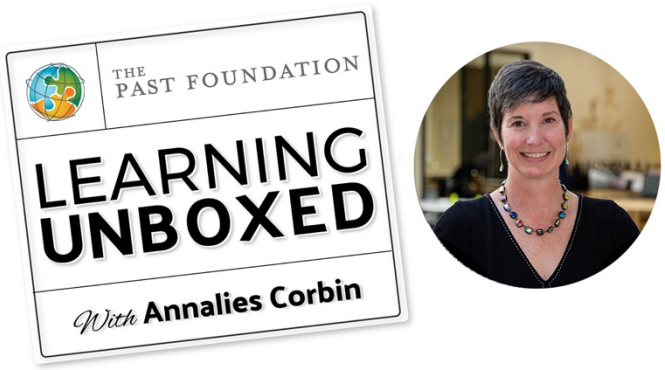

Elizabeth Dinschel and Kristine Bullock

Elizabeth Dinschel: [00:00:00] The great thing about using history or even civics is that just like science were inquiry-based, we're working on literacy because we're reading or interpreting photographs, and then we're able to apply that to what we're doing in science.

Annalies Corbin: [00:00:17] Welcome to Learning Unboxed, a conversation about teaching, learning, and the future of work. This is Annalies Corbin, Chief Goddess of the PAST Foundation and your host. We hear frequently that the global education system is broken. In fact, we spend billions of dollars trying to fix something that's actually not broken at all, but rather irrelevant. It's obsolete. A hundred years ago, it functioned fine. So, let's talk about how we reimagine, rethink, and redesign our educational system.

Annalies Corbin: [00:00:52] So, welcome back to Learning Unboxed. Very excited, as always. Today, we're going to talk about the work of Presidential Libraries, and K-12 education, and public outreach and engagement, and a lot of social studies and language arts. But we're also going to get into the deep weeds as it relates to how all that ties back into STEM and STEM education. And so, joining me today is Elizabeth Dinschel and Kristine Bullock. We are very excited to have you both.

Annalies Corbin: [00:01:26] So, just as a point of background, Elizabeth Dinschel is a historian working as an archivist and education specialist for the National Archives. And she is actively involved with engaging children with history through National History Day, and archival research, and leads professional development for teachers across the country. She is also a big advocate for cross-curricular development to bridge STEM education with social sciences, which is near and dear to my heart. So, welcome, Elizabeth.

Elizabeth Dinschel: [00:01:56] Thank you for having me.

Annalies Corbin: [00:01:58] And joining Elizabeth is Kristine Bullock. And Kristine is the Southeast Regional STEM Manager, that's a lot of words, for the Governor's STEM Advisory Council located at the University of Iowa and Kirkwood Community College. And in her role, she develops, promotes, and implements, and maintains a seamless collaboration between other STEM regions K through 12 teachers, administrators, and post-secondary institutions, and those business and industry partners along the way. So, Kristine, welcome to the program.

Kristine Bullock: [00:02:33] Thanks for having me.

Annalies Corbin: [00:02:34] So, I want to just dig right in and really sort of start for lots of our listeners, this is the first time, just to sort of set some context, that we've actually had the opportunity to have a conversation about the role of Presidential Libraries. So, I think that's extremely apropos, as we've just had a whole

presidential process in the United States. And one of the things that comes from lots of the work of these Presidential Libraries, but I don't think very many people really understand, Elizabeth, exactly what that is. What does it do? What's it meant to do over a long, long periods of time? And how does that all work with the National Archives piece? So, set the stage for folks.

Elizabeth Dinschel: [00:03:19] Alright. So, now, we officially have 15 Presidential Libraries. The Trump Library has gone live online from Hoover. And so, Trump, there are these presidential libraries that come out of each presidency. And because of the Nixon presidency, there is the Presidential Records Act, which means the National Archives takes control over all the presidential records that are created. Before Nixon, presidents could decide what papers went into their archives. So, like half of Hoover's papers are with us, half of them are at Stanford University.

Elizabeth Dinschel: [00:03:56] And then, a lot of them were probably called and curated by Hoover and his staff. So, we might not ever have a complete view of what his presidency was like, but we do have a responsibility as the National Archives to maintain these papers. The libraries are built by private presidential foundations, and then they are gifted to the American public. They're required to have endowments now. And the National Archives actually only controls about 10,000 square feet of the Presidential Library. So, those huge ones you see are mostly funded by presidential foundations that are private.

