Module 10

Digitizing 3D Collections

Intro Session: Get Inspired

January 6, 2021

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DAN YAEGER:

Welcome, good morning, good afternoon, or good evening, wherever you are from, and welcome to the digital empowerment project, Module 10, digitizing 3D collections in museums.

The digital empowerment project is a national program dedicated to providing free self-paced training programs for digital technology for small museums. The series of online webinars and toolkits is made possible from the Institute of Museum and Library services. We are delighted to have you with us today.

My name is Dan Yaeger and I am the Executive Director of the New England Museum Association. Before we get started I would like to acknowledge the places in which we gather. In this era of virtual meetings, when digital spaces may substitute our physical sense of place, it is important to reflect on the land we each occupy, and honor the Indigenous people who have called it home. I am speaking to you from Massachusetts in Boston, the historical homelands of the Massachusett People's. Wherever we are let us acknowledge INDIGENOUS NATIONS as living communities. Their elders are both past and present, as well as future generations.

We the digital empowerment project team recognize that our organizations and those of our members were founded in colonizing societies, which have taken part in the exclusion of nations. We ask that you acknowledge the land that you are on, and respect cultures that form the richness of our world and profession. Thank you.

Now, for a few housekeeping notes before we introduce today's presenter. First I would like to acknowledge today's ASL Interpreter who will be on the left side of your screen, and let you know that captioning for today's program is embedded in a box just below the YouTube player on our website, with controls to adjust your experience.

Following today's program we ask you complete a short survey, to give us feedback. We will put a link to the survey in the chat screen, and will email a link to those of you who preregister. We would greatly appreciate if you would share your experience with us to help us improve our work. We encourage you to post questions to our presenter which will be addressed at the end of the program. Please type your questions in the chat, we will get to as many questions as time allows.

We may not be able to get to all questions during the live session, and other questions may arise. For this reason we have set up an online community forum for raising questions, posting answers, and connecting on the Museum Learning Hub website, which you can find at museum-hub.org. If you're looking for help between programs, please visit this form, create a login, and post your questions. A member of the community will get back to you.

Now it is my pleasure to introduce today's speaker for our Module 10, intro workshop. Daniela Larsen, the executive director of the Hutchings Museum Institute in Saratoga Springs, Utah. Daniel is a certified National Geographic educator specializing in digital media and cultural diplomacy.

She has created virtual reality experiences, 3D explanations, and 3D knowledge banks. And get this, she has led expeditions to the Mount Everest Base Camp, Madagascar, Mongolia, and several other locations for educational and cultural exchange. Daniela has implemented conservation projects in Utah, empowering participants to use technology for citizen science and impact in their local communities.

She has created several online science and history programs for local schools, provided internships, and created opportunities for municipalities to participate in conservation and geographic education.

Daniela has experienced firsthand the power of technology, and allowing diverse cultures and technologies to collaborate on identifying and solving the world's issues. Please join me in welcoming Daniela Larsen.

DANIELA LARSEN:

Hi, I am happy to be here, thank you. I'm just going to start off by telling you a little bit about our organization, and where we are at. As part of that you can see our building up on the slide.

The land acknowledgement but I wanted to share with you is going to come in significantly later, as part of the presentation. So there are a couple of tribes and issues that I want to pull out, and how we have been able to use digital media to help solve some of the issues we are facing.

I'm just gonna read it offscreen here. It is our honor and responsible to acknowledge to all who meet here that we gather on the land that is sacred to all Indigenous people. Who came before us, in this vast crossroad for the Timpanogas, Ute, Piute, Shoeshonee, Navajo, and Hopi peoples and their ancestors. It has been their stewardship from time immemorial to care for this land, and all of its inhabitants. Both two and four-legged, winged, and water bound. We honor their memory, their physical presence, in our state today.

Their ancestors present here in spirit, and we do so in our reverence for their resilience, and preservation of their connections to the creator. We honor the people, we honor the land.

As I said, this is going to come in significantly. In our state it has been interesting because, our cultural alliance and the governor's board of Indian affairs here, has issued guidelines for each organization to create their own land acknowledgments, and in some ways that has caused a lot of controversy.

We're going to take a little step back in time, as we talk about the museum. And we really got into doing a lot of the digital things that we are having so much fun with.

This is our building, we are actually housed in what is called the Veterans Memorial building, if you are back East it does not sound that old, but it is pretty old for us out here in the West. It was built in 1919 by veterans of World War I.

