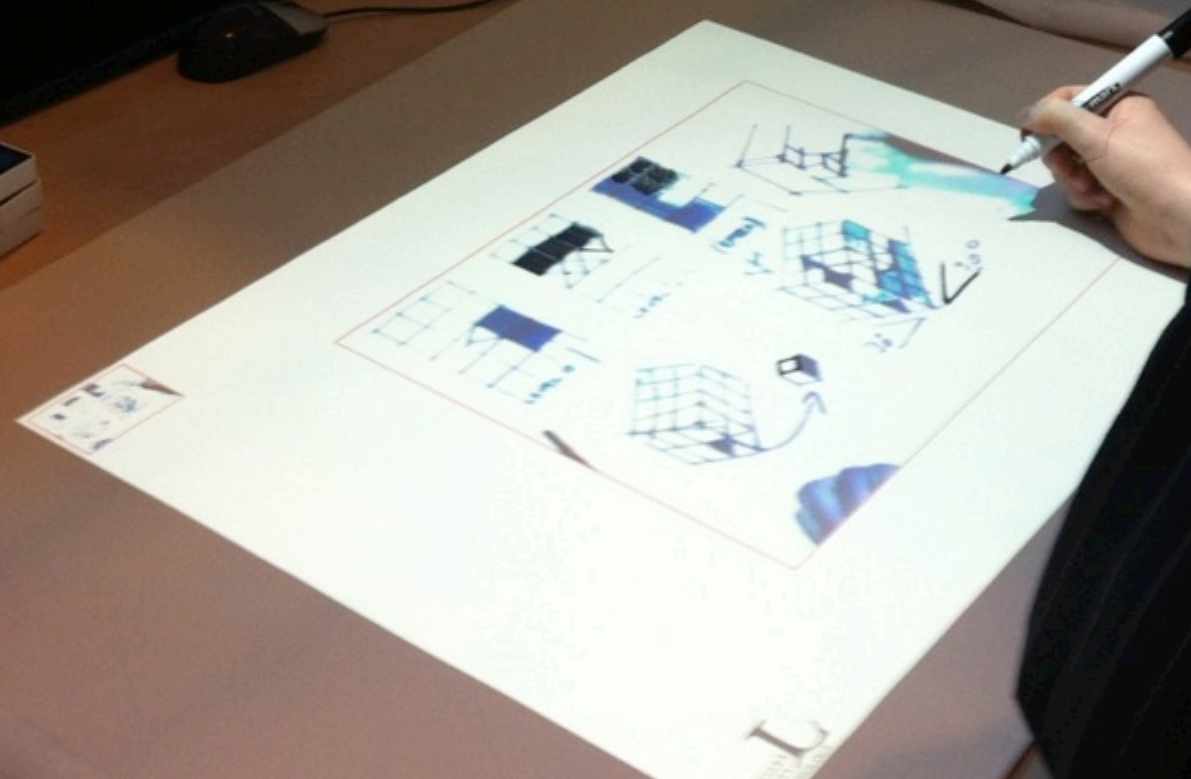














# Presence research

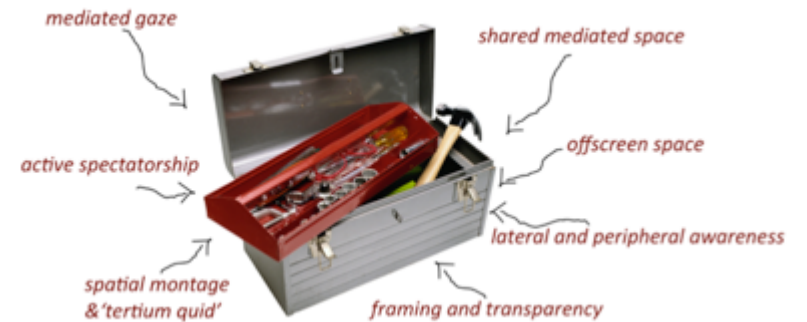
- "the use of technology to establish a sense of shared *presence* or shared *space* among geographically separated members of a group" (Buxton 1992)
-

