Shape

**Transcript: Makerspaces in the School Library with Heather Moorefield-Lang**

Well, thank you so much for having me first off. I have been writing and researching makerspaces and specifically makers spaces in school library settings since about 2014. I don't get to write about them nearly as much these days as I used to. I'm also following the chat. I'm making sure folks can see but thanks for having me today.

I'm going to be talking to you about makerspaces, making activities. I'm gonna go ahead and tell you that pretty much every idea that you are seeing is something that I have blatantly stolen with permission from people out in the field. I am a qualitative researcher. I actually teach a storytelling class and I am a collector of stories. I am a person who collects stories and ideas because I think that good ideas are meant to be shared, again with permission. Everybody whose pictures I've taken and ideas I'm sharing are happy to let other people know about them because we in this field in general and typically are not you know, the kind of folks, you know, like Gollum, you know want to protect our ideas like my precious. We want to let other people know about them. And so, I'm going to be sharing, you know, a lot of different ideas and things about maker spaces as well as making in stem and the sciences.

I'm going to show you some information about service making and accessibility in making and so it's gonna be kind of wide and not particularly massively deep. But if there's any areas that you'd like to dive deeper into, I hope it's okay, Brianna and Christy, if there's more that folks would like to read or know about, just let me know, email me afterwards, and I'm more than happy to send articles. I've written about some of these items.

There's other areas that I don't write about. I don't write a great deal about specifically women in making but I have peers that do, or critical making—why we make, but I have friends that do, so if there's any area that you really like to delve more into, let me know because I can find more information on any facet. When you've been researching and reading about makerspaces as long as I have, you know, you find out who's been writing about different areas. So, I will be asking you questions along the way about your spaces and makerspaces and interest in those areas. So, let's go ahead and get started.

So, this is an older definition, but it is still one of my favorite definitions about makerspaces. This is written by Laura Fleming, a school librarian in New Jersey. Some of you may have known her or have her book or have read her materials. Laura Fleming's definition for makerspaces is a unique learning environment that encourages tinkering, play, and open-ended exploration for all. I like this definition and I've never created my own definition or anything else because there's really good definitions already out there.

I like this definition because it's a location, a space, and environment. It doesn't have to be a fixed space. It doesn't have to be a real space. It can be an online space that encourages tinkering play and open-ended exploration for all. And that's really important. Not just the kids who are well behaved, not just the ones who've made the best grades, not just for the kids in the community who can come with their parents, but for all.

And so, the other thing is that nowhere here does it talk about a particular type of technology. It doesn't say, tinkering with a 3D printer or working with the laser cutter. It's all different types of things that we can use. So it could be low Tech. It could be high tech. And that's the reason why I really like this particular definition. And so, I use it a lot. I just had a publication where folks were like, this is an old definition. I'm like, okay first off, It's like 2015, so slow down. And then, it's also a really good foundational definition, and “foundational” in makerspaces is like 2013. So, it's not that long ago that everything got started.

So, there's a lot of different names for makerspaces. When everything first got started, makerspaces, yeah, folks were going, I'm going to have a makerspace, and that's totally fine. But what I began to find over the years is that folks have gone from the like higher part of the funnel on a Makerspace, and they've narrowed it down to their needs for their spaces. For this particular group that I'm talking to today, for your school, it may be for your library, your community, for your university, your department, your area of town, whatever the case may be. So different people call them learning lab. There's another one: learning lab.

You can see I created a Tagxedo, a Wordle, years ago, of just some of the names that I have encountered. I've seen Creation Station. I've seen Collaboratory. I've always liked that one. Liboratory is another one. Innovation lab. Makerspace, as you can see, is still very popular. Bubbler. Do you know why it's called the bubbler? Are you from an area where things are called bubblers? It's the drinking fountain. It is the drinking fountain. And that is Ann Arbor's maker space creative lab, and they named it the bubbler after their drinking fountain, their water fountain. And it's called the bubbler and it's a very, not only is it a Makerspace, but it's a Creative Design Lab, artist, tech, design—they do all sorts of stuff. And so, some of them yes. Yes, exactly, Madison and Wisconsin. Yes, exactly and I met a lot... I used to get to talk to those folks a lot more depending on when I did a lot of the more academic library conferences. It just depends on who I run into. And so, I begin to find that a lot of spaces. Well not you know, some spaces are naming them based on, you know, their location—the bubbler, or maybe your Yeah. Oh, it's a great location. Or maybe it's based on the name of your mascot. So, it might be the Lion's Den or the Tiger's paw or whatever the case may be. So, I've seen people who've done that as well. The steam engine for of course science, technology, engineering, arts, and math. I've had things like that where you're combining those into your makerspace. One of my favorites is the hive. And the hive was like the hive mind, but they also had a naturalist component, and they had a live beehive in their makerspace to learn about bees, nature, everything you can make with, you know, bees' honey, honeycombs. They did lots of things about bees and then all the ideas with naturalism as well. So, you can see a lot of other names, and so I talk about the naming of a thing just because it's very interesting—the direction and focus that you know, some libraries take with their makerspaces.