It was originally the Veterans Memorial building, since then it has been used as the city offices. It has been a jail, it has been a lot of different things, it has a lot of really great ghost stories and a lot of really great history In the building.

This is a really fun topic to talk about because things in collecting, and how we educate, and the purpose of museums has changed so much over time. Sometimes we are born into the world that we are born into, and we assume it has always been that way.

And as we talk to children, students and things about how things used to become a it gives us a really good perspective on the fact that things are always evolving. So a little bit about our founders, John and Eunice Hutchings, this is Mount Timpanogos which is named after the tribe here in Utah. At first this cave was just a tiny little cave opening, and he was a prolific Explorer.

He was a collector, ultimately curious, we hear so many stories of people who are older now, and acknowledge the start of their careers being to John, and his willingness to let them tag along. And never make anyone feel dumb for asking a question.

All the field trips when their collection was initially housed in their garage, to go look at things they had in their garage. His wife Eunice, you can see on the other side, she was quite the woman, first of all for having the amazing patience to have someone collect so many things. And she really got into it, she was a big part of it. She is a peer collecting Eagles eggs out of a nest on the cliff, here in this picture.

I wanted to talk a little bit about what kind of technology was used at the time. To collect and preserve, and what their intent was for collecting in the early 1900s. They were right there, around the turn-of-the-century, where they were starting to do some of these things.

I do not think we realize sometimes how cumbersome it was to collect and preserve information. And what a problem this has become in technology, and in preserving technology. The first picture that we have got here on the left, it is a plate and bellows camera. It is fun to see how some film photography is making a little bit of a comeback, right now.

But this plate and bellows is not coming back quite yet. It is fun to see some things gaining in popularity, but for the most part people are taking pictures on their phone and it is going to a cloud somewhere. That has its own problems which we will talk about a little later, but carrying something like this camera

up to a cave – that you had to scale a mountain to get to, or to take pictures of eggs, it made it pretty impossible to do that.

So things were collected with a very different mindset, in a very different way. The picture in the middle is of a wax cylinder recorders. Honestly, before I came to work here at the museum, this was not a piece of technology that I was familiar with. They recorded on these wax cylinders, and a lot of these wax cylinders are still around. One of the issues that we face, is how do we take things that were recorded on these wax cylinders, and get them digitized in a way, so they can be accessible by people now?

There is a huge collection we are working with at the Library of Congress, that was made by a really awesome person by the name of Natalie Curtis, she went around and recorded a lot of dances, rituals, and prayers of Native American tribes. This was at a time where it was illegal for them to perform their dances, the Sundance, a lot of their sacred rituals.

It took a lot of courage, not just from her, to do that. And as a young woman to do that in those days, to insert herself in some of these really untamed places, that were unsafe especially for a single white woman, traveling around the West. But for the relationship that she had, and the courage it took from the tribal leaders that were willing to share those things with her.

Knowing that there was a possibility that they could be punished for that. Sometimes they would get special permission. Sometimes they would just do it. They understood the significance of saving a lot of that for their posterity. And they could see how a lot of that was being cut off as the tribes were being moved around, and families were being separated.

But that collection of wax cylinder recorders is still in that original form. A big part of it has never been digitized, it is still at the Library of Congress. That is one of the projects we are working on this year, in partnership with the hopi tribe, and National Geographic to get those recordings in a way that they can actually be used. Because they are not helping anybody there, and I am sure we can all imagine the nightmares of how wax could disintegrate over time.

The picture on the right here is just notecards. A lot of the collection was just done on a pen and paper. Little notes like this, that John took. And stuck with, with tape to a box, or just had boxes of little looseleaf things like this. Which made it really difficult as things get moved around over the years, things get separated from their original boxes. And there is not a way to put them together.

There is just a lot of information that becomes unusable, because it has not kept up with the way that we learn now.

The other thing to really consider are the attitudes and laws about collecting, back at the time when our collection was started. The history of museums I think is something we do not talk about often enough, and it is so interesting to think about.

Museums are such a new concept, it used to just be private collections that when young adults would go do their grand tour of Europe, they were traveling around and seeing people's private collections.

Barnum was given the credit for having the first real "museum." It was more of a Cabinet of curiosities, here in the U.S. where they just collected all sorts of things that were different, and interesting. From all over the world, not just things, but people. As well, people with different disabilities, or illnesses that were put on display, just as a curiosity.