# Presence research – presence design

- “the use of technology to establish a sense of shared *presence* or **shared space** among geographically separated members of a group” (Buxton 1992)
  - **‘shared mediated spaces’ ...how design them? ...  
...where, for whom and  
...why?  
...spatial extensions**
-

# Now: Spatial montage

- *shared mediated space*
- *mediated gaze*
- *active spectatorship*
- *spatial montage & 'tertium quid'*
- *framing & transparency*
- *offscreen space*
- *lateral and peripheral awareness*





# Atwood in Norway



# Atwood in Norway



# Atwood in Norway



See *Dagbladet*. 2008. 30 May, [www.dagbladet.no/tv/index.html?clipid=26826](http://www.dagbladet.no/tv/index.html?clipid=26826)  
Presence designers: Knudsen & Puijik (2009) <http://tide.hil.no>.



Atwood is left alone



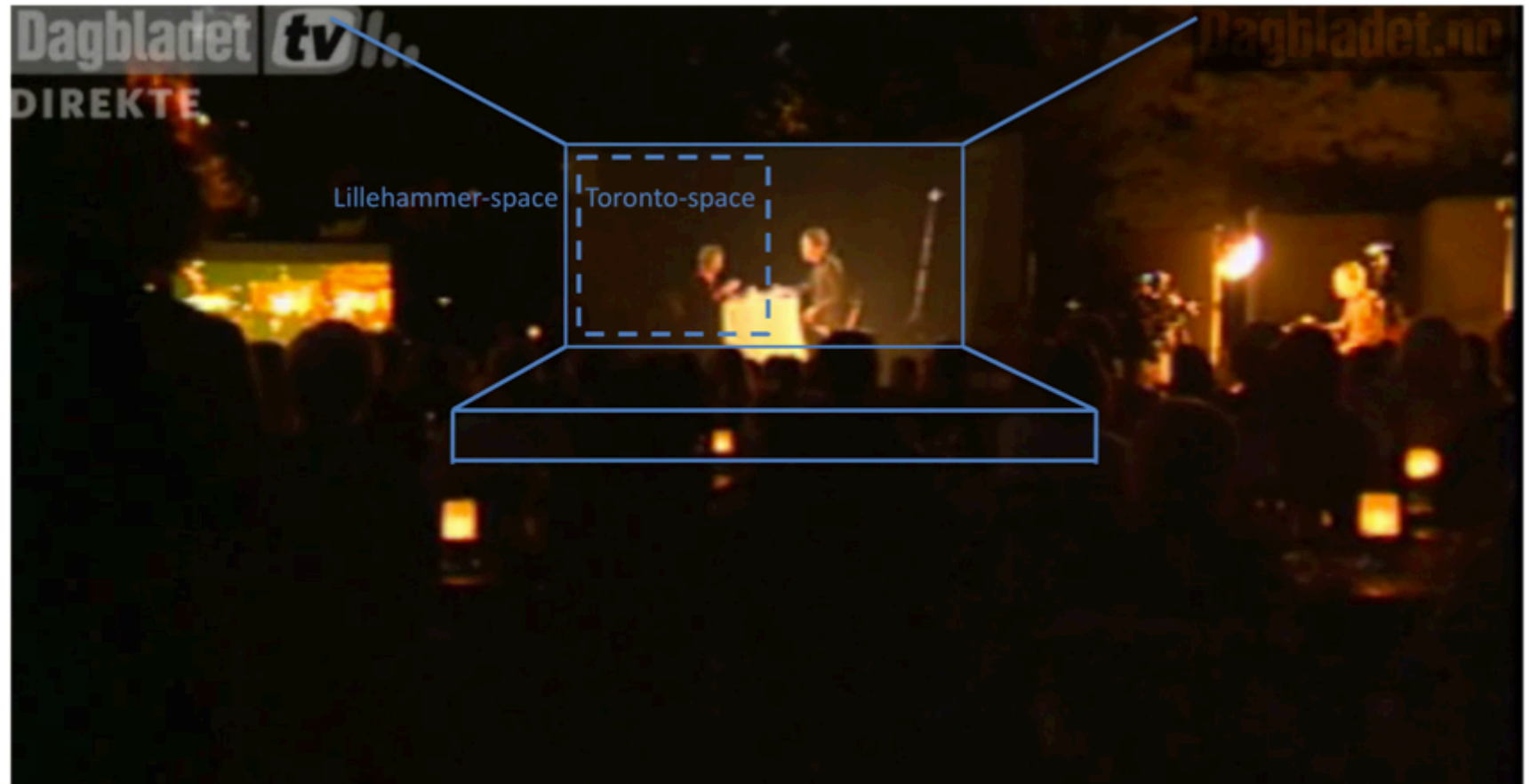




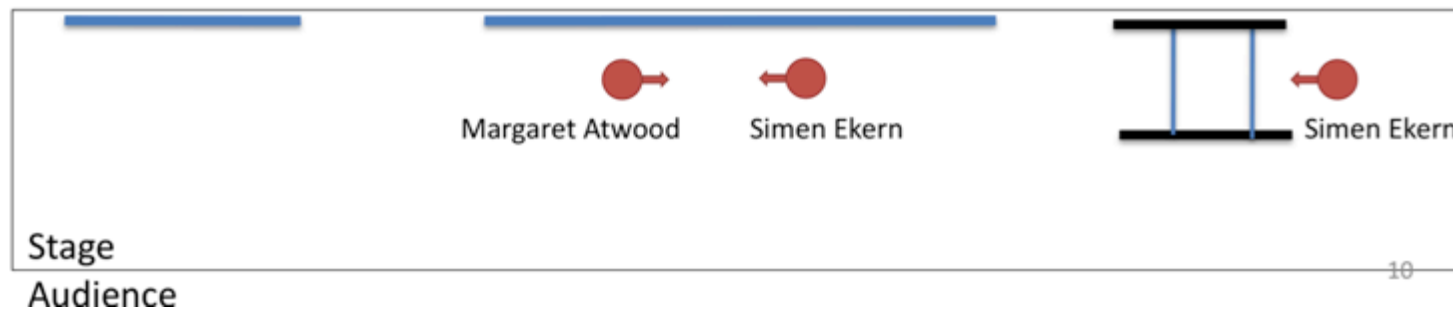




# Spatial montage



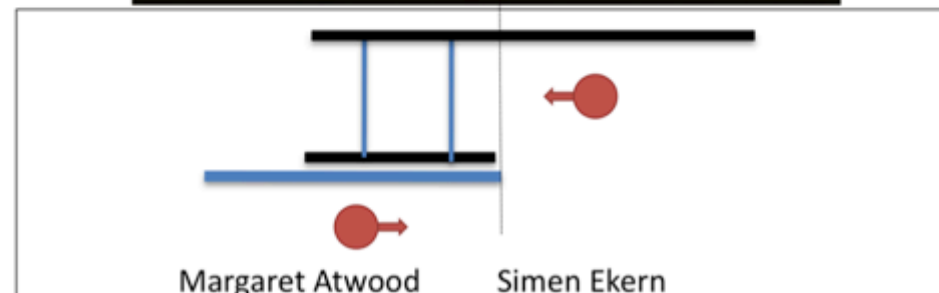
# Spatial analysis







Alternative  
approach



Stage  
Audience





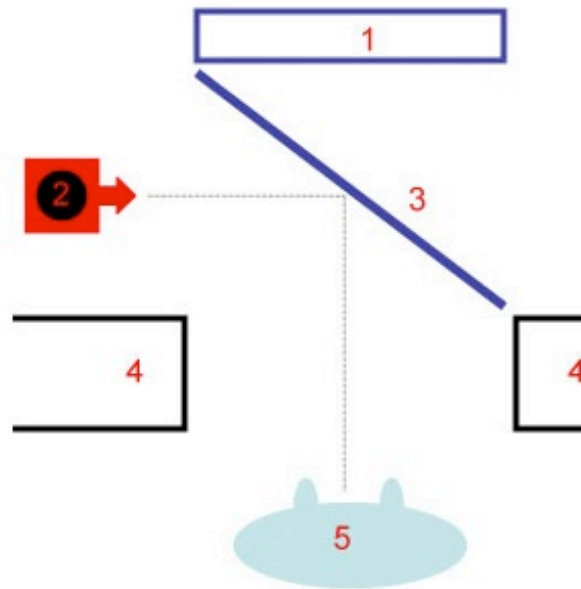
# Framing & transparency







- Explanations:
1. Display with visitors A
  2. Cameras
