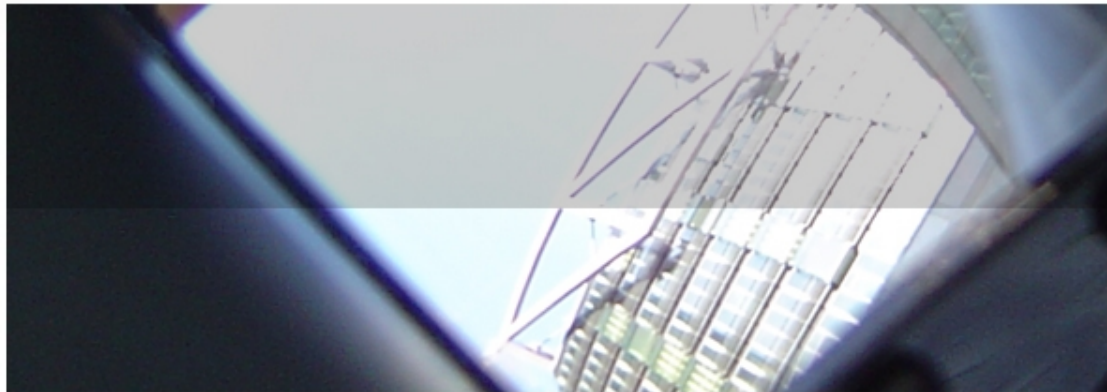# Presence and IPCity

Rod McCall | Vienna | September 2009
Fraunhofer FIT

Presence

- Mixed Reality Continuum
- Presence
  - classic definitions
  - Spatial,social (co-presence), temporal
- Place
  - Models of place
- IPCity Work on Presence
  - Why classic presence research is only half the story
  - Our approach to presence research
- Conclusion

IPCity Summer School, Vienna

The Mixed Reality Continuum

Milgram & Kishino (1994)

Pictures Tokyo (wikipedia), IPCity, Nightmare ITV UK, Sun Microsystems (all copyright respective owners)

Nightmare: Augmented Virtuality

Video Clip

Presence Definitions

- Telepresence: controlling robots at remote locations e.g. Bomb disposal
- "the feeling of being there" (Heeter, 1992)
- "the perceptual illusion of non-mediation" (Lombard & Ditton, 1997)
- Subjective as well as physiological component (Slater & Steed (2000))
- Relationship of self to the environments (Waterworth and Waterworth)
- RAVE: Real Actions in Virtual Environments (I behave in a virtual environment as I would in a real environments)
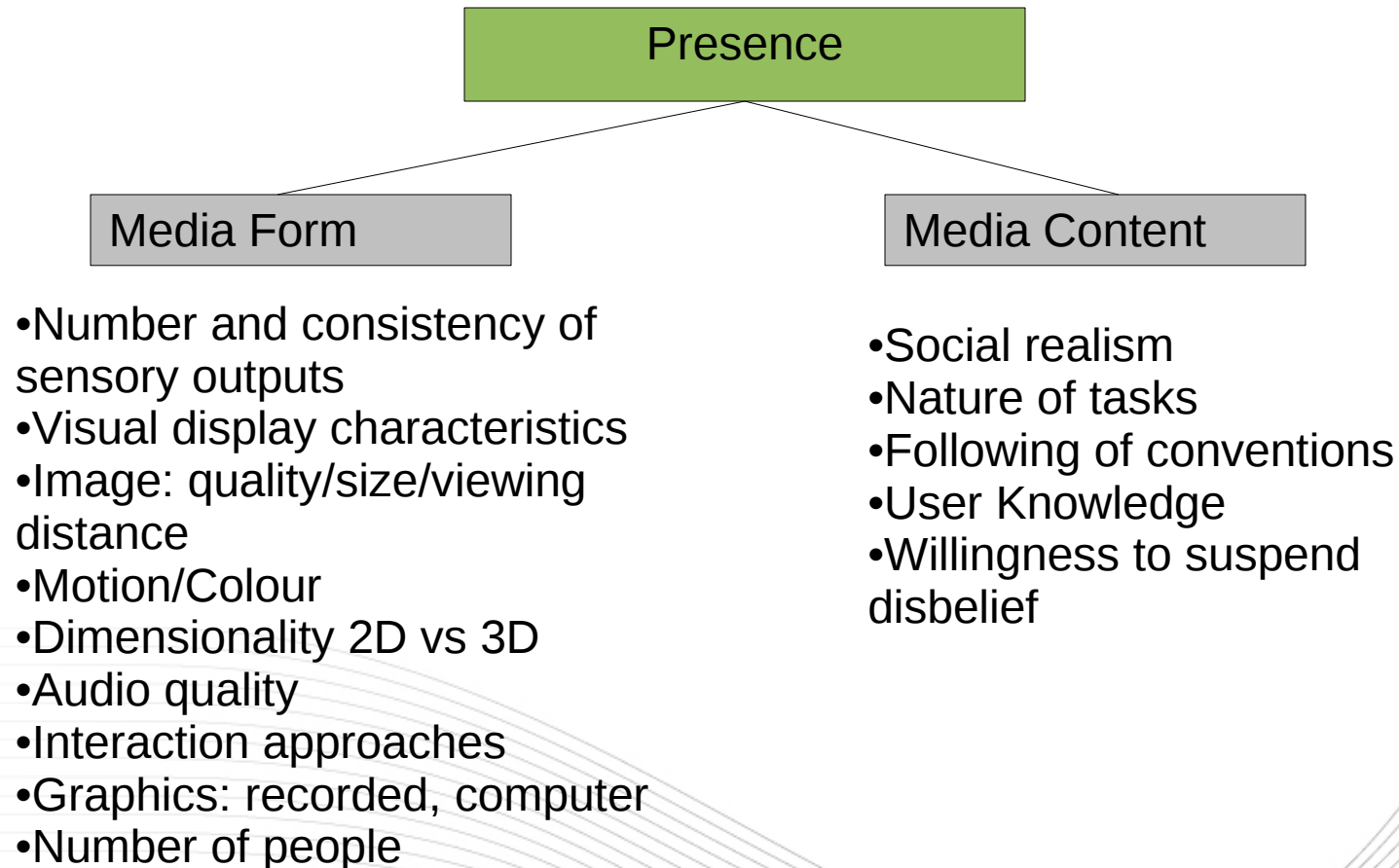
Breaking Down Presence

