

Interactive Media and Game Development Practices Applied in Experience Design for Cultural Institutions

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Abstract:

In this research report, I discuss three of the prominent concerns other researchers have voiced as cultural institutions, like historical sites and museums, incorporate interactive and immersive media. I propose that institutions can incorporate common practices from the interactive media and video game industry to design their experiences while keeping these concerns in mind during the process. In each recommendation, I discuss the concern as well as how the industry practice may benefit the design, development, and maintenance of the institution's experiences. With each recommendation, I also include what resources institutions would need to incorporate these design practices as well as what challenges they may face in trying to begin integrating multiple types of media and experiences into their exhibition design.

I argue that design practices and styles used in the interactive media and video game industry can be used over time to design meaningful experiences for cultural institutions.

Introduction:

Cultural institutions, like historical sites or museums, provide quality learning experiences that are driven by visitor's personal expectations and personal contexts of learning (Chang, 2006). Personal context is the combination of a visitor's motivation, interests, beliefs, as well as prior knowledge and experiences. Visitors come to these institutions to learn with their own agendas and sense of what is a meaningful experience based on their personal context. However, institutions provide another layer of context to their collections and experiences (Kidd, 2017). They collect, curate, and verify the artefacts in their collections to create an overall experience for their visitors based on the perspective of the exhibition designer (Wessl and Mayr, 2007). In a way to engage with different learning styles and attract potential visitors, institutions have begun to incorporate interactive and immersive media to convey educational information (Chang, 2006). Pre-1990s, museums incorporated kiosks to provide online exercises as part of the exhibition, but with the introduction and development of the Internet, many museums began to incorporate social media as a form of communication and archives (Burkhardt, Chung, Goodsell, and Rossetti, 2020). Institutions have then begun to change how they use these tools to provide educational and engaging information. As many institutions begin to incorporate these types of media, there are some researchers who are concerned of how quickly institutions are trying to incorporate online identities

and experiences into their practices without realizing the possible negative impacts (Wessle and Mayr, 2007 & Manikowska, 2020 & Kidd, 2007).

In this research report, I will discuss three of the prominent concerns that other researchers have reported and provide a recommendation combining common practices in the interactive media and game development industry. In order for cultural institutions to design and implement these types of experiences into their exhibitions, they need to understand how the industries who mainly work with these types of media are able to do so and do so well. In each recommendation, I will explain what practices can address these concerns and how cultural institutions can use them to design their experiences. In addition to this, I will then explain what resources institutions will need to incorporate these practices as well as what challenges they may face.

1. Concerns of Incorporating Interactive and Immersive Media:

Cultural institutions are faced with the task to adapt and use new technologies and design practices to connect with their audiences. These institutions act as informal, educational sites where visitors can learn through a leisure activity either alone or as a group (Wessel and Mayr, 2007). Due to their public service, institutions have a broad demographic whom they need to design their communication and experiences to not only interest, but also convince them to visit (McRainey, 2013). It is critical for institutions to have visitors from various spheres of their demographic (i.e. age, race, socio-economic class, education level, etc.) visit and provide feedback in order to receive a wide range of perspectives on the design and conveyed information (Rrustemi, 2020). As more cultural institutions shift to incorporate interactive and immersive media, there have been concerns about the logistics of installing these types of media and their effects (Manikowska, 2020 & Wessel and Mayr, 2007 & Kidd, 2017). Below, I have listed some of the recurring concerns:

- I. Cultural institutions could run the risk of becoming politicized or potentially associate themselves in controversial issues that they are not directly connected to as they create their online identities. Many of these institutions do not have a detailed social media guide that explains how to incorporate their mission statements within their online identity. Without these fundamental connections to their core beliefs, social media accounts may end up being used to communicate formal announcements, decisions, political responses, and other social or cultural statements. Most social media accounts are intended to show more of the institution's work and collection, and these statements would take precedence over the original intent of educating and enticing potential visitors (Manikowska, 2020).
- II. Mobile media has the possibility of coming between visitor-exhibit interactions and visitor-visitor interactions. Rather than focusing on the in person experience and learning from the exhibition materials, there is a concern that visitors will be more engaged with the online supplementary experience. In addition, all the material would have to be collected, curated, and verified for the online experience in addition to the in person experience. Ensuring that the online experience is well curated and implemented with the in person experience would rely on the cooperation between the institution's staff and the developers of the

online experience, if the developers are not a part of the staff (Wessel and Mayr, 2007) .

