Overlapping Time: An AR-enhanced hard hat tour of Ellis Island

Susan Suarez

New Jersey City University

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Introduction

According to its website, Ellis Island is in financial trouble. To mitigate costs, Save Ellis Island, a non-profit partner of the National Park Service, has implemented a hard hat tour of the south side of the island, which is currently under rehabilitation. Although much of the Ellis Island Hospital Complex is closed to visitors, the hard had guided tour has access to stabilized segments, including the autopsy room, kitchen, laundry building, mortuary, infectious and contagious disease wards, and the staff housing (Save Ellis Island, n.d.). Although the tour is educational, engaging, and interesting, it can be enhanced through the infusion of technology: augmented reality in particular. Therefore, I propose the design and implementation of an app/experience titled "Overlapping Time" to enhance the hard hat tour.

Purpose

The overall objective of the enhanced tour is to increase engagement with visitors. A more lively experience will educate people about the immigrants, illustrate how dire some circumstances were, and underscore the severity of the illnesses; this will underscore the perceived need for the hospitals and the treatments applied to arriving passengers at the time. The technology can assist the tourists in looking more closely around the spaces in which they enter and help to engage the users and guides in a dialogue. Regarding increased engagement at the Art Gallery of Ontario, Toronto, Coates writes, "according to the AGO's Interpretive Planner Shiralee Hudson Hill, 84% of visitors to this exhibition reported feeling engaged with the art. 39% looked again at the images after using the app" (Coates, 2019). Finally, if SEI decides to charge a nominal fee for the app, it could also raise additional funding for the SEI foundation.

Educational Objectives

In addition to engaging visitors, Overlapping Time will address many Common Core State Standards (CCSS). The experience will aim to align instruction with the standards so that students can meet the requirements of college and career readiness (Common Core Standards Initiative, 2010). The experience can meet interdisciplinary standards for history/social studies, writing, and science and technology. Moreover, this technology addresses "the context of history education and the Summarizing, Contextualizing, Inferring, Monitoring, and Corroborating (SCIM-C) framework developed for historical inquiry education" (U.S. Department of Education, Office of Educational Technology, 2017, p. 20). Because of the subject matter - contagious diseases and severe illnesses - school group use of the app should be limited to grades 6 and up.

Features

Two essential components are necessary to fully illustrate the procedures and viability of the experience. First the tour itself is guided and limited to 14 guests. Hard hats and closed-toe shoes are required because the area is under rehabilitation, though the buildings and rooms open for visitation are safe (Save Ellis Island, n.d.). Tour guides lead visitors through the safe areas, while the guides explain the use of the space, displayed equipment, and the circumstances around which patients were assigned to a hospital or ward.

Second, the enhancement, or overlapping, occurs with augmented reality. According to the EDUCAUSE horizon report, "augmented reality layers information over physical spaces and objects, such as labels and other supplementary data over museum displays" (Alexander, B., et al., 2019, p. 25). In the Overlapping Time app, the superimposition of the video onto the image

of actual furniture or into the actual spaces is what augments the reality of the present and brings the spaces to life.

All good designs begin with the user in mind. An essential component of "human centered design" is the use of signifiers (Norman, 2013, pp. 221-235). Understanding that indicators from the tour guides may break the flow of the tour and detract from the experience of non-users, the phone or tablet itself would buzz to signify the space is capable of augmented reality. The mobile device could then be used. The user scans the area with the mobile device and sees what it would have looked like populated with the immigrants and staff. This is similar to the popular game Pokemon Go: when a Pokemon is available for capture, the device will chime or buzz depending on set up. There are areas on the screen that indicate where the Pokemon is. For the app/experience Overlapping Time, the screen - as held up by the user - will be the live image from the device's camera of a desk, a kitchen sink, or doorway. When the image is touched on the mobile device, the camera display will depict the actual room (desk, sink, etc) with an image overlapping it. Figure 1 illustrates the before and after of the process.

Figure 1. The Overlapping Time app before and after images on a smart phone.

Feasibility

The AR enhancement will be an optional addition to the tour. The app should be preloaded and the tour guides will indicate when to start the app. Because the only cost is creating the app and utilizing the location services of the guest along with GPS, there is very little maintenance or overhead. Similar programs are currently utilized by several museums globally, for example The National Museum of Singapore uses an immersive installation to gamify an installation whereby patrons who download the app can virtually collect the paintings' plant and animals. Once the item is "caught," the user may access information about the items collected (Coates, 2019). In the United States, the "Skin and Bones" exhibit is an example of patrons using the technology without assistance from a guide. Visitors to the website are encouraged to download the iOS app from the information page (Smithsonian National Museum of Natural History, 2019). Finally, because of the popularity of games using AR, many people with smart mobile devices are accustomed to using the technology. To increase the feasibility of apps such as Overlapping Time, the app should remain as a supplement and not a requirement for the exhibit.

Conclusion

As smart mobile devices become more common and augmented reality becomes more popular, the use of AR will likely continue to branch out to non-gaming arenas. Currently, a few museums and historical sites have already incorporated AR into the patron experience. The implementation of AR enhances a user's encounter with the exhibit because the user is an active participant in obtaining information rather than being a casual observer or a receptacle of tour guide lectures; this interactivity increases engagement, understanding, and critical thinking. Ellis Island could use such an app to illustrate the pain and hope of both the immigrants and the staff

of Ellis Island. Aside from engaging visitors, the experience will educate those patrons and motivate others to participate. Moreover, charging for the app, or at lease allowing for an “in-app purchase” of a donation to the SEI fund could increase revenue for the park and assist in further rehabilitation.

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