Melissa Higgins and Michelle Cerrone

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Annalies Corbin: [00:00:21] 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 re-imagine, rethink and redesign our educational system.

Annalies Corbin: [00:00:55] This is Annalies Corbin, and welcome to Learning Unboxed. We are on the road again, if you will, back in Boston to talk about a project I'm really, really excited about. We're going to discuss engineering and empathy, and what that has to do with kids, and how kids learn, and how folks think and process. So, we're really excited about that today. And our guest joining us, we have Melissa Higgins, who is the Senior Director of STEAM, Science, Technology, Engineering, Art and Math. For those of you who are used to hearing us talk about STEM, at the Boston Children's Museum, and Melissa loves to create exciting hands-on, minds-on STEAM challenges that inspires children and educators to engage and enjoy STEAM learning. So, welcome, Melissa.

Melissa Higgins: [00:01:49] Hi. Thanks for having me.

Annalies Corbin: [00:01:50] And joining Melissa today is Michelle Cerrone. Michelle is a Senior Research Associate at the Education Development Center, and she leads research studies and evaluations that deepen understanding of how to harness media and digital technologies to enhance education. And that's awesome. Because right now, everybody is talking about technology and education. So, very, very timely. Michelle also co-leads a National Science Foundation study investigating design and implementation of engineering and empathy activities in early childhood settings. And that's the thing I'm really jazzed about us talking about today. So, welcome, Michelle.

Michelle Cerrone: [00:02:32] It's great to be here. Thank you.

Annalies Corbin: [00:02:34] So, I want to start with some overarching sort of set the stage for our listeners, many of whom come from all over the world. And so, they may or may not be very familiar, for starters, with the Boston Children's Museum. So, Melissa, just give us the sort of mission and vision of the museum as a place to start.

Melissa Higgins: [00:02:54] Sure. Yeah. I'm happy to. So, Boston Children's Museum, obviously, we're located in Boston. And we're actually the second oldest children's museum in the world, which is a great claim to fame.

Annalies Corbin: [00:03:05] Did not know that.

Melissa Higgins: [00:03:07] Yeah. Yeah. Fun fact. We were started in 1913 by science teachers, actually. So, a lot of good connections to the current work of the STEAM team. And, you know, like many children's museums, really, our mission and vision is to provide really exciting and joyful learning experiences for children and families. And the STEAM team in particular, obviously, we focus on the STEAM discipline, but whatever specific activity or projects we're working on, we're always thinking about kind of the underlying skills and ways of thinking that we can help supporting kids so that they'll be successful STEAM thinkers later in life no matter what their profession is or what they go on to do. So, that's really what we're always thinking about.

Annalies Corbin: [00:03:52] And a fun place for kids and families and schools to come hang out. Plus, the added benefit.

Melissa Higgins: [00:03:58] Yes, exactly. And for staff to work in, I would say.

Annalies Corbin: [00:04:01] Yeah.

Melissa Higgins: [00:04:01] We have a great time developing our activities and exhibits, and yeah, it's really a fun place to work.

Annalies Corbin: [00:04:07] Yeah. You can't go wrong with children's museums. They're just awesome all the way around. So, excellent. Thank you for that. So, Michelle, can you tell us a little bit about the Education and Development Center? Same question. Mission, vision. So, what is this thing?

Michelle Cerrone: [00:04:21] Sure. So, the Education Development Center has not been around quite as long as the museum, but we were established in 1958. We are a non-profit organization. We focus on researching and designing programs to improve education, to improve health and to improve economic opportunities, both here in the United States and internationally. And I would say equity is a common theme that unites our work. So, EDC's headquarters are in Waltham, Massachusetts, which is just outside of Boston.

Michelle Cerrone: [00:04:55] I'm actually based in New York City at EDC Center for Children in Technology. The focus of the work at our center is investigating the role of technology and media and supporting teaching and learning. We work in both formal school environments, informal spaces like the museum, and then also, in communities and in the home. And so, our work with families in the home has taken on a new relevance over the past as schools and families transition to remote learning.

