

Virtual museums and educational online environments

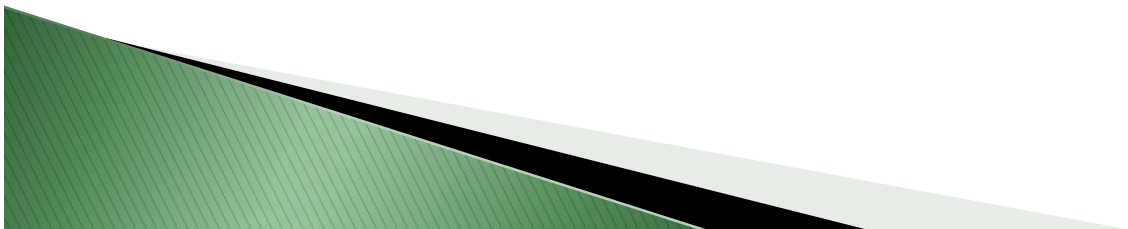
University of North Texas
Autonomous University of the State of Mexico
Joint Research

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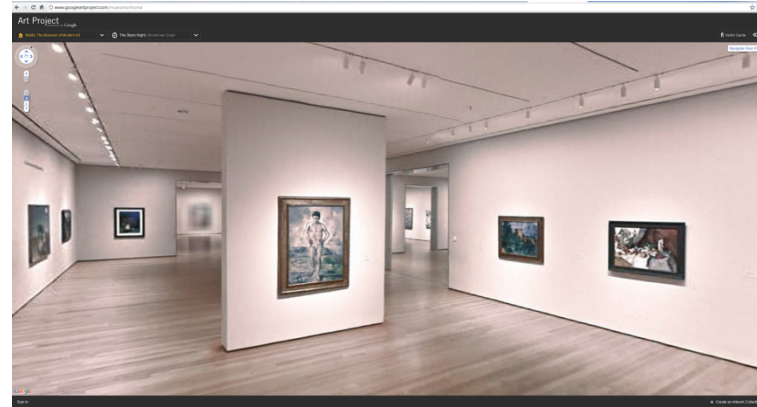
Research Questions

- ▶ Can a virtual museum tour offer the same knowledge acquisition as a real one?
- ▶ What technical challenges do users of a virtual environment encounter?
- ▶ Can a virtual museum tour be as engaging as a real one?



Other projects:

Sistine Chapel, Google Art, INAH Mexico, Smithsonian Latino Virtual Museum, and many more...

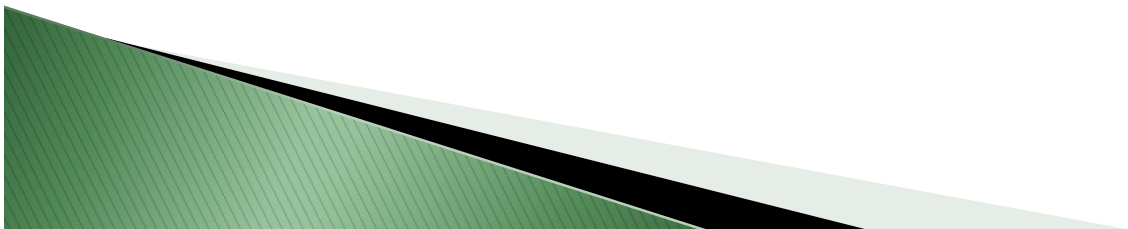


UNT/UAEM Joint Research

(May 2010)

- ▶ Visit to Toluca, Mexico to select museum.

