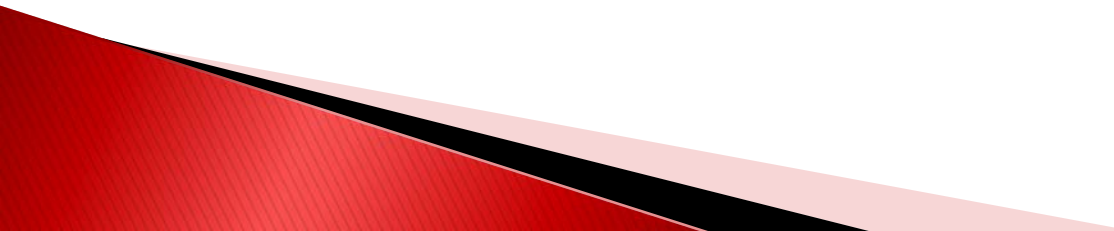


# An Analysis of Task Structure, Media Type, Learner Engagement, and Critical Thinking Skills in a Tutorial Designed to Teach Learners to Critique a Work of Art.

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# Purpose of study

This research study proposes to add to the body of knowledge about presence by analyzing the relationships of media and user engagement in the context of specific types of learning tasks.



# Why?

Some recent studies report that

young adults spend spend 10 hours per day in front of screens composed of pictures and words

(NAEA ,2011).

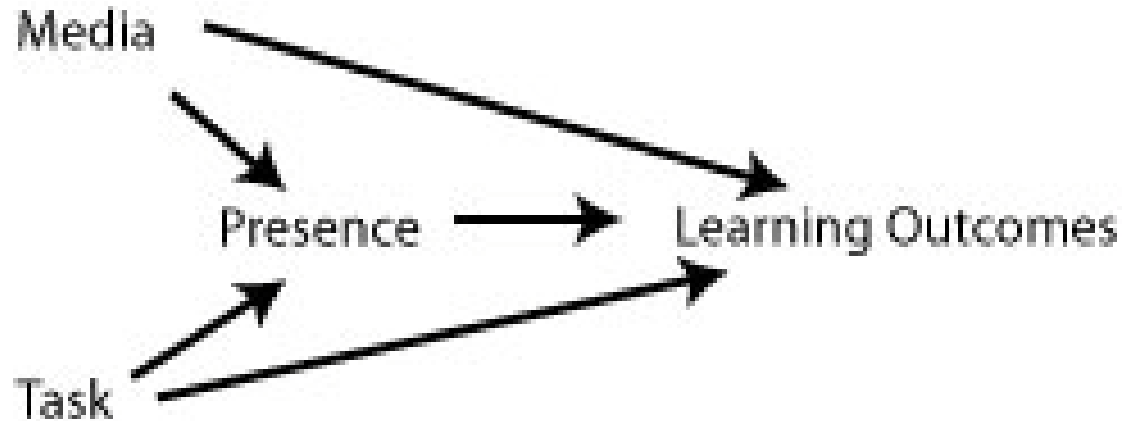
How can these media forms be used most effectively in education?

# Questions

- ▶ Are learners more engaged with highly immersive media?
- ▶ Does this engagement influence learning outcomes?
- ▶ Does engagement with media (measured as spatial presence) mediate learning outcomes?

This study will use a modified version of the Witmer & Singer Presence Questionnaire (1998) to measure participants' engagement with media.

# Hypothesis



The immersive characteristics of the media and the structure of the learning task may influence both the learner's engagement with media (spatial presence) and learning outcomes.

# Definitions: Immersive media

*Immersive media* cause

users to overlook technology, focus their attention on objects, events, entities, and environments, which the technology presents (Slater, 2001).

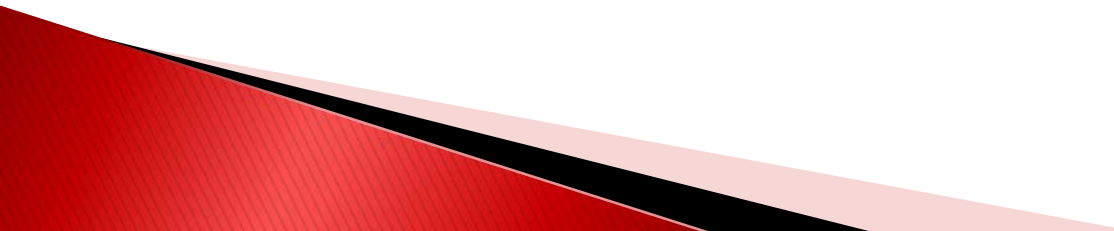
## Definitions

***High immersion media*** = Rich visual graphics to simulate a three dimensional environment, and naturalistic user control

***Low immersion media*** = static two dimensional graphics and limited user interactivity

# Definitions: Presence

Immersion, engagement and psychological involvement with media are known as presence, a shortened form of the term *telepresence* (ISPR, 2000).





