Digital Media Impact on Human-Computer Interaction ACHI Panel

Moderator:

Leslie Miller, Iowa State University, USA

Panelists:

Pierre Leclercq, University of Liege, Belgium

Alma Leora Culén, University of Oslo, Norway

Uttam Kokil, Kennesaw State University, USA

Working with digital media on mobile devices like smart phones and tablets have created a different perspective of what computing means.

The result is twofold

1. Users expect more access to digital media on smaller screens.
2. Users expect user friendly access to both evaluate and manipulate digital media.

Such expectations require HCI to play a more comprehensive role in the development of tools for working with digital media.

User Perception of Digital Media depends on the user's individual differences

Maria Kozhevnikov (2005) notes that the way that users perceive and interpret their surroundings depend on their skills. People with high spatial skills see their surroundings with spatial relationships in tact, while people that have high object skills see their surroundings as a set of objects.

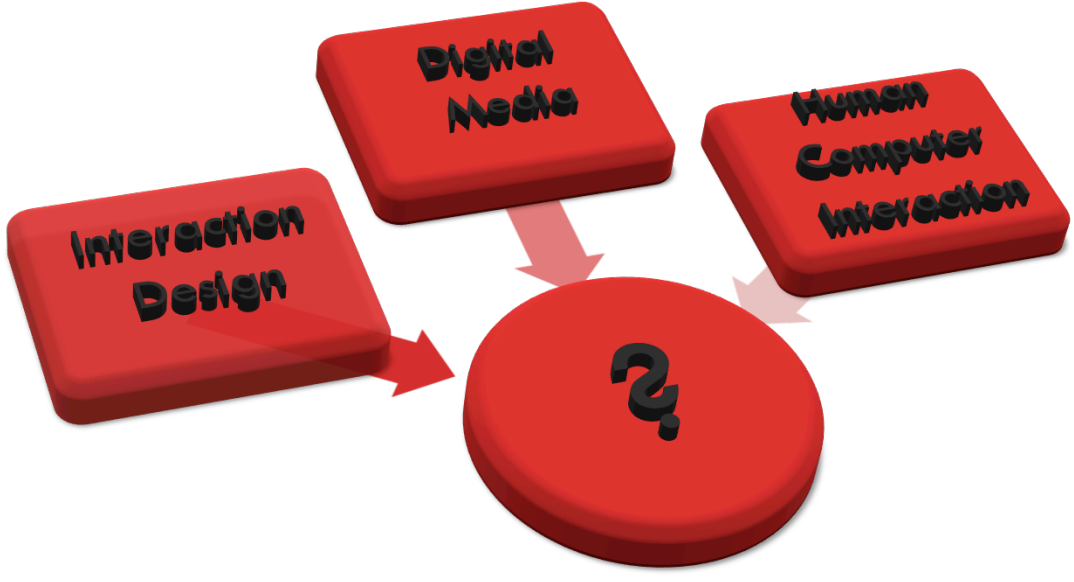
User Perception of Digital Media depends on the user's individual differences

Additionally, Maria Kozhevnikov found that different professions tended to be dominated by one or the other skill. As people design digital media tools, it seems natural that HCI designers will look at more than the digital media and incorporate user needs.

Thoughts for the Future

- Vint Cerf, a "father of the internet", says he is worried that all the images and documents we have been saving on computers will eventually be lost.
- Currently a Google vice-president, he believes this could occur as hardware and software become obsolete.
- He fears that future generations will have little or no record of the 21st Century as we enter what he describes as a "digital Dark Age".

From an article by Pallab Ghosh (2015)



Alma Culén,
University of Oslo

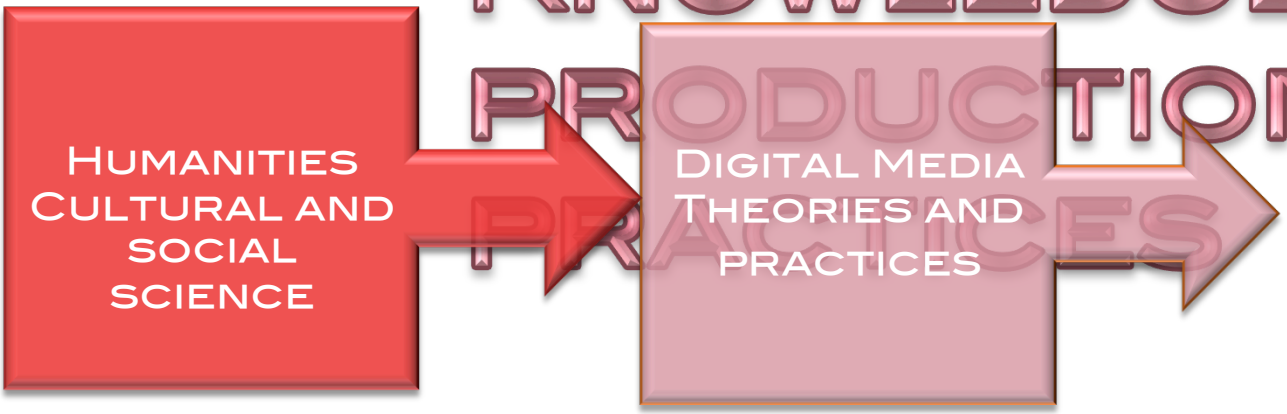
DIGITAL MEDIA AND HCI:
Ways of Knowing and Producing Knowledge