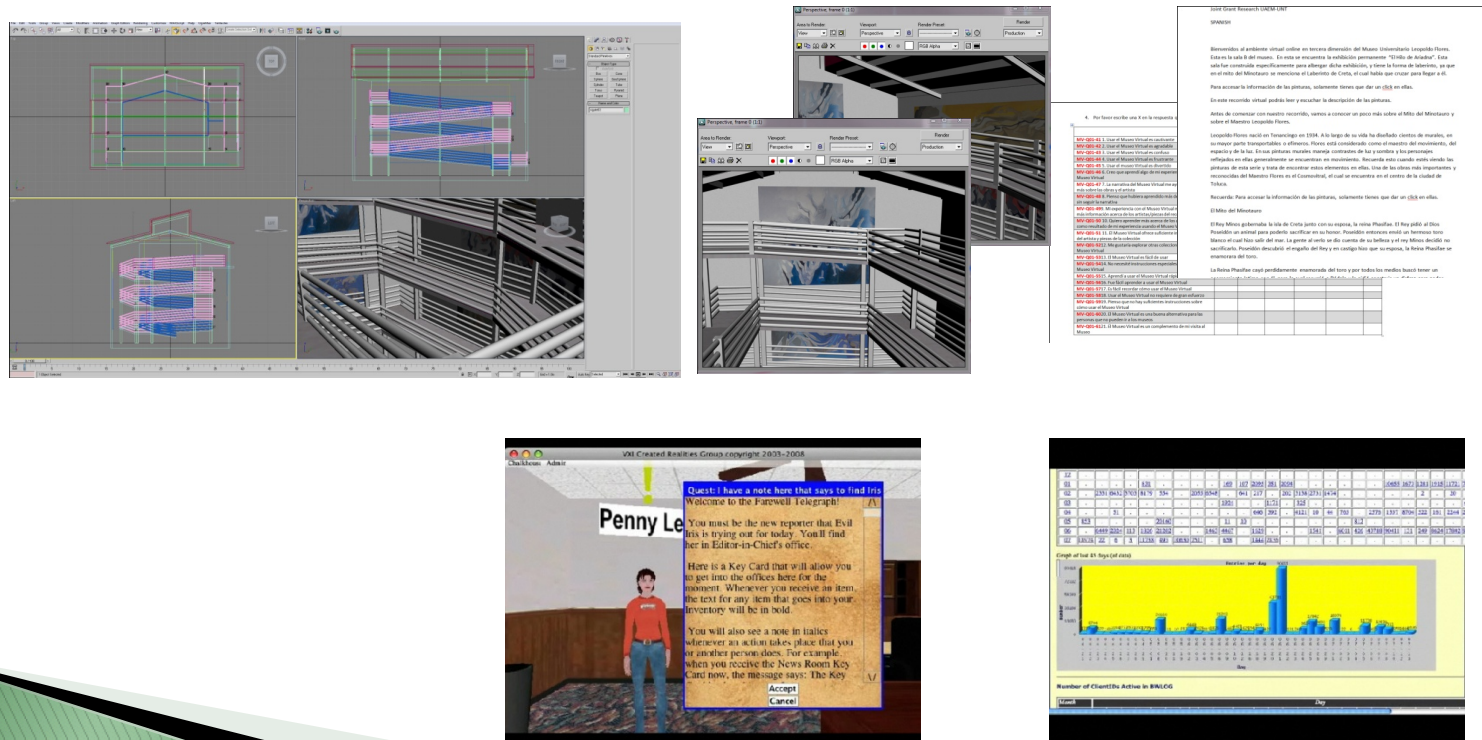
University Museum “Leopoldo Flores”



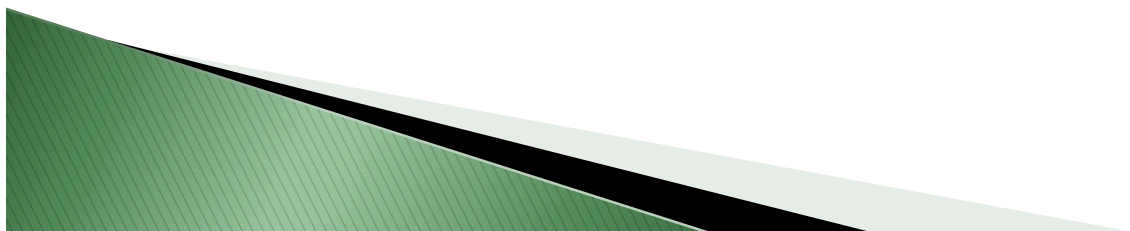
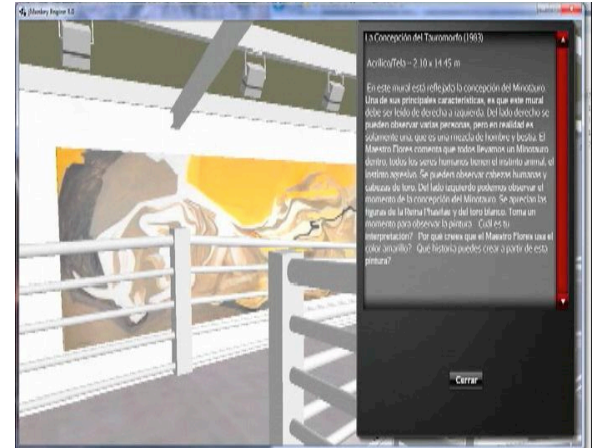
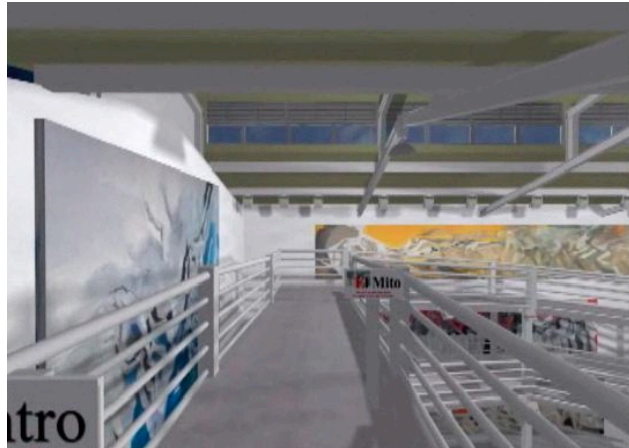
Process