  3. Glass/mirror 45°
  4. Existing walls
  5. Visitor B



© Charlie Gullström, Leif Handberg 2008



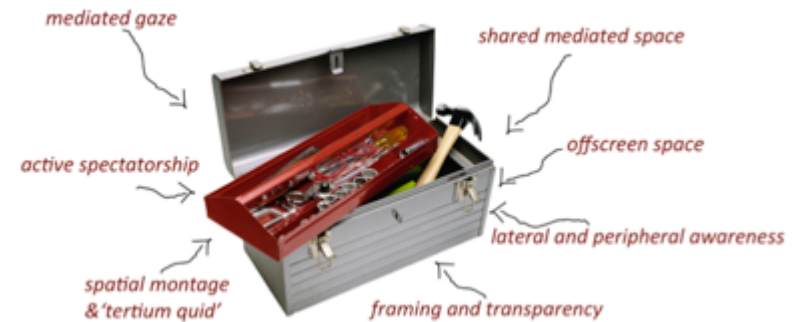






If we have time,  
let's also discuss

- *shared mediated space*
- *mediated gaze*
- *active spectatorship*
- *spatial montage & 'tertium quid'*
- *framing & transparency*
- *offscreen space*
- *lateral and peripheral awareness*






How are work and learning practices, in today's network society, supported by mediated ways of working?





A mediated therapist:  
Professional assessment,  
judgment and trust across time and space