Michelle Cerrone: [00:05:25] So, we've been able really just to not only share our resources for families to use, but to translate into actionable and family-friendly language what we know about the exemplary use of technology and media in the home. For example, my colleagues developed a guide with tips for parents, with young children around using technology as a tool for learning. You know, it's available in both English and Spanish, and it's not me like shamelessly promoting our work, but really just to say that these are topics that EDC and the Center for Children in Technology, in particular, have been grappling with for years.

Annalies Corbin: [00:06:03] Yeah, that's the interesting reality of life during a pandemic, is a lot of the things that we're talking about and seeing in education are conversations that folks have been wrestling with for

really, really long time. And there's suddenly a sense of urgency and requirement that says, hey, now, we have to take these great debates we've been having or this lack of resources or these concerns around equity, and we have to fast-track solutions to all of this.

Michelle Cerrone: [00:06:31] Yeah.

Annalies Corbin: [00:06:31] So, it's an interesting time that we are all sitting in, isn't it?

Michelle Cerrone: [00:06:36] For sure.

Melissa Higgins: [00:06:36] Yeah, professionally is.

Annalies Corbin: [00:06:39] And I think that the rate and pace of modification is fascinating. And I know that's not what we're here to talk about today, but it is one of the things that I think that over time, as we reflect back, we are going to find that the rate and pace of learning is debatable in some cases, in some locations and same instances around how much kids are actually able to gain if they even have access. But what I can tell you that I think the service providers, the teachers, the adults in this environment, the rate of learning right now is pretty steep.

Melissa Higgins: [00:07:12] Yes, exactly. I think especially in museums, and I know, as you said, this isn't our main focus today, but it's been really interesting to hear from colleagues and just see with our own work at Boston Children's Museum be—you know, our core work is, for the most part, hands-on, face-to-face experiences. And now, that is impossible. So, while we've had many conversations over the years about ways to digitize something or do it not face-to-face, now is the time when we are forced to experiment with that and perhaps kind of let go of some of the hang-ups that we have held on to for so long and just give it a go and see what happens. So-

Annalies Corbin: [00:07:52] Yeah. And I think that folks all over the world, that's exactly what they're doing. So, the flip side of it, and this gets me back into the research component, Michelle, in particular, right? So, there's going to be so much that we will have learned. And I think that over the next nine to 18 months, the sets of questions that folks are going to start to be generating around, hey, what do we know, how do we know, what's the data telling us and what questions should we really be asking for the future are going to be really critically important and enlightening as well.

Annalies Corbin: [00:08:24] So, speaking of research then, so let's talk a little bit about sort of what's the origin story around engineering and empathy and how is it—so, A, what's the origins where it comes from? And then, how that particular relationship between that program and project, the museum and the center. So, I'm not sure who wants to tackle these questions. I'm going to toss it out, and whichever one of you wants to lead, we'll go from there.

Michelle Cerrone: [00:08:55] Melissa, I'll let you lead since this was your-

Melissa Higgins: [00:08:57] Yeah. So, I guess I don't want to go too, too far back, but I've worked in engineering education for most of my career, and I kind of started right when days like Massachusetts were beginning to think about incorporating engineering in their educational standards. So, that was really kind of like 2003, 2004, and had done a lot of work. I've pretty much always worked in museums with some exceptions over the course of my career. But that's the crux of my work was from the museum working with teachers and students in schools and primarily with elementary school kids.

Melissa Higgins: [00:09:36] So, after doing that for over a decade, I remained really passionate about engineering education, and what that can do for kids in terms of helping them solve problems and sort of think outside the box and grapple with problems that don't have one correct answer. But I really felt like there was such a need to incorporate a little bit more of the social-emotional learning aspect of things, and specifically empathy, which much like, you know, I tend to think that a lot of the STEM disciplines are so much more than that single discipline.

