

Ellis Island's Hard Hat Tour: Technology Integration Proposal

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Sound Design Principles and Purpose

Save Ellis Island is partnered with the National Park Service to restore the twenty-nine buildings on the island's south side. In an effort to do so, hard hat tours are conducted for visitors as a means to educate the public and raise funds to refurbish the historical landmark. This proposal is to modify the actual hard hat design with technology to make the tour more accessible, interactive and engaging for the general public. Recommended adjustments to the design include a real-time translation device, input/output capability, light apparatus for responses, and a mixed reality lens.

According to the American Alliance of Museums, museums are considered the most trustworthy source of information in America with approximately 850 million visitors a year. Ellis Island alone receives thousands of visitors every week from all around the world. Therefore, this proposal targets how the relevant information given during the hard hat tour can be easily understood by guests. By adding a real-time interpretation device into the hard hat helmet, the information would be translated; therefore, more visitors can understand the facts being stated in real-time. By implementing input/output audio capability, the tour guide can amplify his/her voice while eliminating background noise. This feature focuses on the clarity of the information being provided. In addition, an optional mixed reality lens will provide an enhanced technology feature for engagement. This feature can be added to portions of the tour, at the user's discretion. There will be areas in the museum where the lens can be attached to the helmet to intensify the experience into a multi-sensory presentation. The hard hat will also have a small bulb that will light up when the users click on certain responses to questions asked by the tour guide. A small solar panel located at the top of the hard hat will provide renewable energy. A handheld remote

with buttons will link to the person’s helmet and light up according to their response to questions asked by the tour guide throughout the presentation. Using a question-response approach will “...move students beyond these levels of knowing” (Marzanno, 2007, p. 86). These modifications to the hard hat will improve the interaction among the tour group while providing individualized features each guest can manipulate to accommodate his/her individual needs.

Figure 1.0 Interactive Audio Helmet Capability	
Common Design Pitfalls	Design Relevance
Multiple options with equal salience	Everyone on tour gets their personal helmet with same features. Language input/output option capability will allow equal access to information in language preference. Sound adjustment button allows users to control volume.
Features allowing multiple users to interfere with one another	Input and output microphone features can be muted by tour guide. This attribute will minimize interference between users. Light on helmet will indicate individual response without interfering with others.
Options that encourage users to disrupt the phenomenon being displayed	Having one audio will be transmitted at a time. This aspect will block out background noise.
Features that make the critical phenomenon difficult to find	Buttons on the helmet will be pictorial icons for simpler navigation. Light on helmet provides feedback to tour guide to adjust content according to guests’ responses.
Secondary features that obscure the primary feature	Mixed Reality Lens attachment will be an addition to helmet as an alternative element. This attachment is optional. Users can opt to listen and avoid stimulating mixed Reality presentation without being removed from group.
<p><i>Figure 1.0.</i> Chart identifies Allen and Gutwill’s five common pitfalls regarding interactive design elements and how the proposed hard hat is relevant in sound design principles. Adapted from “Designing with multiple interactives: Five common pitfalls,” by S. Allen and J. Gutwill, 2004, <i>Curator (Preprint)</i> 47(2), p. 199-212.</p>	

Educational Objectives and Relevance

According to the American Alliance of Museums, museums are considered educational by 98% of Americans across all ages, races, and geographical locations. Therefore, it is important to establish intentional educational objectives to ensure that visitors not only listen to the stories of Ellis Island, but experience taking a step back into the past. This design supports the following learning objectives recommended by Marzano:

- "...physical movement, challenge students thinking and stimulate their attention to the task at hand" (2007, p. 116).
- "...students must have opportunities to practice new skills and deepen their understanding of new information. Without this type of extended processing, knowledge that students initially understand might fade and be lost over time" (2007, p. 58).

Jane Alexander, the Chief Information Officer from the Cleveland Museum stated, "The best use of digital is to not make you aware of the technology, but to make you aware of the art." Our Gateway to America is truly a canvas of art for the world. As a result, technology can be used as a learning tool to convert this landmark into a global classroom to drive instructional information.

Feasibility

More features added to the helmet will bring up the cost to an organization that is already in need of funding. Therefore, I would recommend adding features gradually to the helmet as funds become available. First, I would suggest making the tour interactive. This can be done with handheld paddles, small light fixture on helmet, or simply asking guests to raise their hands. Moreover, if the tour guide had an actual microphone, it would amplify his/her voice while

blocking out background noise. Voice projection is essential for any learner who is trying to acquire new learning. Adding a mixed reality lens to the helmet would be the final addition because it would be the costliest. Instead of adding a lens to each helmet, Save Ellis Island should consider creating an addition to their app where guests can use their own devices to interact with different areas of the complex. For example, if guests are in the physician's main house, they can hold their phone up to the fireplace and hear the voice of Nancy Davis Nyitrai, who once lived in the house. The app modification will be more cost effective, while not compromising the importance of the information. In addition, having a portable real-time translation earplug will provide the translation needed for those guests who are in need of an interpreter.

Cases on Participation

Case One

A group of participants from Puerto Rico vary greatly between minimal to proficient comprehension of the English language. The input audio button controls what language is heard in real time. Participants are able to select desired language and complete tour together.