In makerspaces we can use very low technology, we can use high technology, or it may have no technology at all. We may have more of an arts focus. We may have more of a building focus. We may have more of a culinary focus. It depends on what it is that you and your community want. What it is that your students are interested in. In general, though, I find more of a mix. This list that I have linked, I have it linked on this slide, that PDF's not going to do you a whole lot of good. So, Brianna when I'm done, I'll send you the actual high low, high, low list, of, and this is an ever-growing list. I haven't made a lot of edits to it lately and for that I apologize but this is a list of low tech, high tech, what they are, descriptions and some examples of what they can be used for. And if you see that I'm missing anything, send me ideas because sometimes I get very, you know, I start running out of ideas after a while. So, please feel free to hey, you don't have this on there, great. I'll just add more things in because they're always excited. I also made this list for an International Association. And so, while I may be talking about, you know, these really cool robots or this particular high-tech item my friends in Ghana may not be able to use those.

"Was able to grab it off the PDF." Great, okay. Perfect. There it is.

There's the document and it is a Google doc. So, it's very easy to edit and update and I wanted to make it as easily accessible to as large an international audience as possible. And then I still send it, you know, to folks in a wide variety of formats as well depending on where they are.

So, one of my big questions that I get, and this is, this presentation's a mix. I've got some pieces from a variety of different presentations, but I'm gonna start with talking about making on a budget because, Angelica, I know she just got a grant, but very few librarians that I meet are like I got $50,000 to spend on my Makerspace. Most folks are like, I got a hundred bucks and a dream and so what tends to happen when I present and if you ever look for me in my early work like 2010-2011, I did a lot of stuff with handheld devices when they first came out. What tends to happen, when you bring in technology when you start talking about spaces, I won't even get "Hello, my name is Heather Moorefield Lang" out, and folks are like, “Okay, what do I need to buy?” And I'm like, “Oh, okay. Well, hold on. That's a longer conversation.”

I need to know about you, your school, your budget, your needs. There's a bigger conversation than just, here's a list of what you need to put into your makerspace. Well, what are you interested in? What are your students interested in? What's your faculty? What's your curriculum focus? Yeah, there's, there's many things to talk about but I also when I first started presenting on makerspaces, I was showing a lot of like really nice, gorgeous makerspaces with really nice budgets and folks are going, “Yeah. These are great. These look fantastic. We can't afford this. So, can you give us some ideas for making on a budget?”

So here are some of the ideas for making on a budget, things you can take right into your library straight from this presentation. And I know not everybody has a makerspace. Maybe you're thinking about doing a making Monday. Maybe you're thinking about doing some activities at lunch. Maybe you're thinking about doing some take-home activities, which I've been writing about during the pandemic, whatever the case may be. Some of these ideas, hopefully something from this presentation is useful for you. When you're making on a budget, things to think about: Do you need it? I am, I've lived a very minimalist lifestyle. So, you always have to think about buying with intention. Why are you buying it? Do you absolutely need it? You can always go low tech. What I can do with cardboard and duct tape in comparison to what I can do with a 3D printer. I can do so much more with low tech items. You know, I, and only in special circumstances do I typically even recommend buying a lot of high-tech stuff. It depends on how many, what your budget is, how many students are going to be working with it, the costs to repair, all those types of things. If I break cardboard, who cares? I just get some more cardboard. It's easier and cheaper. Don't spend money on items that are just flash and trimmed because they are flash and trimmed.