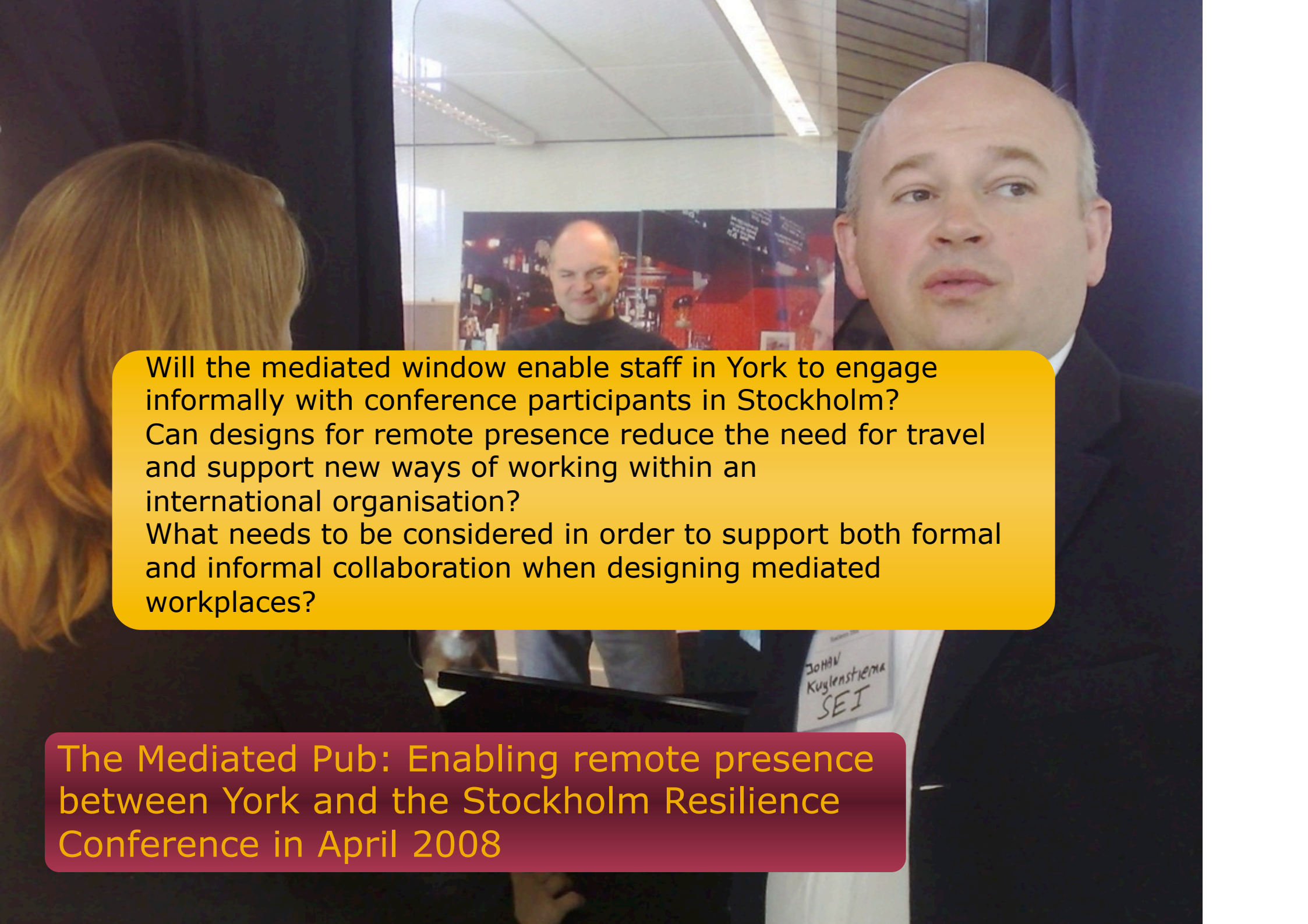
How well does our design prototype enable mediated presence?  
Will it enable professional assessment across time and space?  
Which design features matter most in this kind of dialogic interaction?  
Can presence design facilitate access to therapeutic care?

A mediated therapist:  
Professional assessment,  
judgment and trust across time and space





The Mediated Pub: Enabling remote presence between York and the Stockholm Resilience Conference in April 2008



Will the mediated window enable staff in York to engage informally with conference participants in Stockholm?  
Can designs for remote presence reduce the need for travel and support new ways of working within an international organisation?  
What needs to be considered in order to support both formal and informal collaboration when designing mediated workplaces?

The Mediated Pub: Enabling remote presence between York and the Stockholm Resilience Conference in April 2008