Knowledge production And practices

Science, humanities, design

The traditional boundaries separating art, design, science, and technology are being crossed, transformed or dissolved.

Knowledge production and practices



New Media

Five basic principles:

Numerical representation
Modularity
Automation
Variability
Transcoding

are involved in creating new media texts, principles that make these texts quite different to produce than was the case with print, drawing, or analogue texts.
Lev Manovich (2001)

NO NEW MEDIA

Hypertext is Dead
and There is Nothing
New About
New Media Anymore
Michelle Kendrick (2003)

GAME CHANGER

NO NEW MEDIA

Hypertext is Dead
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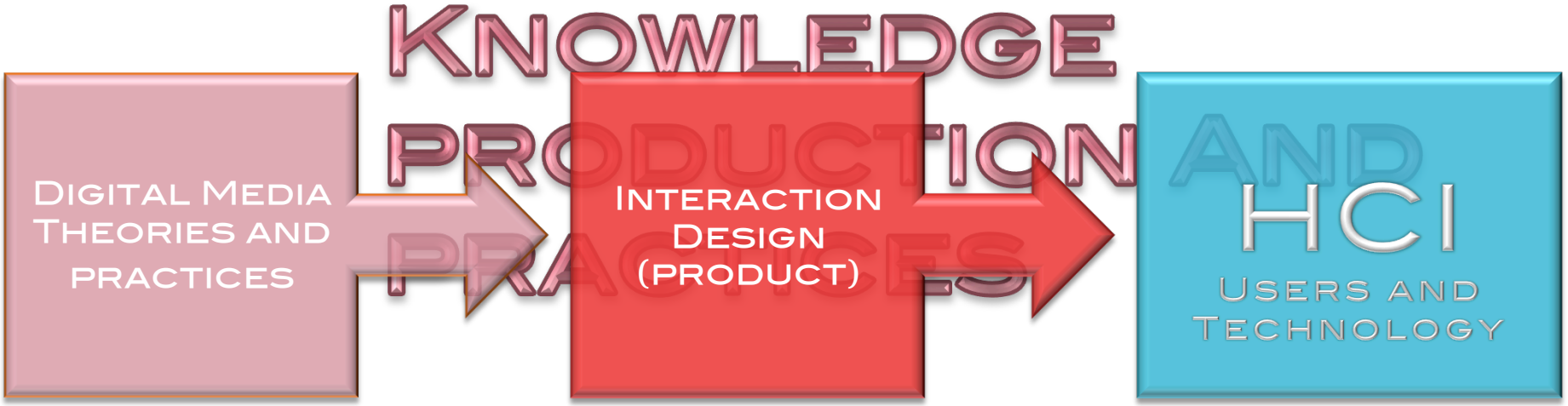
GAME CHANGER INTERACTIVITY


Knowledge production and practices
Digital Media Theories and practices
Interaction Design (product)
HCI
Users and Technology

The shifting role of users

- From passive consumption of the ICT to
- Active engagement
- User as author, performer, user, collaborator, co-designer

Taylor and Wright. The User in Flux: Bringing HCI and Digital Arts Together to Interrogate Shifting Roles in Interactive Media, CHI 2008

Changing perspectives

- New Media (ICT)
- SNS
- Digital story telling
- Theory dominated by techno-determinists with McLuhan (medium is the message- formal properties of media determine their use and significance)
- Poststructuralists (Derrida de Man and others).
- Verbal media and deconstruction, critical views
- Technology reshapes the landscape of our emotional lives, but is it offering us the lives we want to lead?

- The Knowledge work spans both the scientific study of the ways in which media knowledge shapes and is shaped by human activity, and the practical work of founding an interdisciplinary nexus for enquiry into the design and use of these media.
- New media no longer mass media (MIT media lab)
- Online environments combine theory and practice (games, MUDS etc)
- With formal Theories in HCI, either qualitative or quantitative, a researcher has control, in cultural studies, control is much more difficult.