- Heeter (1992)
  - Subjective Personal "I feel here, not there"
  - Social: with others
  - Environmental: the virtual world is real
- Biocca
  - Self presence, social presence and physical
- Immersion: replacement of real sensorial cues with virtual equivalents (objective)
  - vision, touch, smell,hearing
- Engagement: involvement in an activity

Media Form & Content

- Lombard & Ditton 1997

Presence

Media Form

- Number and consistency of sensory outputs
- Visual display characteristics
- Image: quality/size/viewing distance
- Motion/Colour
- Dimensionality 2D vs 3D
- Audio quality
- Interaction approaches
- Graphics: recorded, computer
- Number of people

Media Content

- Social realism
- Nature of tasks
- Following of conventions
- User Knowledge
- Willingness to suspend disbelief

Underwater Augmented Reality

Social Presence: Identity Displacement

- Video (C) ITV

Social Presence: Behaviour & Self

- "People conform to the behavior that others expect of them" (Behaviour confirmation Theory)

- The impact of how people view themselves (self perception theory)

> In the seminal study by Snyder et al. (1977), male and female undergraduate students interacted over a telephone. Male perceivers who believed that a female target was attractive caused her to behave in a more charming and friendly manner regardless of how attractive the target actually was. (Yea & Bailenson (2007), Human-Communication Research (33) p272.

- *The Proteus Effect (Yee and Bailenson, 2007)*
- *How the appearance of an avatar can change the behavior of its "owner"?*
  - Attractiveness led to more self disclosure

    Taller avatars enforced more unfair splitson shorter avatars, shorter avatars more willing to accept

    Slater et. Al dating study of shy men chatting to women in virtual environments

Social Presence: Behaviour & Others

- Virtual Milgram (Slater et al).
  - People had problems electrocuting an avatar
- Rubber Hand Experiment
  - Ijsselsteijn: Rubber hand, VR hand and MR hand
  - Fake rubber hand stabbed with pins
  - Based around idea of Psi
- Ethical Issues
  - Ownership
  - Identity displacement
  - Death and rights