Melissa Higgins: [00:10:10] And as I mentioned, you know, you can take what you learn about STEM things and STEAM things, and apply it in so many different areas of life. And empathy, I believe, is truly one of those skills as well. So, I was really interested in the idea that we could perhaps figure out a way to combine those two things. And specifically, I've been at Boston Children's Museum for about two years and going there really allowed me a little more time and space to learn from colleagues about some of the important aspects of child development that maybe I didn't have as much background and coming from kind of a STEM education, you know, space. And thinking about when kids really begin to learn those empathy skills, it's really early on.

Melissa Higgins: [00:10:57] So, you know, often, we talk about engineering being something that maybe doesn't get to do until kids are already in college and have declared engineering as a major, and that's starting to change now with some of the education standards. But then, the idea that we could begin to introduce engineering and empathy right at the time when kids are beginning to develop some of those skills, they're really in pre-K and K classroom was, you know, that sort of feed that started all of this. And then, Michelle, maybe I'll—so, Michelle and I had worked together in the past, and obviously EDC is a great organization and Michelle is a great colleague. So, I roped her into this. And do you want to talk a little bit about some of the big questions, kind of the research-type questions we were thinking about originally with this project?

Michelle Cerrone: [00:11:45] Yes, sure. So, I guess why don't I start by talking about how we're approaching the research design because I think that gets some of what, Melissa, you're saying. So, we're pushing it-

Annalies Corbin: [00:11:56] And that's going to be one of things that teachers in particular, schools have tried to figure out, how do we measure, how do we assess empathy, right? And, of course, you know, elementary schools, I'm struggling to figure out how they're going to tap into those engineering components with all of the new standards that are available. So, yeah, Michelle, I think that would be a piece that people are extremely interested in.

Michelle Cerrone: [00:12:18] Yeah, sure. I don't know that we're going to get to how to assess empathy yet, but I think that is a very important question. So, the way that we are envisioning and approaching the research design is through a design-based research approach, and that means a few things, right? First, it means that we'll be following an iterative development process, you know, working very closely with essentially partnering with teachers as co-developers so that we situate our research in our development process in real educational contexts, right?

Michelle Cerrone: [00:12:53] And so, the result is or what we hope the result is that the resources are responsive to the priorities, the cultures, the instructional routines and the needs of the schools and the teachers who use the resources. And perhaps more importantly is that we develop a set of resources that are flexible enough to be adopted by teachers based on their own unique contexts after the project is over. The other key aspect of this design-based research approach is that at the end of the project, we'll not only have a terrific set of resources, but we'll also be generating knowledge for the larger field, right?

Michelle Cerrone: [00:13:34] So, for this process and projects, a big piece of that knowledge will be a set of principles, we call it design principles for designing these types of activities along with identifying the

professional learning experiences that support early childhood educators and engaging in these types of activities. And I think as we begin to learn more, that's where we'll start to see, what does empathy in engineering look like? How does that play out in early childhood settings? And that will start to allow us to begin to assess it.

Annalies Corbin: [00:14:07] So, essentially, as part of this project, you'll be crafting—as you learn along the way, you're literally crafting the road map for others to follow and to actually build activities, modules, units if you're thinking about in a traditional school setting or in informal settings, be able to utilize that tool to ensure that the programming that they're doing is robust and where it needs to be. Is that an accurate reflection or where's the tweaking around the edges of that?

Michelle Cerrone: [00:14:33] Well, I would say, and I'm sure Melissa has much to add to this, but that we're allowing the thinking about the unique context that each school and each teacher exist in.

Annalies Corbin: [00:14:46] Perfect.

Michelle Cerrone: [00:14:46] And so, how can they take this resource that we develop after the study and adapt it to make sense in their setting and their routines, you know, sort of original-

Melissa Higgins: [00:15:01] Yeah. Yeah. No, I totally agree with that. And I think even, Annalies, to your point about creating the road map, we're actually not only creating it for others, but we're—you know, it's the classic building, the planners are applying it. We're creating a road map for ourselves at this point.

Annalies Corbin: [00:15:15] Educators, we're really good at that, right?