25 9 2002



## Participatory design





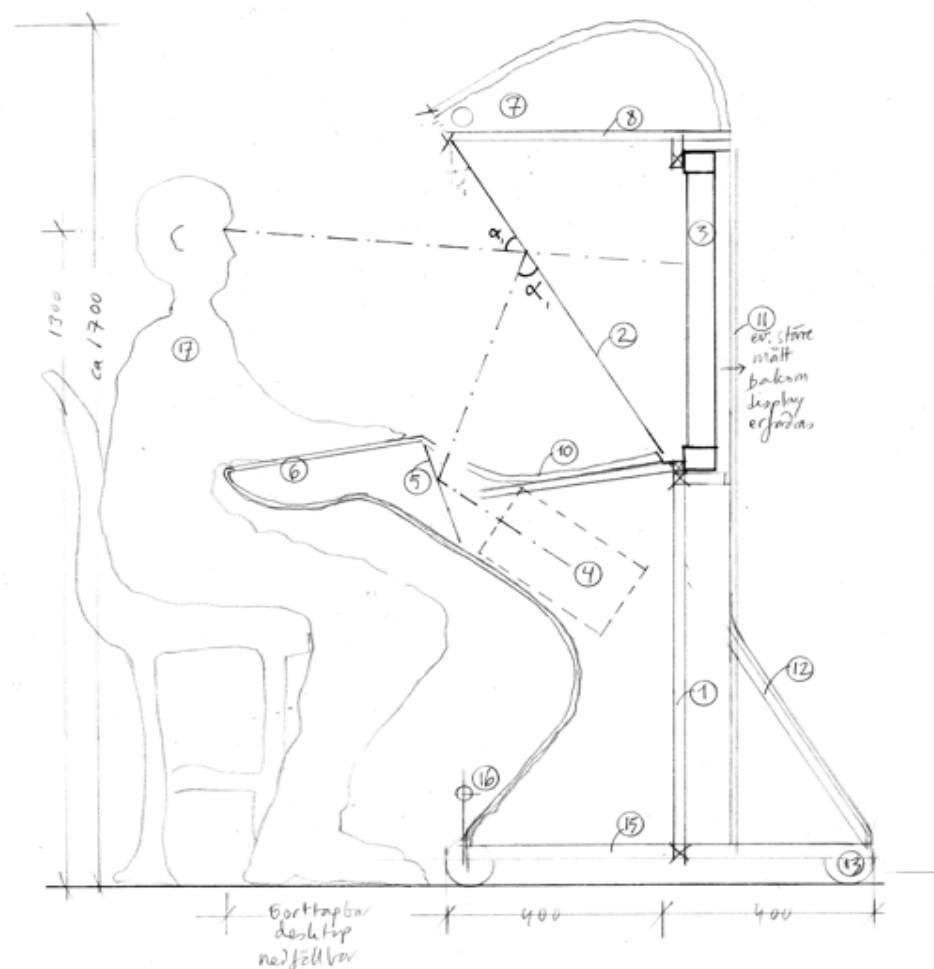




## Employment services, Dalarna








## VERTIKALSNITT

<b>GULLSTRÖM ARCHITECTS AB</b> LINDSTEDTSVÄGEN 5 B 114 20 STOCKHOLM tel 08-790 92 11 info@gullstrom.se www.gullstrom.se	<b>i2i Meetings</b>		DATUM	050121
	Möbelformgivning distansmötesplats		ANSVARIG	CGH
	Projektet Service, utveckling & kommunikation		SKALA	1:10 (A4)
	Arbetsförmedlingen Norra Dalarna		RITNING NR	SKISS
	UPPDRAG NR	RISSKIDNING AV	HANDLAGGARE	REV
	STI395			

 Arbetsförmedlingen

## Distansmötesplats

Här kan du tala med en arbetsförmedlare.

Vi betjänar arbetssökande i Malung,  
Vansbro och Sälen. Väntetider kan uppstå.







Opening windows  
across time and space

... extending space for  
collaboration, work,  
health services etc.

