

Association of Museums

Technical Workshop 1: Strategies, Project Workflow and Efficient Design

Aug. 12, 2021

>> JUSTIN: Welcome to the technical workshop 1: Strategies, Project Workflow, and Efficient Design.

Dedicated to providing our inaugural series focuses on digital technology topics and it is funded by the Institute of the Museum and Library Services

I'm your host for today's program. Justin Jakovac and I am the executive director of the mountain plains museums association.

My pronouns are he/him a white middle-aged male my hair is brown with a comb-over and a mustache and goatee and a blue button-down shirt. In the background there is a gray wall with a poster from a 1982 Smithsonian exhibition.

It is important to reflect on the land we each occupy and honor the indigenous people that have called it home.

I'm speaking to you from my office in Colorado Springs Colorado. Including the historical homelands of the Arapahoe, Cheyenne and Ute peoples.

we recognize that our organizations and those of our members were founded with. We ask you to respect the indigenous peoples in our profession.

I would like to acknowledge today's ASL interpreters and let you know the captioning for this program is embedded in the box below the YouTube player on our website with controls to adjust your experience.

The best way to continuously refine our craft is to share your candid feedback and following today's program you will be sent a link to a satisfaction survey. Sharing your extreme
Sometimes we are unable to answer all of the questions. And frequently questions arise after reflecting on the program. We set up an online community forum for raising questions and posting with your fellow using practitioners on our website. Please visit the forum and create a login and post questions. A member of the community or student technology fellows will get back to you. And follow us on social media for future programs. Links will be posted in the chat and now it is my pleasure to introduce today's presenter. Dr. Rene Cepeda is an independent arts historian and curator specializing in new media art.

He's the author of the manual for curation and interactive new media art and the co-editor of the Game Arts Curators Kit. He has taught at UDLAP and currently teaching UNARTE in Puebla, Mexico. His research interests include interaction and exhibition design, New Media art, digital performance and art videogames are some of his specialties.

Let's give Rene a warm welcome.

>> My name is Rene Cepeda, an independent curator, researcher and my background is in Museum Studies in exhibition design in curation. And I turned it into what I'm doing now which is virtual exhibitions, in media art and how both are very much tied together.

Pretty much I am a cis male, 38 years old and light-skinned my hair is dark brown. I live in Pueblo, Mexico, this is the city specifically for Spanish colonizers but it is located in a place that was according to documentation as non-native relevant, basically means there were no native people in the location and no native significant sites and it meant that this was created to create a Spanish area like a completely safe zone for Spanish colonizers. My pronouns are he/him.

All these workflow ideas can be adapted to what you need. Don't feel like you must have all these things in order to proceed. You do not have to do everything that I tell you -- every museum is different.

Sometimes the curator does everything and sometimes not, take as much as you can from this and adapt it to you. First of all let us be clear what will be covered in this talk. Why do a virtual exhibition? Why are you doing this? Is it because you want to show off a new collection? Is it because you feel like you have to do it? Those are the kind of things we will be discussing, then we have to choose a format: will it be a website, will it be a 3D space? What will it be? Then Determining investment: what do you have and what do you need basically.

Then the philosophical implications of taking exhibitions into the virtual space and finally a suggested workflow of what I think or what has worked for me.

I've been involved in institutions from very small local museums to very large international ones. This has given me a way of realizing what can be done and what cannot be done but also the workflows are not that different, the scope is what is different. So what will not be covered is asset generation which has been covered and will be covered in other museum Hub courses. Platform Development that's what will be covered next week and we offer how to keep the sites running and UpKeep everything going on. That is more of an IT thing.

Let us talk about why virtualization and there are many reasons.

"Identidad punto Exe" is an exhibition I did with Mexican artists about new-media art. One of the things we wanted to do is reach international individuals, not many people come to Puebla to see media art, and also it was a question of cost. This exhibition was done in WordPress and was very, very, cheap, about \$40. However, had this been done physically it would have required an incredible amount of hard work. Here's the suitability of the objects.