Melissa Higgins: [00:15:18] Yeah, exactly. Feels very comfortable. So, you know, I think one thing, we were lucky enough to do three workshops with educators before the world kind of stopped being, you know, what we had known it to be before. And in those sessions, we tried to be very open with them about the fact that while we had convened them to share some ideas about engineering and empathy and do some activities together, we were really there to get their thoughts and learn from them. And we didn't have the answers yet and we hoped we would eventually find them together.

Melissa Higgins: [00:15:54] So, I think that was a critical starting point for us, is gathering those pre-K, K educators together to share what they were thinking and what felt right for them. And, you know, beginning to pick apart the engineering piece and the empathy piece, and then put them back together in ways that kind of felt right to those teachers. So, yeah. And we still don't have all the answers, but we at least have learned a lot from those experiences.

Annalies Corbin: [00:16:19] Well, walk me through a little bit about structure because that's an intriguing thing. And I am particularly interested in it because PAST does a very similar process. I mean, we advocate for this. We believe in this very, very strongly of bringing the educators in that are going to be utilizing this content or this area of expertise that you're trying to build out or help educators build out, you know, so they have direct application in their classrooms. And for them to be not just part of your study group, but part of your research team, that particular design model is one that we feel is critical to success.

Annalies Corbin: [00:16:59] So, I'm really curious about when you bring those educators into those first— those three workshops that you had, so for folks that are listening and don't have access specifically to this project, and certainly not yet as it's continuing to unfold, but are sort of thinking about how they would learn

from you and your process and the application of your process into their own communities, what does that look like? Did you have a set of activities in mind or did you literally just start with a brainstorm with these folks?

Melissa Higgins: [00:17:29] Yeah, that's a great question. We did start in the first workshop with some core activities that we could kind of build some foundational experiences together that we could then talk about and dissect as a group. And, you know, that varied from some discussion-based things to some hands-on engineering and integrated engineering and empathy challenges. So, the one main challenge we worked on together was looking at the storybook, Make Way for Ducklings and really analyzing how the characters in the story were feeling and what evidence we could fight for those assertions, and then designing, engineering something to help the ducks cross the road.

Melissa Higgins: [00:18:19] So, that was the starting point really for a lot of the conversation. And then, in the first workshop, to be honest, we did try and do some pretty blue-sky unstructured brainstorming after doing some of those discussions and that activity. And we had a phenomenal—all of the teachers we've dealt with so far, we've been so lucky, they're wonderful. And they just told us—I mean, they did it. You know, they were game for it, but they told us, basically, we needed more foundational, like we didn't have enough to really feel like we were being effective in that brainstorming.

Melissa Higgins: [00:18:55] So then, we've changed every—we've done three workshops. Every workshop has been a little bit different because we're using those things, what the teachers are telling us. So, in the next workshop, we offered up a couple more activity ideas that weren't quite as structured as what we had done with the Make Way for Ducklings activity. And so, yeah, we tweaked kind of every time. And I think the teachers have given us excellent feedback on what we presented and other things we might think about for the future as well.

Melissa Higgins: [00:19:23] So, we're kind of using this downtime at home to pull together some drafts and making sure we're writing up how those changes happened and what we actually did for the activities and what the teachers suggested, and then we'll share those back out with them for some more feedback. So, that's the kind of workshop piece and what we've done so far in person. But I don't know, Michelle, if you want to talk a little bit about how the research—like how we structured some of the gathering of info in the workshop or some of the ideas we have for moving forward.

Annalies Corbin: [00:19:54] Yeah, I would agree, Michelle. I think that would be really helpful. And one of the pieces that Melissa mentioned and I'm intrigued by from the research perspective is we often hear from teachers that a shared vocabulary and foundation is absolutely essential. So, one of my questions right off as Melissa was kind of going through, what that first workshop was doing was, oh, my gosh, how do you capture or ensure, even if you can't ensure they came in that way, but how do you capture, and then capitalize on this notion of a shared vocabulary and experience to move forward? And I'm sure that's part of your research work anyway. I have no doubt.