(Jun–Oct. 2010)

- ▶ Development of the 3D environment using 3D Studio Max, Adobe Photoshop and CRG.
- ▶ Development of instruments and content.



Virtual Environment



Research

(Dec. 2010)

- ▶ Data collection

(Jan.–Mar. 2011)

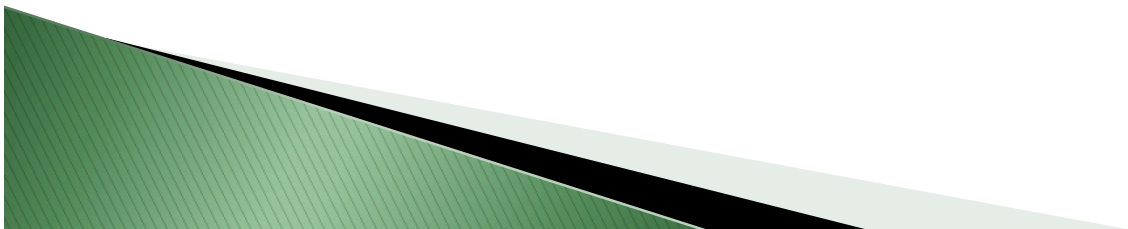
- ▶ Data analysis



Methods

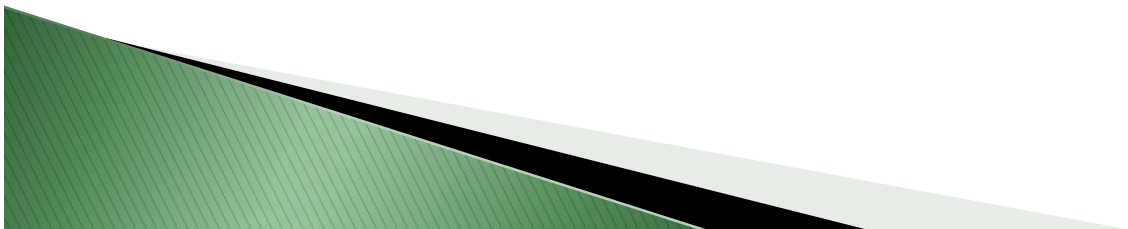
Using mixed methods

- ▶ Personal interviews (semi structured. Video recorded)
- ▶ Observations in museum tour and virtual tour (video recorded)
- ▶ Survey about satisfaction (Likert-like scale)
- ▶ Survey about usability (Likert-like scale)
- ▶ Group interview (Semi structured. Video recorded)
- ▶ Questionnaire (pre-post test)



Sample

- ▶ 16 undergraduate students (10 female, 6 male) from 18 to 23 years.
- ▶ All of them students from the College of Architecture and Design, UAEM
- ▶ Divided randomly in 2 groups
- ▶ 81% have been using computer's software for over three years
- ▶ All of them have been using internet for over two years
- ▶ 62% do not play online games, 38% play one or two days per week
- ▶ 75% use social networks on a daily basis
- ▶ 83% use e-mail every day



Day 1

- ▶ Pre-test
- ▶ **G01** visited the museum
 - Post-test
 - Museum visit satisfaction survey
- ▶ **G02** used the virtual environment
 - Post-test
 - Virtual museum satisfaction survey
 - Usability survey



Day 2

- ▶ **G01** used the virtual environment
 - Virtual museum satisfaction survey
 - Post-test
 - Usability survey
- ▶ **G02** visited the museum
 - Museum visit satisfaction survey
 - Post-test



Day 3

- ▶ Personal interviews with semi structured questions.