The attitude of the times, and the zeitgeist of that generation is very very different than how we think about things now. Which leads to problems. So most of our collection was gathered before NAGPRA, which is the Native American Graves Protection and Repatriation Act. That only came out in 1990.

Getting that information out to all museums, and helping people understand it even in 1990, that would have been a really hard thing to do. I think I graduated from high school in 92, I had not even heard of the Internet at that point yet. So thinking about how slowly we could disseminate information, and guidance. Or even a training like this, how impossible something like that would have been. And to help people evolve, and how we think about the things that we collect, the respect that we show them, how we interpret them as opposed to how we would have done it in a circus sideshow, if it was something different.

This was also before the Antiquities Act from 1906. Our collection has a lot of petroglyphs that were basically cut out from the mountain, and just put into the museum.

You know, we cannot go and put those things back. How can we use technology, 3D modeling, digital media, to try to rectify some of these things that were done in the past – is one of the things that has really led us to the exploration of digital media.

It was also before the archaeological resources and protection act of 1979, a lot of these things are very recent. Where the community at large was not worried about people not to spray painting petroglyphs, and digging up burial sites, and things like that.

It has been a slow and steady education, we deal a lot with private land issues, and trying to really guide the community without frightening them when they do find things in their area that maybe should go into a museum. People become really afraid if they do not know what to do.

They think finding a burial on the property is going to completely stop the construction project. We have heard nightmare stories where people will find human remains, and throw them out, because they are afraid it is going to stop them building their home, or the shed.

Technology has become a really powerful tool to help guide and educate people on, just call us, we are in and out in two days with the state. We will come in and find the right places for those things, and make sure that it does not stop the things that you are trying to do.

It was very hard before technology to get that education out to people. And finally, the paleontological resources preservation act, as well.

Our museum is about peoples and culture, and natural history. John collected everything from fossils, plants, and animals to Native American relics, there are so many out here. And gravesites, things like that.

So our collection is very broad, and over the years, as he became known as the go to guy for if you found something and wanted to interpret it, or find out what it was… People would bring those things to John. And more often than not, they would leave those things for his collection in the museum.

OK, so a little bit about me. I was born in 1974, I will let you calculate my age… My birthday is on Christmas Day, I think I have turned 47 for the last five years, my kids keep telling me that.

As was mentioned, I am an educator for National Geographic, and that has led to a lot of really great collaboration with other explorers around the world. The exchange of knowledge that also was not a possibility before technology.

So comparing a little bit about what technology was like when I was born, to when the Hutchings were around… You know, we had rotary phones. I remember some kids who were spoiled, they had two phones in their house, and if they were really spoiled they had a phone in the room. That ability to communicate, but you could talk from your own room was pretty amazing.

We were recording things on tape recorders. Typewriters and carbon paper, film cameras, these old big video cameras that were so hard to move around, and cumbersome, it made it really difficult to go out into the field and record something. And bring it back.

These card catalogs, I remember those so fondly. You know, trying to explain to young adults and teenagers now, how we would look for information before Wikipedia was around. And some of the problems that we also create by thinking that the only information that exists is on the first two pages of Google right now.

Where there was sometimes access to a lot more information when you had to look for it in different ways. Then of course, cell phones as well. And everything that we can do with them, that even in just the last couple of years, the scanning capabilities that have come out with iPhones and iPads, that have really been a game changer for a lot of the petroglyph preservation, and creating virtual tours and 3D modeling, it has been really amazing.

My technology journey, it was funny when they first asked me to speak at this… I am used to teaching the technical side of the technology that we use, and after talking to them, to the organizers, you know they just said they basically wanted me to inspire people… Basically if you can do it anyone can do it. It made me laugh a little bit. But it is so true.

I think sometimes we get a little bit overwhelmed at how much, and how fast the world is changing. Especially if we have stepped out of the world a little bit. I started college in 1992 and then took some time off to have my family.

My kids led me into so many interests that I never would have had on my own. I have never been interested in fossils, or rocks, or things that once you see them for the first time through the eyes of a child, they become really really interesting. Our family had a nonprofit that we were working with, and we were doing economic development work in Madagascar.

I had really been looking for someone to do some online education. In 1992 the Internet was just this thing we were hearing about, it was so expensive to do and to pay someone to create any kind of online education. That is when I went back to school, to the digital media program here at Utah Valley University.