Michelle Cerrone: [00:20:34] It sure is. And it really aligns with some of the findings that came out of those workshops. And I have to really hand it to Melissa and her team for creating a structured experience during these workshops. That also was open enough for us to really hear from teachers in a way that elicited some of these design principles. I think they did just a fantastic job with that. So, we did kind of a pre-workshop survey to get a sense of how teachers think about engineering, how they think about empathy, how confident they are in their ability to address it in their teaching.

Michelle Cerrone: [00:21:15] You know, we went into this project pretty confident that teachers in early childhood settings are addressing empathy, that it's a big part of what they're doing. What we learned from the

teachers during the workshops and through the survey has reiterated that, right? Teachers are engaging children in empathy on a daily basis. What we also learned was that teachers seemed to most often address empathy more informally, based on situations or conflicts that come up in real time.

Michelle Cerrone: [00:21:51] And what I think surprised us, and Melissa, you can correct me, is that though teachers are confident about their understanding of empathy, they're confident about their ability to engage children in empathy, and they also—you know, we have really strong examples of how they address it in their classroom, they couldn't necessarily tell us the specific strategies they draw on when teaching it. It also wasn't necessarily clear that there was a common or shared understanding of what empathy is for young children.

Michelle Cerrone: [00:22:21] And then, you know, that's not to say that teachers don't know what empathy is and what the important aspects of it are for young children's development. Just that we didn't hear a shared set of language, that teachers were all using. So, that tells us, and here comes like the first draft of one of our design principles, that we need some common language in our resources that describe these strategies that we hear teachers are using. So, we're just putting words to it, right? Now, engineering was a lot different. And, Melissa, do you have anything to add about the empathy piece?

Melissa Higgins: [00:22:55] No, I totally agree. And I think, you know, even to be perfectly honest, when we were writing the grant with the National Science Foundation funded initiative, there isn't a definition for empathy in the literature no matter what—if you're looking at pre-K, K, you're looking, you know, for adults or whatever the case might be, there's no—there are many facets of empathy and lots of different ways to talk about it, but, you know, there's no accepted one definition and, you know, that bears out, it would be teachers that we were talking with as well.

Melissa Higgins: [00:23:31] So, we did—kind of we put forth a definition in the grant and we shared it with the teachers that basically, we were—for our purposes, we were thinking of empathy as ability to take a perspective of another. And whether that's another person or another classroom or an animal, you know, it doesn't really matter, the other, but that ability to take the perspective of another. And yeah, I think, you know, continuing to talk with teachers about what really feels right.

Melissa Higgins: [00:24:03] And, you know, many teachers I think said that while they are sure they are teaching empathy and they see it in their students and they can talk about it, they maybe aren't using that specific word even, you know, even in their own minds as they're thinking about it. They had other terms sometimes that they would draw on. So, yeah, it's really interesting to hear how it manifests in their classrooms and their teaching.

Annalies Corbin: [00:24:23] And I would imagine that when you asked them to formalize empathy as a teaching strategy and a learning target, that was a whole different sort of set of maybe not deer in the headlights, but for some, that would be—I would imagine they struggled, back to one of things I heard you both mentioning earlier, as, you know, where or how do I apply that? And then, when you say, and oh, by the way, let's use engineering principles to do this or engineering standards to try to get us there, you know, elementary teachers in particular, they're great engineers, they just don't recognize that about themselves, right?

Annalies Corbin: [00:25:10] And that's part of the reality. I see that with teachers all the time. The other one that I bump up against, you know, you see this when you're talking about technology sometimes, you just, oh, no, you know, I'm not very good with technology. I don't understand what I should be teaching with that. And it's just not true when you really start to begin with them. And then, the same thing we see with mathematics sometimes. And so, I'm not surprised to see that you would have teachers that don't necessarily think that

utilizing engineering as part of that mechanism would be not only an intriguing way to go, but one that they're probably actually already doing and just are not quantifying it.