This image you can see here is an exhibition I planned called Poppy dot museum for . This is an exhibition I planned for the online artist Poppy. You can see the YouTube videos and then there is the image to Baphomet which is in reference to the video, everything is online and social media. And I'm trying to present the things in the most adequate manner to bring the physical to the virtual because it points out what Poppy was doing at the time. Another example is accessibility in the case of the Museum of the World. This is also rich but the fact is that most of us do not have access to these objects. They are in collections or held in places that most

people cannot access like it is a way to bring a bridge to the museum for people to edit in exhibition but it is very visually attractive. Although it looks like simple dots.

Here this is the NC state university library. They had done their collection and had a lot of digitization efforts in their architecture collection. They wanted a way to show it -- so they created this exhibition. The next one is prompting a new digitization effort but basically, you can use the idea of exhibitions as a way to start your digitization efforts. We can actually turn this into something someone will want to see, in this case recreations of Roman spaces.

Those are the basic ideas of why to do an exhibition. You have to ask if the material is suitable and how it is suitable. Is it going to be a simple webpage? Do I have the resources to do something more complicated and do you have the knowledge? That is what we will cover next.

So where do I put this? What kind of exhibition formats are there? So these are the basic ones, social media art galleries, webpages, premade virtual spaces, virtual tours/virtual spaces, and this can include Street view galleries, 3D spaces -- from Minecraft to Second Life which are game engines and the Unreal Engine it was a game engine but now it's used for so many things, the Poppy example was done in Unreal Engine. Then we have VR spaces, which can derive from the former ones and then finally augmented reality or AR.

Now I'm going to cover some pros and cons. The first is social media so this is an art gallery in Mexico MaiaContemporary-- they do have a physical space but they also do their exhibitions online they exploit the nature of Instagram and you can click on the pictures and you can get a description of them.

This is useful for static things so paintings, some video art can work but it depends on the time. The playtime of the object. But it is limited what you can do, you cannot customize it. You cannot add pop-ups if you want or anything like that. But it is simple and has incredible reach. And it is also very cheap.

First ladies of the United States exhibition, I believe this is from the Smithsonian. These are paintings of the first ladies and tell you about their histories. It is simple, it is not as simple as social media or Instagram or Tik Tok although Tik Tok would be better for performances, you can add metadata basically. You can add, you can click on the paintings and it takes you to an explanation of who the first lady was and articles and information on each one so that is an advantage of the webpage. The webpage can contain the others within themselves and just depends on the complexity. Then we have pre-made exhibitions spaces. So this is where they give you a space for a certain amount of money for a certain amount of time and you can determine how much you want to pay in terms of the size etc. You basically add your paintings or images. It is more suited for art but it has a few disadvantages. And that is it is limited to what

they already have done, the media that can be shown, sculptures -- but it is a simple way if it is on paper it is easy to translate so photography, paintings, posters, anything like that can be shown very easily. And it saves you money.

And then we have what is essentially a street view of a gallery. This can be done but basically you take your physical space and you can scan it and photograph it in 360° and there is software for this, it will turn it into this navigable space. The good thing about this is you can literally take your physical exhibition. The problem is it has limited interaction. In some cases you click on those paintings and you get details but that is what the Google Art Project does. And that's what's been done here. But if you do not have the money to do it in their system, not all of them will allow you to do this. But this might be a good idea for some of you.

we have the virtual spaces as I mentioned, these spaces were made by me in Unreal Engine and it was for an exhibition that was going to be physical and then later became an online thing proved it never took off and that is why some things are placeholders like the labeling system or the Red Cross in the middle of the screen is a prototype. But in the end I can get the funding and convince the artist and turn it into a full on space and this can be downloaded from online and also be put on a webpage. It is couple gated but it can be done Peter can also be put in the computer in an exhibition spaced experience. It can also be turned into a VR experience, so safely navigating with a helmet is very translatable in one of the advantages of Unreal Engine. You just tell it to make it VR or for iPhone or iPad and upload it from the app store. It is not as complicated to do unless you start getting into scripting so it should not be a problem for most.