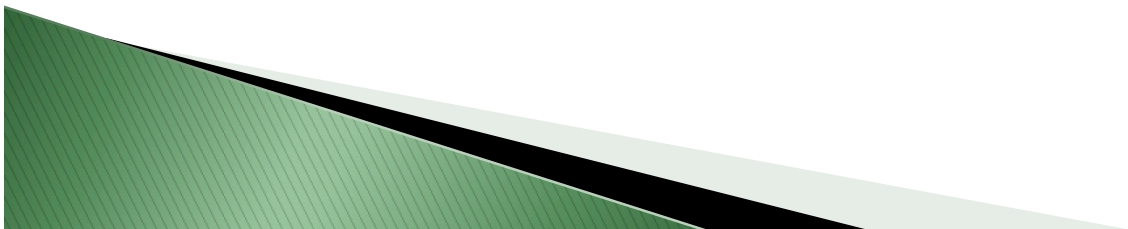
Day 4

- ▶ Group interview (semi Structured questions)
- ▶ Informal interview with tour guide



Analysis

- ▶ Usability
- ▶ Student satisfaction
- ▶ Knowledge acquired
- ▶ Preferences
- ▶ Instrument validity

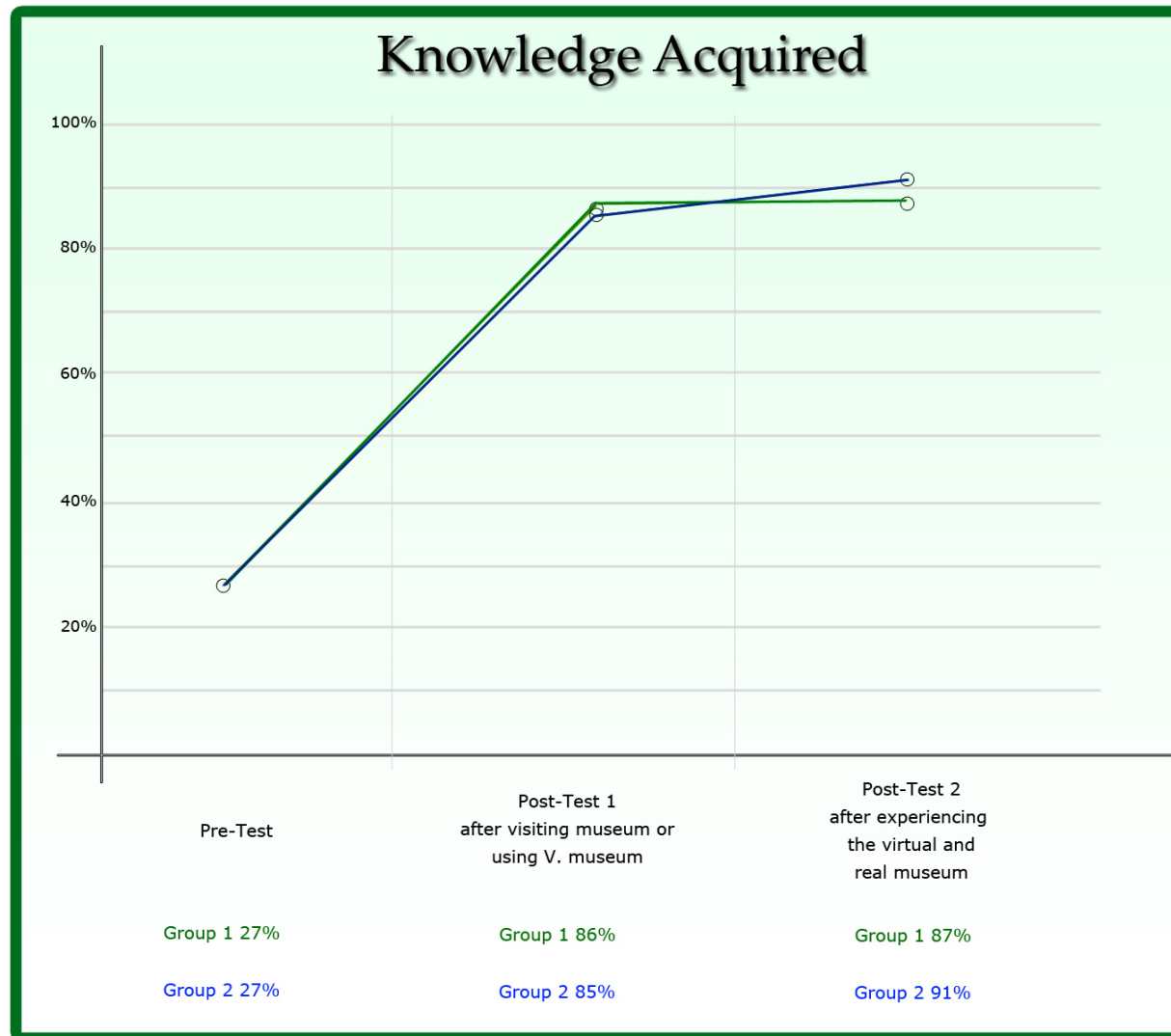


Findings

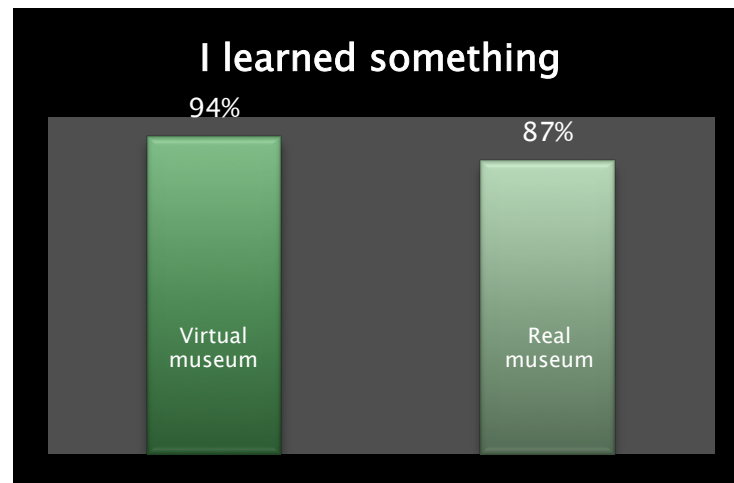
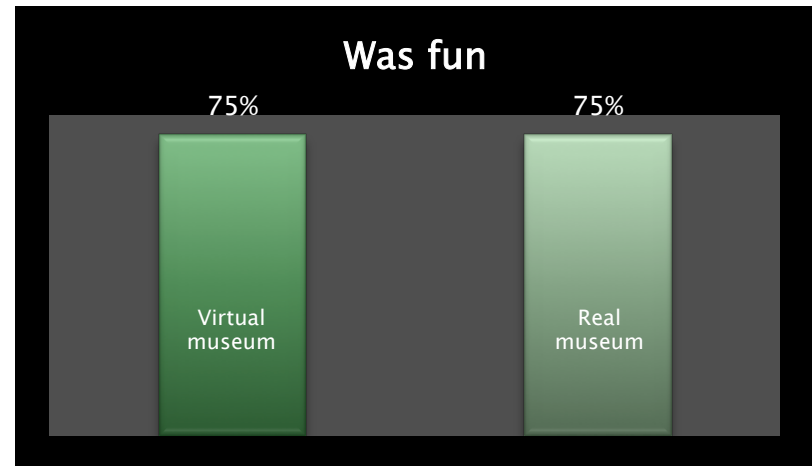
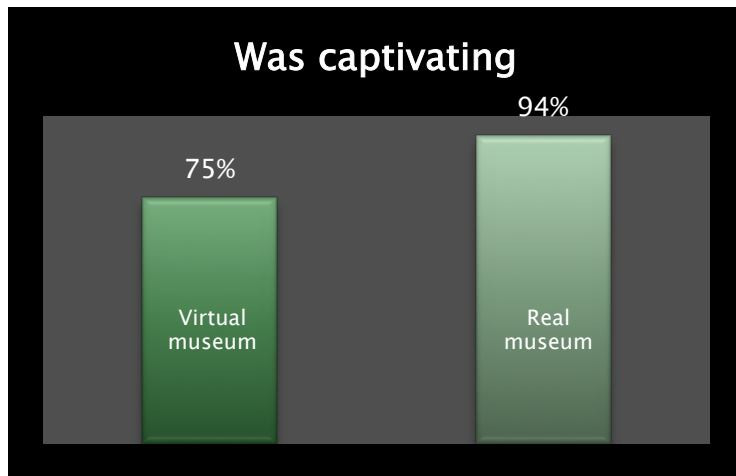
One-way ANOVA