Michelle Cerrone: [00:25:44] And that's exactly I think what we heard from a lot of the teachers, is that, oh, I didn't realize I did engineering, right? The examples that we're talking about are things that I'm kind of already doing. But of course, there's a perceived barrier, right? We're up against how teachers we're working with think about engineering, which is influenced by how the larger society talks about. And I think, Melissa, you can speak to this better than I can. The idea that it's all about math and that it's removed from what maybe the average person is able to do, part of what we're doing is shifting that perception, I think, right?

Michelle Cerrone: [00:26:26] At the same time, we're also shifting the skills necessary to be successful in engineering by pulling in empathy. And in fact, one of the members of our advisory board is a professor of engineering. And his whole—or I don't know if it's his whole focus, I shouldn't say that, but a big focus he has is on the importance of empathy in training engineers, right? And it makes sense. And I think it really fits well into a preschool classroom in early childhood settings in a way that might be surprising for teachers and for parents for that matter.

Melissa Higgins: [00:27:01] Yeah. Just to add on to Michelle's comment, really, so Joe Walter is one of our advisors. He's at University of Georgia. And his work at the college level with engineering was very inspirational to the grant itself and some of the ways that we're thinking about this now. But I think one point that he made with us when we were talking especially about the teacher workshop was, you know, often—and I do this and I know a lot of other people in engineering education field do this.

Melissa Higgins: [00:27:32] But we'll sort of say that engineering is using math and science understanding and ways of thinking to solve problem, which it is, but his point is often that by simply adding onto that, it's using your knowledge to solve problems for people and communities and animals, you start to shift some of the thinking where it's, you know, less solely focused on the concrete science knowledge or the math back, and it's much more focused on how we can help other people. And, you know, there are a lot of other skills that can go into that if you're trying to help others.

Melissa Higgins: [00:28:10] So, that could be your observation skills or your ability to communicate with people and connect with others. So, just those simple tweaks in language could really start to change some perspective about who engineering is for and who would be good at that. I think a lot of that is—he's seeing some of that in his own college classrooms and with some of the students that he's working with, but the idea that we could start that so early on in pre-K, K and kind of change those understandings, it's kind of amazing to think about then who might feel like engineering is for them and who would be in that field in 20 years.

Annalies Corbin: [00:28:48] I think that's an intriguing thing too because I think that two pieces that I sort of want to reflect a little bit on with the two of you, so one of them is that the humanizing of engineering, which in many ways is what he's talking about, right? Theoretically, will have a profound impact on these—to your point, Melissa, to these young kids 20 years from now. If they are immersed and even as the smallest of kiddos all the way along, girls, boys or no matter what your background, what your experience, what life you're living in that moment, if you feel like that at all stages along the way, that you are an engineer, whether you become an engineer or not, a completely different element, right?

Annalies Corbin: [00:29:32] But as humans, we use the design cycle every single day. You know, we get up in the morning, we get dressed before we show up. And we are successful. Every human is successful to some extent in engineering, at least a component of our world in our moment every single day. And yet, we

don't believe that about ourselves. And as kids get older, we see that being pushed out of them, especially in particular, groups of girls, minorities lose a lot of those opportunities.

Annalies Corbin: [00:30:02] And the other piece of it, as all rolled into this, I think, is a marketing issue, right? We have these sorts of old notions of what engineering is. It's the same problem that manufacturing has, right? It's a marketing problem, it's not what it used to be. And it's a very different thing. So, I think it's intriguing, the work that you are doing in terms of sort of getting people to sort of think about these issues very differently.

Annalies Corbin: [00:30:28] Michelle, what is the long term—how do you make long-term determinations around the positive impacts of this experience, not just for these teachers, but the students that over the course of their teaching career that they will impact, and then the individual students themselves? And I realize that's a huge, huge question, but it is, after all, an NSF-funded endeavor. And NSF likes big giant questions with a really long time involved, so we might as well ask the question.