- III. Cultural institutions may not be equipped with the necessary resources to incorporate interactive and immersive media. Institutions would have to think about their layouts more carefully while designing their in person experiences. They would need to include power outlets for any equipment, the hardware and software to design and implement the media, and the structures to hold and hide the hardware from visitors (if the hardware is not a part of the installation). Institutions would also have to recruit and hire long term staff to design interactive and immersive media as well as run feedback updates and maintain the experience. This also all depends on the institution's budget (Kidd, 2017).

However, I argue that cultural institutions can use common practices used in the interactive media and video game industry to develop experiences with the knowledge and skills necessary to avoid any of these concerns during and after the design process.

2. Interactive Media and Video Game Industry Practices:

Interactive media and video game design practices provide a unique perspective in how cultural institutions can implement these immersive experiences, while taking into account the concerns listed above. In these disciplines, designers use user testing as a communication tool to understand if their audience is receiving the intended information (Goodsell, 2021). User testing can also be used to incorporate the perspectives and feedback of diverse members of the institution's audience (Rrustemi, 2020).

Incorporating target audience members and stakeholders in the design process is common in media and game design to ensure that feedback about communication, budgets, enjoyment, and accessibility are incorporated into the new iteration of the design before releasing it to the public (Waddington, Linehan, Gerling, Hicks, & Hodgson, 2015). Typically institutions review feedback and visitor statistics after they have hosted an exhibition, rather than testing for feedback beforehand and make slight adjustments just as it opens for the general public (Burkhardt, Chung, Goodsell, and Rossetti, 2020). One form of interactive media, transmedia, is used in many different industries from film, literature, video games, etc. as a way to provide more content to consumers where they discover the information and search for the story themselves (Phillips, 2012).

Transmedia design can be used to develop different entry points to catch potential visitor's attention and try to convince them to visit the institution's experience across different platforms (Kidd, 2017). Transmedia is an explorative storytelling style that incorporates multiple types of media that tell a story as the user pieces together the information, however the story may not make sense until they find all the information (Phillips, 2012). By incorporating a transmedia experience or providing different online content, institutions can provide a unique experience from the in person experience and reduce the risk of disturbing visitor-exhibit or visitor-visitor interactions (Kidd, 2017). However, institutions may not be able to design, develop, edit, and maintain interactive and immersive media right away. Institutions like the Worcester Art Museum and Hönnunarasfn have begun to incorporate interactive and immersive media by reaching

out to project based learning universities and university studios to create these experiences for them while students can either be paid or receive class credit for their work (Goodsell, 2021 & Burkhardt, Chung, Goodsell, and Rossetti, 2020).

Recommendations:

- I. As social media and apps are used to attract potential visitors and educate the public about an institution's collection, there has been a concern of institutions becoming connected to issues that are not directly related to their work or core beliefs. Artefacts found in their collections do not exist on their own- they exist within the cultural context that they were created for, how the artefact is collected and curated, and how they are interpreted (Brandt, 2006). Social media posts or online experiences become a part of the institution's collection and online identity (Manikowska, 2020). Manikowska suggests that institutions create a detailed social media guide that is connected to their core beliefs in order to create materials that are correctly connected to the institution. This can also be combined with user testing immersive and interactive media to understand if those core beliefs are being conveyed clearly to the institution's audience (Goodsell, 2021). In combination with user testing, a community manager should be a part of the team to be the face of the institution's online identity and interact with the community they are trying to grow and work with (Ruggill, McAllistar, Nichols, & Kaufman, 2017). A community manager is an individual who manages the the platforms where audience members have gathered and created a community, which can be through social media or messaging platforms.
 - A. In the interactive media and video game industry, developers work with their target audience and stakeholders in user testing to gain feedback on their product (Waddington, 2015). For example, I worked in a student group to develop an app, A Jersey for Helmutt, for the Worcester Art Museum to provide supplementary, rhetorical support for their exhibit on the history of the baseball jersey (Goodsell, 2021). In this project, we followed an iterative design schedule where we produced a deliverable at the end of every two weeks, and after our fourth month of development, we began to user test with our Beta version of the app as seen in the video game industry. Once a video game company has a playable version of the app, they will begin user testing to see what doesn't work. We tested with museum staff, college students, and elementary school students to gain feedback and suggestions from a wide range of ages and experiences in order to make an app that could communicate with a broad audience. In user testing, we were trying to understand if the app's visual design (layout and user interface symbols) and language were communicating the necessary information to users. User testing and participatory design requires the developers and museum staff to work closely together to ensure that the product best fits the needs of the institution. By working so closely together, expertise from different fields are able to provide feedback from multiple perspectives (Brandt, 2006). Institutions can work with potential visitors and diverse communities to gain different audience perspectives to also incorporate (Rrustemi, 2020).

In this collaboration, developers are able to translate the needs of the institution and incorporate feedback, create new rules, and propose new ideas based on the responses of both stakeholders and visitors (Brandt, 2006).

- B. To user test media, institutions can use free tools accessible through Google services and begin incorporating testing with their staff then branch out to include potential visitors. As one of the user testing designers and facilitators, I used Google Forms to build our questionnaire where we asked questions to gauge educational use and entertainment value (Goodsell, 2021). User testing questions should avoid yes/no questions to receive more specific information of what is going well and what could be improved in the experience's design. Once the questionnaire is finalized, the facilitators should then begin testing with the institution's staff to see if the experience conveys the necessary educational information and connects to the institution's core beliefs. Once the institution has created a testing system that works best for them and their needs, they can begin inviting visitors to fill out the questionnaire after going through the experience. If the institution is ready and has the resources to start this right away in addition to testing with staff, they do not need to wait to incorporate this. Taking the data from the questionnaire, the designers can then make edits to better achieve clear communication between them and their audience. Institutions can build relationships with the communities they test with while possibly learning about the collection artefact in the context of the culture it comes from as well as how different groups of visitors interpret information and experiences (Brandt, 2006). By opening their dialogue and design practices, institutions create an accessible environment and can begin making their experiences more inclusive (Rrustemi, 2020). The community manager would focus on observing the online reaction to the experience once it has been released to the public (Ruggill, McAllistar, Nichols, & Kaufman, 2017). By engaging and listening to their online audience's feedback and reactions, the manager can communicate and work with the design team to provide the necessary updates to create a well received experience or media.
- C. To incorporate user testing and participatory design into their practices, institutions will need to either hire a development team or create a team of their own. If they are not working with a contracted development team, the institution would have to look for staff members who are already familiar with user testing or specifically hire a new, small team who is already trained in this practice. When user testing, the facilitators would need to create their questionnaire, organize user tester schedules, analyze the data received, and report the feedback to developers, if they are not the developers themselves, to begin incorporating it into the next update. Our student group began this process weeks before we began our testing to ensure it worked the schedules of the school and museum staff we worked with. This could be difficult depending on the institution's resources and

possible time constraints. User testing is something that staff can learn as they go. Once they have created their questionnaire, they could implement it with a soft opening to receive audience feedback to then implement into the experience before it opens to the general public.