This is my living room and it looks like a 3D space the art is overlaid on top of iread you can see my battery or anything in there, you may bump into a chair or table and this is an extreme example of overlaying an exhibition so it lets you interact and move around and get closer to the paintings as if you were there. It may be difficult because if you want to go down ale and I'll you have to be able to or you could have something you will bump into if not careful but you could do that 3D stuff and map it to the walls with the floor.

There is an app called a Fourth Wall app and you can take a sculpture and put it on the software and it will appear in the person's living room. And you can see what it looks like from all angles. It can be enlarged or shortened, so many things you can exploit with an AR app.

Now we have covered which one you can choose and we will talk a little bit about before you begin and what you need to do. If you have an IT person, contact them and make them a permanent part of your team. Unlike other types of exhibitions IT will be very helpful because they can tell you what can be done in-house and what cannot be done and must be conditioned. They may have ideas about how to present. I've had this happen for the Poppy Prototype. This IT person said we can do this instead and if you want to do it physically it can also be done. So it was this feedback of things but he didn't know the technology could do so it is very useful to have an IT person with you. And they can help you to choose the work because IT could say we cannot put this on a webpage easily or no, this will not work because we do not have an 3D

asset yet and it will cost us but you can put it on here. It's not always what can't be done but what is possible and you will need contractors in some cases depending on what you already have and what you need so for example, scanning, you may need to scan paintings, photos, 3D scanning. This may be something you can do but you have to account for it. You will need 3D and to do 2D design for example, if you're going for the 3D spaces like this you'll need someone with knowledge to do this it may not be difficult it may be something you website design, graphics and labeling are all things you need for traditional exhibition. And if you can do it you could cut that caused. Asset generation also includes, besides scanning, generating wallpapers for the walls you are using. Or generating labels and signs. A tea table for your space or whatever you need for you. Finally environmental artists are people that can lay down everything and it can be the same person but a lot of these things can be done by the same person but you have to know what is possible. Then you have to look, you have your wish list of what you want to show and you need to determine what has been generated and what has to be generated because that will influence your budget and maybe you decide to take it out and keep it in.

Then the phone with your work selection and keep in mind all the things that have been mentioned and ideally you want to use things you've already done unless you use it as a way to generate new assets and maybe because of funding which we will cover in a bit. That is before you begin. Once you have the answers to all of these things, you can move forward. Funding is an interesting thing that can be done. You can take donations from your patrons or even start a Kickstarter the marina Abramovich exhibition was funded through Kickstarter -- so you can kickstart an online exhibition and avoid the Go Fund Me no one trusts it and it's an open goal and if you do not meet the goal it makes people hesitant about it and Kickstarter is more reputable. This can help you find funds. But it's also good for virtual exhibition grants, I found last year there was an E grant for creating visual exhibitions specifically for heritage spaces so there are many more obviously. I do not know them all and might work has not gone that way and I'm not in the US or have not been able to fund that way. You can put an impact factor on creating these things. So digital collections and archives -- some small exhibitions want to digitize their small collections. So this is a way to get funding, it can be used.

Let's go to philosophical implications. In this case it is how the work changes and -- its meaning can be different. So first of all it separates art and our heritage from the institutions, meaning that people do not see the museum, so it might be more accessible to some that feel museums are boring or institutions are too powerful. And people can't maybe be more open to things and also it is a website and it becomes more -- it becomes easier for someone to move around instead of having to go through the effort of having to go through a museum I just open a webpage. I can look at this while having lunch or whatever -- are you separate from your work from the institution to agree. Obviously you have the branding that is still there but conceptually it is different.