Michelle Cerrone: [00:30:58] Yeah, sure. So, you know, the length of this project is two years. So, it's not necessarily something we'll be able to answer within the bounds of this particular project. But as we hope to grow this work and get a better sense of the learning trajectory for students, you know, what it means to go through the design process in kindergarten, what it means to go through the design process in preschool.

Michelle Cerrone: [00:31:24] We can really map that onto a learning trajectory, and then use that to create some sort of assessment to look at the processes that children are going through. Yeah, that's what I would say as we look to the future. Before we can start assessing it, we need to really map the trajectory. Now, we have an evaluator who will be looking at how the teachers are thinking about it. And possibly, I think, Melissa, is she looking at—I think she is looking at some student outcomes based on teacher reports.

Melissa Higgins: [00:31:55] Yeah, really cursory with student—I mean, really, our focus now has been on the teachers. And especially, we're looking at a fairly small group of teachers focused here in Boston and trying to figure out what is it in their classrooms and their current environment that is either impeding them in some of this and how we can better support them and, you know, in what ways we can help them be successful in implementing some of this in their own settings. So, yes, primarily focused on the teachers for now. But of course, then, you know, next, we would love to think more deeply on this with the students, and, you know, see what impacts there, what is happening with them when they're going through these processes or looking at other environments. So, lots of possibilities. That's kind of how we're approaching this.

Michelle Cerrone: [00:32:48] Yeah. And I would also add to that that part of this iterative design process that we're engaging into the design-based research is working with teachers and administrators and other stakeholders to come up with a shared set of goals for these, right? And so, as we come up with those goals, as we see what the processes look like, we can better crack the indicators of learning. But we want to make sure that, you know, we're measuring what makes sense in the context of the schools, the goals of the schools and administrators that we're serving.

Annalies Corbin: [00:33:25] Yeah, I also think that it's a fascinating thing to think about the sort of what and how, as these teachers in this initial group become very comfortable using this and using it on an ongoing basis, what their own modifications are to the process they use every day, three, five years from now, right? That'll be a curious sort of piece. But in lieu of this and this is only a two-year study, I guess, you know, one of the things that folks would be curious about is, so as you've done the three workshops in person, were there some surprises? I mean, did you learn some things from this initial group that you were not expecting?

Melissa Higgins: [00:34:11] Yeah. I mean, I think that is—we learned so much from those groups. I think their willingness to think about ways to apply this in their classrooms. I mean, it was a self-selecting group of folks who came to these workshops, so I'll put that out there. But their excitement and willingness to think about trying this in their own classrooms pretty immediately, you know, we had a lot of teachers who basically said, yeah, I'm going to do this, you know, next week or I'm going to—I'm doing this for sure. So, that was really heartening and I think kind of reminded us that there really is an interest in, you know, bringing some of these innovative and new things into the classroom and trying them out with their students.

Melissa Higgins: [00:34:58] Also, their suggestions about—so we had introduced a story book, as I mentioned, it was Make Way for Ducklings. And they had so many wonderful suggestions about either other books that might set a good context for doing something in their classroom or other resources we might look at to begin to kind of create a scenario in which engineering and empathy would be easy to draw out. And then, maybe, I don't know if this is super surprising, but always a good reminder. So, there were many teachers from Boston Public Schools who were in the workshop. There are a few teachers from other places.

Melissa Higgins: [00:35:35] But the conversations between the teachers, like, you know, there are many sessions where the museum staff and Michelle, we probably could have left the room, they could have run the thing themselves because just their ability to talk about, you know, specific students in their classrooms and how they handle things is always so rich when the teachers are having those conversations about their own classrooms, and so unfortunate that they don't get to have more of that in their daily professional lives. So, I would think that is just a wonderful product, byproduct when you have teachers in the same room together, the learning is so much more rich when they're all commenting, you know, and chatting with each other. So-

Annalies Corbin: [00:36:13] Do you—have you heard from any of those teachers? Have they been able to adapt what they learned in the workshops to make it work in a virtual environment or is that something that have you asked that question of your sort of study group? I'm curious.