Annalies Corbin: [00:04:30] That's amazing context for folks, because, again, I think a lot of people don't really sort of realize what they are and how they function or even the fact that the Hoover Library was the first one. So, I don't think a lot of folks even really understand that. So, thank you for that. So, Kristine, help us understand your work in Iowa and how that then translates to Elizabeth's work with the Presidential Library and the National Archives. And how it is that you two came together to do some work?

Kristine Bullock: [00:05:02] Yeah. So, the Iowa Governor's STEM Advisory Council was started in 2011 when, like many phases of our history, there's been a big push that we have this pipeline that we need to build of students that are interested in science, technology, engineering, and math careers. But in order to get them to that point, we really need to prepare them in a very early age and foster that preparation continuing through high school and post-secondary.

Kristine Bullock: [00:05:26] So, with the formation of the Iowa STEM council, there were then six regions that were established to carry out the goals of the council, which are really to provide programming for pre-K through 12 students to strengthen their interest in achievement in STEM both in school and out of school, but then also to build partnerships with businesses and organizations in our community.

Kristine Bullock: [00:05:47] So, know that one of the barriers that we've had with STEM and especially keeping students interested in STEM is seeing that real connection to what I'm learning in the classroom, how does that translate to outside of the classroom, and for educators, and businesses, and organizations to be speaking the same language about what students should be learning, how it can be contextualized in an educational setting so that then students are well-prepared when they go out of that setting.

Kristine Bullock: [00:06:12] So, partnerships with Elizabeth started through just a lot of brainstorming, a lot of people networking together about different STEM careers, and it came up that Elizabeth had all of this great knowledge about Hoover's career as being as STEM as his self, as well as his life with Henry. And he came to realize that the library was really trying to showcase not just what he was as a president, but really what he contributed to society through his work in engineering and some of the work that he did to help feed the world through some of his knowledge and skills as well.

Kristine Bullock: [00:06:48] And then, we also learned about his wife, which for young women, that's a great inspiration, that there was women in STEM, is not something that's new, but that we need to continue to foster. So, we've partnered on events, community STEM festivals that draw in thousands of students, local events for, for example, robotics programs that are in and around the museum, and grants of the museum just for that, that Elizabeth will discuss further detail later. But really seeing that work with STEM can't just be done in a silo. And so, really trying to foster those partnerships that grab students at different points, whether they be in school or out of school in different age points. And the library just had a lot of those great resources that we wanted to help connect to and promote.

Annalies Corbin: [00:07:32] Yeah, absolutely. And I think that there's so many opportunities tied with the career and the influence. Hoover was involved in a lot of things. And I think, Elizabeth, back to my my question earlier, that folks don't necessarily even understand fully what the Presidential Libraries represent, but I suspect that many folks don't have a real clue other than the most high level sort of the ins and outs, or all the things, or the influences, if you will, that Hoover was involved with that lend themselves so beautifully to STEM. So, the engineering alone and a giant manmade, I want to say, monstrosity, but it's not, right?

Annalies Corbin: [00:08:12] It's this amazing thing, right? This STEM that bears his name that lends itself as a tangible, sort of applied point of contact for students or context around some of the things you're talking about. So, share with us just a little bit, Elizabeth, before we sort of dig into the weeds, if you will, of some of the work that the two of you were doing specifically right now together of sort of about how you utilize, or for yourself in your work, where did you sort of come to, hey, I have this great opportunity, if we could build out some partnerships, we could expand on this?

Elizabeth Dinschel: [00:08:48] Sure. Yeah. I mean, so I came to the Hoover Library almost eight years ago and I went through a tour with our director, Tom Schwartz, and he was telling me about Hoover's life and being one of the first graduates of Stanford University with a degree in geology and Lou Henry Hoover being the first woman to get a degree in geology from Stanford University. And this really successful engineering career where he was mining for silver in China and Australia, and it led him to become a multimillionaire.

Elizabeth Dinschel: [00:09:20] And he abandoned that career so that he could be a humanitarian and feed the world. But it was very quickly that the government kind of realized that he was this logistics just genius and really good at engineering, and he was appointed secretary of commerce, where he served through three presidencies. It is a really important time in American history because technology's changing. We're getting electricity, radio, television, air travel.

