CONSIDERATIONS FOR CREATING OR CHOOSING VR CONTENT

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ABOUT STOO

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AGENDA

What we’re going to cover:

1. Motion in VR
2. Attention in VR
3. Immersion and Embodiment in VR

Question 1

Why don’t we want to move the camera?

2 mins: Ponder this in your own head

3 mins: Share with a partner

3 mins: Share with the group

5 mins: #SCIENCE

Question 1

Why don’t we want to move the camera?

Ideas:

Lack of control due to agency (giving and taking away)

creates conflict

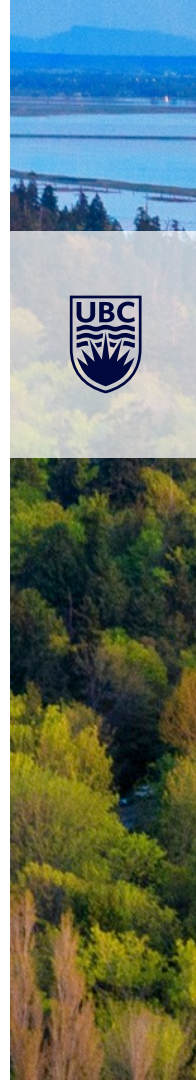
Nausea

Equipment limitations for smooth movement - steady cam?

inclusive to environment and the actors

Perception of Self Motion

- **Vision**
- **Vestibular function of the inner ear**
- **Proprioceptive system in muscle joint receptors**
- **Somatosensory system (nervous system)**
- **Auditory information**

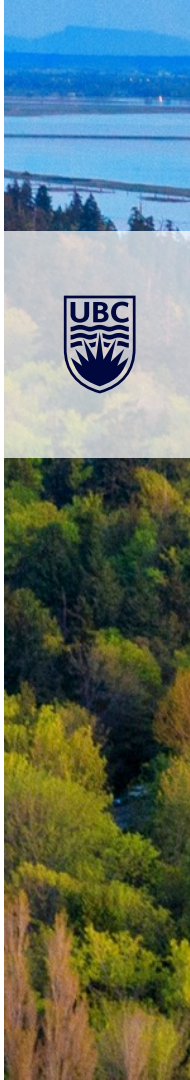


Vision

Vision is able to tell our brains how we are moving based on OPTIC FLOW

Unlike other senses, vision is the only sense that can register any type of motion

Warning: Next slide may induce perception of self motion



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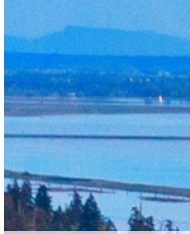
Vection:

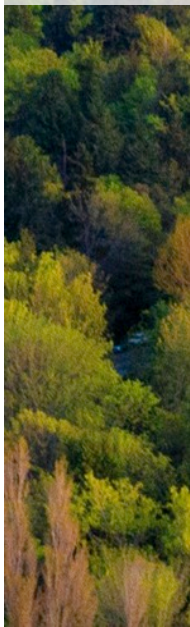
The illusory feeling of self-motion induced in stationary observers (caused by interference between optic flow and other senses)

There is usually a delay when experiencing vection of around 3-10 seconds.

Vection can also be induced after optic flow has ceased.

Self motion usually occurs in this order:
Object > Object + self > self





RULES OF THUMB

Passive Movement

Passive movement (user not moving) usually results in vection and potential motion sickness

If you have to move, keep it slooooooow.

Active Movement

Active movement such as Room-scale experiences with motion tracking usually don't result in vection UNLESS, there are passive elements (Richie's Plank Experience)

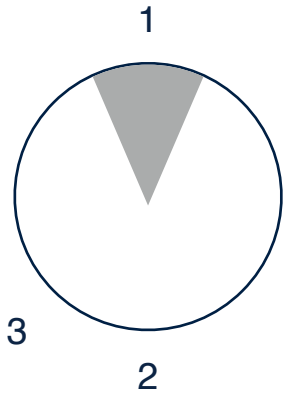
*Many immersive VR experiences will use teleportation as a means to reduce vection

Researchers and Theory

Stephen Palmisano
Benjamin Arcioni
Haruaki Fukuda
Takeharu Seno

Question 2

How can you direct attention in VR / 360 Video?



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Question 2

How can you direct attention in VR / 360 Video?

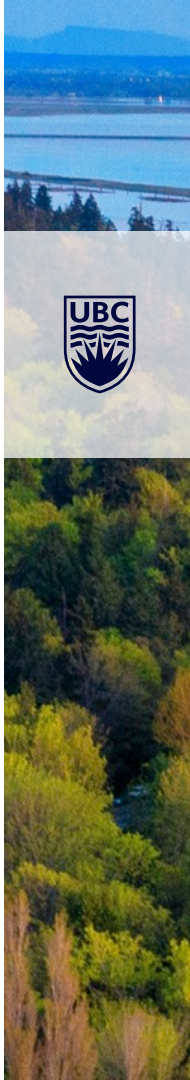
Ideas:

3D audio, audio cues for exploration (sound without a visual source), light contrast in per (hotspots?), disruption of static scene with movement, pointing, other agents reaction, gestures, there should be a payoff (amiright?), focus point (blurs, contrast, etc.), tell them, arrow.

EVOLUTIONARY EDUCATIONAL PSYCHOLOGY

We are evolutionarily predisposed to integrate certain knowledge.

Biologically Primary Knowledge	Folk Psychology Folk Physics Folk Biology
Biologically Secondary Knowledge	Anything we need school for



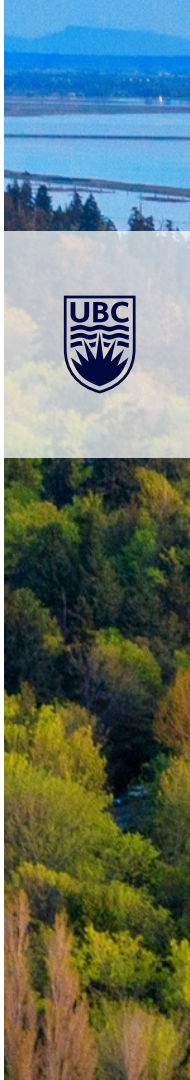
We are evolutionarily predisposed to integrate certain knowledge.

Biologically Primary Knowledge

Folk Psychology
Language Acquisition, Body Language, Social Cues

Folk Physics
Object Motion, velocity, trajectory, etc.

Folk Biology
Classification of plants and animals, colour meanings, etc.



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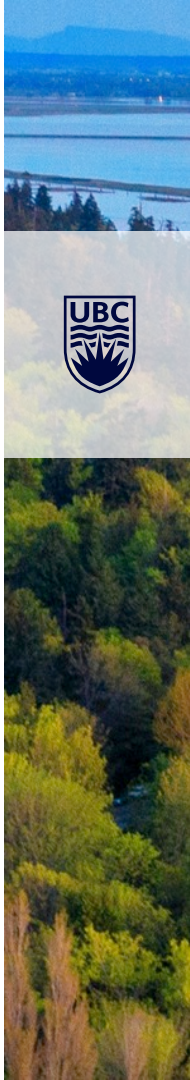


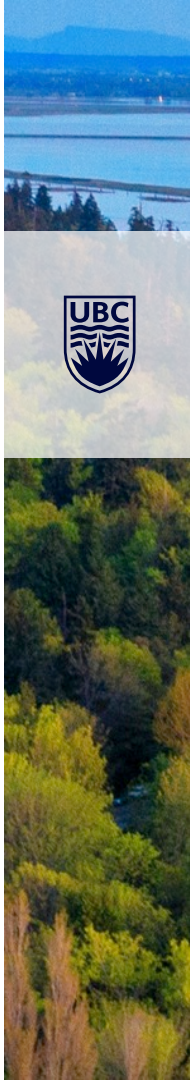
EVOLUTIONARY EDUCATIONAL PSYCHOLOGY

We are evolutionarily predisposed to integrate certain knowledge.

Biologically Primary Knowledge

can be leveraged to support the acquisition of

Biologically Secondary Knowledge



RULES OF THUMB

Visual

Use pointing gestures

Eye gaze also helps

Objects as reference

360 Video cues (arrows, icons, etc.)

Auditory

Use Landmarks and other markers

Verbalize direction they need to turn

Don’t rely on ‘3D sound’

NOTE: Remember to think about users who may be deaf or hard of hearing

Researchers and Theory

David Geary (Ev Ed Psych)
Fred Paas (CLT)
John Sweller (CLT)

Question 3

How might VR affect our perception of:

- our bodies?
- our environment?
- our actions?
- others' experiences?

How might these change based on the type of tech we're using? (VR/AR/MR/360 video)?

Question 3

How might VR affect our perception of:

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Ideas:

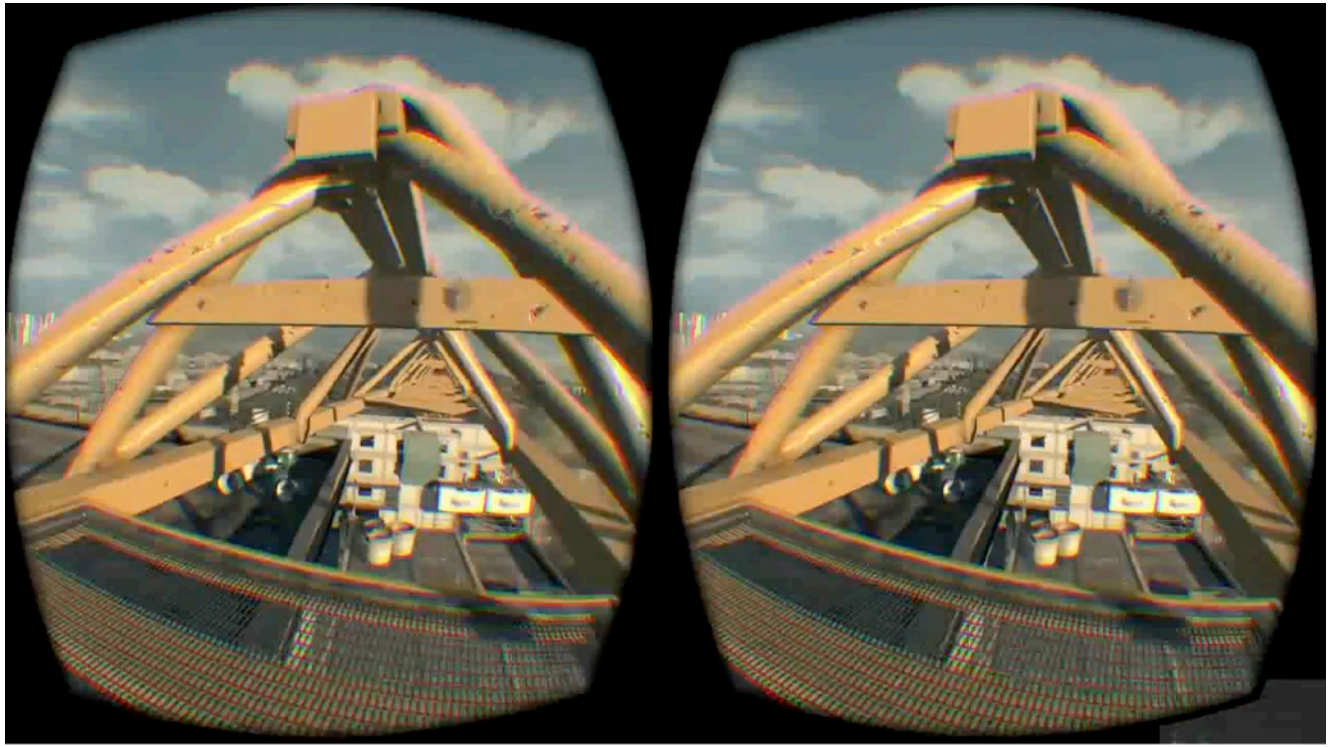
Memory IRL vs Virtual, cultural understandings may shift, regrouping us in reality, potential to separate ourselves from 'the real', promote creativity and imagination, improve problem solving by 'extending' reality, watching vs experiencing.

PERCEPTION OF SELF, ENVIRONMENT AND OTHERS IN VR

Rubber Hand illusion

PERCEPTION OF SELF, ENVIRONMENT AND OTHERS IN VR

Fear of Heights



PERCEPTION OF SELF, ENVIRONMENT AND OTHERS IN VR

What about empathy?

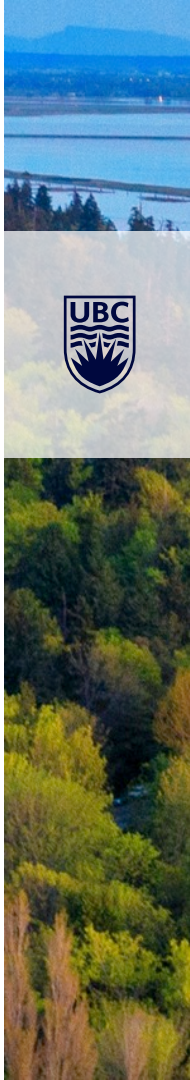
Which Lens are we looking through?

Avatar or Self? (First or Third Person)

Uncanny Valley?

Metaphorical control mechanisms?

Context of the environment - screen or HMD?



PERCEPTION OF SELF, ENVIRONMENT AND OTHERS IN VR

Are our users observers or participants?

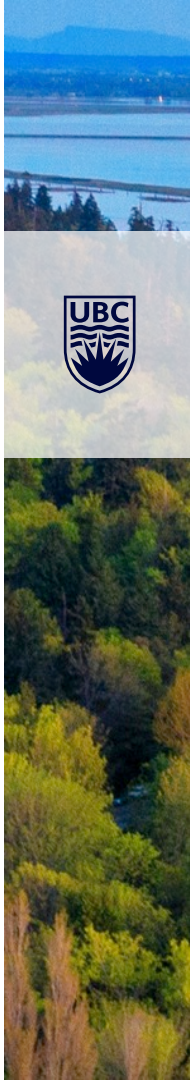
Do we want them to feel the moral or psychological effects of the experience?

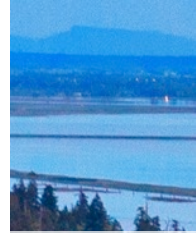
360 Video reporting from al-Qasr, Aleppo, Syria
https://www.youtube.com/watch?v=VI4sPuwvOVk

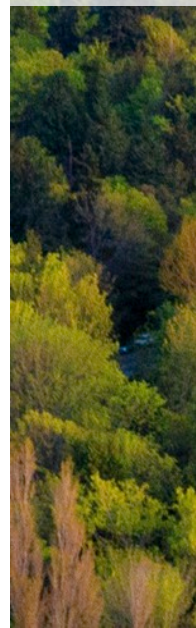
Battle of Waterloo
https://www.youtube.com/watch?v=Bj1aVW3LuVo

WWI Experience - VR?
https://www.youtube.com/watch?v=AJ6c0v7mzAw

A Letter from the Trenches
https://www.youtube.com/watch?v=m7h4XuvLrmg







Question to consider when choosing / creating:

Does the level of immersion / embodiment exist on a spectrum?

RULES OF THUMB

When creating 360 Videos, be mindful of…

Potential effects on self image

Whether user will be observer or participant

How a dramatisation in either role may affect learners

How a choice in technology may affect all of the above

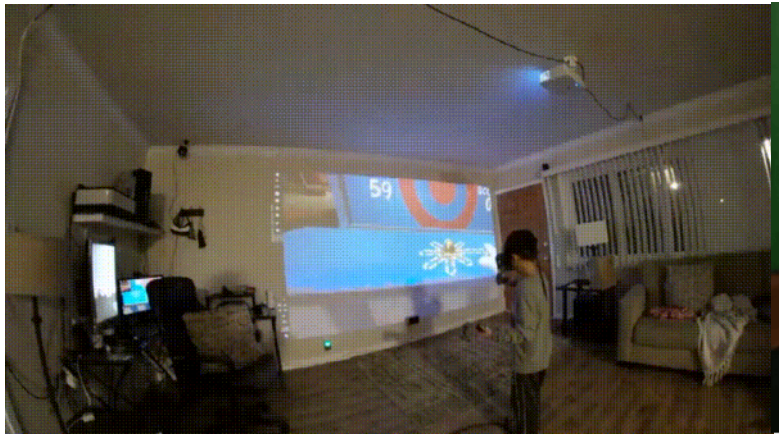
NOTE: Disclaimers are always good.

Researchers and Theory

Brain Plasticity (Rubber Hand Illusion)
Transformative Learning
Stephen Gadsby (self image in VR)

NOTE ON FILMING

Backup plans are good. Shoot some 360 photos in case your footage turns out to be less than Citizen Kane.

QUESTIONS? COMMENTS?

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