Another possibility although it requires a lot of programming, is the reactivation of interaction. This work specifically in the art world for example, works like a Brazilian artist who made a lot of artworks, I will write the name if you would like in the comments because it is a difficult name to spell. But this artist what he does is works that are supposed to be touched and open and

interacted and now they are not accessible and a lot of meaning is lost. When you reactivate it people can understand again what is going on with the work, returning it to its original meaning. It also means your objects do not have to be degraded and if you've something like an apple press in terms of heritage item you can make people -- the object and virtually put it up and put it into an Apple press for example and see the function even if they do not get apple juice at the end back of it, the interaction is there and it helps people get together more with their heritage.

Returning context, you can take -- while generally when we see something it is de-contextualized, right? So unless you are at an on-site museums where you have colonial Williamsburg you may not have the same feeling for an object so you have a recreation of a space and putting all the tools that are supposed to be used or the artwork particularly in religious art. If we consider icons, they are supposed to be in certain positions and places and when they are taken out of place in the gallery at the Met or the Getty they lose that meaning and you can recreate that even through 3D recreations or the setting of the exhibition itself.

Then we have materiality in one of the things about anything digital is it is immaterial so you do not have to worry about the physicality of it and you do not have to worry about if it fits through the doors or how much it weighs. And you can break reality, meaning when you do every creation of the treaty space you do not have to follow the rules of our world. Meaning, I can fly around, say, an Inuit totem pole. I can look around a French church, I can go underground my can lift the object and flip it which is unthinkable in a museum paired all of these things are things to keep in mind when designing you do not have to follow the rules of the real world or the museum itself -- there was an exhibition and it had velvet ropes around the object. And that was ridiculous, why have the velvet rope? It enforces barriers that should not be there. And then we have time. This is simple but complex. There's work in In new media that takes decades to take place. There are works of art that are so complex and so many options to explore the people will not have the time to make it possible.

You can have video art and have videos of things that will normally take too long. And there's this whole thing about not being limited by the very time of the world like you do not have to go between 11-5 PM. You can go there at 3 AM. It is a very liberating thing for a lot of people. Finally, spaces and site specificity. You have to keep an eye out for that. What I mean by site specificity is not exactly -- one moment -- it is not exactly that you have to have a physical space. For example, and work depending on Twitter-- it depends on Twitter and it's API that is run. There is a work by an artist named Pippin Barr and if you visit his video game art he made, if you go outside of New York opening times for the MoMA you cannot go and see the art. He has an interest in the relationship between time and virtual space but also he highlights it, you can overcome the limits but you do have to keep it in mind. Also site specificity includes -- the reporters without borders library, this for example exists in mine craft. You have to have the tools and be able to access mine craft to read everything that is in that library. If I do my exhibition in Second Life my people have to be able to go to Second Life and have a computer that allows them access to that virtual site. So those things have to be taken into account. This helps you decide what is acceptable and what is not depending on the aims of your exhibition.

Now I will go through the workflow which is what I've done before. This is again, this occurs at the same time as your normal workflow for an exhibition design so you try to integrate it and modify it as you can and not everything can be done by everyone and some things will be skipped but develop a team and get IT people, get exhibitions people in marketing, marketing is useful also beyond what they normally are, because they also have knowledge of social media and digital tools that can help you develop better exhibitions.

Once you have your team you start with your work selection which is the traditional thing, you keep in mind everything we talked about choosing and what has to be developed in what is already developed, and all of those things. And then you do your research which is your basic curatorial work that you know how to do. And then we go to stage II which is where we select the platform -- AR, VR? That will be determined by the work selection. Then contact arts or institutions if you need loans or permissions and if your heritage you can skip this obvious will appropriate things and while that may be fine it is necessary to make sure proper media rights are secured to show the work online.