Just to learn how to do it myself, because I could not find anybody to do it. And I really fell in love with the power, and sought the potential to connect so many different ideas, in a way that we just could not do with just paper and pencil and notebooks.

I am sure as most of you know, when someone asks you to be on a board, it really means, "will you work for us for free?" My kids had basically grown up at the Hutchings Museum, they had spent a lot of time there playing in their rock and mineral room, and doing all of these great other things.

So they asked me to come and serve on the board, and help the museum get some digital media going, in 2007. John Hutchings in 1955 donating his whole collection to the city. And the city was basically running it just like they were running the rec center, hiring some 16-year-olds to check people in at the front door. There was not a lot of bandwidth to do a lot of real curation or updating of the museum, so everything stood still for a really long time. The museum did not have a website, everything was just on one drive which crashed, so everything was gone. It was not cloud-based or accessible by other people. And so many records were just on paper. Paper everywhere, and paper that did not match up to artifacts. There was a lot of inaccessible media.

A lot of our interviews or recordings that John or Eunice Hutchings were done on these old reel to reel players, and had no way to play them. We ended up having to go to a university to digitize, because they had one in the collection. And be could record the sound coming off. The same thing with more of these wax cylinders.

So the first couple of years were just really digging into, how do we update the technology? It was the first time that I really came face-to-face, and sought the tragedy that we are facing with so many of our collections, and such a powerful way.

We are losing so much of history, because it has not kept up with how we access it. It is still there, it is still recorded, it is still on a wax cylinder or on a reel to reel, but unless we have kept up with transferring that to something that makes it usable and accessible it might as well just not be there. Because we cannot access it or play it.

This is one of my favorite quotes, it is really fun in our museum. Because we are a natural history, and people and culture museum. We have the opportunity to really un-silo the way that a lot of things are taught.

There is so much of: "this is paleontology, this is history" but being able to apply the principles that we find in nature about survival, to how we work with our collections has been a lot of fun. This is kind of our mantra at the museum. Especially when things like COVID hit, or other opportunities or challenges have come up. It is just so important to really adapt quickly to the new environment that we are in.

One of the things that we really like to talk about, especially with our Native American advisory board, and a lot of our 3D modeling and collections have been around our Native American collection. Is that it is not the winners that write history anymore, it's the writers, the videographers, the photographers, and the storytellers.

This is Larry, who is on our Native American Advisory Board, and we are out here visiting some land that was basically taken from the reservation, and given to small 10 acre plots in the middle of the reservation that were given to white settlers, to homestead.

This is one of the old farm houses. And he was up there, and able to talk to us about the impact that that had on the people that were there, what that did to their relations, that oral history. And really get that side of the story. It really just allows us to have more than one version of a story. And be able to be

comfortable with the fact that two people can experience the same event in history, very very differently. And that there is room for both of those.

We are stewards of the history, we are not trying to write it, we are trying to make sure that it is accessible. And that all the versions of it are there, so we can give different groups different opportunities to tell their stories.

This is Darren Perry, he is also on our Native American Advisory Board. And he is the chief of the Northeastern band of Shoshone, in Utah. He has been an amazing advocate for keeping the story of his tribe alive and using technology to do that.

There are a couple of really large massacres in the history of Utah that are not talked about in the textbooks. There are a few reasons for that, and I had a really great discussion with a retired history teacher, just couple of days ago. It really drove this point home, where… I have nothing but absolute respect and admiration for public school teachers. There is absolutely no way that they can fit everything in.

They take a lot of heat for what they cannot fit in, or what they should be talking about. But he was so adamant about, for everything that we put in, we have to take something else out, there is only so much time in the day, or curriculum for fourth grade. The other thing as well, I don't know how many of you remember how interested you were in ethical, moral issues when you were in the fourth grade. If you were paying attention to those things as much as you were paying attention to the cute boy or girl next to you in high school.

That the real deep understanding of history, and how it applies to the choices that we make now, and how and what we choose to tell and talk about, and preserve, a lot of those things are really more in the sphere of adult self-guided education.

And as museums, I think that our role in that is more important than ever. It still breaks my heart, the times that we see children on a field trip, and we're telling them about something. And we have had kids raise their hand more than once and say, "is this going to be on the test? What are the parts I have to remember for the test?" And that is not the point of understanding culture, or the world around you.

And there is nobody that can do it the way museums can. I think we really need to understand how important and vital our role is in shaping the future right now.

The information that we are really losing right now, so much of it is a lot of old books that are out-of-print. As I mentioned earlier, so many of especially… You know, younger people or even if you're just going to a library, there are so many things that are out-of-print.

One of the issues with a tribe here in Utah, so 2026 is going to be the 250th anniversary of the signing of the Declaration of Independence. It is also 250 years that Dominguez Escalante came through Utah and met with Native Americans for the first time, and I will show you a painting of that in a moment. In his journal, he refers to the Timpanogos Indians that lived in Utah Lake.

Almost every book that we have before 1920 mentions this tribe as their own tribe. They are not federally recognized right now, they are actually still working on that. It was not an issue that I was aware of, how many tribes are still trying to seek their federal recognition.

When we started talking about this tribe, I started getting some really nasty mail, registered letters from other tribes that did not appreciate us acknowledging this other tribe. There is a lot of background, with the history of the tribes. And how friendly they are to one another, and sometimes they feel threatened. But once again, digitizing these older books, the OCR scanning capabilities where we are now, basically creating an online library of a lot of these books that are out-of-print.

The OCR, optical recognition, so you can actually just search for a word in it. It makes it really easy to search for events, times, and places, or certain tribal names that we just could not do before.

It has caused quite a bit of stir actually, in the state. Because there are a lot of people asking questions about, what happened to this tribe? It has been interesting taking this stand of, we are just putting history out there. At this time, and place, this is what people thought and believed. We are not asking anybody to judge it, to condemn us for showing it, and it is interesting how sometimes it is not who you would expect to have a problem with you showing the information that has the problem.

But, there is a lot of politics and things behind some of these issues, that just putting the primary sources online solves a lot of problems. Because then it is not hearsay or a he said/she said. We have a very strict standard of what we can report and talk about, and we are always looking for primary sources. But it is so interesting to see how knowledge changes over time. Or our perception of knowledge changes over time.

And so, scanning these books and creating this digital library and resource has been a very interesting project. One of the things that has come out of that, I am going to click on this timeline that we created.

Let me know in the chat if it does not work.

This is the painting of the bear River massacre. This year, our governor, on Indigenous People's Day, on things giving him a made the statement. It was not anywhere online, we could not find it anywhere, but someone had sent it to me.

I was thrilled to see it, but then there is also a lot of putting our, putting some action behind it. He talked about, "whereas, we use this time to reflect on the history of Indigenous settler relations, and pay special attention to the atrocities perpetrated by our forefathers – committing ourselves to avoid the mistakes of our past, and forge a brighter future."

As the timpanogos tribe had actually approached us, and given us some of their histories that they had. And we started vetting sources, one thing that was referred to several times, was this special order number two.

We have transcribed it. Because look at, another problem we have with transmitting information to another generation. How many of our teenagers could read this? I can hardly read this.

But I know a lot of kids that are coming through now, have not even learned cursive. So again there is information that is not accessible. This is basically an extermination order that was given from the state to the Indians that were down at Fort Utah.

We had seen this referenced in several books, the extermination order, but had never seen it. We had been looking around and hunting all over, and finally found a citation where it mentioned that it was at the state capital on microfilm, somewhere.

And that it had the rule of the microfilm. So, we went digging, and that was the only place that this document was. Even our state historian said, I had heard of this, that I had never actually seen it. Being able to keep that part of history alive, it meant so much to the tribe, and to the Indians of Utah, to know that we were acknowledging these things. Because they have been passed down, orally, traditionally, through them.

But nobody on the settler side was aware that these things had happened. There is no way that we can, in a textbook, include all of this information. There is just so much that has been left out, that there is just not room to teach. One of the most powerful things that digital media allows us to do is include so much more than we ever could before.

This is a sample of the 3D models that we have done of a Native American basket. It really allows us to share a lot of the artifacts, and things that we have with other researchers, and with other explorers.

If any of you guys have heard of the movie called 'What Was Ours' I would highly recommend it. It deals with the issues of Native American artifacts in museums and we want to deal with so many things that are traditionally stored in our basement, to educate, and inspire the cultures that they come from. And not necessarily having to have them come to us to see those sorts of things.

This is the 3D model of the pot. And what is really great about this, is all of the tribes have access to this, as well. Their historians do, you can zoom in and out, you can see really closely.

Different tribes have given us different interpretations of what this symbol, that most of us would, at first glance, connect with a swastika, or Nazis. And we have had a couple of different interpretations. Some of the tribes that are currently here are offshoots of tribes that were here 200 or 300 years ago, that have separated.

So sometimes we will get more than one interpretation. But this allows them to have access to our whole collection. And there is enough space to put more than one interpretation on here.

That has been a really fun, powerful thing to do. We have also created digital tours, so if people cannot, especially the tribes cannot come to the museum itself, or sometimes they couldn't come, unless they really understood the things that were there. With digital tours, anybody can see it from anywhere. These are all accessible through Google glasses, or any kind of VR. So you feel like you are actually in the room, and you can pull up information on the different artifacts.

And again, one of the most powerful things is the fact that there is unlimited space here. These can hold videos of different… You know, you can get so much. We have had so many more visitors make comments about the virtual tour then we have about the life experience. Just because they have access to so much more information here, virtually.

So, just to finish up here, The challenges: everybody is not really excited about all the forgotten stories that we are telling sometimes. Sometimes people get really defensive. They would like us to leave that extermination order on microfilm buried in the vault at the state capital.

It takes a lot of cultural diplomacy. So, to be able to help people understand why holding space for all of the stories is so important. We do really see, when we are looking, when we are scanning old books and looking through things that are out of print, we do see that there are tribes and stories and events, that have changed, and how we tell them.

And too many times we go by the current textbook, or what is on Wikipedia, or is on the first two pages of Google. And we are not really looking for primary sources. Where that information is coming from, and digitizing collections like this, really allows us to do that.

And then, keeping up with the changing technologies for a lot of these old record types. It was not too long ago when we thought everything was really safe forever, because it was on a CD-ROM. And now, most computers come without a CD.

The opportunities though, that this provides again, the unlimited space to include a lot of stories, a lot of artifacts. And to give anybody that has an Internet connection the ability to handle a pot, not handle, but virtually handle it basket without having to touch it. Every time we touch something like that pot that I just showed, there is a chance it can get destroyed.

The speed of the compounding data that we are collecting, and sharing is just… Astounding. This is a book I have read recently, it is 'A New History of Life' which talks about how everything we learned about dinosaurs from several decades ago is now wrong. Where before scientists and paleontologists and archaeologists had to go from museum to museum and scour through their basements and collections to come up with ideas.

Having everything digitized and working towards that allows them to access that from anywhere helps us to synthesize our knowledge a lot faster. It allows us to have multiple ages and interests, participate in history in different ways. There is a way to interact with different exhibits in VR, that is really a great starter for a lot of kids that might not think that they love history.

But it is a really great hook. And taking the knowledge, and helping them full in love with it to where they are, and where they feel comfortable, is something that technology really allows us to do. And it is just, the opportunity for all of us to realize that we will never be done learning. There is so much more that is coming out, and changing, and I am just thrilled that there are resources like this that can provide training on some of these emerging technologies.

I got my contact information here, if anybody wants to ask me anything off-line. But I think right now, if we have some time for a chat, that would be great. I would love to answer any questions if anyone has any.

DAN YAEGER:

Thank you Daniela, that was terrific. I think some of the questions that we have gotten so far relate to maybe having you walk us through a little bit about how you actually go about doing this. Where does the digitization roll fit into your overall museum?

You have a person that is assigned to it? Do you do it in-house or do you have consultants? How much time does it take for you to triage these things, and get it done with equipment, all of those sorts of maybe nuts and bolts as maybe they apply to your organization?

DANIELA LARSEN:

Sure, I will give you the condensed version, but I am happy to send more information on any technical things. It is been a lot of trial and error. One of the things that our museum does, as we work with a lot of neurodiversity volunteers, young adults that are on the autism spectrum.

Sometimes they are the most amazing ones to dive deep into a technology, play with it, and really figure it out. We have had to be open to give people the opportunity to try and fail. There are a few technologies that we have settled on. We use sketch Fab for our 3D modeling, for example.

We use sketch fav for our 3d modeling and we use lidar on iPhones to do scanning of different things. So, we do have some set things that we do use to create those things and processes, and I'm happy to share those. It is probably more time than we got right now. But as far as our process goes, once we figure out what works…

Like the whole user experience. Often times it is a volunteer who will be creating something after we figure it out, to how it gets online. Making sure that we have processes in place so we can actually teach those things to others, around them.