There was a really cool tool that came out. It was Sony. Samsung, I don't know. It was this cool idea that you could like hook up cardboard to technology and make it play. It was not Arduino’s, and it wasn't the squishy circuits. They're still around. This, it was really neat, but it maybe was around for a year. And now anytime I go to, like, usedbookstoress and used-tech stores, I see these things all over the place and for the life of me, the name escapes me. That's how fast it came and went.

Another prime example, Google glasses came and went. Focus on items that you can buy in bulk and low for cash. And especially after the holidays, if you're looking to do circuits, you know, if you can find Christmas lights, they're a whole lot cheaper than LED lights. Those just a few, that's one example. Costumes, paints. I actually had a paint store that ran, went out of business. You can also get paint samples. There's so many ways.

The one thing that I do find with both the folks who work in, librarians who run, and the students who build in makerspaces, they are crafty, and they are creative. You figure out a way to get a deal. And donations, donations are great. Don't be afraid to ask. Just be aware, as we already know, you don't know what you're gonna get. So, if you get a box full of fabric samples from a furniture store, well, you may or may not be able to use those. But have a donation policy once they're yours. You can do whatever you want with them, or you can keep them. I've already talked about after season sales.

So, things that I love to use when it comes to making on a budget. I am a huge fan of cardboard. I like to cut it, use it. I like to screw things into it. Make-dos, Mr. McGroovy's. All of those types of things, building challenges, weight challenges, science challenges, building projects. Genius hours. What can you come up with? We're reading the book *Wonder*, and we want to make a new helmet. We live in a; we want to create a new design for a gate. This item right here in the middle. The students were coming up with the idea of a prototype for a Lego sorter. By color. It was their idea. This was an elementary school. Bridges. There's so many things you can do with cardboard. You can just have at it. And actually, what they did over here was, if you ran out of tape, all the different ways that you could do attachments with cardboard. So, you know just being creative and crafty with board and paper and things like that.

Also, you can recycle it. These are some more building projects. One that, one of my favorite stories: they wanted to create or have a reading castle in a school. But those reading castles from like, you know, Educenter and some of those types of places are pricey. So, the kids built their own reading castle. But the trellis, the drawbridge there kept falling on the kindergarteners. And so they had to rethink of how they could have a... it wasn't like, you know killing the kindergartners, don't get me wrong. But you know, it was definitely falling on them. And so, they had to think of a better way to you know, so again, going back, design, thinking, something failed. How do we fix it? Failure is okay. It's a makerspace, we live by failure. And so, it was all right. We got a problem. We're going to fix it. So, they made a better drawbridge and now they still have their castle.

The other image is building in place. So, you're reading a piece of literature, you're building a piece of fiction, and then you choose the location, and you build a location in that particular book. And that could be *The Hate You Give*, that could be *Tree Grows in Brooklyn*, whatever the case you might want to be. You are building from, you know, a book that you're reading or however, it's a design project. Book and art projects. If you want to get rid of all the books in your library, except for 500 of them. You can always cut, craft, design. If you're ever looking for a really cheap book about book art. There's an excellent book on book art from Clare Youngs. You can get it on Amazon. I mean, I know everybody feels differently about Amazon, but I last checked it was like nine dollars. But excellent beginning, beginner, mid-level, and advanced. You hand me a scalpel or an X-ACTO knife, I might do damage, but you can also have like there's really, you know, step by step designs, some really cool stuff you can use.

I am also a huge fan of blackout poetry or redacted poetry. Redacted poetry is really cool for our young people who may be struggling to find the words for poetry. The words are already there. So now you're just marking out the words you don't want. I do some, or I used to before the pandemic. I don't do as many these days traveling professional development workshops and blackout poetry was always a really easy one to do because I could carry stuff. Again, all low budget. So easy, newspapers, pages from books. I've also seen some really nice deep dives into books, stories that you're reading and then doing blackout poetry from the books and pages. You make copies, things along those lines. I've seen lots of different ways to do blackout poetry. Green screens. There's a way to do green screens. I've seen, seen it done. These are a few of the green screen apps: Do Ink, very popular with your iOS Apple tools. Veescope and Stop Motion work really well with all of them, depending on what devices you have. This is hands-down one of my favorite green-screen shots that I've ever taken. That young person, I'm not sure, male or female, doesn't really matter. They were in it. But there's just some great ways to use green screens. If you're looking at space and you want to create space videos. One of my favorite websites is Storytime from Space and your students could create their own storytime in space as an astronaut here on Earth. There are public service announcements, commercials, videos, weather, school announcements, but also learning how to use different types of technology. Just things that you can do. And I see that nobody's really asking me any questions. If you have any, please let me know.

