ASSOCIATION OF MIDWEST MUSEUMS

TECH WORKSHOP 3

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>>> Good afternoon, or good morning wherever you are. Welcome to the third Technical Workshop of the Managing Digitization Projects module which will cover Imaging Standards & Logistics in Digitization Projects. This

This webinar will cover the nuts and bolts of working with the resources you already have to achieve your digitization goals. We will take a look at equipment and space setups, technical imaging standards, and how these standards contribute to long-term plans, tools for ensuring that the digital files have the longest lifespan possible, and in overview of QA/QC models in the cultural heritage imaging field, and how to scale up over time. This

workshop is brought to you by the Digital Empowerment Project

A nationwide initiative organized by the six U.S. regional museum associations, dedicated to providing free, self-paced training resources for small museums.

This inaugural series of online trainings focusing on digital media and technology topics is made possible by funding from the Institute of Museum and Library Services.

My name is Averie. I am your host for today's program. My pronouns are she/her, I am a white female with brown, wavy hair, wearing a green top with white and green leopard print.

I'm located in my home office, and behind me is a white wall, with a window. A small bookcase also sits behind me, which houses museum related texts, and various knick knacks that change throughout the year.

In this era of virtual meetings, when digital spaces may substitute for 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 my home office, located in Erie, Pennsylvania the historical and ancestral homelands of Erie people, which later became part of the Seneca nation and the greater Haudenosaunee Confederacy.

Wherever we are each of us are located, let us acknowledge all Indigenous nations as living communities, their elders both past and present, as well as future generations.

We, the Digital Empowerment Project, recognize that our organizations and those of our members were founded within a colonizing society which perpetuated the exclusions and erasures of many Native peoples throughout the United States and beyond.

We ask you to reflect on the place where you reside and work, and to respect the diversity of cultures and experiences that form the richness of our world and our profession.

Before we begin today's presentation, a few housekeeping notes.

I'd like to acknowledge today's American Sign Language (or ASL) interpreter who will be situated on the left side of your screen. Captioning for today's program is embedded in a box just below the video player on our website with controls to adjust your experience.

The best way to continuously refine our craft is to listen to our attendees. So, we ask that you share your candid feedback with us. Following today's program, you will be sent a link to a satisfaction survey. Sharing your experience through this survey will only take a few minutes and will greatly improve our work.

During today's program, we will address as many of your questions as time allows, however, sometimes we are unable to answer all of those questions as others may arise when reflecting on the program.

So, we have set up an online community forum for raising questions, posting answers, and connecting with your fellow museum practitioners. If you are looking for help in between programs, please visit the forum on the Museum Learning Hub website, and click on Join in the upper right-hand corner to create an account to post your questions. A member of the community or one of our Student Technology Fellows will respond to you.

Lastly, please follow us on social media to stay in touch and to be notified of future programs. Links to our social media channels will be posted in the chat area.

And now, It is my pleasure to introduce today's

Presenter. Elizabeth Chiang is a professional photographer who specializes in cultural and heritage imaging. With over 15 years of experience in nonprofit and profit sectors, Elizabeth has extensive experience in studio photography, image color management, and has an ongoing interest in streamlining digitization workflows. She currently is the staff photographer at the George Eastman Museum located in Rochester, New York, where she manages the studio and is in charge of digitization initiatives at the Museum. Elizabeth is a member of the Rochester Chapter of the Society for imaging sciences and technology. She holds a Master of arts in photographic preservation and collections management. Please join me in welcoming Elizabeth Chiang. And let's begin. Elizabeth, the floor is yours.

>> Hello. My name is Elizabeth Chang. I use she/her pronouns. I am a beige woman with black hair and glasses. I'd like to take a moment to acknowledge that I'm speaking today from Rochester, New York which is on the traditional land of the people of the great Hill. Known in English at the Seneca people. So this webinar is part of Module 3, managing digitization projects. I would like to thank the Museum Learning Hub team, the moderator, the ASL interpreter and the closed captioner. I will also like to thank the speakers for parts one and two of this series.

A bit about me to start. As mentioned, I am currently the Museum photographer at the George Eastman Museum. The museum is a medium-sized institution with possibly 100 full-time staff and five collecting departments.

The Department of photography, Department of moving images, Department of technology, the legacy collection, and the library. In addition to the archives building, there is a historic mansion, gardens and grounds, and a theater that make up the campus. We use in the completed construction for a new entrance space.

I completed my Master of Arts in photographic preservation and image management in 2011. Prior to my position here at the museum I worked at the library and archives of Canada at the University of New Brunswick. All in a variety of roles, but somehow always connected to the digital imaging and photography realms or fields in some way, shape, or form.

Currently I am in charge of on-going collections imaging. And I spend the bulk of my time in the studio. I also cover events at the museum. I photographed gallery and spaces for documentation, and in the past year, I am one quarter of the newly minted virtual tour team.

So today we are delving into the imaging standards logistics and I like to say the nuts and bolts of the digitization process. I hope the third module will help round out the arc of this series. The topics of discussion will include equipment and space, lighting setups, tools, technical guidelines, and quality assurance/quality control. I am approaching this from the standpoint of someone who is deeply apart of the imaging and photography world. I realize that many institutions may not have the space or the resources to build an in-house imaging studio, or they decide to use third-party vendors for their digitization projects. So this webinar is technical, but the primary goal is to help shed light on the vocabulary of imaging and photography so that you, hopefully, get a better sense of what goes on behind a camera.

As a side note, there are many tools in commercial products in the world of digitization, and while many of those are industry standards, I am going to try my best not to focus on specific brands or products. The other thing, too, was also to keep in mind that there is a lot of interplay between the research and develop side of imaging sciences that does eventually make it into the commercial world.

Before we begin, I want to start off by saying I am a big fan of upcycling and reusing. Digitization in and of itself is not something new. Many institutions have been doing this in some manner for decades now. What this means, though, that there is very likely to be legacy equipment that can be repurposed or traded in. And if I have learned anything in my years since going digital and being the world of digitization, if that there is definitely an expiration date for legacy gear. It's best to let it go before it becomes a glorified paperweight.

However, gear and equipment is not limited to cameras and scanners. Also consider that workstations, copy stand, like views, viewing booths, and light boxes and other peripheral items such as tripods or other types of stands can also be retrofitted for current day use.

One interesting thing that I have noticed happening more and more frequently is cost-sharing. And on one hand, this could be fulfilled by consolidating or streamlining digitization into a standalone department that serves everyone at the institution, or it can be done across partner institutions in a localized area where smaller groups can band together and purchase higher-end equipment that they would not have been able to acquire on their own. Of course, then, this brings up the logistical questions of whether the digitization setup will move to different locations on a rotating schedule or with groups will bring said objects to a set location.

I like the idea of cost-sharing. It's very egalitarian. It seems like it's more community oriented, and it's a concept that I have seen successfully implement it, particularly in public libraries that serve as community archives.

Before digitization starts, there does need to be adequate and appropriate workspace. If you are lucky enough to have an empty space to start with, it is good practice to have the walls, ceilings, and floors painted in a spectrally neutral gray, also known as 18% gray. You'll find the link that I included here in the PDF resources, but there is a great paper that shows the spectral photo elements with special paints. Essentially, the goal of painting everything a spectrally neutral gray is to cut down on his must reflect the light as possible.

If you're moving into an existing space, and that is currently in use and being retrofitted for a digitization/studio workplace, modular walls are great for preventing light from different workstations affecting others and creating contained work spaces. Digitization work is also extremely repetitive. In particular care should be placed on adjustable workstations to accommodate sitting, standing, and in between working styles. I personally stand during my entire workday and have found that an anti-fatigue mat is indispensable thing to have.

So, let's take a look at two of the most common forms of digitization. Scanning and instant capture.

Scanning works by mechanically moving an image sensor under an object such as with a flatbed scanner moving a sensor over an object, such as with a planetary scanner, or by moving the object under the scanner as with sheet feeders. The digital image is then constructed line by line.

Many people are familiar with flatbed scanning. The equipping is affordable, the setup relatively easy, the learning curve is not too difficult, and the desk space needed for a scanner is often much less than an instant capture station.

However, flatbed scanner beds have a finite size and therefore can only accommodate object up to a certain size. They are also more suitable for flat or two-dimensional objects. And most importantly, when using scanners, objects come in contact with the scanner cover. This is something that bears consideration a conversation with your conservation department if your institution has one or with the collections staff because the placement of objects in contact with the scanner directly affect object are being handled.

Alternatively, insert capture which is very broadly defined as a lens in conjunction with a digital back is a process wherein the entire frame is digitized in a single exposure. It is much faster. Consider the difference between a 2 minute scan and a half second capture over thousands of objects, compounded over 100s or 1000s of objects. Instant capture uses tethered raw file capture which means flat shielding and export parameters are not applying behind the scenes by a preset manufacturer's specification. But rather with user-defined specifications that have no automatic correction. This is particularly important in the Cultural Heritage Imaging field because the goal is to create files that are very technically competent and demonstrate accurate color and tone among other parameters.

And it is not necessarily just to make files that simply look good, which is a extremely subjective point of view, any sort of automatic correction is usually not something that those of the cultural imaging heritage field are keen about. With an instant capture raw file workflow, batch processes can also run in the background or run overnight so the computer station is free for other tasks.

Instant capture is also more electable for different sized objects. And many of these capture systems can be modular in the sense that the camera or the digital back as the potential to be used for other non-copy projects, too.

When it comes to sensors, in short, the bigger the input sensor, the more details that can be captured, and the better the output. Something to note is the size and weight of camera systems with high end digital backs which requires a sturdier copy stand. So if you are retrofitting any existing legacy gear, that is something to keep in mind so as you change camera systems, you change into higher end digital backs, the weight may be something to keep an eye out for.

However, we are seeing a rise in many mirrorless systems, and that does help offset the weight of the overall setup.

Another often overlooked feature is live view, which does use a lot of battery power unless you happen to have it plugged into an AC/DC adapter, but live view is indispensable for previewing the capture frame and making sure object or position correctly.

When it comes to object safety, higher digital live view is very useful. Say for instance the camera is positioned too high up, so the operator is not able to look through the viewfinder so if you don't have live view, you may find yourself climbing on a step ladder and hovering above the object unnecessarily, whereas if you did live view, you would not have to do that sort of hovering motion over the object.

And as to whether to go with which kind of camera which kind of brand, that is not always a linear decision as I have come to realize over this time I have been in digitization. If a project decides to lead with wanting to meet certain criteria or imaging standards, then the progression usually happens that the project team needs to budget sufficient funds to purchase the right gear to meet those standards.

On the other hand, if you lead with a budget, and you have to stay within that budget, then the project may find themselves conceding to possibly a lower quality of image to state within the price range.

So resolution. Resolution is a fraction. There are two parts. Input and output. It can be described as dots or pixels per inch. Dots are in referenced to actual, physical ink dots, and pixels are the individual points that make up the sensor. Side note, there is extensive scientific discussion about the physical size of dots in the physical size of pixels. I just wanted to put the slide in here to realize that resolution is not just a number, it's a full fraction with multiple parts.

A couple of examples here. Let's say you decide to capture everything in your collection at an output resolution of 600 dots or 600 pixels per inch at 1 to 1 scale. With all other factors considered, if the collection consists of 8 by 11-inch objects, in order to achieve this level of quality, the pixel input must meet or exceed 4800 by 6600 pixels. So taking this into an account, when you're looking at camera sensors, and gear, you'll need to find something that has a sensor size that can capture that.

In another scenario, say a print maker wants files at a minimum of 300 dots per inch resolution. The final print is to be 8 by 10 inches, the minimum pixel input upon capture is going to be 2400 by 3000 pixels. So imaging standard guidelines will then place different resolution along continuum of quality levels. But resolution is not the only factor in determining the quality of the digital image. But it does play a large role.

The next four slides will show some common lighting setups for instant capture stations. First, we have reflective lighting, which is the most common and is filled with two lights at equidistant from the camera at a 45-degree angle. It is measured using a CQS or CRI index. This is a number that represents how stable the lights and how higher index numbers result in better and more accurate color. LED lamp heads also have much longer lifespans. I have worked with lights that are both attached to the table and are freestanding on their own light stands. And on one hand it is easier to angle the lights if the arm is fixed but the upside of having freestanding light stands is the flexibility to move them around for different types of objects.

Having worked with strobes, it's very much due to the operator camera operators preference. Flashing lights throughout the day can bring on headaches. In some situations for light-sensitive object, a quick burst of a strobe in half second exposure is much preferable to constant lights.

Next up, I have a typo, I meant to put transmitted light. So transmitted lighting occurs when transparent objects are lit from underneath. Slides, negatives, and glass plates are all examples of objects that require transmitted lighting. Sometimes a legacy lightbox can be retrofitted with better bulbs, as the same of reflective lights, a higher CRI is preferable for these replacement bulbs.

I do have to make masks to block out the extra light around a subject, and those can be simply black or gray paper overlapping to frame an object. Or if I know I am going to be imaging many similarly sized objects I will cut the window in some matboard. Collating items by size before embarking on a large-scale digitization project saves a lot of time during the handling of the objects.

Raking and specular lighting are directional lighting modes that emphasize the details and texture of an object. It is most often used when photographing coins, paintings, substrate services, or to highlight damage and repairs. I encourage everyone to check out the digital print preservation portal at dp3project.org. It's a fantastic resource not only for print ID, but it also has great examples of raking and specular lighting in an interactive platform that allows users to move the light around and see the immediate results on the substrate surfaces.

Studio lighting or three-dimensional lighting is used to photograph three-dimensional objects. If your collection has many three-dimensional objects such as sculpture or statues or jewelry and even books that you want to photograph to show their object-ness, setting up a studio lighting in a copy stand is a good long-term view. Studio lighting is artistic and technical so there is an adjacent set of skills that are useful to learn when delving into the world of studio lighting.

Fabric backdrops can trap a lot of dust, whereas paper backdrops are easier to clean. So it's one of those things that you need to balance what you are more comfortable having.

And the great thing about having a studio area is it lends itself to future projects such as 3D scanning which is becoming more and accessible now.

I have included two links to the Riiks Museum’s manual for photographing 3D images, and the – Museum glass blog, there are wonderful posts on that blog that talk about lighting three-dimensional objects particularly glass or transparent, and all the tips and tricks that going to doing that. So check that blog out and the photographer is a colleague of mine and he really knows his stuff.

So here's a list of tools that are in constant use on the copy stand and studio area, for myself and along with a short list of places to purchase these items. I attended a webinar last year, the question of what is your number 1 most useful item to have in the studio came up amongst a group of photographers and imaging technicians.

And this group was coming from a wide range of institutions. Some nonprofit, some private, some for-profit, some with a lot of funding, some with far less. But the one item that everyone chimed in with as an answer to that question was matboard. Matboard comes in different thicknesses. It can be buffered or unbuffered. The comes in different colors. It can be cut and built into almost anything. Masks, wedges, blocks, it is readily available, reusable, and recyclable.

So is one of those things that are indispensable, is not always the most expensive or the fanciest thing. Sometimes, it is the simplest things that goes the longest way.

Insofar as what other tools should be prioritized, they all do play vital roles. In the priority of purchasing tools will vary much depend on the type of collection you are digitizing. Obviously, if you don't have a lot of bound volumes or book items, then perhaps wedges and cradles aren't that useful.

If you have many of those things, then you will want to invest in weights and snakes and wedges and cradles first.

However, I will say that even if you can't get anything else, having an object level target is critical. Because this is the measuring tool that determines the quality of a digital capture. And we will see that in a couple of slides later.

In addition to the capture setup, hardware and software for image processing is the next area to consider. While there is no right answer for the exact type of computer to get, oftentimes this is predetermined by the IT department in the institution. If you can advocate for your own hardware and software, try to exceed the minimum recommendations for what the software demands. As a way to make the entire system will last longer.

Adobe and CaptureOne are the imaging industry's two main players. Both with robust tech support teams and a lot of online training available to help you get started. Going the route of open source, such as the New Image Manipulation Program is also a possibility.

But keep in mind if you do do that, be sure your institution is ready to provide the technical support for these decisions.

And when it comes to local backups, here we’re talking about the working raw files, not the Master files that are institutionally backed up, diligence and consistency go a long way. Within the Digitalization Specialist Imaging Technician and Photography fields , there is considerable discussion about saving raw files, even though these are not the official master files. But to save them as a backup in case of severe database loss.

I know colleagues in the field who have had to go back to re-export master files because of this very reason.

So the minor additional space needed to store raw files is an under discussed and sometimes overlooked part of digitization projects. But the long-term implications of having to redo the work far outweighs the small investment of additional storage of those raw files.

So now that we have covered fairly quickly, I hope not too quickly, the space, lighting, sensors and capture options, we come to the technical imaging standards that shape and guide digitization. Keep in mind that these are guidelines, not necessarily hard and fast rules, and should be taken into consideration alongside other factors such as cost, time, and resources. Also everything that we have covered here happens in tandem, as I mentioned before, even the decision to purchase a camera may not be completely linear. Sometimes digitization projects happen all at the same time. And not necessarily A to B to C to D.

As things happen in tandem, keep in mind that good digitization is not just about high end camera gear, nor is it solely determined by perfect lighting scenarios. But digitization can be hampered by inappropriate gear choices and bad lighting is rather detrimental.

So one of the challenging part of my job is to juggle these many factors. Sourcing best possible affordable gear lighting, retrofitting, office spaces to be studio appropriate, having frank and open discussions with collecting departments about object handling, cognizant of concerns for fragile objects, and understanding the balance between realistic goals and making technically perfect images.

Digitization is one of many parts of collections access, and it does exist within a larger framework.

So the Federal Archives Digitization Guidelines Initiative or FADGI is led by the Library of Congress. There is a European equivalent called Metamorphoze. The goal of these standards is to provide a baseline for consistency when it comes to image capture and master file creation. They are important because they define trackable and achievable goals for imaging. Let us return to the aforementioned example. Let's say you decide to import a four star quality, which means for minimum resolution the digital image must be that 600 pixels per inch at 1 to 1 scale.

If the collection consists of all 8 by 11 objects, in order to achieve this level of quality the input must meet or exceed 44800 by 600. So when you're looking at a camera you have to find something that has a sensor size that can capture this size, ideally in one frame. But if that's not possible, then stitching of multiple frames, which is time consuming and processing heavy will have to be in discussion.

As mentioned before, resolution is just one of the many factors that goes into determining star levels, and all these technical guidelines have different parameters for different types of objects. Technical requires also get combined with a tightly controlled working environment such as lighting, air filtration, and stability of the actual workspace and with repeatability and consistency in order to fully demonstrate that particular level the quality.

Most institutions will not be able to achieve FADG 4 stars immediately especially if there is reference retrofitting gear or repurposed work spaces into the equation. One thing to remember is that these are guidelines and something to strive for in considering the other priorities in any digitization project.

That leads us to the next question of how do we know what does and does not meet these technical guidelines? How do we check digital files against standards? Golden Thread, and openDICE are conformist measurements programs, analysis tools that are used to check these master files. Both programs function by comparing the known values of the object level target as I mentioned before, if anything, investing in target, include that in the capture frame, and even if you can't get to this QA/QC point in your workflow, for whatever reason, you have that information for the future. So the programs are working by comparing the non-values of the article target against the minimum thresholds for performance standards.

The type of data that is collected includes grayscale and color response, resolution sample frequency, spatial frequency response, white balance, color channel registration, noise, color encoding accuracy, and lighting uniformity. So as we see, resolution is toward the top of the list, but not the only thing that is verified.

The results of quality assurance and quality control data can aid in better systems calibration, stronger profiling, and future hardware considerations. QA/QC also help ensure the longevity of digital assets because quantifiable docs quantifiable decisions to function within certain parameters can be practical for time.

Additionally, if projects are grant funded, the data shows that these goals are being met. In the case of using vendors or 3rd party resources, using known standards, they access the common language and quality assurance and quality control is a test of this understanding.

Which means project and vendor are working towards a single goal.

I want to make a note here that Golden Thread and open dice are different from checksomes such as JadeHose that validates the file type and verify whether file types are well-formed and error-free. Checksomes are also important to the project and have to happen in the workflow where large amounts of data are being transferred.

So as we have seen, decisions are never completely linear, but each moving part has its importance. So whether you plan to partner with vendors, build your own capture station, or try to find a balance between both, there is a wealth of information out there to help.

I hope this webinar has helped shed some light on the vocabulary of imaging photography and the types of issues images that imaging commissions, digitization specialist and photographer think about all the time. Digitization projects bring together experts from all fields, and the corroborative relationships and results are clearly a testament to power across this teamwork. So thank you so much for watching.

This is my contact information if you wish to reach out. It's always great to hear from others in the field.

And again I want to end by saying thank you to the Museum Learning Hub team, the ASL interpreters, the moderators for today's session, and to you, the viewers, for tuning in.

>> Thank you so much, Elizabeth, for a great presentation, especially with all the definitions and explanations of what those terms mean. We do have a few questions, and we will get through those. Just a reminder, if you have questions, feel free to place them in the chat area on the website at museum-hub.org or if you're watching us on Facebook and YouTube, we can capture those questions as well. So be sure to put them in the chat or comment areas thereto.

So our first question for you, Elizabeth, you talked about this a little bit already about longevity of files and making sure you have the best equipment and tools to use, like Adobe Creative Cloud and CaptureOne perhaps you could elaborate a little more about what are the best equipment, tools, tips or tricks that you have for ensuring the longevity of your files over time. Are there any other tricks out there?

>> I would say -- one thing I have thought about a lot is the use of open source digital file formats versus proprietary digital file formats. The standard in the imaging community now is to use TIF files as master files. Keeping in mind that TIF files are a proprietary format. On the flip side, there others in the imaging world that use JPEG 2000 as their master file type and JPEG 2000 is an open source. So there are pros and cons to both of those. If you go the route of the TIF file, there are more users. There is more of an existing base of people using that file format. So even though it is a proprietary file format, chances are, I believe it's Adobe owns that format, that will continue on regardless of the fact that it is a proprietary file format. On the other side, if you do use something like JPEG 2000 that is open source, you have to have the IT support in order to maintain that. And there is an overall smaller user base of that file format out there. So it's a numbers game. I hope that answers the question.

>> I think so. Our next question is a little bit more about equipment. What are the perils of using as this person has stated, suboptimal or generally all right and not top-of-the-line equipment to digitize and how can these be avoided or addressed?

>> I think it sort of ties into the previous question of the longevity of digital files. And the goal is not always the best technical file, but those technical aspects, I feel, should be in the back of everyone's mind as they think about creating digital files.

You do run into the danger of having to redo the work, when you don't necessarily strive for the best that you can do in any given situation. Having said that, though, there comes a point for within your institution or organization, you have to draw the line at what is good enough for what your institution is trying to do.

I feel like Ron and Lindsey addressed this on a larger thinking about the project as a whole question.

That's a tough one. Because it has a lot of moving parts to it. I will say as much as possible, get the best equip me you can afford, and if you can't, consider ways of rendering existing equipment to make those files better. For instance, if you can't do a single image of an item at a particular resolution, then think about stitching. But then when you think about stitching, also make the rest of the institution or the group aware that stitching does take time, but that is the trade-off of wanting to get a very, very high-resolution image or a very, very technically competent image.

I wish I had a more precise answer.

>> That's okay. It was a great answer. I feel that's something that a lot of our organizations are asking, and I think that's a great response.

Here is a question for you that I feel might be a bit universal in nature. Do you have any tips or guidelines on how to name your digital files as you create them? Are there best practices for this? Is it easy to access those digital files, perhaps by naming them in a certain way?

>> May I ask whether there are other details of is the site personal collection or an institutional collection?

>> There are no other details there. So I will leave that to your imagination.

>> I am a huge fan of leveraging the power of metadata. Which means that for personal collections, you have to come up with the type of metadata that you want to have. I have heard there's also little bit -- looking back to this thing about using good make metadata, there is a danger in trying to have overly descriptive filenames that cram all of the information about that image, let's say the date it was taken the location, who it was taken by, the subject of the photograph et cetera into the file name making for extra nearly long and cumbersome names.

But if you leverage the power of metadata, that information is embedded in the file itself and then you can think about using randomized numbers perhaps used institutionally, although the conventional way of naming files I feel for institutions is these are digital images created of actual real-world objects, the real-world object are ready has its number, its accession number, and there is the parallel between the two. So digital files will often take on all or most of that number with some sort of delineate or to show that it is say, for instance, the front view or the dorsal view of the object. So on and so forth.

I would say definitely think about metadata and avoid overly descriptive filenames.

>> Good advice. And our next question is what are your recommendations for asset management during the digitization process, specifically if you could discuss how to deal with systems that are more geared towards art objects then related images, which often make organization inserting more cumbersome.

>> Let's take a moment to think about that. I can answer this question in detail when it comes to managing the working digital asset files that get created in a studio setting, if that is where this question is headed. I will start with that and we will see where it goes. I hope that's okay.

I think all of these courses are actually nicely following each other. In my current date situation, I'm using CaptureOne as the capture software. Andy files I named according to the accession numbers of the original object. And within our museum, we had set out a series of file naming protocols that show which view of which object coincides with particular numbers. So 0001 is always the rear view, 2 is the -- number continue, here at -- we use 99 as a craft view that we pushed out to the public in our public facing database.

So insofar as that, I feel like it's something that if you're working within an institution, it's good to think about everything that you want to photograph from a particular object, all the different types of views, all the different angles, whether you want to include details or let's say of something has an inside or outside, how deep you want to document this object. And then whittle it down from there and say what's realistic for a certain amount of time you spend on an object period is realistic in terms of what conservation might need to track of the conservation status of an object over time. So there is a lot of moving parts. I would recommend starting big and putting in everything that you could possibly want to photograph, and whittling it down from there.

>> Good advice. Our next question is, is it important to include a gray card or color chart in the frame?

>> When I photograph things on the copy stand, there is a lot of information included in the object level target. So what I will do is I will then use a gray card capture of the blank frame as a way to make it flat fielding file so the elimination is evened out. Then I will apply that gray card file to the subsequent chapters.

For studio type work, what usually happens, I have found, is that the first capture is the one that you will want to have a color checker or gray card included in it, and you will use that first capture of the entire scene with the cards and the color checker in it to then apply the same color parameters and other parameters to every subsequent capture, assuming you're not changing the lights or switching out things in between angles.

>> Okay. Our next question is how critical is it to verify color accuracy of monitors used in the digitization process? Should it be a lower high priority for institutions that might be on a budget, a limited budget?

>> That's a good question. The perfectionist in me says definitely high priority because you want to see everything in real life as demonstrated. And in the realist in me is saying that if you are using the eyedropper tool, I think there's in our technical name, but I call it the eyedropper tool, to the RGB or lab file use of your different color patches, then you are relying on the numerical numbers to tell you whether your color patches and grayscale are on point or not.

However, if your institution does a lot of reference printing or match printing or if you have a very strong publications department, that requires a lot of printmaking to be done, then having a perfect a calibrated monitor definitely falls much higher, way much higher on the scale of priorities. So I would say that it's not, not a priority, but it does depend on for your institution's focus is. And I would say when it's comes to publications or printing, that priority jumps much higher. On day to day work, it is always good to have a properly calibrated monitor. But if you really can't, then relying on the numerical values is better than nothing.

>> Great advice. We always appreciate a sliding scale on where to was that priority at. Our next question asks about metadata which is a common topic with these kind of projects. Do you have any metadata recommendations for collections objects or standards?

>> I will say that metadata has not been my particular field that I am super well-versed in. I will say that from a photographer's standpoint, there is a lot of built-in metadata about the parameters that the photograph was taken under. So things like the ISO, the aperture, the shutter speed, et cetera. We here at the George Eastman Museum don't actually add any edits or metadata to digital files at the moment. Our metadata is mostly -- I don't want to confuse us too much. We place a lot of importance on the data that exists within our database that goes into the cataloging of the actual object in the digital references linked to that cataloging record.

So I would say that the existing metadata that we have is not the camera, based off whatever camera we are using.

Insofar as recommendations, I have had discussions with colleagues about adopting metadata standards that are as mentioned before, with file types. You want something that a lot of users are using because it gives you a larger user base and more of a community to participate in. So I hope that's not too vague.

>> I think it was just right. Our last question I think we have time for one more question, and then we will move on to closing remarks. Do you have any recommendations for photographing large photo albums or large objects containing multiple images per page? For example, the object doesn't fit on a traditional scanner.

>> I would say definitely consider using a copy stand set up wherein the camera is positioned above the object. The thing about albums and scanners is that there is a lot of stress on the spinal binding when an album gets flipped and placed on a scanner. And the collections side of me sort of cringes at that and I feel like this is a lot of unnecessary danger that you are putting the object in.

Sometimes a lot of unnecessary handling. Now, the question did also ask what to do when there are multiple images on a page. I can give you a real world example of what we do here is we would photograph the object double-page spreads, so as much as the spine allows, and then we will use a book cradle to hold up each individual page and then focus in specifically on those individual images so that we have not only the open page spread, but we also have the individual close-up images of the items that are on the page. And that way we are sort of covering both bases with the whole item and also the visual representation of what people are looking at and are curious about when they look at the pages.

I would say if you can, as much as possible, try to get an overhead system to do that. I feel like when it comes to placing things on a flatbed scanner, that binding does take a lot of stress.

>> All right. Thank you, Elizabeth, so much for all of your recommendations and tips and tricks for us as we use imaging and our resources that we are ready have, we might be interested in now learning from your presentation. Any final words of wisdom for us before we close out today's presentation?

>> Just a big thank you for everyone and thank you for the questions, and it was a pleasure to be here and am very honored, actually, to have had this opportunity. So thank you.

>> Thank you very much, Elizabeth. We appreciate you being here. And thank you all for attending the final technical workshop of our managing digitization project module and many thanks to our instructors, our captioner, and our ASL interpreter today. After each module, all four videos will be available on our website as well as a complete toolkit of resources provided by our presenters. So if you would like to view those toolkits, they can be accessed on our webpage. I am sure our technical book technology fells of places in the chat for us.

Be sure to sign up for next week's webinar, which will be the start of our next module on managing website projects. Also remember that you can review past webinars at any time on our website under the learned tab and then passed webinars. So finally reminders for today, please remember to visit the forum on our websites to continue to ask more questions and to reach out to our museum community. Follow the unique Museum Learning Hub on social media to say our future programs and links will be provided in the chat for you.

Please remember to complete the post event satisfaction survey, your feedback is very important to us, and it only takes a few minutes to make our webinars and presentations even better.

And lastly, again, please be sure to join us on July 6 as we wanted to Module 4, managing website projects. Our introductory and inspiration session will feature speakers Kathy Saunders, the Lighting the Way coordinator at the New Bedford Whaling Museum and Dr. Fran Kaplan, cofounder of Nurturing Diversity Partners and consultant for America's black Holocaust virtual museums. This will be at 2:00 p.m. Eastern, 11:00 a.m. Pacific time on July 6. And thank you again for joining us on the Museum Learning Hub today. A great rest of your day and we look forward to seeing you for the next set of modules. Take care and stay cool, everyone. Thank you.