# Spatial Presence

Spatial presence occurs when the user's conscious focus of attention is on a mediated environment (rather than social entities in the environment).

The user who is experiencing spatial presence in media will deliberately disregard distracting elements in the real environment to stay focused on the media presentation (ISPR, 2000b; Slater, 2002, Waterworth & Waterworth, 2001).

# Possible benefits of immersive media

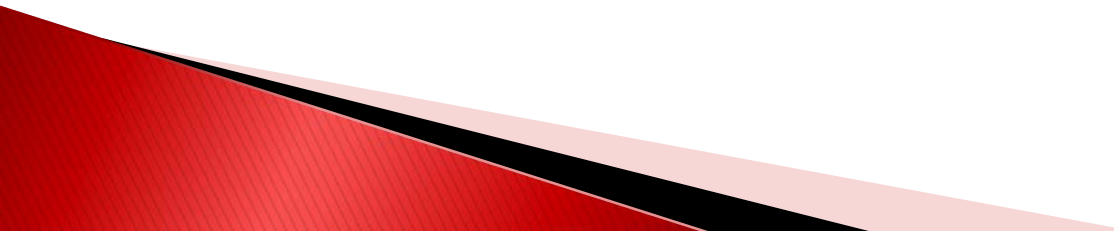
Some researchers suggest that **immersive media** can support **knowledge construction** (Kontogeorgiou, Bellou, & Mikropoulos, 2008), **empower learners** or **stimulate learner engagement and motivation** (de Freitas, Rebolledo-Mendez, Liarokapis, Magoulas, & Poulouvassilis, 2009).



# Possible benefits of immersive media

The participant's awareness of being in a dual environment, the real and the virtual (spatial presence), willing suspension of disbelief, and cognizance of the possibility for action in both the real world and the virtual world may help develop a disposition for **meta-cognitive thinking**

(Antonietti & Cantoia, 2001, Ijsselsteijn & Riva, 2003).



# Measuring Participants' Engagement with Media

using a modified version of the Witmer & Singer Presence Questionnaire (1998) – a subjective self-report questionnaire

Sample questionnaire item

▶ How compelling was your sense of navigation inside the tutorial environment? (Control factor, Involvement)

1 = Not Compelling, 4 = Moderately Compelling,

7 = Highly Compelling

# Measuring Participants' Learning Outcomes

## Rubric for evaluation of participants' art critiques

### **Evaluation:**

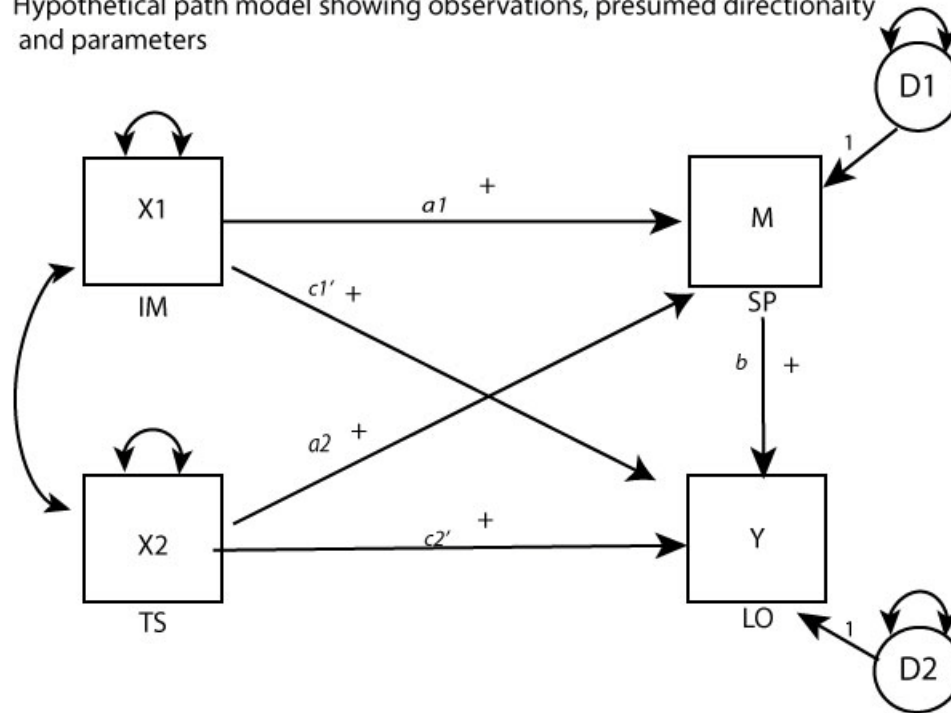
Makes a value judgment about overall success of the painting based on features described and analyzed. Compares, concludes, evaluates, interprets, defends, relates, explains,