Elizabeth Dinschel: [00:09:50] And Hoover was a part of building regulations for all of that, including the standardization of things that we use every day, like screws and nails, tires on your car, some air traffic people, I understand, and pilots don't really like Hoover because some of his regulations still continue on today. He established what we would come to recognize as the first national transportation boards and really pushed for these huge infrastructure projects that became the foundation of recovery for the Great Depression, and one of those things was the Hoover Dam.

Elizabeth Dinschel: [00:10:26] And as secretary of commerce, he had gone in and kind of oversaw how they were going to split up water rights, how they were going to hire companies to do this, the budgets that went to Congress. And of course, left. The Hoover Dam building was actually dedicated by FDR later. But Hoover did stop at the Hoover Dam during construction and gave a great speech. And we have a picture of him out there. And no infrastructure projects had ever been named after a president before, so FDR, who did not like Hoover, revoked the name, and then when Hoover and Truman became friends later, they rededicated officially as the Hoover Dam.

Elizabeth Dinschel: [00:11:04] And I went to the Hoover Dam a few years ago. It's amazing. If you guys can go, go. Just attracts tons of visitors. It's this huge engineering marvel that Hoover is so proud to have his name on. But even when he was running for office, they called him the great engineer. And we have a button on display that says Engineers for Hoover and engineering civics groups would send him letters, as an engineer, this is how we think you should fix the government. And they wanted him to run the government like an engineer. And so, all of these things, we can bring back to students, which is awesome.

Elizabeth Dinschel: [00:11:41] So, that was kind of like that. And once I dug into the archives and discovered we had the engineering notebooks from the six companies that built the Hoover Dam, we could share this with the students. When we have the Bureau of Reclamation documents about the Hoover Dam at the archives in Denver, which I had digitized just so we could bring them to students. And so, we can talk about why we build dams and how they function, but also all of the political parts behind it, and how it interacted with government, and why we were able to get the dam. So, it's really cool. It is cool.

Annalies Corbin: [00:12:15] It is wicked cool. It's not just really cool. I think it's really, really wicked cool. And I have been to several dams, including the Hoover Dam, and I would echo your sort of shoutout, if you get a chance to go see one of these big dams, there are several of them across the country, that it's worth the trip as a family. Certainly, if you're in proximity and school groups have the opportunity to get to go, that's a wonderful thing. But even being able to sort of dig into videos and documentaries, there's a lot of information, materials that are out there about the engineering and the marvels that these things are.

Annalies Corbin: [00:12:53] They are really something else to behold, especially if you get to go down inside them and just that experience. So, Kristine, given the fact that there is all this great information that's out there, I'm assuming, and please correct me if I'm wrong, that part of your role in this work is to sort of help synthesize and figure out the components that make the most sense or how you, and the Hoover Library, and the archive work together to say, here's the best and brightest of the information to be able to disseminate that back out in a meaningful way. One of the things that I hear from teachers all the time is there's all these great resources, but I don't even know which ones are any good or how would I use them. And so, how is it that you interact or you interface with that?

Kristine Bullock: [00:13:36] So, for one piece of the work that we do, the STEM Council every year selects the list of anywhere from 10 to 15 high-quality programs that have gone through a vetting process from the STEM council. For example, right now, we're collecting applications from Iowa educators to implement one of 12 programs that we selected from 109 proposals of nationwide and state companies for STEM programs. So, we then rank them on a rubric of effectiveness of showing student interest and achievement in school and out of school that they can affect students of different grade levels.

Kristine Bullock: [00:14:10] So, we've built a pretty robust system of how we vet programs. So then, when we send these programs to educators that they can apply to receive these for free from the state, then they know that here's 12 programs, maybe only three or four of those are for my grade level. And then, it really helps them to whittle down programs that are effective. In partnerships with the museum, for example, we've looked at, the robotics programs have been a really key piece in our part of the state, and that's been something that's been nicely scaled to have an impact and show an effect.

Kristine Bullock: [00:14:43] And so, we try to either do a nice vetting of programs through rubrics or to look at what are some established programs already in our area that then we can connect to through some of our programming. So, that would include then, say, for the robotics programs involving those students in STEM days at the library or partnerships that we do on STEM festivals. So, we try as best we can to help whittle that

down for teachers. And I think right now, more than ever, teachers are bombarded by online resources and everybody wanting to promote.

