Designing In/For/With the Museum: Part 1

How do we think about sustainable, open, and inclusive digital innovation for the museums?

There was a time (maybe we're still in that time), when everyone wanted an app for their institution. Given recent technological advancements and the pervasiveness of VR and AR experiences, I would guess we're in a time when intuitions want immersive experiences. They may be thinking about how they engage in a shared immersive future for the Museum in the 'Metaverse'.

I was lucky enough to work on some early experiments with Nina Simon, run by The Tech in San Jose, which thought about how museums can use immersive shared experiences in Second Life. Projects under this research call used Second Life to prototype exhibitions for the physical 'real world' in The Tech. I collaborated with Pete Wardle, a Media Artist from Manchester, on a project that connected the two spaces together. This allowed visitors in The Tech to play across the physical and virtual spaces.

Alan Hook teaching at the Ulster Museum

Since then, I have worked on playful, immersive and participatory experiences for the Northern Ireland Tourist Board through MYNI2013 and MYNI2014, developed Alternative Reality Games for Literary Festivals, thought about co-design of playful museums with Oonagh Murphy and students from Ulster University, and developed prototype games for places like Marble Arch Caves. Throughout all of these projects, there are two lessons I have learned from many years' of working within the sphere of immersive experiences.

I always try to employ these two lessons into all the work I develop:

1. **Browser is best.**
2. **Make stuff for my mum.**

Browser Is Best

In 2021, there were more than 230 billion apps downloaded to smart phones worldwide. I have had some amazing, charming, thought provoking, engaging and rich experiences with apps *BUT* there are a lot of problems. Apps need to be maintained and updated. This means that you need to have a continual stream of funding to keep them alive and working. This is a financial issue, but also one of sustainability. There are so many dead apps that no longer work. Budgets used for digital innovation usually come as funding with fixed end points, often working year to year with no multi-year funding offered.

The closed proprietary system and quality assurance in the app store means that when phones or tablet providers produce new models the Operating System moves forward to work with the new features but means some apps no longer work. Apps are distributed through the app store which has gate keepers of both quality and functionality. Apps need to meet the operator (like Apple's) quality thresholds to be distributed. When the company that creates the phone updates the OS (which, for example, happens every 1-2 years with Apple) then many apps no longer function correctly and are simply removed from the store. This could give an app a shelf life of 2-4 years before it may need to be recoded. This process isn't as costly as starting from scratch, but does come with a bill that many funders won't cover. The sophisticated coding languages that they use mean that many museums don't have in-house skills and expertise to cover this. So apps die. This can make them inaccessible as a strategy for many smaller museums; it also means that they need to be installed. This means that any tweaks, development, or iteration needs to happen periodically. It slows down the innovation and makes it hard to respond to issues. This effects the development cycles and means that they need to have a robust testing process before release. All things that bloat budgets, hinder innovation, and prolong the time it takes to respond to community needs. Apps become obsolete very quickly, and a cost/benefit analysis could easily make them unachievable for many smaller institutions and organisations.

Many of the activities we once relied on Apps for can now be done in HTML, CSS and Javascript. This is the code that the internet is built on. It means that a website can now do many of the things an app once did. The internet is open, accessible and cross device. A good designer can make the same website that can be delivered across a range of devices with one set of code. This means that you don't need make decisions about which platform you are developing for, or seek funding to develop apps for multiple platforms. This is a 'one size fits all' approach. You develop one site that covers all of these devices, and browsers (for viewing outside the Museum on a desktop computer). The code sits on the Museum servers, so they retain control. They are the gatekeeper, the quality assurance management, and the distributer. It also means that the code can be quickly updated, tweaked, augmented and extended.

You might not make any money from 'in-app purchases' or 'in-app advertising', or indeed money from the purchase of the app at initial download but what you lose in trickles of income you make up in other ways, for example, your ongoing costs for maintenance will be significantly less than if you were to develop an app. The experiences may lose a little functionality by not being an app, the fidelity of the graphics might not be as crisp and the data not as accurate, but as a digital designer these are all compromises that I'm willing to make. Ill expand on the compromises, how I choose them and how it shapes the design process in later posts.

Make Stuff for My Mum.