- II. Mobile media has established itself in day to day life, but there needs to be a balance when including it in cultural institution's experiences. Institutions who would like to include mobile media, like apps or social media, need to think about if it would be more beneficial to include them at the same time as the in person experience or if it would distract visitors (Wessel and Mayr, 2007). Mobile media can be used to entice potential visitors and draw them to the in person experience since it shares information through part of a transmedia story (Kidd, 2017). Institutions can use transmedia entry points and cohesive theme design to connect their online identities and media to their in person experiences while keeping them separate (Phillips, 2012).
 - A. Transmedia storytelling uses different types of online platforms that provide an explorative experience to the overall story conveyed (Phillips, 2012). There are two ways to create these stories where the designers either provide a full story across multiple platforms all at once or they release the information at different times to build the story. To create a transmedia story, the experience would have to be told over multiple platforms and in their unique way. For example, the Smithsonian created videos on YouTube to share information and stories about their craft works exhibition while The National Gallery provided a quick Twitter tour of their collections during the 2020 Coronavirus Pandemic (The Smithsonian, 2016 & National Gallery, 2020). To design a transmedia experience, designers would use a combination of multiple platforms, like the ones listed above, to share the story and information to players (Phillips, 2012). Platforms like these create unique media experiences that the institution can create, curate, and verify while providing an interesting entry point to their in person experience (Wessel and Mayr, 2007). Transmedia can be designed as a completely online experience that institutions can use to build relationships with their broad audience (Phillips, 2012 & Chang, 2006). Transmedia storytelling would also allow institutions to provide educational information in multiple types of media to engage different learning styles (Chang, 2006). Institutions can focus on the socializing aspect of learning while engaging and fostering these interactions in an online community.
 - B. To design and execute a transmedia story, institutions will need a team to develop and manage their online experience. These online experiences should reflect the core beliefs and practices of the institution in order to best represent themselves online (Manikowska, 2020). Institutions make their media by writing scripts and information, editing, selecting material, and combining all these into an experience (Kidd, 2017). The same process can be applied to create a transmedia story. Institutions would still write an experience or story, but once they have completed the entirety, or most of it, they can share parts of the story onto different platforms. These

different entry points catch the attention of potential and returning visitors by leading them to the other parts of the story with hints or clues within the segment they are currently engaging with. Once the story has launched and online users have begun to follow it, the institution will need the team to continue to monitor the story and engagement to ensure the users are making progress and fostering the community the institution would like (Phillips, 2012). To maintain the story and learn if users are stuck with a particular clue, a community manager would be able to interact with the community to provide help and work with the design team to improve the experience (Ruggill, McAllistar, Nichols, & Kaufman, 2017). For example, Brunel's ss Great Britain located in Bristol, UK provides four different audio narratives for visitors to explore with ranging from first class passenger to even the ship's cat (Kidd, 2017). As they explore the ship with their audio narrative, they also engage with a printed passenger ticket, QR codes in the leaflet to lead to social media and trip review sites, and even sensory experiences. These different types of experiences and media come together to not only tell the story of the passengers and crew mates of the ship, but also encourage the visitors to join an online community and share their own experiences.

- C. As noted in the last recommendation, the institution will need to hire a team if they themselves do not have staff to design, develop, and manage a transmedia story. Institutions could potentially look to their social media team and create this type of experience as a long term project. The social media team would already be familiar with how different apps work and what type of content best fits their audience on that platform. With that understanding, they could then design and share posts of the transmedia experience while still interacting with their followers. This could be difficult depending on the institution's resources.
- III. If institutions would like to begin to incorporate interactive and immersive media, but may not necessarily have the knowledge, skillset, or resources to begin themselves, they could reach out to project based learning universities to work with as clients. Project based learning universities, like Worcester Polytechnic Institute (WPI), bridge theory and practice within homework, capstone projects, and student consultant work (Worcester Polytechnic Institute, 2021b). Universities with this type of focus introduce students to working with clients, and those students would then receive either a class credit or negotiated pay for their work.
- A. By working with project based universities, institutions will receive a well polished and developed deliverable while students receive industry experience and class credit or negotiated pay. As a Sophomore, I worked with Refugee Artisans of Worcester and the Worcester Center for Crafts to create a video for their exhibition on local craftwork and art from refugees in the city of Worcester (Worcester Center for Crafts, 2020). During this project, I worked with my client who was the exhibition designer to film and design a video for the exhibit, and I learned videography and video editing as a class credit. During my Junior year, I worked with Hönnunarasfn