Kristine Bullock: [00:15:15] But as you may know, if you click on some of those resources, then you have to dig for like two hours to find with actual resources. Some of these online bulletin boards are great to have a lot of resources, but when you actually click on them, they don't really go to much. So, we've tried to then filter those, but also if we have some established partners. So, whether that would be the Science Center of Iowa, the Iowa Children's Museum, the Hoover Library, ones that we know are established partners and we're familiar with their program, then we help to promote those programs that we know that we've already seen them in action.

Annalies Corbin: [00:15:46] So, both of you mentioned robotics. And so, I want to dig into that just a little bit. For folks that have listened to this program, we've had many, many conversations over the last, oh, I don't know, 18 months or so that the program has been running and robotics comes up frequently. And so, two questions. The first one, and either one of you, please feel free to jump in so that folks have a sense of context. So, in Ohio, which robotics programs? Because there are numerous large national or global robotics programs that exist in the world. So, is there a particular program, robotics program that is more prevalent in Iowa, I guess? I'll start with that. Is it first? Is it best? Is it vast? Is it something else?

Elizabeth Dinschel: [00:16:33] It's First Lego League here, so we have the FLL for the younger kids, first tech challenge for youths, middle school, and high school kids do FTC too. And then, we have the first robotics challenge, the FRC students as well.

Annalies Corbin: [00:16:49] So, the next question that folks are going to want to know is, okay, so how or why are robotics at the Hoover Library? So, explain that, because I think it's wonderful actually that that library is involved in that, but help folks understand sort of the where or the why of robotics specifically as part of your work.

Elizabeth Dinschel: [00:17:13] So, robotics is actually kind of a big deal here. Lots of people show up. They love it. It's awesome. But one of the things we've watched over the last several years is that funding for the teams has come back, has scaled back a lot from the districts. And a lot of companies who were formally sponsoring robotics teams have cut down the amount of money that they were giving. And so, like there's a few components here. We're a mission-driven organization.

Elizabeth Dinschel: [00:17:40] And part of that, a part of Hoover's legacy is the belief in children and the ability to give them opportunities so that they can excel. And Hoover was an engineer. His family has gone on to be really successful engineers in Colorado, some of them still are. And so, we saw this as an opportunity to promote children in our community with something that Hoover loved. So, the Hoover family got behind us and made it so that we could have a grant program for FTC and FRC teams in the area.

Elizabeth Dinschel: [00:18:11] And we set up like a grant process where they have to submit an application. They come in, they give us a presentation about what their team is doing, how they're involved in the community. It's very similar to a judge interview that they have at a competition. We have a little grant review board. We all read their applications. And the secret that they don't know is that everybody is going to get money. And sometimes, I've gone back to the Hoover family, and said, can we have a little bit more?

Elizabeth Dinschel: [00:18:38] We have more teams than we thought. And the greatest thing about it, there's a few things that are great, but we create opportunity for the students to come volunteer and mentor younger students in a STEM atmosphere at the museum. So, they come and volunteer at our STEM days. We have

Hoover hometown days where thousands of people from all over the state come. We have fireworks, and a parade for Hoover, and all this great stuff in West Branch.

Elizabeth Dinschel: [00:19:04] And we open up the Foreign Museum for the robotics teams where younger kids can come in and drive the robots and the teams can recruit students to come in. But we rent festival space all around the area and we give it to the robotics teams. So, I go sit with them, but they let the kids drive them. They bring out their posters. They talk to the kids and engage with them. And we sort of talk about the museum, but not really. It's really for the robotics kids and the little kids who love it.

Elizabeth Dinschel: [00:19:34] But then, they go to the FTC and FRC judge meetings, and they get to say, we've done these many hours in community service with the Hoover Library. And we have watched teams that have come to us with recycled parts, no sponsors. And we give them money, and they come back the next year, and they're like, well, now we have five sponsors, second place. And then, from that point, we give them a small grant, but we put them in more of a mentorship role so that they are helping the next group of upcoming teams. And it's been awesome. And the Hoover family comes in there like, show us your engineering notebooks, the kids lay them out and they get excited.

