What is Reality?

~ Morpheus

"signals interpreted by your brain."

"If you're talking about what you can feel, what is real? How do you define 'real'?

"What is Real?"
How do we perceive reality?

We understand the world through our senses:

- Sight, Hearing, Touch, Taste, Smell

Two basic processes:

- Sensation: Gathering information
- Perception: Interpreting information

(such as others)
Simple Sensing/Perception Model
Presence Definition

“Presence is a psychological state in which even though part or all of an individual's current experience is generated by technology, part or all of the individual’s perception fails to acknowledge the role of the technology in the experience.”

International Society for Presence Research, 2016

https://ispr.info
In Simple Terms, Presence is...

"The subjective experience of being in one place or environment even when physically situated in another."

Immersion vs. Presence

- **Immersion**: describes the extent to which technology is capable of delivering a vivid illusion of reality to the senses of a human participant.
- **Presence**: a state of consciousness, the (psychological) sense of being in the virtual environment.

So *Immersion*, defined in technical terms, is capable of producing a sensation of *Presence*. *Presence*: describes the extent to which technology is capable of delivering a vivid illusion of reality to the senses of a human participant.

Three Dimensions of Presence

• Personal Presence, the extent to which the person feels like he or she is part of the virtual environment.

• Social Presence, the extent to which other beings (living or synthetic) also exist in the VE.

• Environmental Presence, the extent to which the environment itself acknowledges and reacts to the person in the VE.

Measuring Presence

Presence is very subjective so there is a lot of debate among researchers about how to measure it. Presence is very subjective so there is a lot of debate among researchers about how to measure it.

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• Subjective Measures
  • Self report questionnaire
  • University College London Questionnaire (Slater 1999)
  • Witmer and Singer Presence Questionnaire (Witmer 1998)
  • ITC Sense Of Presence Inventory (Lessiter 2000)

• Objective Measures
  • Behavioural
    • Reflex/flinch measure, startle response
  • Continuous measure
    • Person moves slider bar in VE depending on Presence felt
    • Presence Slider
    • University College London Questionnaire (Slater 1999)
    • Self Report Questionnaire

• Physiological measures
  • Change in heart rate, skin conductance, skin temperature
  • Behavioural
    • Reflex/flinch measure, startle response
Example: Witmer and Singer (1998)

Witmer and Singer (1998)

- 32 questions in 4 categories/factors

- Control (CF), Sensory (SF), Realism (RF), Distraction factors (DF)

- Answered on Likert scale from 1 to 7 (1 = low, 7 = high)

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<thead>
<tr>
<th>Item</th>
<th>Subscale</th>
<th>Factors</th>
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10. How compelling was your sense of objects moving through space?
9. How aware were you of your display and control devices?
8. How aware were you of events occurring in the real world around you?
7. How natural was the mechanism which controlled movement through the environment?
6. How much did the auditory aspects of the environment involve you?
5. How much did the visual aspects of the environment involve you?
4. How completely were all of your senses engaged?
3. How natural did your interactions with the environment seem?
2. How responsive was the environment to actions that you initiated (or perceived)?
1. How much were you able to control events?
How to Create Strong Presence?

- Use 3 Dimensions of Presence
  - Sensory, Realism factors (Witmer 1998)
  - Interactivity – how much users can interact (Steuer 1992)
  - Internal factors – individual user differences (Sadowski 2002)
  - Using Virtual Body – user can see themselves (Slater 1993)
  - Vividness – ability to provide rich experience (Steuer 1992)
- What Influences Presence
  - Vividness
  - Have environment respond to user
  - Include social actors/agents that interact with user
  - Create rich multi-sensory VR experiences
- Use 3 Dimensions of Presence

How to Create Strong Presence?
Relevant Papers

- More relevant papers include: