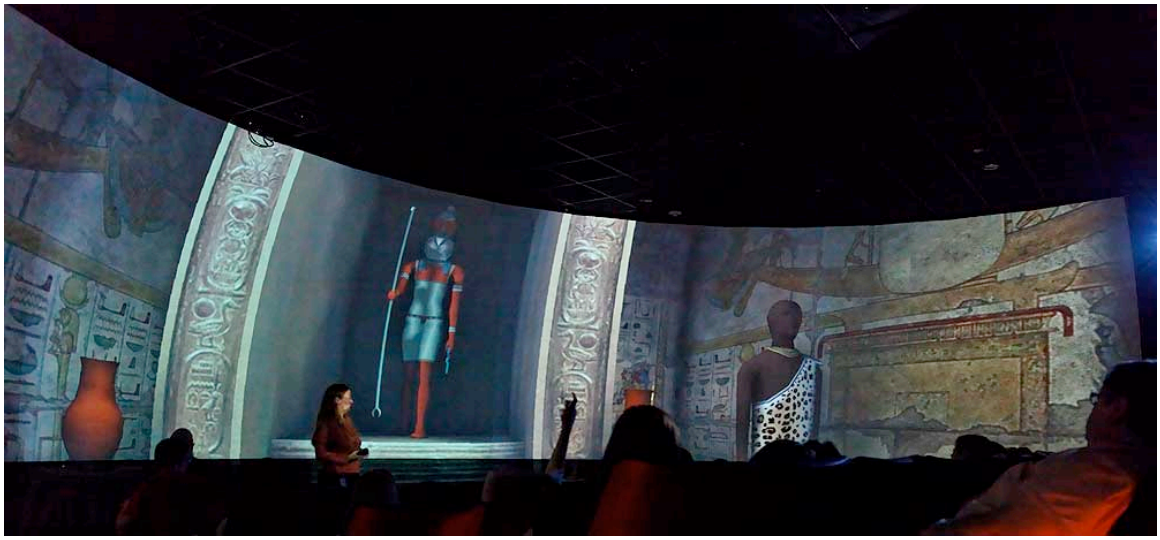
Virtual Space, Virtual Puppet, Authentic Experience

Megan Johnston[1], Harvard Graduate School of Education
Jeffrey Jacobson[2], PublicVR



This paper examines the narrative challenges in developing guide-audience interaction in a museum setting when both the exhibit space and the guide are virtual. Specifically, we have developed a prototype narrative for a human controlled pedagogical agent (an electronic puppet) to engage with live audiences in an all digital theater. The topic is ancient Egyptian temples, the role of their priests, and their significance to ancient Egyptian society.

Currently, audiences at Pittsburgh's Carnegie Museum of Natural History enjoy guided tours through a virtual ancient Egyptian temple in their all-digital partial dome theater. The temple is an archetypical model of a "House of the Gods" from the New Kingdom to Ptolemaic period, and thematically tied to the museum's (physical) Egypt exhibit. Work on the temple is ongoing; PublicVR (the lead organization) partners with several educational institutions to design the temple's digital components, create ambient sound, and advise for historical accuracy. In the tour, a live educator controls virtual movement through the temple, engaging with the audience in a guided tour of the temple. The educator discusses the symbolism in the architectural elements of the temple, with secondary focus on the temple's position in ancient Egyptian society and religious ritual. This type of visual immersion, properly used for an appropriate topic, has been shown to enhance understanding and increase retention (Jacobson, 2010).

While the existing tour is effective, it is limited by the lack of activity in the virtual space. The virtual priest, in the role of an *in situ* tour guide, provides another layer of human connection. It offers modern audiences a chance to make associations between themselves and the ancient Egyptians. Puppets evoke emotional response in the audience, and millennia of puppeteering practice inform the strength of interactive performance in a new generation of

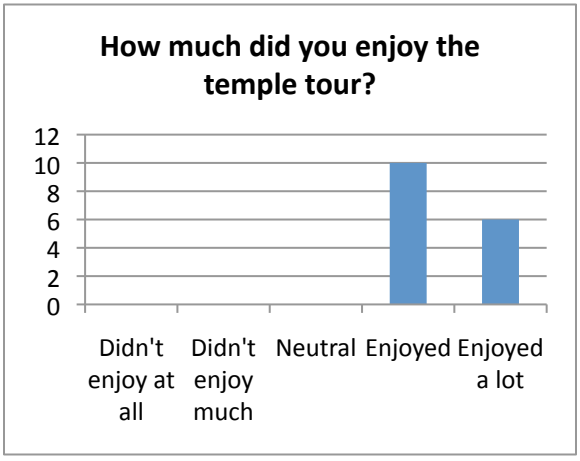
[1] Megan Johnston, mej530@mail.harvard.edu
[2] Jeffrey Jacobson, jeff@publicvr.org