Elizabeth Dinschel: [00:20:17] So, this is more of like, usually, we need volunteers and we need people to come give to the Hoover Library, but this is a rare instance where we get to give back to our community and to the kids. And they come and they want to be interns with us later. It has just been so cool. And they come in, and they're like, here, let us fix this for you. Oh, your 3D printer isn't working, we can do that. And they me borrow stuff from us. We have a lot of really high-tech, we have like Oculus Rifts with gaming computers and stuff, and they take those to go do demos with little kids. So, it's this really great relationship we've built with the robotics teams in town. We like really love having them and having that relationship.

Annalies Corbin: [00:21:02] I totally understand that because we feel the same way. And at the PAST Innovation Lab, we actually have an FRC competition arena permanently installed in the building. So, I totally understand how you love it, and all these kids come, and these magical things happen because they've been exposed and they learn from each other. And I totally understand because it's magical. It's one of my all-time favorite things that we do.

Elizabeth Dinschel: [00:21:33] Yeah. And we had kids, Smithsonian had this big Minecraft event a few years ago, where everybody did these Minecraft things. So, we set up all of our gaming computers and we have a big touchscreen smart board, all with different Minecraft stations. And the robotics kids came out and played Minecraft all day with kids. And everybody had so much fun. But then, we learned that you could build the Minecraft worlds and we could 3D print them, too. So, we started doing that like on the fly, setting up the 3D printers. So, it's just been super cool to have like those younger groups that come in, and they inspire us to challenge us to use our equipment differently, and provide new programming for kids.

Annalies Corbin: [00:22:16] Yeah, absolutely. It's wonderful. So, Kristine, I want to circle back around to you and the work that you're doing. So, these amazing things are happening at the Hoover Library. And your work is bigger than that, in the sense that it's broad and it's statewide, but how do you leverage or how do you help others understand how to take advantage of or leverage the experience, whether it be robotics or anything else that's happening at the Hoover Library specifically, and then turn that into more of an everyday opportunity back in your own classroom or in your own community?

Annalies Corbin: [00:22:50] Because that's one of those those big—it's not a disconnect, but it is one of the things that oftentimes I hear teachers or communities that don't necessarily have a Hoover Library, they don't have a science center, they don't have a whatever that big community-based space is, trying to figure out, well,

then how could we do some of those similar things? And in your work, I would assume that you get to help folks figure that out. So, what does that look like from the perspective of your role in terms of how to help folks leverage those things?

Kristine Bullock: [00:23:24] Yeah. And what you pointed out about not every community having the same resources or same access. As you know, Iowa has a lot of very rural areas that are very disconnected from bigger businesses, or they might just have a few businesses in their area that really focus on a certain career path that students might not be exposed to anything else. So, Iowa saw that as a big barrier probably five years ago now, maybe a few months to get access to these students without having it be that there has to be transportation for them to get to something like a Hoover Library each time they want to interact with a community organization and develop a work-based learning clearinghouse that's for K-12 students.

Kristine Bullock: [00:24:04] And so, what that is, is an online partnership and project portal for K-12 teachers, public and private, to connect with businesses from across the state. For example, Elizabeth could post a project or a partnership that she would like to do on this clearinghouse and an educator four hours away from her in southwest Iowa could then connect to this project and build a partnership remotely, so students could work on the project.

Kristine Bullock: [00:24:29] They could reach out to Elizabeth as a mentor or a guide as they navigate through the project or even set up virtual meetings that way, so then students can work with local Iowa businesses and organizations on different projects, and maybe even team up with other schools and other parts of the state to work on a project together with a business without having to physically go there. And now with the time of COVID, we're really seeing that even if you could go to a business and miles away, that you really can't physically do that. And so, I think it's opened a lot more possibilities of educators being interested in how can we connect to businesses and organizations virtually that maybe before, it just seemed like something that wasn't right at the forefront.

Kristine Bullock: [00:25:15] But now that it's becoming so much more natural for everybody, we're really hoping that we see an increase in usage of this clearinghouse, so that then it can build more partnerships for more students. And we always want to see that local connection because one of Iowa's biggest exports is not necessarily corn, but some of our talent, because people are moving out of the state and being drawn to some of those other fancier places. But now with COVID, we've seen that some of those states that lost population are maybe going to get some of it back because people can work remotely. So, it is a unique time and a unique opportunity to get connected to students that might not have had access before.

Annalies Corbin: [00:25:53] And how fortuitous that so much work had gone in prior to this pandemic to build that network, to build that clearinghouse so that it was there. That's outstanding, yeah.

Kristine Bullock: [00:26:06] And to your point earlier about filtering resources, it's nice that it's actually staffed by the Department of Education here in the state. So, there is someone who's continuously updating it, supporting teachers and the work, aligning the projects to standards so that it does have that nice filtering, that it's not just a website with a link that might have been relevant for a week, or two, or a month. And then, now, all of a sudden, it's really dated. So, there is support for that to be a continuously useful resource.

Annalies Corbin: [00:26:35] That's fabulous. And I would encourage folks that are listening, even if you're not from Iowa, to go take a look at that and see if there's something that you can learn from that and bring back to your own state, because not every state, not all the folks that we talked to have such a formalized mechanism to make it easy. So, that's fabulous. That's a giant win for the State of Iowa. Bravo.

Annalies Corbin: [00:27:00] I want to to circle back around and talk about one of the projects that Elizabeth shared with me about this happening at Hoover, like just really curious, and it's another one of these that most folks would necessarily, and as soon as I saw this, I was like, oh, my gosh, I need to know more about what is happening with Raspberry Pis and Hoover TV at the Hoover Library. Because for those folks that do a lot of STEM, well, Raspberry Pis have become fairly ubiquitous in terms of students getting a lot of experience. And so, I think folks are going to be really wondering. So, what is it that you're doing with this thing? So, Elizabeth, what are you doing with this thing? Sure.

Elizabeth Dinschel: [00:27:40] So, Herbert Hoover was on the first television broadcast in 1928. And it's not like television like we think. Like there wasn't a show. It was probably more like Skype or like FaceTime, something like that. So, Hoover was on one side of a television with a phone, someone was on the other side, and we have this technology on display at the Hoover Library, kind of a dusty hidden corner, but how cool is that? Right? So, we started talking to students about it and we decided we wanted to recreate a television broadcast for kids to use when they come for STEM days.

Elizabeth Dinschel: [00:28:13] So, we actually have a local fab lab here. And we worked with the fab lab to build an exact replica of what was on the end of this technology, this weird black and white box. And so, we made two of them and we started working on getting like screens, and microphones, and cameras, and stuff like that, and then we started having a debate about how we were going to make these things talk to one another. And so, we were trying to do it through like we shouldn't be doing Skype on the floor of the museum.

Elizabeth Dinschel: [00:28:47] We needed to control the environment a little bit more and even had to work on deactivating software on the computer so we could make them talk. And then, I had my robotics kids in, and they're like, we can do this with Raspberry Pis. And I was like, really, can we? And they were like, yeah, let us do it. So, we bought some Raspberry Pis. And it's so cool. And we had one of the teachers from one of the local high schools stepped in and she was helping them. She's one of the robotics teachers.

Elizabeth Dinschel: [00:29:21] And actually, we had left off. Right when we sat down with that, I went into the office the other day, I haven't been in since March, and the Raspberry Pis and the TV broadcast was all over the floor in my office. And I was like, we're going to get back to that. So, I actually grabbed the Raspberry Pis so the kids can start working on them again because they want to get back to it. But yeah, we're letting them do all the programming for the television broadcast so it'll go into the exhibits.

Annalies Corbin: [00:29:47] And that is perfect STEM education, right? The kids coming up with it, finding the solution, and then deploying the ideas. I love that. That is so wonderful. I always like to close this program by thinking about the folks that have have spent half-hour or so with us listening to what are always amazing stories or opportunities of these triumphs or the things that you're doing, sitting back and wherever they happen to be in the world, wondering about, well, how could I do X, Y, or Z that I just heard folks talking about? So, Kristine, I want to start with you. As you sort of traverse and help folks in Iowa bring STEM, high-caliber STEM, and other learning opportunities directly into their classroom, for the folks that are tentative, what piece of advice do you have for teachers or communities that are not real comfortable yet but really want to go down that road?

Kristine Bullock: [00:30:49] Well, for teachers kind of starting at the classroom level, for teachers that might be hesitant, my biggest suggestion would be to start with something that is maybe just a unit or transforming two or three of your lessons to be a hands-on component. And then, once you really see that initial work that you had to put in of materials or curriculum changes, see students get excited and want more.

Kristine Bullock: [00:31:13] And when I used to teach engineering classes to high school students, that buy-in of them being engaged and how it eased your classroom management was really like all that I needed to be like, yeah, everybody wants to do it, I'll put in all the work because I'm not putting in work of trying to motivate students every minute of every lesson. So, that piece, then I think once you do see that, then become a bigger advocate for your grade level.