Group 1 went to the museum

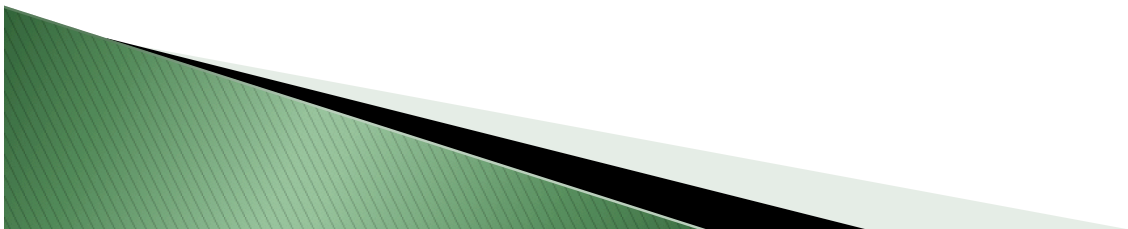
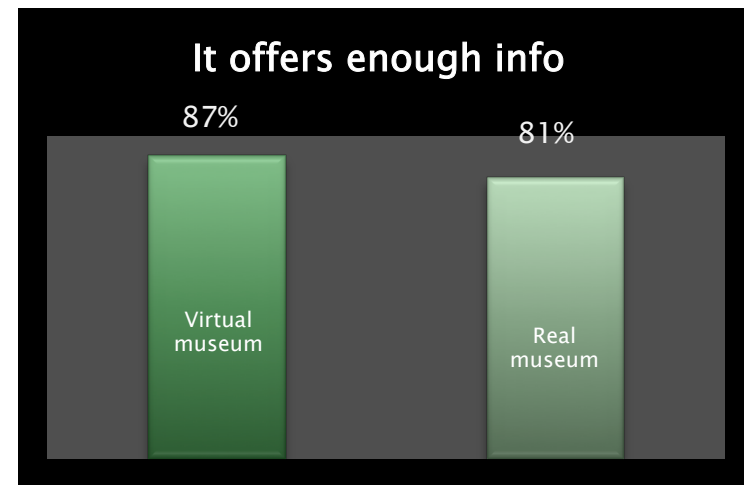
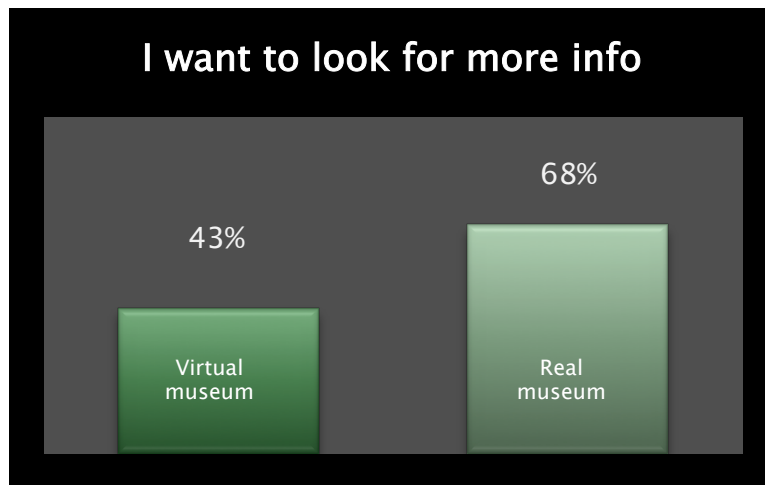
Group 2 took the virtual tour



Findings



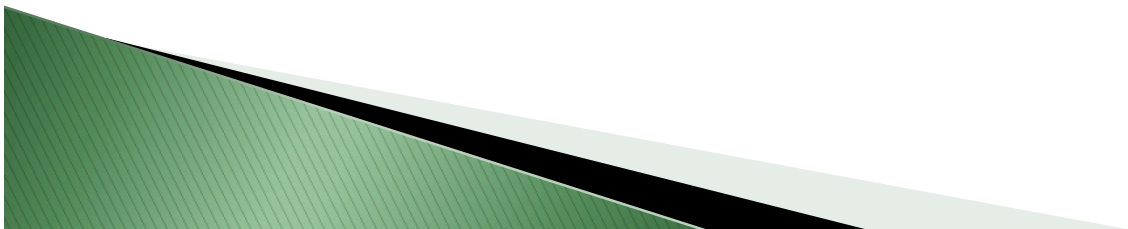
Findings



Findings

Usability in virtual museum (frequencies)