And then, especially as we have been working with Native American youth, on the reservations, and teaching those things there – you know, they are pretty quick to pick up. You really do not need a degree in any of this to learn how to do it in a couple of days. It is very doable.

DAN YAEGER:

Do you have a studio set up in the museum?

DANIELA LARSEN:

Yes, we do. We have a lightbox that we do a lot of our smaller objects scanning in. The supplies for a lot of these things are actually really not very expensive. You can do it with just simple equipment that you get on Amazon.

So, we have in our workspace upstairs, we have a row of things that are waiting to get digitized that fit into that. And if there are things that are bigger, we will do that in just you know, a big open room.

One of the projects we are working on with the state right now is scanning a lot of the petroglyphs, and even trying to figure out where the petroglyphs that we have in our museum originally fit. Because, you can take different pieces of a 3D model, and place them together. And so, sometimes that work is done outside, and it is with the lidaron an iPhone.

DAN YAEGER:

What is the difference then between, handling two dimensional scanning versus three-dimensional? Is it a different process or does it fit into the same project management?

DANIELA LARSEN:

No, it is very different. Especially… OCR, the optical recognition has not been out that long. I do not know how many of you remember, when used to scan a page it would come in as a PDF but you could not read the actual words on it. You at least had a digital copy, but now you can scan in a book and type in a word, and find it every time it is mentioned. That is really powerful, but we update the scanner, that I showed a picture of earlier in the presentation. That is what we use for that.

It is very quick and it put things just into Google Drive, into a GoogleDoc that can be shared. So that is one process that we have a scanner, and a computer that is set up to do that.

The 3D modeling, all of that is done more with cameras and iPhones. And a lightbox, so that is a different station that is set up.

DAN YAEGER:

How does that work then? Do you have one camera that you take multiple pictures of and then stitch them together? Or do you have multiple cameras all at once?

DANIELA LARSEN:

That would be ideal, but no… The first way. Just the one camera, and honestly, I think we learned how to do it in just a couple of days, watching YouTube videos and experimenting.

And it stitches it, there are some different software is that stitch it altogether, that are free. Especially for museums or nonprofits. That are available, but I would be happy to share those sources as well. We had to get a better computer, that was a bit more powerful than a chrome book, a pretty heavy duty PC, that just does the 3D modeling.

So that is set up and dedicated to that station, but it was something we were able to go out and shop around for grants for. Just because it is something that you can show, two people and they can put their name on it, or something like that.

Where we live, it is referred to a lot of time as silicon slopes… We have a huge technology help right here. A lot of times, people think of museums as these old, stuffy places where old things go to die that nobody cares about. Bringing them back to life with technology like this, has enabled us to get grants for things like this. The scanners, or the cameras. To be able to use.

DAN YAEGER:

What did you say the software was that you use for 3D?

DANIELA LARSEN:

We use one called poly cam.

DAN YAEGER:

OK great. So when you do that, you have the poly cam that creates the models, and ultimately that dovetails with whatever collections management software you have, the traditional stuff. You patch that file into the software connect how does that work?

DANIELA LARSEN:

We are in the Google arts and program, I do not know how many of you are familiar with that. So, we use the backend of that for a lot of our collections management because it is cloud-based, and we can all access it from anywhere.

We can choose which fields are visible online, and which are private. We do not necessarily want people knowing exactly where our most valuable artifacts are located in our storage, or something like that. So it is nice because you can hide those things, but you can also add those files to that. So then we have a 3D model of it, along with the donor record attached.

Any other information that we have, it stays altogether. But yes, it all lives in there, in one place.

DAN YAEGER:

You mentioned… You have these staged ready to go to be digitized, how do you actually make the decision of what the priority objects are? And which items can and should be digitized? I am curious also specifically, with NAGPRA, are there NAGPRA issues that would prohibit you from digitizing some? Or making more urgent to digitize some, as you may be returning objects to tribes?

DANIELA LARSEN:

That is a great question. Yes and no. You know, NAGPRA really deals with funerary items, human remains. We would never digitize human remains and make a model of those things. Just out of respect for how the cultures feel about doing that.

Now, it is very different with… We have human remains and human leathers from a young man that was hung for stealing somebody's water. People died overwater here in the West, all the time. With the drought right now, I think we are right back to that point where you know, people are fighting over water rights everywhere.