researching ways to strengthen their connection with their community (Burkhardt, Chung, Goodsell, and Rossetti, 2020). We created, maintained, and handed off a new YouTube channel, two video interviews with Icelandic artists, and wrote a user manual for the museum, so that they could continue creating videos if they would like. As both a Junior and Senior, I am a fellow of the Intentional Design Studio at WPI where I work with clients as a consultant hired through the studio (Worcester Polytechnic Institute, 2021a). I have designed an app for the Worcester Art Museum, and I currently work with our Public Interest Technology group to write content for their website. As a member of this studio, I work with clients in a collaboration to provide a deliverable that best meets their project goals as well as their core beliefs.

- B. To make a relationship with a university and participate as a client in their project based learning, institutions need to reach out to a university's project contact. WPI's capstone projects are one way for institutions to work with students, but there are other universities who also offer project based learning, such as Boston University, Iowa State University, Rochester Institute of Technology, and many others (Boston University, 2021 & Iowa State University, 2021 & Rochester Institute of Technology, 2021). Institutions would reach out to these schools' project contacts or school departments to discuss becoming a client who would work with a student to receive a course credit for their work. Though the majority of the clients these universities work with are local, there are opportunities where global clients have worked with students from these universities. To hire a student consultant and provide paid work for them, institutions should look for design studios (Worcester Polytechnic Institute, 2021a). Studios will hire students as consultants and act as their negotiator as well as supervisor for the duration of the project, which also includes discussing payment.
- C. Universities may not have the resources to add more clients to their project centers or design studios. If a project or design studio of that university does not have enough resources, an institution may not be able to work with them at that time. If this occurs, the institution would have to hire a freelance designer or developer if their project is time sensitive. If the project is not time sensitive, the institution could still offer the work to the university or studio and wait for them to find a student or group to work with the institution.

Conclusions:

This research report provides possible solutions to concerns of incorporating interactive and immersive media into cultural institutions by providing practices commonly used in the interactive media and game development industry.

As institutions look to include social media as a tool to share educational information, there is a possibility that they have to respond to an issue that they are not connected to (Manikowska, 2020). However, by working with a community manager and

user testing with their diverse members of their audience, institutions can foster an inclusive environment by learning from feedback and perspectives shared with them (Ruggill, McAllister, Nichols, & Kaufman, 2017 & Goodsell, 2021, & Rrustemi, 2020).

Mobile media, which includes videos and apps as well as social media, could distract visitors from interacting with other visitors as well as the exhibition (Wessel, and Mayr, 2007). However, transmedia stories can incorporate these online experiences to share an interactive story online separate from the in person experience and foster an engaging online community (Kidd, 2017). Community managers would help the design team manage the experience and provide community responses and feedback to incorporate into updates (Ruggill, McAllistar, Nichols, & Kaufman, 2017).

Institutions may not be able to design, develop, and maintain these experiences themselves due to a lack of resources or skills (Kidd, 2017). If they are unable to form a team from their pre-existing staff or hire a freelance team, institutions can reach out to project based learning universities or university studios to provide experience to students (Worcester Polytechnic Institute, 2021b). Students could receive class credit or a negotiated pay for their work while the institutions would receive a well polished deliverable for their experience (Worcester Polytechnic Institute, 2021b & Worcester Polytechnic Institute, 2021a).

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