Sherry Turkle

Convergence

- In practice, studies of new media do much of the same as interaction design and HCI.
- Knowledge production is a problem in all three fields
- How to be competent multidisciplinarist

THANK YOU!

Now, Discussion points!

IMPACT OF DIGITAL MEDIA ON HUMAN COMPUTER INTERACTIONS

HEDONIC & VISUAL AESTHETIC PERCEPTION IN GAMES

Uttam Kokil @ 2015

- Instrumental and non-instrumental qualities of game interfaces play an important role on users' perceived usability and perceived aesthetic.

- This in turn has an effect on player experience.

Thüring, M. & Mahlke, S. (2007). Usability, aesthetics and emotions in human-technology interaction. *International Journal of Psychology*, 42(4), 253-264.

- Visual aesthetic quality has a strong influence on hedonic quality in website design.

Jetter, H.C. & Gerken, J. (2006). A simplified model of user experience for practical application. NordiCHI 2006, Oslo: The 2nd COST294-MAUSE International Open Workshop "User eXperience – Towards a unified view." (pp. 106-111).

- The fluency theory predicts that if a person has to judge the beauty of an object, he or she will use the hedonic response as a shortcut for the judgment of beauty

Reber, R., Schwarz, N., & Winkielman, P. (2004). Processing Fluency and Aesthetic Pleasure: Is beauty in the perceiver's processing experience? Personality and Social Psychology Review, vol.8, no. 4, 364-382.

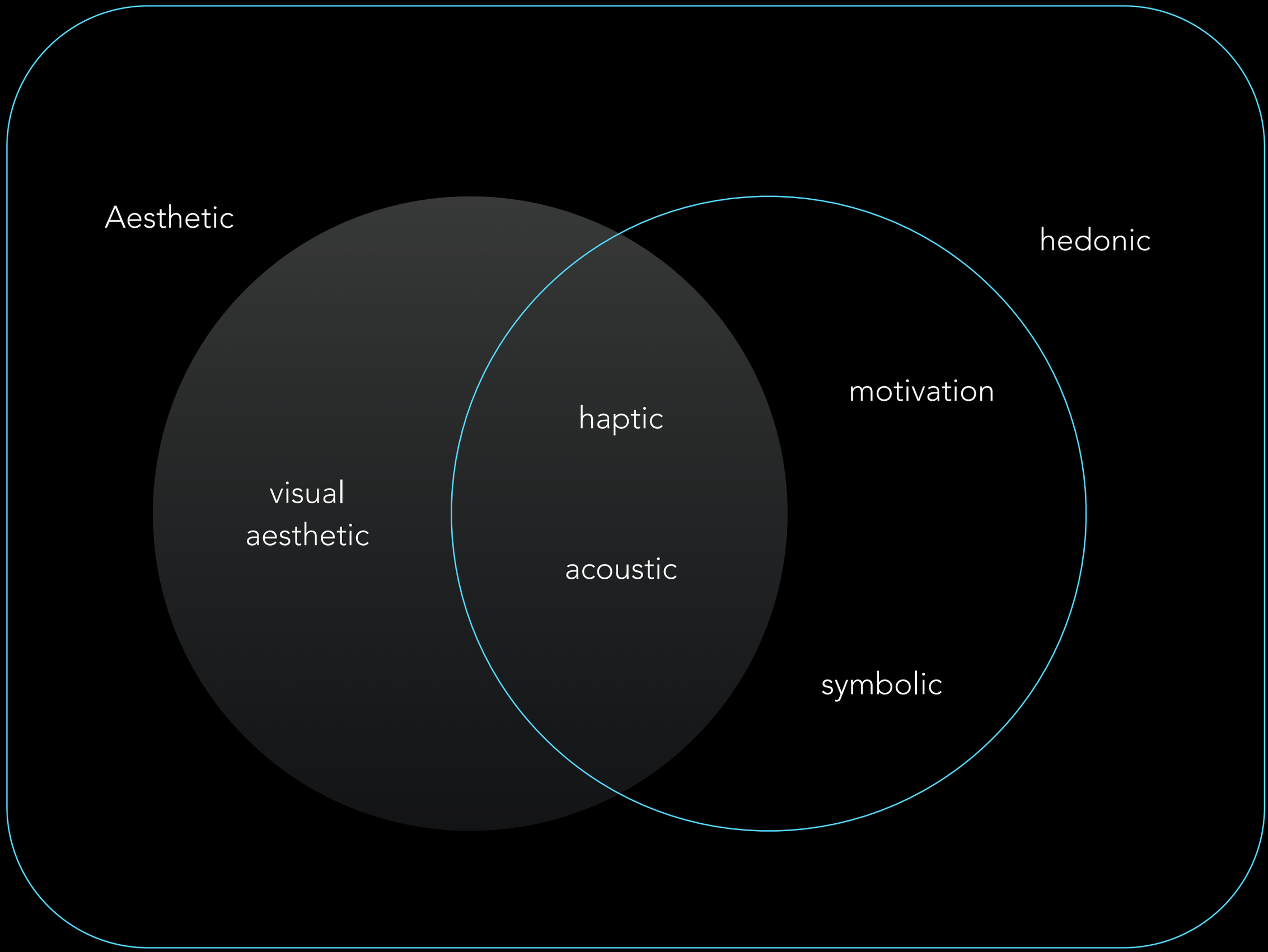
- Mahlke defines non-instrumental quality of a product consists of symbolic, motivational, and aesthetic (haptic, acoustic, visual aesthetic) aspects.

