

Virtual Reality and the Person- Environment Experience: Research and Clinical Implications for Occupational Therapy

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Person-Environment Experiences

- Environmental centralization
- Entexturing
- Environmental personalization



Environmental Centralization

- Refers to the way the environment is manipulated over time to accommodate increasing limitations of the body through closing off peripheral areas and the concentration of activity space in central zones

- (Adapted from Rubinstein, 1989)



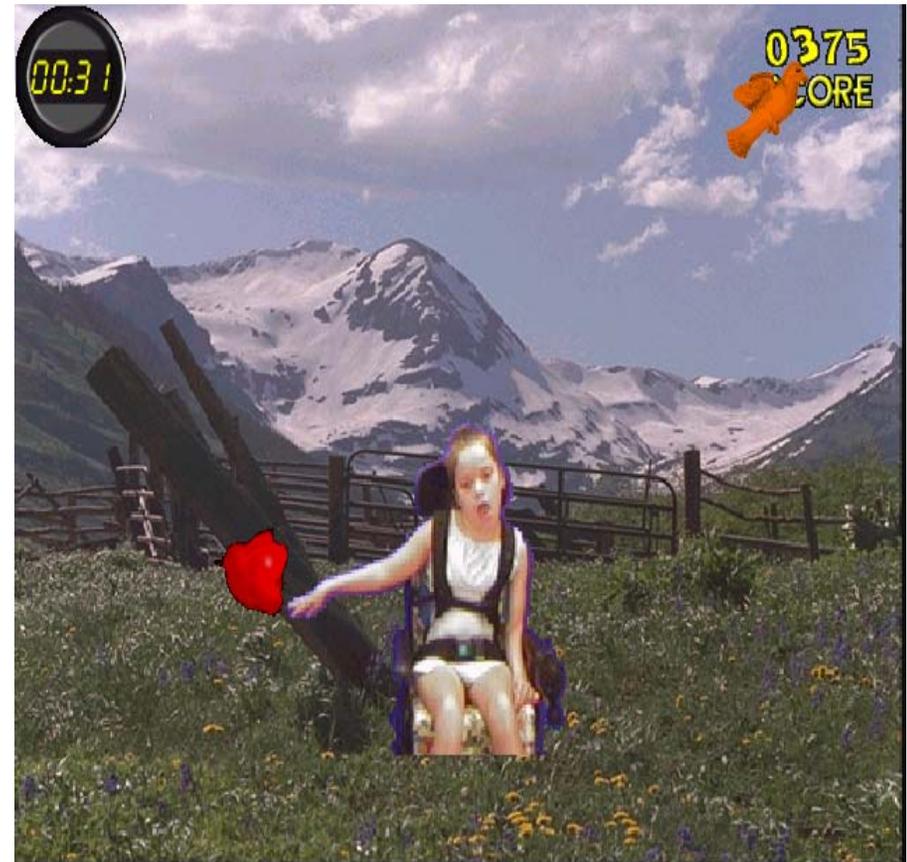
Environmental Centralization (example)

- Person is centered in space
- Person can interact with the activity and play the drums with ease even though she has a stroke



Environmental Centralization (example)

- A child with cerebral palsy can play a reaching activity from her wheelchair



Entexturement

- An individual's regulation of activity, of aural and visual stimuli, and colour and other sensory stimuli that surround the body in order to produce, if possible a finely articulated and satisfying whole.



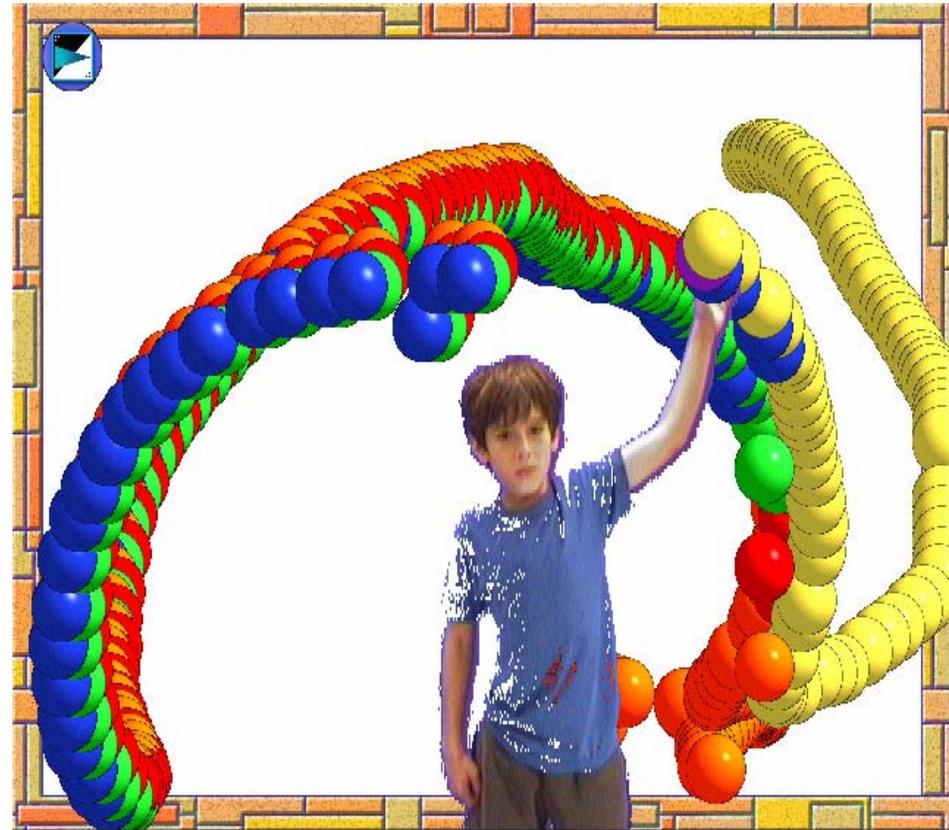
Entexturement (example)

- Responds to sounds of music



Entexturement (example)

- painting



Environmental Personalization

- Involves a certain degree of involvement with the environment
- Taking possession, completing it, and changing it

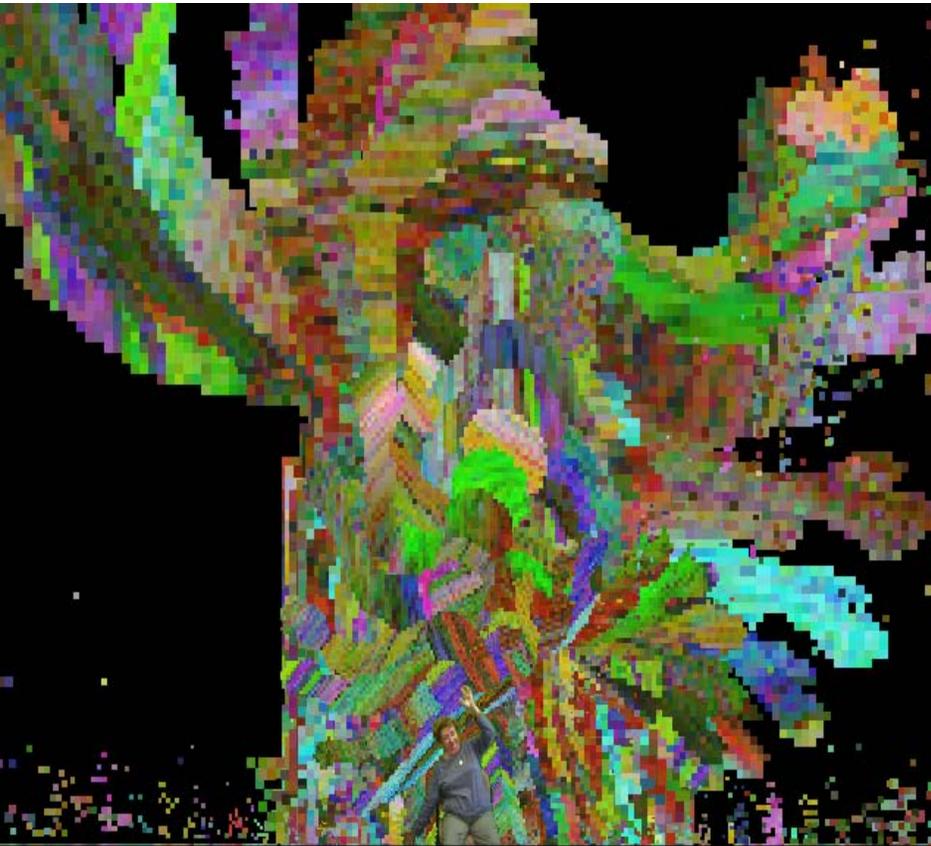


Environmental Personalization (example)



- Changing environment background colour
- Creating colourful designs

Environmental Centralization (example)



- Movements change colors on screen and shapes

Video

A model of Playfulness and Flow in Virtual Reality Interactions

- Playfulness is associated with characteristics that include motivation towards the accomplishment of self-imposed goals and tendencies toward active involvement.
- (Adapted from Rubin, Fein, & Vandenberg, 1983; Glynn 1992)

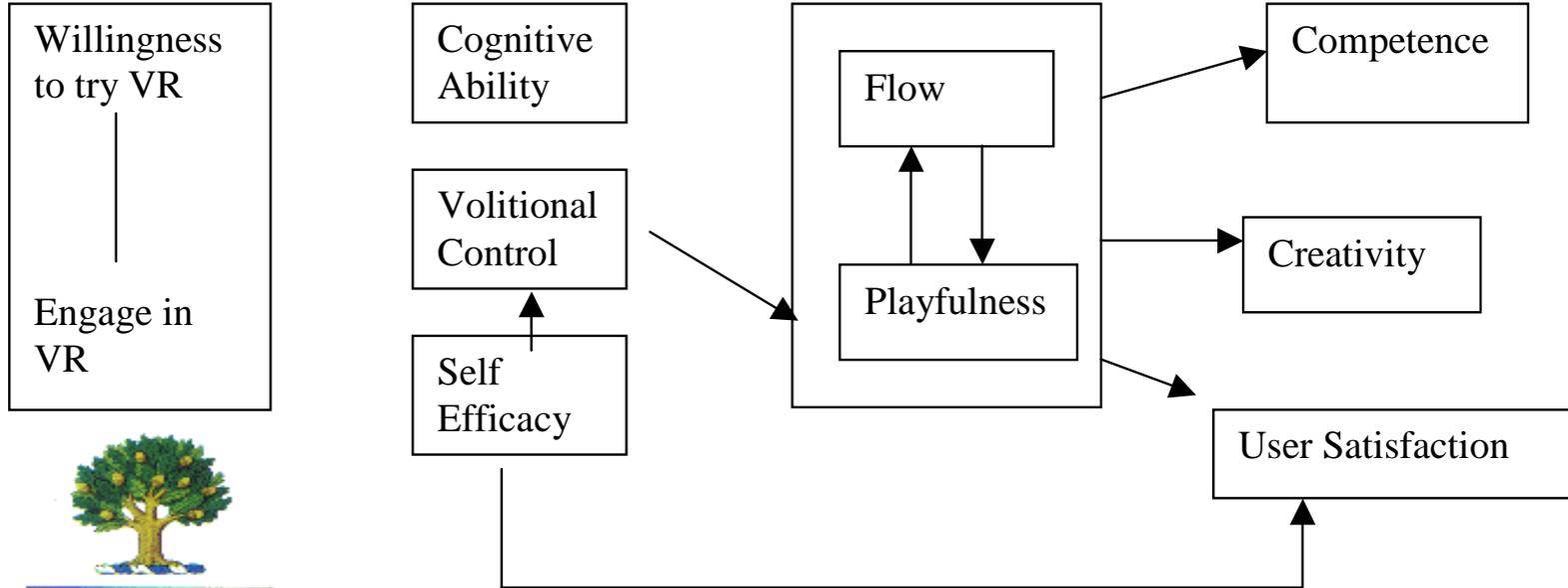


A model (continued)

- Flow theory states that individuals are happiest when challenges and skills are balanced.
- Individuals who enjoy an activity will want to repeat it.
- Individuals lose themselves in the a
- (Adapted from Csikszentmihlyi, 1990)



A model playfulness and flow in VR interactions



Hypothesis 1

- Self Efficacy in virtual reality computer applications is positively related to user satisfaction
- self-efficacy study (Reid, 2002)



Hypothesis 2

- Volition in virtual reality computer applications is positively related to playfulness
- (Reid, 2004; Harris & Reid, 2005)



Hypothesis 3

- The flow state is positively related to playfulness
- (Miller & Reid, 2003; Reid, 2004)



Hypothesis 4

- Flow and playfulness are positively related to creativity with interactions with the VE.
- Unpublished Case studies



Hypothesis 5

- Playfulness and the flow state is positively related to competence building
- Postural control and upper extremity studies (Reid, 2002b, 2002c)



Hypothesis 6

- Flow and playfulness is positively related to user satisfaction with virtual reality applications



Conclusions and Future Directions

- Test all aspects of model
- Involving other populations
- More development work
- Include other constructs to model such as function and presence





Implications for OT

- Play/leisure participation can be reinforced through a virtual reality method
- Can use virtual reality at home with existing TV
- Can support caregiver to support leisure participation of disabled person at home
- Psychosocial, functional and motor gains are reinforced through VR; useful tool in the clinic
- Wide applicability (elderly and children)