Kristine Bullock: [00:31:40] So, if you're teaching fourth grade or you have multiple math teachers at your school, advocate at that scale, and then going to a building, and then trying to go to more of a district level, and kind of expanding it from there, I think it's harder if you feel like you're new to this, just think of taking on the whole kitchen sink at once. If you're at the district level, maybe thinking about changes again, maybe picking a few priority areas and starting there.

Kristine Bullock: [00:32:06] And what we've seen from businesses that are interested in getting engaged in STEM, whether that be setting up high school internship or apprenticeship programs, doing more of their volunteers, getting into school, start with something, again, that's at a scale that's manageable. So, for example, we have a company here in Iowa, John Deere, that they're launching a high school software apprenticeship program this summer. And they're working with one high school that is going to do five apprenticeships, and then they're going to expand from there and kind of pilot it with one area or another business we have that they really value their employees volunteering in schools.

Kristine Bullock: [00:32:42] And so, they have tried to create a network within their employee resource groups about different opportunities for their employees to get engaged. And now with things being virtual, it's that much easier. So, I think really setting your scale, and then expanding from there, and then bringing in more partners. I'm sure, Elizabeth, with what she's done from the library, it wasn't like, let's reach out to everybody that we know to do all these things. You start with maybe more of a local group of students or a local robotics team to get started, see success, and then it becomes easier to manage as you grow larger.

Annalies Corbin: [00:33:14] Yeah, that's absolutely true. Thank you for that, Kristine. So, Elizabeth, same question to you. I'm from another state. I don't have a Presidential Library in my ecosystem, but I want to be able to tap into some of the same sorts of things that I heard you talking about today. How would I go about such things?

Elizabeth Dinschel: [00:33:35] So, one of the things I think teachers should think about is how they can integrate social science with the other things. I know there's a lot of standards going on, and the great thing about using history or even civics is that just like science were inquiry-based, we're working on literacy because we're reading or interpreting photographs, and then we're able to apply that to what we're doing in science. So, like in my Hoover Dam section, we actually build dams, and then flood them, and test them to see how they work.

Elizabeth Dinschel: [00:34:05] And it goes both ways. Like I work with National History Day and I give fifth graders who have never done a history project before. So, I asked them, do you guys know what the scientific method is? And we'll start spitting it out to me because they've worked on it before. We're going to do the same thing. You guys have to write a thesis statement, right? Right. Most your teachers want you to start there, right? Right. Well, it's not a thesis statement because we haven't researched and tested what you're saying.

Elizabeth Dinschel: [00:34:31] So, now, it's a hypothesis. And now, we're going to do research. We're going to see what we find. We're going to have conclusions. And we're going to actually have to change our hypothesis to be a thesis statement, because now, we know our question, have an answer to it. And my kids

respond to it so well. And then, like that's just the beauty of having the new NCSS and NGSS standards be inquiry-based.

Elizabeth Dinschel: [00:34:55] So, it doesn't matter where you are in the country, if you can frame your units in a way that it's a question that can come across from history, and English, and science, you can blend all of your subjects together and have this amazing outcome. Because like Kristine said, when the kids can engage with it, learning about a dam is way cooler if you can build it and flo1od it. It just is. So, yeah. I mean, I think that's the big thing. And definitely, sign up for some stuff on Twitter. Like we tweet out a lot about programs going on. We just did a Hoover Dam program with the Presidential Primary Source Project. So, you'll find these things in places that are unexpected, but give them a chance.

Annalies Corbin: [00:35:39] Yeah, absolutely. Great advice. I want to thank both of you ladies for spending time with us today and for sharing the work that you're doing. The great work that you're both doing is very, very exciting. And we will direct listeners to the resources and back to you. So, thank you very much for joining us today.

Elizabeth Dinschel: [00:36:00] Thank you for having us.

Kristine Bullock: [00:36:01] Thank you. It's great talking to you both.

Annalies Corbin: [00:36:05] Thank you for joining us for Learning Unboxed, a conversation about teaching, learning, and the future of work. I want to thank my guests and encourage you all to be part of the conversation. Meet me on social media @AnnaliesCorbin, and join me next time as we stand up, step back, and lean in to reimagine education.