Mahlke, S. (2008). User experience of interaction with technical systems. (Ph.D. dissertation, Technical University of Berlin).

- Hedonic user-perception is linked to perceived enjoyment, novelty, and stimulation.

Hassenzahl, M. (2010). Experience design: Technology for All the Right Reasons. Morgan and Claypool, San Rafael, CA

- We define hedonic attributes to include haptic, acoustic, motivation and symbolic factors.


Aesthetic
hedonic
motivation
haptic
visual
aesthetic
acoustic
symbolic

- What is the relationship between hedonic and visual aesthetic perception in games?
- How do you define aesthetic interaction in games?

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Panel : "Digital Media Impact on Human-Computer Interactions"

Prof. Dr Ir Arch. Pierre Leclercq

LUCID - Lab for User Cognition & Innovative Design - University of Liège - Belgium

To initiate the discussion

To question the use of augmented reality in collaborative activity :

How do digital media affect synchronous collaborative activities ?

- the case
- 3 examples of observations
  - new status of the document
  - new status of relationship between participants
  - new status of the collective workspaces

The case : the Collaborative Digital Studio

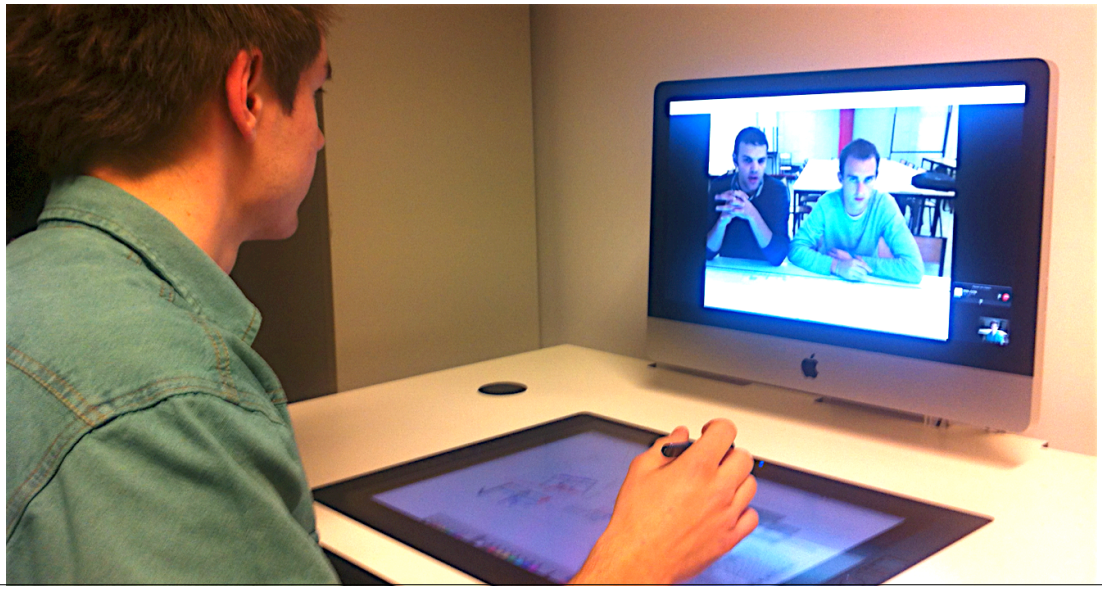
An augmented reality configuration based on the SketSha software