Case Two

A father with four children which vary in age and ability sign up for tour. His one child with sensory concerns is comfortable because he can control volume and opt out of using the mixed reality lens. When the father redirects children's behavior, his voice does not cut off the presenter when someone in the group asks a question.

Visual Model

Figure 2.0 Photograph of Ellis Island Hard Hat Proposal Sketch

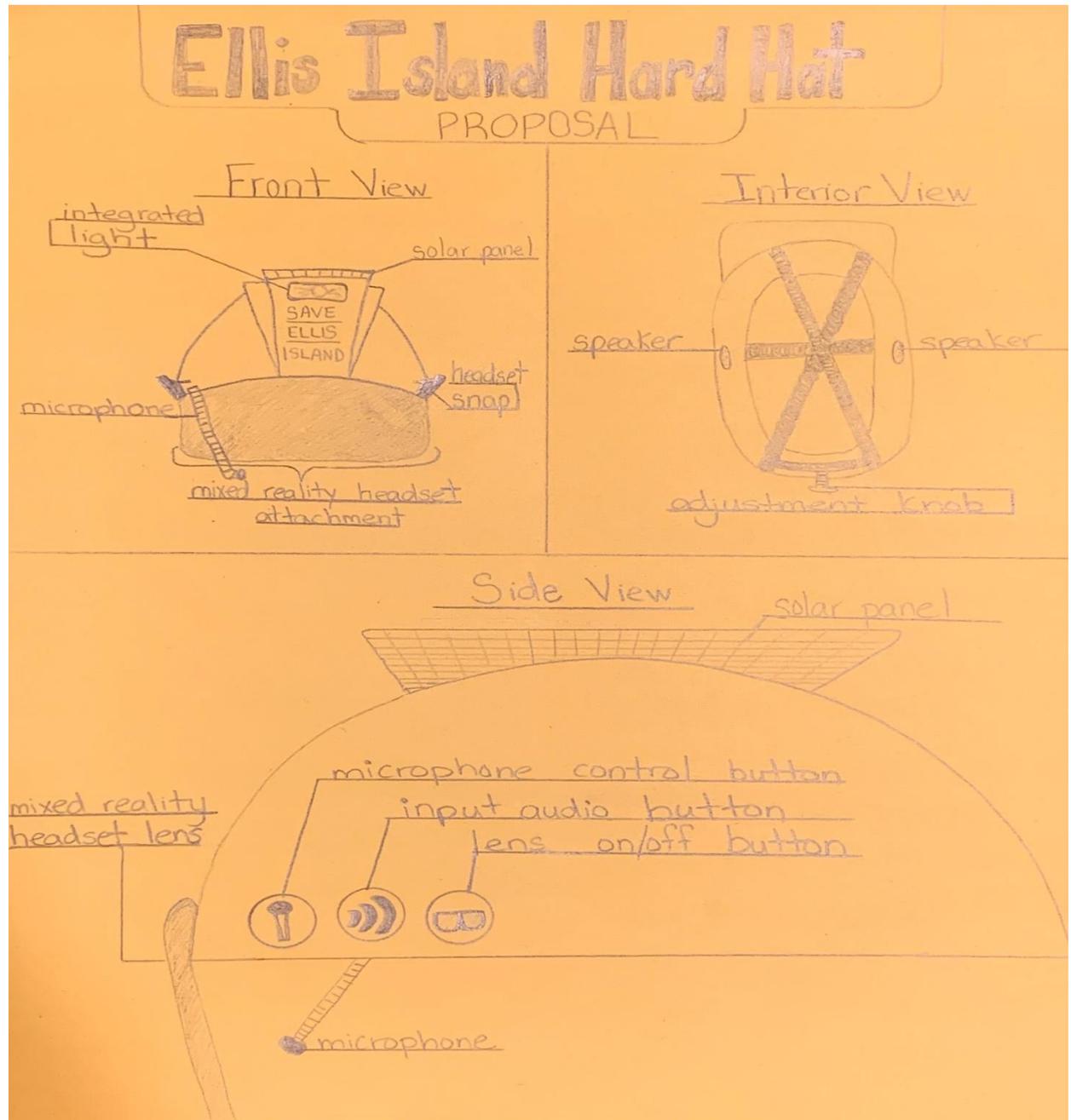


Figure 2.0. Photograph is a labeled sketch of the front, interior and side view of the Ellis Island Hard Hat Proposal.

References

- Allen, S. & Gutwill, J. (2010, January 15). Designing with Multiple Interactives: Five Common Pitfalls. *Curator The Museum Journal*. Retrieved from <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.2151-6952.2004.tb00117.x>
- American Alliance of Museums. (2019). *Museum Facts and Data*. Retrieved from <https://www.aam-us.org/programs/about-museums/museum-facts-data/>
- Marzano, R. (2007). *The Art and Science of Teaching*. Alexandria, VA: ASCD.
- Save Ellis Island. (2018). Retrieved from <https://www.saveellisland.org/about-us.html>
- Song, K. (2017, September 24). Virtual reality and Van Gogh collide – technology is turning museums into a booming industry. *CNBC*. Retrieved from <https://www.cnbc.com/2017/09/22/how-technology-is-turning-museums-into-a-booming-industry.html>
- The Statue of Liberty and Ellis Island. (2019). Retrieved from <https://www.libertyellisfoundation.org/visiting-ellis-island>