- ▶ 87% strongly or moderately agreed when asked if the virtual museum was easy to use
- ▶ 56% did not need special instructions to use it
- ▶ 93% consider the virtual museum is a good alternative for those who cannot go to the museum.
- ▶ 75% said a virtual visit can be a complement for the museum visit.



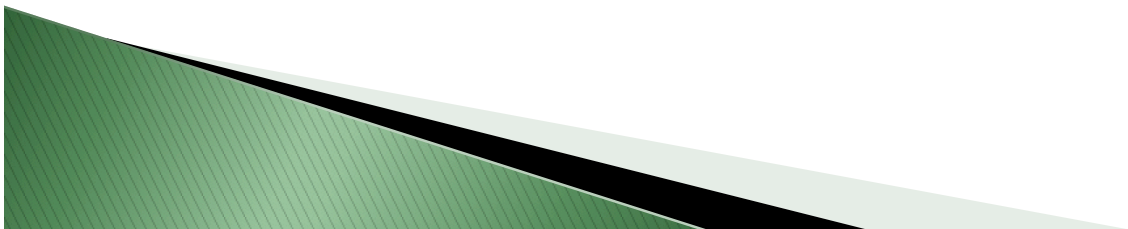
Findings

Did like:

- ▶ Ease of use
- ▶ Similarity to the real one
- ▶ Can use it over and over
- ▶ Is fun to use

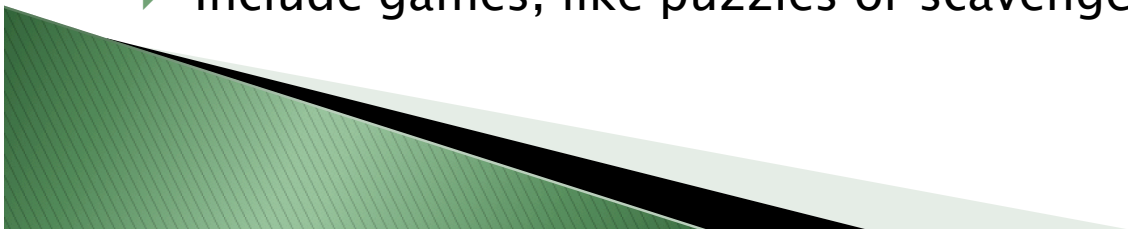
Did not like:

- ▶ Voice
- ▶ Movement in the environment



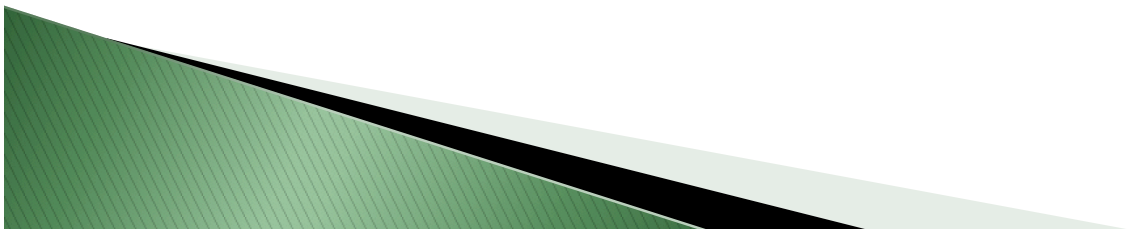
Future research and improvements

- ▶ Include a short visual explanation at the beginning of how to use the environment
- ▶ Include a visual aid on the places you can click
- ▶ Include a button to stop or play sound
- ▶ Include the option to play music, even different types of music
- ▶ Include an avatar to guide you
- ▶ Be able to zoom in on the paintings or even open them in a new window
- ▶ Have external links to get more information
- ▶ Include games, like puzzles or scavenger hunts