if you want to change it from a webpage to a VR, generally, the rules are that you can go back but you cannot go up. Okay? So let me go back to the media thing. And I can explain this. Here we are. You can go from AR, VR, 3D and street view to premade virtual spaces or web pages generally, some sacrifices have to be made for example sculptures you cannot really be used in virtual spaces but you can for a webpage, so figuring out what to do but if you have the idea of making a webpage and halfway through you decide to do a 3D space you will run into costs, you will run into issues of finding people and you will delay your progress for about year. So be careful when you start developing patents. By developing I mean rendering technology ready. This is not putting things into the exhibition. It is just making sure your web page opens and your technology and your WordPress is working and has the right address you have for your website, so make sure that it is ready to have things poured into it and then generate your assets. Make sure you have your graphics and your objects in everything ready to be put into your space. And then you develop the exhibition space which is the part that is more aesthetic.

then we move to stage three where you should theoretically already be done with everything

So should already be ready be done here and we will say we will put this here and these works in this order --we will have so many webpages and obviously you can go back and fix things but try to have everything is ready as you can also generate your metadata and hyperlinks, it is optional but it's one of the strengths you can put up a webpage where you show your artifacts from Wisconsin, and you make a link that takes you to a definition of the object and information about it.

And plan your activities. Zoom tours can be done, the problem with Zoom there's a lot of, there's more interaction, yes, but at the same time it is more limited, this can be good when you want to do something with a VIP team or a group of people. You can take your stakeholders, your committees and things like that and you can show them through Zoom and it is more private.

You can also do live streams and everyone can look at it if you do the proper social media and people can access it. It is exactly what we are doing now. So you can put it in YouTube, Facebook, even Instagram as it gives you a lot of access to curator talks. It can be part of the live stream in which the curator can do a Q & A. Why did you choose this? And the curator can go off on relevant things they can create about their interests in creating the space for example. And then figure out all the modes of engagement.

There are things I have not thought of and I am sure you have created or you yourself are a very creative person and can think of ways of creating interaction and activities that will not let the website be a static thing or have the exhibition be just what it is.

And for example, for the extra modes of engagement, this may not be for everything but with 3D printing it can be done but this is a Jade elephant from Egypt. The community is enamored with this hippopotamus. The museum is not exploited for this -- how can this be turned into an activity that becomes engagement? Well, the museum can do 3D printing using digitization efforts, 3D printing of the elephant, you can generate sheets and some very interesting things which is having your shop take things from the collection and maybe because this is digital people can make a wish list or shopping list. They can get a memento or memory of this and then at the end you can go to the store and everything that they liked can be -- you can get a T-shirt of this printing or you can get a print or 3D printed version of the jewelry. I actually note jewelry makers that will make historical recreations of your product so you can talk to them through their website that will let you generate -- it is horrible but you can monetize your collection which is something that right now we struggle with institutions.

The idea is to be creative with what you have and it is a 3D scan or digitized in one way or another. Let me now share with you a few more resources. My own thing which is the Manual for the Curation and Display of Interactive New-Media Art breed there should be a link in the comments. This is specifically for new-media art but many things can be used by heritage because I derived this from one of my dissertations about heritage. Exhibit.com is a premade exhibition space for Unreal Engine. Unity is the competitor to Unreal Engine. Then we have the Fourth Wall App where you can talk to them and integrate your work into their app or they can help you find other solutions.

Those are a few resources. They will be in the forum, as mentioned in the beginning, so if you have any questions I can answer that for you.

I want to thank you for watching and taking the time to listen to this and if you want to get in touch with me, that is my email and my professional website. You can get in touch with me for that and I do consulting and I teach and other things that I can help you with. I do not have an Instagram. But here's my other social media.

Thank you for watching and I think we will go to questions now.

>> JUSTIN: Thank you so much, that was wonderful. I do have a few questions for you. Thank you for such a comprehensive discussion here. So have you ever heard of any WordPress plugins that are good for virtual exhibitions?