Real cheap end, you can do things like pizza box green screens. Those are Starbucks straws. I've had folks do puppet shows, book talks, all different types of things. How does the Green Screen app work? Well Do Ink, everything is set up already for you, in the, so you can have a green screen or a blue screen. You can also paint walls, some people use bulletin boards. And some people, they just get like, they go to Walmart and just get the greenest shower curtain they can find. Do Ink will do it all for you. And so, you set up the green screen and then it's almost kind of like Canva if you're familiar with Canva. It's very drag and drop. So, you video, and then you can put in the animation, you can put the animation over top of the kid or the person, and it's just creating a video from there and everything's already built into the app. And then you're just recording and you kind of play around from there. They are very user friendly. I know Do Ink is predominantly green screen, Veescope and Stop Motion have blue and blue and green screens, so. They are not free. I think Do Ink has maybe a free option you can play around with, but they're not expensive. They're like $2.99. There's no difference between a green and a blue screen. It's just the background. It's the exact same concept, it's just the background. You'll see blue screens being used a lot by weather people. They can work on Chromebooks as long as you have an outward-facing camera. And so, but yeah, you can download. For a Chromebook, I think you're gonna have to use, let me back up. You'd have to use Veescope or Stop Motion. And so, for instance, you can't see it in my office. I have a blue wall. And so, you may have more things that are blue than you have that are green. And so. But I have folks who will paint like a wall green because you can, you can get a half, you know, you can paint a half wall, but I've got some people who just get a green shower curtain but then I mean you can go whole-hog with it as well. They have, like, green pop-up screens. We have those here with my, we have a makerspace here in my school of education, and they'll actually make them, they look like tents, they fold down and they just pop right up. And then you can kind of walk around behind people and use them that way. But yeah, they it does work with Chromebooks as long as you have that outward-facing camera. That yeah, I don't use a lot of Chromebooks but yes. Yeah, the young, the young person in this picture was using iPad, that seems to be or the phone. But yeah, it would work that, with that as well. It's a lot of fun. They're very addictive to make these types of videos and it's just an enjoyable time. So that's green screen there.

Like I said, there's some other options. So for STEM making, of course, that's science, technology, engineering, and math, I could do it I could do an entire presentation on just about each chunk of what I'm showing today and have and so again, I'm kind of giving you a broad overview in a very short amount of time. So, if there's anything that you'd like to delve into more, if you'd like some more resources, please let me know because again, I'm only really talking to you for about 45 minutes, you know, making sure you have time for questions.

I do, you know, I talk about all different angles of makerspaces. But if you're interested in STEM making, you're looking at experiences that tie into STEM, and makerspaces are perfect for that. Look at your high-low lists, like the one that I just brought to you, but also let your students create them as well. I'm gonna show you a student-created list in just a few minutes. You know, this is where you're looking at things like circuits and robots and engineering and design projects. You can go low or high tech. You don't have to, just because you're doing STEM doesn't mean all of a sudden, it's, you got to bring out the LEGO Mindstorms and you got to bring out all of the you know, the, the Google AV glasses and the VR, excuse me, VR glasses and all the coding and everything else.

You can, but you can actually go completely analog when it goes to coding. There's, there's coding projects where you're putting blocks on the floor to learn about coding. So, there's lots of things you can do. Some of my favorite projects for STEM especially is and I'm going to talk about this more in a minute is recycled tech where you're breaking down, tearing up, figuring out like the guts of a machine, looking at old computers, looking at materials and toys, you're giving your young people the option to tear it up, look inside. It can't be broken because it's already broken. Trash design, designing with trash and recycled materials, repurposed fashion, especially with your older students. One of my favorite projects I ever saw was repurposing toys. Where you could, if you were just looking at like Toy Story, just going if you wanted to take the guts out of a stuffed animal and rebuild the stuffed animal and having the pieces and parts of putting things together and just having that time to explore and try things out, making them light up and talk when they never were supposed to. You know, completely repurposing what this item, what it originally was built for, to make it do something different, because that is the idea of invention and creation. And if it doesn't work, well, what should we do? How can we make it do something different?

You can also get outside. You can look at a more naturalist venue. You can look at seed libraries, you can look at gardening design and projects, how to keep your gardens, how to work with them, solar, wind, power, water. I'm going to talk about that here in just a few minutes. I'm going more naturalist, which leads me into sustainable making. And I don't get to write about sustainable making nearly enough and I want to write about it so much more. I have friends of mine in the Netherlands, in Germany. They do so much with sustainable making. And let's be honest. They're way ahead of us when it comes to sustainability anyway, and I'm super jealous and I,, you know need to figure out a reason to live there, but that's another point. But we can definitely take a page from their book on sustainable making and things that we can do.

What might sustainable making look like? Of course, it's creating projects and ideas towards sustainability. Anytime I'm talking about you creating projects. You can also sit down with your students and say all right, our next project's about sustainability. What are some things we might like to do? I crowdsource my classes a lot. What are the things that we'd like to do? What would we like to build? What are you interested in? Would you like to design and build models of green neighborhoods and home designs, zero-emission home projects, car projects. I used to work at Virginia Tech, and they actually had full home builds. I mean they would have full green homes that you could tour and they would take to design competitions. Now that's pretty high level and very expensive with grants. But they also had zero emission bikes and concrete boats. To this day. I still have no idea how that thing floated. And you know, just all sorts of things that they could just play with and try and fail and do. Well, you can still do these things, just maybe on a smaller scale. We don't have the multi-million-dollar budgets that, you know, these grants brought in. But we can look at wind and solar and water. Some of my favorite projects that I've had described to me: wind robots, solar robots, wind monsters. There's all different types of water design projects. Again, genius hours. What is something that's just beyond anything that we have happening right now? You know if we want to be zero emissions by 2050 then there's got to be things that we haven't thought about because we're definitely not doing it. You know, so what are some of the things that you know, we might want to think about. And so, the designs and ideas and way things can work. A lot of these designs are online. The projects are online, and there's more to look at. I mean and I can send more, I don't have, like, step-by-step projects for all of them in this presentation, but there's lots of you know, assignments and designs that you can go with.

There can also if you're interested more in art and visual art, you can look at art projects and programs, art projects and designs that reflect the earth and the climate. Also thinking about how your makerspace can be more sustainable. Recycling 3D printed filament, making sure that you're purchasing multi-use items, things along those lines. What about sending kids out to the neighborhood and identifying sustainability problems? Yes. I love it. Thank you. These, that's a great idea. exactly because I have a feeling, and correct me, Brianna, is everyone from different areas in the US? Yeah, you know, so the issues that I have here and you know, I'm in Greensboro North Carolina, you know, I mean, we all have a variety of the same issues here in the US, but if you're in Arizona, and your young people who live in urban downtown are lacking trees for shade, it’s a very different issue than I have in Greensboro, North Carolina, where I've got more trees than I know what to do with and the humidity level is over a hundred, you know. So it's, there, there's different issues depending on where we are. We don't have wildfires here. Um, not that they can't, not that they can't affect us with the winds, you know, and so but it's not that, it's not our issue. It all comes together, but if we're working on projects that are in our areas, then how can they affect things in a national as well as a global scenario? Thinking about these things. Yes, and making does happen in so many ways and I say this a lot. I have those who are like, well that's not making, or this is making it's just kind of like making happens in a wide variety of ways. There's the reason why there's such, you know, I go with very open definitions of making. I'm very excited to talk to you all, this is very exciting. I'm gonna finish before, I got two more sections, this and accessibility.

If you're ever interested in thinking about service making, which for, you know, looking towards sustainability and stem and, many ways, service making. One, if you're really interested in this, there's an excellent book out that’s called *Makers with a Cause*, written by a friend of mine, you had Gina's? Well, then you've actually already heard about making. Gina is amazing. Gina actually has a chapter in my book and then she was like, well, this is fun. I'm gonna write my own book and, okay, you go right on ahead. And so, you've already heard about service making in all of her projects. But when it comes to service making, of course, you're looking at projects that are going to be geared towards a service heart, a service mind. Very inspiring. She's got another book coming out soon. I don't know if she's, I just saw her a couple of months ago. I don't know if it's been put on hold also with the, as my students call it, “Pandemy Lovato." Everything's been you know, there's a there's a definite slow down on publications, but as you already know, you know, maybe you're looking at building projects for yet once again going out into your community. And seeing how best you can build and create and do for the needs in your community, but maybe you're doing maker projects for assisted living communities for those in the,, for your elderly in the community even having intergenerational making. This is great opportunities for grant funding, as I'm speaking to a group of grant receivers. And teaching, it's also with that heart and mind towards service and teaching our students that, you know, this world is ours and together, you know, taking care of it.

So, I'll finish with accessible making because accessibility, I do a lot with accessibility and online learning because I teach full-time online, I stare at this camera all day and then, but I also talk. I have a new piece out last year on accessible making, making makerspaces accessible, makerspaces accessible. But if you think about, first I'm going to talk about online making accessible to anyone anywhere, collaborations across locations. As long as you have connectivity. I'm going to talk about takeaway makerspace or making activities in a minute. This could be an open range of online tools that can be offered across a school system or school and if you think about what that might look like. You know it would depend on what you have available. One of my friends Maggie Mello from Chapel Hill, if you've had her as a guest as well, I'm just gonna be like, it's a whole who's who? She actually has a critical making class, but it's taught online and so her students do making from a distance. My students will be as well. I teach a Makerspace class this summer and so they do building projects, kind of like Chopped competitions. Here's your challenge. This is, what can you build? And so, she starts with a list of making called attach, “cut, attach, and build.” What are things that you have that you can cut with? What are things that you have that you can attach with? What are things that you have that you can build with? And these are the things that are in your home. Now not everybody has the exact same stuff in their home. So, she starts with a basic list: scissors, glue, paper, but then she has students add to this list, the Google document,]. Every single year, they have more and more stuff. What are other things that are in your home that you might be able to attach with or build with? Maybe you've got newspaper? Maybe you've got cereal boxes. Maybe you've got, you know, old pieces of string. I don't know.

What do you have in your house that you think you can build with? Maybe you have, they actually added sticky rice, chewing gum. It may not be the prettiest thing, but you can stick with it. It can attach. Epoxy, clothing pins. paper clips. What can you cut with? You can cut with the edge of a table, if you really got the dexterity to do it. Mine's a little dodgy, but you know a seam ripper. I don't have a seam ripper. But some people do. You can actually cut with fire. Be careful, but you can do it. And so, they add to this list and then they'll have, like I said, these challenges. Today you're going to build a, you know, a design that can withhold, you know, you're gonna hold, you're gonna build a phone stand. I don't know you can build anything you wanted. Something that can hold water, something that can float. I don't know, whatever the design, whatever you want them to build. It's like Chopped, and it's like you have these things that you can use, now build something. And so, they'll have, that's some of the things that they do in in the class, but this idea is easily transferable.

And during the pandemic, I had multiple people doing similar things with their students when they were not at school. Most schools now are at least somewhat face to face and then I also had librarians who had a budget, they were sending takeaway kits for making as well. It does seem simple, but it is very thought-provoking. I love this list. I asked Maggie. I was like and I share this. Right when the pandemic started, like the first six months, I did a panel about what folks were doing early days with the pandemic and I wrote a piece. It hasn't been published yet. It's kind of been kicked around, and so it's been interesting how things have changed because at this point, you know. We're in our third, we're in our third calendar year, you know. So what people are doing.

When you're thinking about accessibility, accessible making can enrich the lives of all of your students. You want to make sure that it's available, the making and opportunities for everyone. Being able to improve, you know, making is an opportunity for all. When you're thinking about your space, make sure that it's available, open. Things to think about if you can, we know we can't break down walls, but we can make sure that, you know, our aisles are, you know, clear and free, if you've got folks who use a walker, a cane, are visually impaired or in a wheelchair. Is everybody welcome, does everyone feel welcome? And so, I write about my LGBTQ students. I write about girls, you know; is your makerspace very boy-heavy?