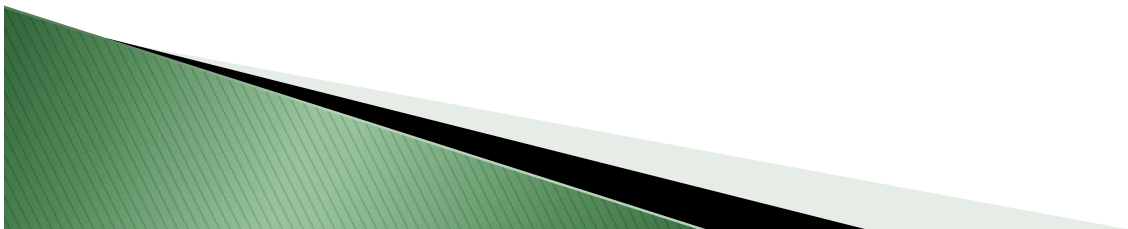
Future research and improvements

- ▶ “the big advantage is that many people don’t have the possibility or time to go to a museum to see an exhibition, so with the virtual exhibition, the virtual environment is the closest thing you have to see the pieces and obtain information...”
- ▶ “the big advantage is the time, for example I can access the information as many times as I want, while if I go to the museum and I don’t understand something, I have to go back again”
- ▶ “I was disappointed to see the colors of the virtual museum after I already had seen the real colors in the museum. You could not appreciate the pieces in the same way”



Future research and improvements

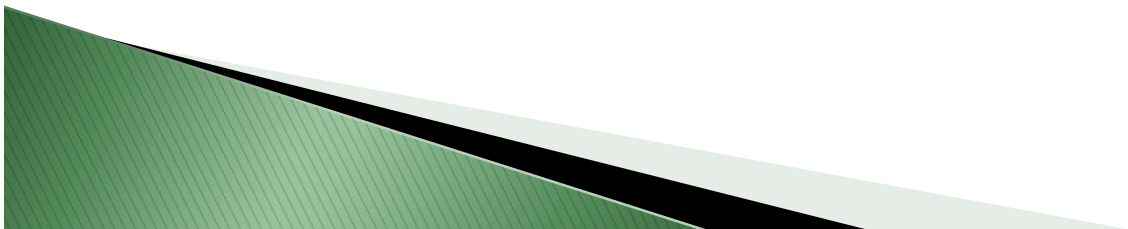
- ▶ “I was in the second group and I think it was perfect to have first the virtual tour, because when I went to the museum I already had an idea of what I was going to find, and it was clear to me the story of the paintings. It was a good complement and I felt better in the museum because I was more connected with the artist’s work”
- ▶ “I had the virtual visit first, it was very interesting to have the virtual visit first because it gives you more information about the paintings... it gives you the idea of what to see, and when you are in front of the real paintings you can appreciate them more clearly... you have that contact between you and the work”
- ▶ “The virtual tour is a tool that encourages you to visit the real museum”



Future research and improvements

- ▶ “...about the two groups that visited the museum... I saw a huge difference, the first group came with zero information, they were very self-conscious, they didn't participate a lot... the second group came and they had the information already, they were very participative, I felt like they arrived like 'I want to see the paintings!', they came prepared to give their critique and opinions, to comment on Leopoldo Flores' work. It was interesting for me because it was sort of a feedback from them to me...”

Guide tour

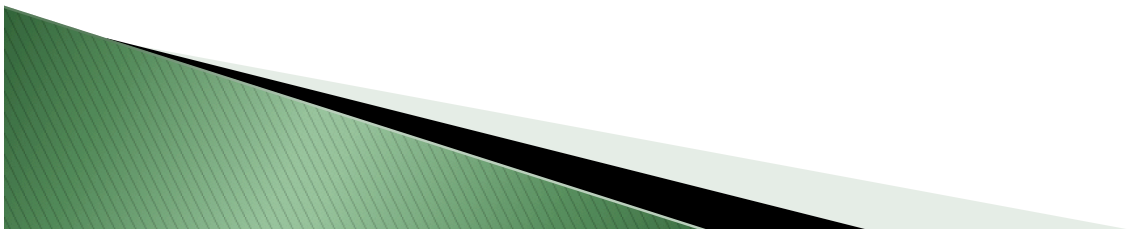


Future research and improvements

- ▶ **Project Frame:**

- Analyzing discourse in a museum tour, and how it is affected by having previous knowledge of the exhibition delivered in a virtual environment.

UNT – Dallas Museum of Art, starting Summer 2011



Questions?

Thank you!

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