- Space: physical properties of the environments
- Place = Space + meaning

Place

Physical properties

Activities

Meanings

Relph 1976

Self

Environment

Others
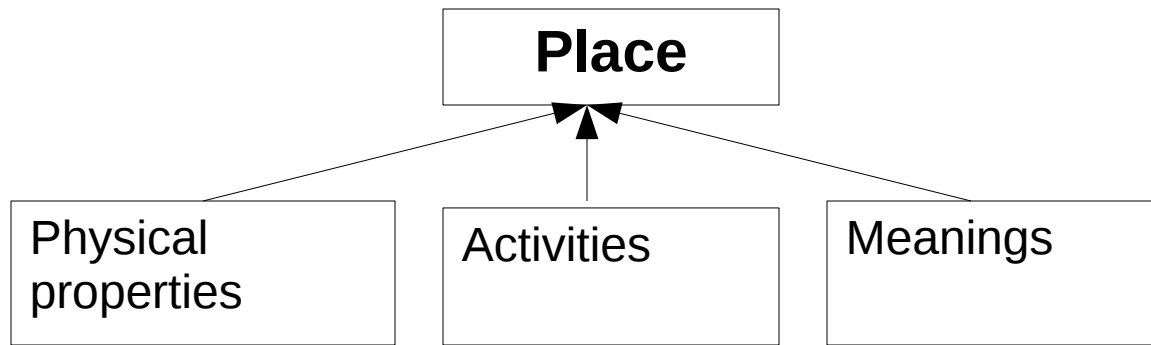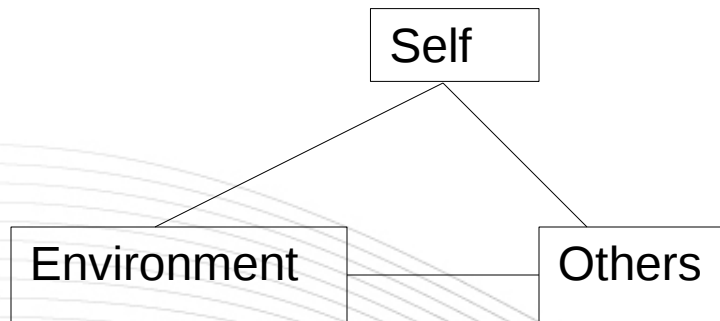
Gustafson

IPCity Approach

- Interaction and Presence in urban environments
  - from virtual environments to mixed environments that mesh or augment places and times,
  - from psycho-physiological studies of sensing and perception to understanding social action, interaction and construction of meaning,
  - from a focus on the individual to collectives of interacting users, both co-located and distributed,
  - from immaterial environments to environments with material objects and properties that engage all our senses,
  - from passive Presence to active "place-making" (giving things a place) and "expressionals" (using things for experiencing and expressing).

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URBAN ENVIRONMENT	MEDIUM

USERS' PURPOSEFUL ACTIVITIES
- Collaboration - co-constructing
- Dynamic enactment/performing ('dramatic presence')
- Mapping of activities in RE with events in VE

SPATIAL ASPECTS
- Scale and depth
- Layers and borders
- Orientation
- Aligning representations and activities

TEMPORAL ASPECTS
- Memory - traces of the past
- Evolution of an event
- Transformation of a place in time

USER EXPERIENCE
Presence and Interaction

MOBILITY
- Urban rhythms, movement, flow
- Following a path (and the connected story)

AMBIENCE
- Sense of place and cuture
- The 'imaginary'

MATERIAL ASPECTS
- The engaging capacity of objects
- Texture and material

Mixed-reality CONFIGURATION
- Directness
- Immersion
- Reality

AWARENESS CUES - cues about
- Social interaction (members, encounters)
- Communication (exchanges, viewings)
- Activity (usage of the system)
- Sound icons

CONTENT
- Rules and constraints
- Informative content
- Expressive content

MULTIMODALITY
- Dynamic representations
- 3D animation
- Sound scenes - soundscapes
- Fuzziness - abstraction

Urban Renewal

·Creating and Connecting Layers
•Tangible interactions and awareness features

MapLens

- Collaborative and public configuration
- Establishing common ground
- Place making
- Embodied Interaction

TimeWarp

- Social Encounters
- Context and Place
- Layers, Borders and Switches

CityTales

New City Tales

- Temporal presence
- Place making
- Ambience
- Co-construction

Old City Tales

IPCity and Presence

- Move from real vs virtual to affordance based approach (Gibson)
  - Organism and environment are not separated but united in a reciprocal relationship;
  - Organisms perceive in the environment features relevant for actions (affordances);
  - Valid perception is what makes successful actions in the environment possible.
- Understanding role of reality or context in mixed realities (Turner & Turner)

Key Themes

- Presence & *Interaction*
  - Co-construction based on people, objects and locations in multiple dimensions
  - Users purposeful activities
  - Unified experiences
  - Layers and borders
  - Switches in presence

Evaluation Approaches

- in-situ testing
- Questionnaires
- Interviews
- Video analysis
- Trip notes
- Logging

Summary

- Presence has no one definition from RAVE to IPCity
- Presence in mixed reality environments provides richer more diverse and often unplanned opportunities