### **Creativity:**

Observations and analysis are original, complex, descriptive and task relevant. Makes novel connections. Combines description and analysis of elements of art and principles of design into a central coherent theme. Suggests other approaches or interpretations.

# Hypothetical Path Analysis

Hypothetical path model showing observations, presumed directionality and parameters



In the proposed model, task structure and media immersion have direct effects on spatial presence and learning outcomes, and indirect effects on learning outcomes, mediated by spatial presence.

# Research Design

	Task Structure Well Defined	Task Structure Ill-Defined	Total
Immersion High	50	50	100
Immersion Low	50	50	100
	100	100	200

# Who

## Participants

- ▶ Participants will be volunteers, 200 college students enrolled in online undergraduate courses in art history, humanities, or visual communications.



# How

Participants will view a presentation on how to write a formal art critique using the Feldman method of image analysis.

Then they will view a reproduction of a work of art presented in 2D or interactive 3D

They will be asked to answer well structured or ill-structured questions about the work, and finally to write a critique.

Last, they will complete the Presence questionnaire, a subjective self-report survey of their experience of spatial presence and engagement with the media.

## Sample Essay Questions – 2D version

- ▶ Describe the forms you see in the painting.
- ▶ Describe the relationships of the forms- What shapes or forms are repeated or are similar; what shapes or forms contrast with each other?



1. What forms or shapes are repeated? List three shapes that are repeated.

Image Analysis

Font family | Font size | Paragraph | [Icons]

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[Icons]

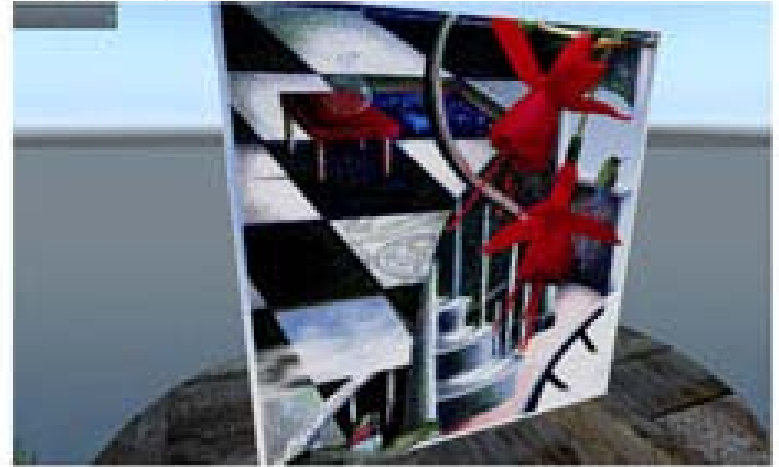
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## Sample Essay Questions 3D version

- ▶ Describe the forms you see in the painting.
- ▶ Describe the relationships of the forms- What shapes or forms are repeated or are similar; what shapes or forms contrast with each other?

Use your mouse and arrow keys to navigate around the image in the 3D space



Describe your reaction to the painting, what you see in the painting, the shapes, forms, and images and their relationships to one another.

Image Analysis

Font family | Font size | Paragraph

Rich text editor toolbar with icons for bold, italic, underline, text color, background color, bulleted list, numbered list, link, unlink, undo, redo, and other editing functions.

Path: p

HTML format

# Thank you!

A complete list of references is available with the printed and online paper.

For further information about this research study,  
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