>> RENE: I haven't gotten too involved with WordPress, I generally just fix things myself. It is

>> JUSTIN: We may have covered this-- but the basic skills and equipment necessary to get a virtual exhibition started?

>>RENE: it depends on the mode you want to go and for example, the most basic is just basic social media. If you want to do something like Instagram or Twitter you just need the images you want in your phone and generally how to use the thing. However, website design explanations may be useful. The next one will be about precisely this thing and integrating into WordPress and using solutions for WordPress is another option. For premade virtual spaces you do not need experience, for virtual tours, it depends. Mine craft you just need to know how to use mine craft. I'm sure some of you have children that can teach you to do marvelous things. Mine craft is incredibly flexible. Everything is doable by yourself. All of these except for Unreal Engine can be done by anyone, you can go on YouTube and learn how to generate assets. Second Life is covered -- I forgot her to pronounce her name --

>> JUSTIN: I will get that name in one second.

>> RENE: Finally, I learned how to use the Unreal Engine in half a year. They have an excellent tutorial system they created and it teaches you everything you need to know, literally it is being comfortable with a computer breed you do need a very, very powerful computer. We are talking about looking for something like a gaming computer. It has to have a very good graphics card, it has to have a lot of memory and it has to have a good display. You want at least two monitors for that.

It is not as expensive as it seems.

>> JUSTIN: Awesome. That name you're looking for Dr. Gaston. Two weeks from today we will go into great detail.

>> RENE: and she is a master at it.

>> JUSTIN: Adriel Lewis will be next week.

>> RENE: she will be talk about how to put something on WordPress.

>> JUSTIN: Great shout outs. Yes, the next question is, at your expense, what is the best way to communicate with the various players in a virtual exhibition, is there a preferred communication or project management software?

>> R>> RENE: you can use Slack, and I Should've Mentioned That You Will Want to Have a Way to Keep a Version Control, Especially If You Are Working with Ureal Engine so when you are changing things you do not have mismatches with versions. I cannot recommend you one now because they are different for every system and if you are doing it yourself on your computer you do not need it but if you have two or three people working on it you may have to think about that.

>> JUSTIN: Great point.so what measures have you put in place to ensure that your virtual exhibitions are accessible to a variety of users -- does that factor into your strategy and design thinking, accessibility?

>> RENE: it is just a matter of people getting to help because it is not particularly in a stable category and it is difficult but one of the things is to make sure it is readable by screen readers so you have to make sure that all your images have captions etc. You use alt-text to describe the images. It almost runs itself but for 3D spaces, you have to be careful because there's not much research -- you can implement things like filters for color blindness but generally the adaptations for 3D spaces are done by the end user because you cannot account for all of them, generally -- they generate their own interfaces.

Other things you can do is make sure your fonts are readable so there are fonts that are specifically made for dyslexia to help with reading skills.

>> JUSTIN: That is fine. Yeah, I would do a self-referential point back to module one that we did for the Museum Learning Hub and people can find accessibility strategies. So we do not have to put you on the hot seat too much for that. Thank you for sharing your perspective on that.

This may bleed into some other categories-- is there a way to ensure your website in the virtual exhibit are easily found by the public

>> RENE: three things you can do first of all, social media, marketing, marketing them because I notice it is not done well. Exploit tags and Instagram and Zoom-- many people think Facebook is still relevant and it is not for teenagers, you have a Facebook? If you want to reach that public you need to have Instagram, Tik Tok, they communicate through them and you have to learn that language. maybe create a youth program where you can have someone who's in their teens interested in museum work and go while this to something with social media and help us promote. Keep an eye on it so it does not become inappropriate but really using-- -- trying not to end up like the meme "Hello fellow youths..." Try to avoid that.

The other thing is SEO, search engine optimization, making sure you have important keywords in your exhibition but Google does not like it but what you can do in white text hit them-- put every single word you can think and make it invisible but make sure that it is in the code of the webpage. It can't be up to hidden comments but you can use everything else. In the last one is just basic promoting -- in physical spaces because that is also something that happens. You could do posters and put in radio -- there are ways but it has to be promoted. If you are putting that much effort.