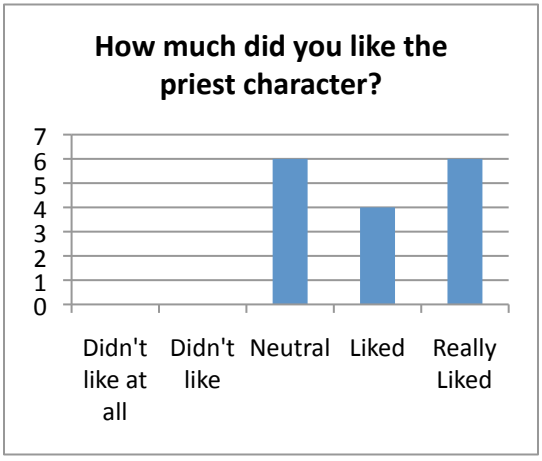
technology (Ryu, 2005). We will add the virtual priest as a second tour guide, able to interact with the audience and the live guide.

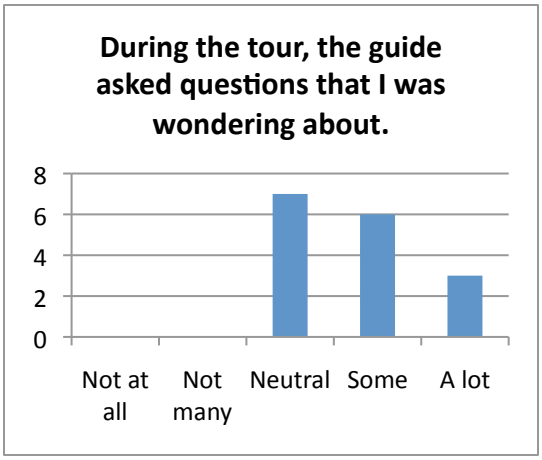
The priest character offers an opportunity to extend the discussion beyond the temple's physical features. The priest will discuss his duties in the temple, revealing more deeply the significance of the temple's physical and religious elements. In much the same way that the temple represents an archetypal Ptolemaic temple, the virtual puppet is an archetypal priest, in a setting that lends itself to dramatic narrative and storytelling. A virtual human in the temple will add to the space's authenticity, and his role as an expert will aid realistic transfer of knowledge to the audience. Furthermore, the priest provides an opportunity for the audience to connect to ancient Egyptian civilization on a human level. As the priest guides the audience he may lapse into reminiscence, make jokes to engage the audience, or interact with individual audience members. The presence of a virtual puppet will offer museum visitors a deeper understanding of the temple and a higher quality experience as general audience learners.

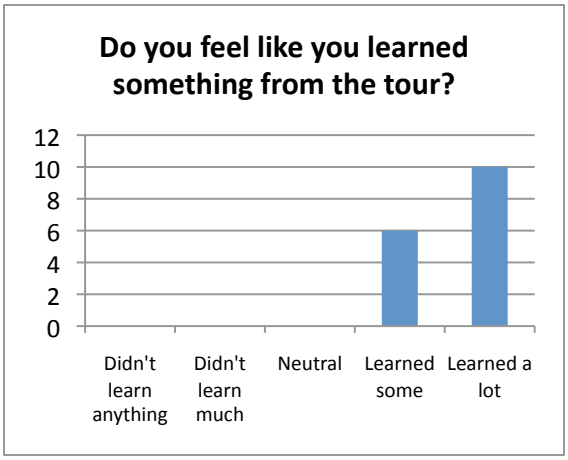
From January to May 2010, we developed a narrative resource, a kind of open script, for the puppeteer. Work began with studying the current temple, its existing tours, survey of immersive learning environments, and attending live tours at other museums. After writing an initial draft of the priest's script, we thought it best to use a live docent to mediate the dialogue between the priest and the audience, rather than have the priest work with the audience alone. The current version of the script accommodates this change in instructional design. The tour is designed to be adaptable to different audiences and different live guides. In addition to the scripted tour, the guide and priest may draw from the list of "facts to know and tell" during the question and answer portion to enrich the unique experiences of different audiences.

In April 2010 we conducted a trial run of the tour with a trial audience at a PublicVR event. This paper's authors played the roles of the priest and the live guide. We gathered data from the audience with a questionnaire about their reactions to the tour. The audience received the presentation positively, with no negative reactions to the experience or the characters. Perceived learning and enjoyment both rated high. Identification with the priest character and personal relevance to the guide's directed questions produced more neutral results but still leaned positive. We posit that an audience more diverse in age and education may respond differently than our test audience, but we predict continued positive results.









Going forward, we will work to refine the tour to involve the audience more directly and provide more opportunity for the audience to relate to the priest. PublicVR plans to implement the digital puppeteering technology within the temple in the coming year. We believe that the addition of the human element into the virtual temple will deepen audience understanding of Egyptian religious history and culture through their interaction with the virtual temple.

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