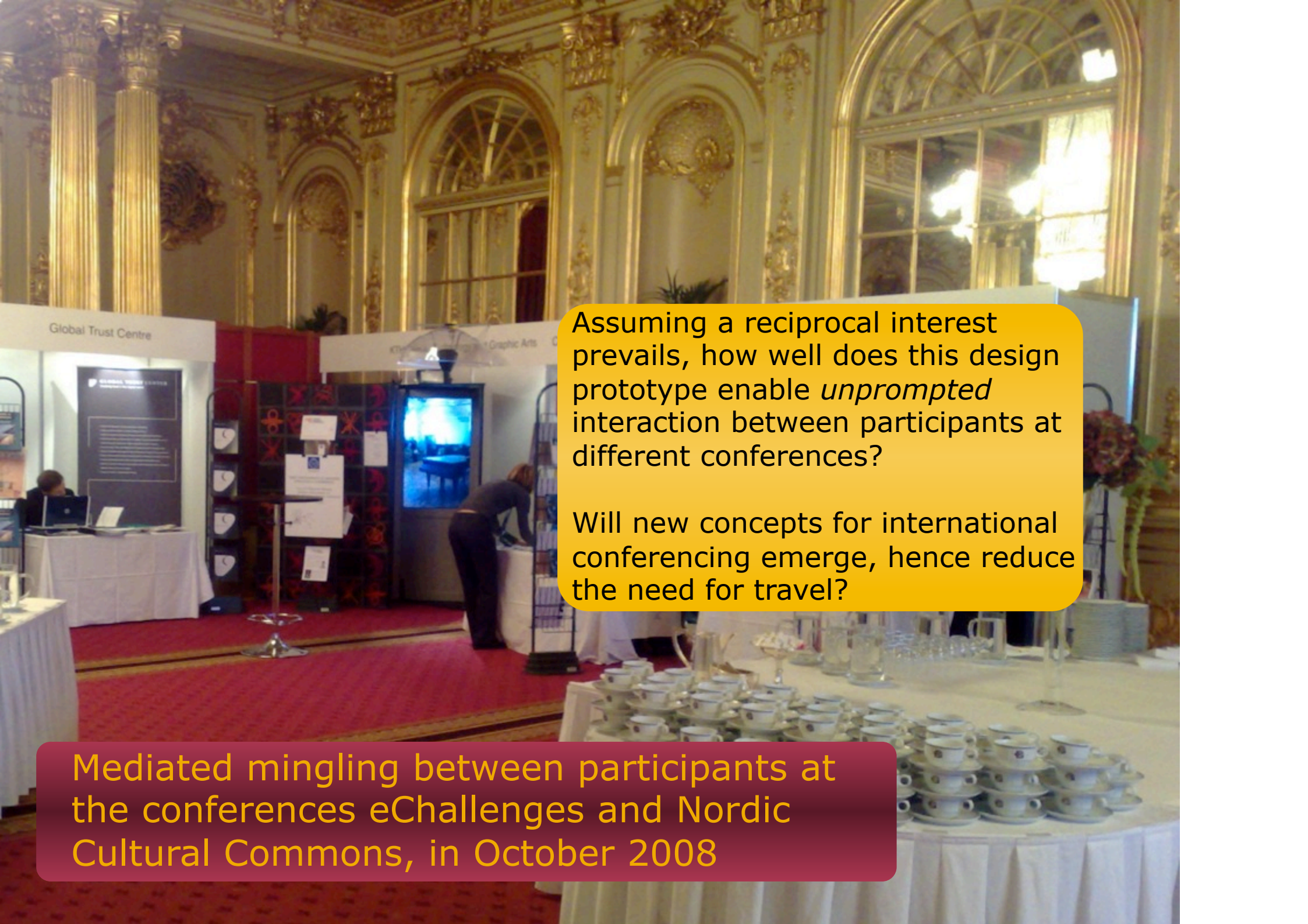






Mediated mingling between participants at the conferences eChallenges and Nordic Cultural Commons, in October 2008





Assuming a reciprocal interest prevails, how well does this design prototype enable *unprompted* interaction between participants at different conferences?

Will new concepts for international conferencing emerge, hence reduce the need for travel?

Mediated mingling between participants at the conferences eChallenges and Nordic Cultural Commons, in October 2008





**Thank You  
for your attention!  
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# Thank you!

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<https://www.kth.se/social/group/kth-smart-spaces-arc/>