Image: Alan Hook's Mum pictured with a goat

This is connected to my previous point. When we design and make apps, knowing the update cycles, we are making for particular types of privileged audiences. Those with access to current devices. Designing and making for audiences that have access, when access comes with a high adoption cost, means that we are really limiting our audience and the types of people that can access the things we have to say, and the stories we want to tell. I make web-based experiences rather than apps, games, or immersive experiences using other code bases because more people can access them. It means that I can send a URL to my mum, and she can see what I've made. No specialist equipment needed. I have been working on WebVR projects for a number of years. The latest project *Immersed in Media* (released this week) is a showcase of the facilities and teaching that happens in my department. It's a webVR project using a technology called AFrame. This means that it works in a web browser on your home computer, but it also works on your tablet and your phone. It can also be used in a high end property headset (like Oculus and Vive) or you can also use it in "VR Mode" on your phone; using a cheap google cardboard headset (<£7) to turn your phone into a simple VR headset. There are no development costs outside of my time and the specialist camera used to take the high quality 360 images and no distribution costs.

Developing for webVR means that I can send a URL to my Mum, and she can assess it from her computer or her phone. I can make the URL into a QR code on a flyer, and there are much lower barriers to adoption; no download time, no install, no sign up, no specialist equipment, very limited

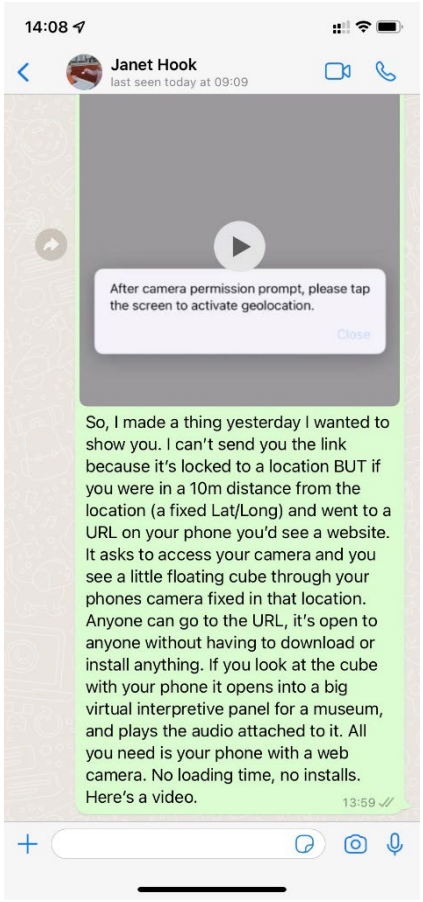

Image 3: A WhatsApp message from Alan to his Mum.

data tracking, and a more accessible experience. I test a lot of the work I make on my kids. They're 7 and 9. I test it with my students, they average around 18-21, but I think my most important user tester is my Mum. She'll be 70 next year and she isn't particularly digitally savvy. If I can design something that she can access quickly, that is intuitive for her to use, I can send a URL over WhatsApp and she doesn't need any specialist costly equipment, then I think I've made something worthwhile. She doesn't always like the work I make, and she's vocal about it when it doesn't sit well for her. I would urge audiences to make more experiences that are designed with and for diverse audience that do not have cutting edge expensive equipment and adoption issues around digital literacy. Don't make for Tech Bro, make for users like my Mum with cracked iPhone screens, and a low tolerance for shiny things with little substance.

Take Aways

I think it's important to be working on open, accessible, inclusive, free, educational, engaging and exciting experiences for diverse audiences. In the past, many of the things that we wanted to make could only be achieved in apps. Now, with advanced HTML, the implementation of 5G and better location based browser tracking that these should be bespoke websites that we can easily update, iterate and change for our users with in-house skills and knowledge.

As part of the Museums, Crisis and Covid-19 project we are working on location based Augmented Reality alternative museum tours. These will be browser based, so if you are experiencing from home then you'll be delivered one remote view experience and if the browser on your phone tells us that you are near a pre-defined location then you'll be delivered a different site that uses AR.JS (a JavaScript language), and AFrame (a webVR framework) to locate virtual interpretive panels in the museum with streamed audio interpretations. This will all be browser based, so as long as the visitor has a phone or tablet with a browser that they can connect to the museum Wi-Fi (or use their network data), then they can experience a location based augmented realty experience without the usual barriers to engagement that we have seen over the last 10 years.