Melissa Higgins: [00:36:29] Yeah. No, that is the question. And so, we haven't asked it yet. In part, we are—so, what we're really waiting for is we wanted to be able to write up a new and actual document and activity or lesson plan based on what we have done in the workshops that incorporated their feedback. And then, we're hoping to share that out with them for any more comments they might have, and also, as an opportunity to check in.

Melissa Higgins: [00:36:56] You know, we have been kind of stealthily asking some questions for many contacts in the school district to get a sense for what's going on and of course—I mean, you know, teachers, they're the most amazing professionals in the world, and they're all doing great work right now, but we do know that they're doing a lot of hard work and making so many changes. So, our goal is always to be as supportive and helpful as possible and not get in their way at all. So, yeah, we will be checking in with them for sure, probably in the next week or so actually.

Annalies Corbin: [00:37:30] I'll be really curious, so please reach out, let me know. I'll be fascinated to hear what and how they've been taken from what they learned through those three workshop experiences and are able right now on the fly to take that knowledge and turn it around and make it work in a virtual. It's tough with little tiny kiddos, in particular. Schools across the country are like, oh, my gosh, we did it maybe in high school and middle school, but what are we doing in elementary, especially with the really, really younger ones in elementary?

Annalies Corbin: [00:38:01] So, I'll be curious. I always like to wrap the program with sort of, you know, a last piece of information as folks are out there in the world sort of imagining themselves, either participating in a

very similar program or trying to get stakeholders locally to help them do something similar. So, Michelle, from the research side, as folks are thinking about such an endeavor, is there anything in particular you think that they should keep in mind right upfront to be successful with something like this?

Michelle Cerrone: [00:38:36] Like I said before, I think that the coordination and the collaboration with teachers is so critical. They are the experts in this. We might know about the conceptual things that drive this work, but they're the experts and they're the ones that are going to be able to inform us in a way that allows us to design resources that will work in their setting and that will be flexible enough to work across settings.

Michelle Cerrone: [00:39:04] And they'll also help us figure out what it is, and Melissa referenced this before, what are the factors that are facilitating the implementation of these resources? What are the factors that are impeding the implementation of these resources? What can we learn about those factors so that when we go in or share these resources with teachers, we can help them anticipate those? So, for me, it's the partnership with teachers, with administrators and with folks on our advisory board who can review our stuff and weigh in.

Annalies Corbin: [00:39:37] Excellent. Excellent. Melissa, same question to you. Folks are sitting out there thinking, wow, that's really cool. I wish we could do that. What would you advise to them?

Melissa Higgins: [00:39:47] Yeah, I mean, I agree 100% with what Michelle said in terms of the partnership aspect of this. And just to put a fine point on that, I think most people who work in education are learners and excited to be learning all the time anyway, but to me, really approaching a project like this with that learner hat on has been key both because it helps us keep an open mind about what we're putting forward that is working or not working. And, you know, a willingness to always change up what we're thinking about.

Melissa Higgins: [00:40:22] But also, even, you know, there have been times in those teacher workshops where I realized something that was said would make me rethink an activity that we normally facilitate in the museum, for example. So, you know, there are so many ways that what we're looking at and listening to teachers talk about really have lagged far beyond this project as well. So, always just kind of being that sponge and making sure we're applying what we're hearing from the great, smart teachers in the room.

Annalies Corbin: [00:40:51] Absolutely. Always. Well, thank you, ladies, so much for making time to share what you're doing. I hope that we can reach back six, nine, 12 months, whatever makes sense for you guys, and talk about sort of where you are at that point and what you've learned. I would love to do a follow-up. So, thank you for joining us today.

Michelle Cerrone: [00:41:10] Thank you so much. Yeah.

Melissa Higgins: [00:41:11] Thank you. This was fun.

Annalies Corbin: [00:41:15] Thank you for joining us for Learning Unboxed, 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 at Annalies Corbin, and join me next time as we stand up, step back and lean in to re-imagine education.