This particular space, everything was movable. You can pick up every table, every cart, every cabinet. Oh, that right there. That's actually a green-screen, pop-up screen, by the way. Every single item can be moved anywhere in the school. You can move the entire makerspace, anything you want. All those chairs there wasn't one piece of that makerspace that couldn't go someplace else. It was more tech-heavy, but it was nice to have flexible furniture. Yeah, the flexibility of it was nice. That school was.... That school. Whatever I, there will be times that I go and visit because I travel all around if, and if I'm at a conference, I'll go visit makerspaces and I'll, I'll sometimes go and I'm just like somebody's got money, I can already tell. And so, the school, every classroom had the projector, every classroom had a microphone for the teacher, every classroom had, it was not a door, but it was like a bay door that opened like a garage, and so it was it was one of those types of schools. But interestingly they had a flexible makerspace that could move anywhere in the school and that was interesting.

What does your storage look like? Is it up high? Is it down low? Do you have labels and instructions in a variety of languages? And not just languages. Do you also have images? So not just scissors. Do you have a picture of scissors? Or just have a picture of scissors. You know, so making sure that your students know what is inside that box, what is inside that storage. If you know that you need to have it in Braille, things along those lines.

Your instructions. Maybe don't only have them written out. You can also have a video. Extra work, I know, and I know what this year is. I'm just saying things to think about. I put it out there for accessibility. The image thing, though, having the word and the image or just the picture of what's in a box. That's actually really, really nice. Because I mean whether you got the word scissors or you just have a word, picture of scissors that can be really helpful.

And then think about your shelving. The shelving: over here, nice and low; a little messy but nice and low where everybody can see everything. This, though, yes, those are sewing machines. If you have someone who is in a wheelchair, they can only go so high before assistance. So, then it's not accessible to all and not everything. That means somebody's gonna have to help them get something. And so, you know just, just thinking through things, that's all. If I had another picture of that particular space and we turned around. They actually had a green-screen wall and a designer, like a dress location. They did a lot with like fabrics and clothing and design and some video, but it was all one room. So, it was pretty cool. But things to ponder when it comes to accessibility: is your space available to all your students; is it accessible? Do you have signage and instructions, as I've already said, in different languages and different formats? The rest of your library, book returns, and tables, maker areas, are they walker- and wheelchair-friendly and available? Are aisles wide? And I know you can't move everything, but you know, it's an effort. Be aware of light and sound triggers, especially for those on the Spectrum. And if you'd like more information, I have the link there for Universal designs for libraries.

We love flexibility. It can feel chaotic. Yes. Makerspaces typically do. How do you find the balance between order and creative chaos? That is a good question. I find that having, I have some librarians whose makerspaces are just like to make, creativity, go to it, no instructions. I find that if you want more consistency, I'm not saying step-by-step-by-step plan, but having a plan of what you plan to implement and how you're going to do it helps somewhat with that creative chaos. I also have had folks, especially with my elementary libraries, where they actually have a visual schedule of what's going to happen. Today we're going to have an introduction and what that visual piece looks like, so maybe like a face talking, and then we're going to do this activity, and it's a picture of whatever that's going to be. We're gonna have a story, and then we're going to make, and then they're going to… and so they actually have like a visual schedule of things. Just, you know, communication, whether that's verbally or visually or all of the above, that type of thing does happen. It can be a stumper. Um, I was a theater teacher for five years, and then I was a middle-school librarian for six years. And so creative chaos was just, should have just been on my t-shirt, so it was very, you know, having everybody talking at once. Running lines and working on their monologues and doing their scene over here and practicing over there and if, all of a sudden you go, oh theater teacher, that tracks. Yeah, I understand, and so, and I still actually do theater when I have time and we're not in the middle of a whatever we're in the middle of, and so, you know people would come into my room all the time and everybody would be talking. They would just kind of look around and, what is all of this, and I'm like, well, they're working on this monologue, and they're working on this scene. They're practicing, everybody is, you know, every, it may look chaotic but as long as you know what's going on, then it's just creative chaos. It's all right, and that's you know, it, it's, it's when, when it's completely out of mindless control and I typically find with makerspaces, you know students want to be there and they wanted to, they, they want to be able to continue and work and do, and they've really found a nice hold there of something they want to work on so they don't want to lose that opportunity.

So, I finished with that and that's an excellent question as well to complete. That is me with a completely different hair color, which changes monthly. That is my book. *School Library Makerspaces in Action*, which is a big collection of case studies of makerspaces. That is my email, which is hands-down the easiest way to get to me. And I am, I try very hard to be very quick and responding because I don't ever like to keep people waiting.

*\*Small edits have been made for clarity.*