- enables synchronous (remote) sharing of graphic artifacts in real time : documents are projected on real surfaces and annotated with a real e-pen
- pedagogical context : students in architecture and engineering at ULg
- 

New status

1) New status of the document

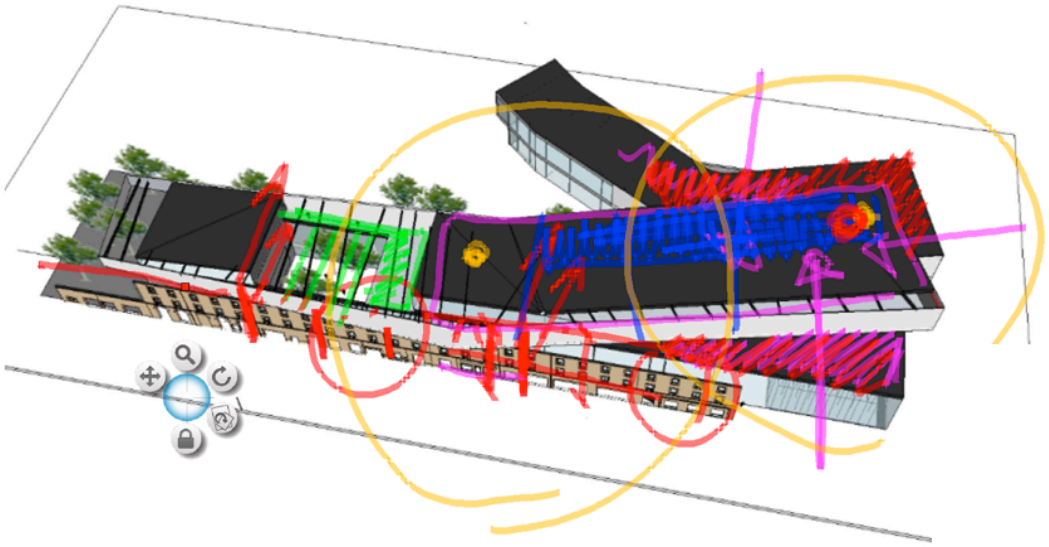
- example of a discussion between a student and two experts



New status

1) New status of the document

- from "static documents" to "working documents"



New status

2) New status of relationship between participants

- example of a classic assessment of an architectural project

New status

2) New status of relationship between participants

- re-balancing between actors (who can act each)

New status

3) New status of the collective workspaces

- example of a project review in a co-presence situation

New status

3) New status of the collective workspaces

- let's take the Johansen's spatio-temporal matrix (1988) & Ellis (1991)

CSCW matrix	Same place	Different places
Same time	Real presence	Virtual co-presence
Different time	Asynchronicity	Remote asynchronicity

New status

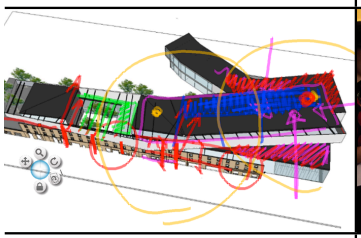
3) New status of the collective workspaces

- enhancing the dichotomy between co-presence and remote collaboration

CSCW matrix	Same place		Different places
Same time	Real presence	Augmented presence	Virtual co-presence
Different time	Asynchronicity		Remote asynchronicity

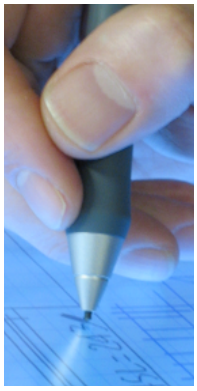
Summary

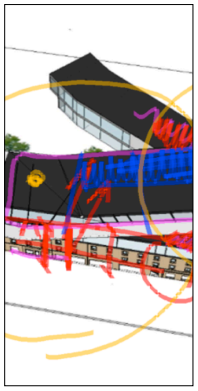
3 examples of new status in synchronous collaborative activities

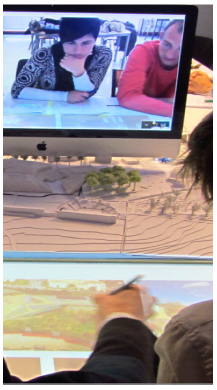
Documents	Relationship	Workspaces
		
Redefinition of the concept of shared document	Re-balancing of relationships between users (learner / expert)	New concept of integrated presence in the augmented space

References

Ben Rajeb, S., Leclercq, P. 2013
"Using Spatial augmented reality in synchronous collaborative design. Application in architectural design training", in Y. Luo (Ed.) Cooperative design, visualization, and engineering, pp.1-10, LNCS 8091, Springer, Heilderberg, London.







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