>> JUSTIN: Thank you so much. What are some strategies and low-cost products to boost interactivity and ease the inclusion of physical objects?

>>RENE: Woo, well, well the easiest thing I can think of is the 3D use of objects for you take a 3D -- it is even just photographs you don't have to go super fancy, take the object and photograph it from all angles and there are plug-ins that will turn it into an image that you can just take, you can scroll around it and it will help a lot. If you are doing 3D spaces and you have the ability to do it just pick it up and look around it. The virtual exhibitions, I that seems better. If you want examples of that. Ask them to put it on the tour mode and it is doable you just need -- in that case you will need someone to help. But on a webpage you can use sliders and things like that.

>> JUSTIN: That might dovetail with a general question I am seeing here, and I wonder, the question is phrased, do you ever need contract help? But I would probably rephrase that and say, what are the things you outsourced? We've talked about a lot of things that can be done in-house, what would be the things that go beyond the boundary and make you want to bring in that extra contractual help rather than bringing it into your own skill set.

>> RENE: For me, it would be someone who could do the programming -- I could do it but I would not be comfortable doing it professionally and I would say hey, can you generate

blueprints for these things, so I can do this, this and this breed you have to be very clear with what you want. But there's a lot of people doing video game programming degrees and they do not have jobs. So you can find these people and they will be super happy to help you and it is good for their CV, obviously pay them but they will be very happy to help you because it lets them get into the industry or just generating business from this.

3D design, 2D design my will generally get a designer to help me with that. And if I'm going to do --if I do not have a collection team for generating assets I would get a contractor to do that. And that is mentioned in the prior workshops. I can generate the space myself.

>> JUSTIN: Corollary to that and I apologize if you've covered this part of it but for those of us who are a one or two person operation Museum wise, what types of programs do you suggest starting with? So opposite of the last question, if were not going to use a contractor and learn it ourselves, where would you start?

>> RENE: This depends on your willingness to learn. Social media may be super easy, anyone can do that. Webpages. Depending on how interactive you want it, even the basic word press that is for free is very flexible. This one -- -- that one I did myself in a month. This one, the 3D spaces I did myself. Premade virtual spaces, you don't even need to know anything except uploading images. Virtual tours, I cannot do that but I know people that can do it. But if you can do it, go ahead. 3D spaces, this just depends on how much you want to add the interaction. Second Life is tricky but it's all YouTube videos and you can learn it. Unreal Engine is a little trickier but it is simple. You can learn to do that in a week. VR space is the same thing as Unreal, -- I'm not very familiar with AR. It is more complex. And I would get someone for that. So that's the one I would least recommend.

>> JUSTIN: That is awesome and I really appreciate the feedback and the detail of instruction about where to get started. I personally very much identify with folks who bootstrap it themselves. Any final thoughts today before we go into final housekeeping?

>> RENE: No, we pretty much covered what I wanted but I am open for questions and I don't charge for basic questions -- of you want to get in touch that would be fine paid I'm grateful for what you are doing, it is a very nice thing and I think it will become museums become better which is my goal in the end.

>> JUSTIN: Thank you again and we appreciate you being here. A few final notes.

Thank you for attending today's program. After the module and after all of the modules have been completed you will see the entire module presented on the website along with a complete toolkit of resources provided by our presenters. Please visit the forum on our website and ask

further questions, follow us on social media to stay aware of future programs. And join us next week on August 19, 11 AM Pacific time, for the second award shop which will be on curatorial approaches, curator -- with the curator of digital and emerging practice at the Smithsonian and Asian American Center in Washington DC. That is Adria Lewis we mentioned a little while ago. So thank you everyone for being here and please come again, complete the post event satisfaction survey. Have a great weekend we will see you next week.