It is very different. So depending on how that particular culture feels about that, I think there is NAGPRA, and then there is a higher law of just respect and empathy for how they would want that treated, and respected.

So, and we are really working on – I think we have gone through a collection, everything that needs to be repatriated definitely has. But we are working with several tribes to help them create their own interpretive centers on the reservations, and try to return as much as we can to them. So they can use them to educate, and inspire their own people, instead of those things living in our basement.

So a lot of those things yes, we will digitize before they leave, if it is not something that would offend anybody to do so.

DAN YAEGER:

Have you received any pushback on items that you have already digitized? From folks that you know, say that should not be up there at all?

DANIELA LARSEN:

Not that, but the feedback that we have received, is what we have asked for…

All we know is what we have from John's notes. Where he found it, you know? One of the issues out here, a lot of tribes used to be referred to as the anasazi. There was a bowl that said anasazi basket, and everything when I first came to the museum was labeled anasazi. That term actually means ancient enemy. The tribe reached out to us and said, we would prefer if you called our ancestors the ancient Pueblo. They had a different name that they wanted us to use.

And that is exactly the kind of feedback that we want to get. Because, unless they are willing to talk to us, and tell us how they want the objects that we have to be used, or talked about, all we have is how people were talking about them back in the 1920s, which is not how we talk about a lot of things now.

DAN YAEGER:

Right, right. Well I'm sure a question on everyone's mind is the funding. How do you actually get funding for these projects? You mentioned that you had gotten some grants, what are the sources for this? Is it local partnerships?

DANIELA LARSEN:

For us it has been mostly corporate sponsorships that we have really gone after. It has taken a lot – for me as the director, really having a position where my role is more facing out of the museum, and helping the community understand our vision. The technology companies, applying – we are basically teaching 21st century skills with a lot of these things. The Department of workforce services sometimes pays us to teach these young adult, autistic young men and women, to do some of these things.

Because it gives them a marketable skill, that they can do. So sometimes we get funding through that. Making sure people understand that a lot of the skills that people learn and are using to do these things are transferable into the marketplace.

Matter port is a software we use to create different virtual tours, we have done that at different archaeological sites as well. Real estate agents pay 600-$700 a pop to have a matter port created of a home they are selling, or a business. So once they see that the things they are doing are not just old stuffy things from our basement, and are actually impacting the future as well, and really helping them see the vision of that they have been – we have been able to get some corporate sponsorships.

To buy a $5000 scanner, or some of the camera equipment, and things like that.

DAN YAEGER:

Right, interesting. In terms of the objects that you digitize, I am curious, is there an inclination to actually bring them out on display? Do they go back in storage? What is your relationship to the object as a museum, once you get it in a digital form?

DANIELA LARSEN:

Right… One of the things that Perry Murdock, from the Timpanogos tribe said, I picked something up one time without gloves on, but it was stone. It was not something that I would usually put gloves on, it was part of a Tomahawk, and he said the gloves are not to protect the object from you, it is to protect you from the object.

He was talking to me about our relationship with objects, and if that was a Tomahawk that had been in battle, and had killed somebody, the energy that is carrying… You know. Since then, I have thought so much more about my relationship to the objects, as I have always thought about protecting it from me, not the other way around.

The things that are in cases, or harder sometimes to get out then are on display. The things that are in storage, no one has seen for 70 years. So we are digitizing a lot of things that we have in storage, and they go back into storage, but there is a way for people to experience them digitally. They can scan a QR Code in the Native American room, and it takes them to all the things that are in storage that have been digitized.

So it creates an opportunity for those things to be seen. We are planning to do, we are about halfway through a capital campaign to expand by 70,000 ft.². So, we are going to be bringing a lot more of our collection out, but digitizing those things that are in storage has been a very powerful tool for the fundraising that we are trying to do, to show people… Look at all the things that no one can see.

DAN YAEGER:

Well, thank you Daniela, so much. Unfortunately we are out of time. But it has been really enlightening, and inspiring. I hope everyone agrees, and folks I hope you will stick with us, as we continue through this final module of the digital empowerment project.

Join us next week, Thursday, same time, same channel. For tech workshop number one, how to use digital assets for documentation, promotion, and programs, featuring Ros McNulty. I am sure that will deepen what we have learned today from Daniela. On behalf of the digital empowerment project and everyone associated with us, I am Dan Yaeger, thanks for joining us.