



Julia Kilgore & Joe Rosenbaum

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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 re-imagine, rethink, and redesign our educational system.

Annalies Corbin: [00:00:51] This is Annalies Corbin, host of Learning Unboxed. I'm very excited to be back on the road with our series. We are, this week, in Boston, Massachusetts, exploring around the city and seeing all the amazing things that are happening in STEM in this part of the region. And today, I'm thrilled to share with you a program called BoSTEM. And my guests today are Julia Kilgore, who joined the Boston After School and Beyond in 2018 and is the Director of STEM. So, welcome.

Julia Kilgore: [00:01:21] Thank you. Happy to be here.

Annalies Corbin: [00:01:23] And joining Julia today is Joe Rosenbaum, who is one of the partners in the BoSTEM Project via the United Way, who joined in October of 2017 as the Project Director of BoSTEM. So, welcome, Joe.

Joe Rosenbaum: [00:01:39] Hey there.

Annalies Corbin: [00:01:39] So, let's start first and foremost, Joe. So, tell us what is BoSTEM and then, we're going to circle back around and talk about the roles that each of you have and then, we're going to get to the nuts and bolts. So, Joe, what exactly is BoSTEM?

Joe Rosenbaum: [00:01:53] Yeah. So, BoSTEM is a collaborative effort throughout the City of Boston.

Annalies Corbin: [00:01:58] Which makes sense, instead of BoSTEM, it's BoSTEM.

Joe Rosenbaum: [00:02:04] Yeah. We don't really care what people call it. But the way it's spelled, if you look at, it's capital B, lowercase O, which I think did it.

Annalies Corbin: [00:02:09] Yeah. Yeah.

Joe Rosenbaum: [00:02:09] It's fine. But we're focused on engaging with middle-grade students, sixth, seventh and eighth graders throughout the city and helping to inspire them to be the next generation of STEM professionals. We chose that age, because that's the age when kids are losing interest at the fastest rate and there's also a lack of programs or support during that period of time for these students. So, we're just trying to plant our flag there and get kids more engaged when we're losing them at the highest rate.

Annalies Corbin: [00:02:39] And we see that everywhere we go. It doesn't matter who we talk to over and over again. And certainly, in our own programs, there is no question middle school is the moment. If we can't capture those kiddos then, it's a really, really tough, if not impossible, uphill climb. So, yeah, absolutely. That's awesome. So, Julia, talk to us a little bit about your organization and your particular role in the work that's happening.

Julia Kilgore: [00:03:04] Sure. Boston After School and Beyond supports the out-of-school time community here in Boston, mostly around measurement and improvement efforts. So, when it comes to the BoSTEM initiative, we support our partners with a suite of measurement tools so that they can evaluate the impact of their programs and then identify areas for improvement. And on that improvement side, we help to coordinate coaching opportunities.

Julia Kilgore: [00:03:28] We do action planning with them and we run professional development sessions so that all of those STEM educators can make sure that the programs that they're offering to youth are meeting their interests, boosting their interests in future STEM careers and opportunities, and creating a really high quality learning environment that achieves some of those academic goals without it feeling like school. We want to make sure that it's a really fun and engaging environment and they can kind of take what happens in the classroom and really apply it in a more experiential manner that's really high quality.

Annalies Corbin: [00:03:59] And so, you do that. That is fabulous, by the way. I mean, just to start there, I could spend an entire hour just digging apart the things that you're evaluating. So, that's awesome. We may come back to that on another episode. So, that service or in the professional development, the training and the thinking that you're currently putting around that, is that available just to folks in the after school or informal space or does it translate back directly into a formal education space as well?

Julia Kilgore: [00:04:27] Great question. So, we do a lot of work specifically with the informal sector, but we also like to work really closely with the Boston Public Schools and particularly, the science, technology, and engineering department. In a few weeks, we have a joint professional development, where we're helping looking at how to engage multilingual learners in the science and engineering practices, for example.

Julia Kilgore: [00:04:48] And that's going to bring together school-day teachers and out-of-school-time educators to do that learning together over the course of two days. So, we really like to work closely with the Boston Public Schools. We also do activities with that department around curricular alignment and making sure that there's connectivity between what happens in the school day and what happens after school or over the weekends or on summertime.

Annalies Corbin: [00:05:08] That's awesome. That's perfect. So, Joe, then, explain how your work through—the BoSTEM program and United Way and the work that Julia and her team are doing, how does all of that intersect? Help our listeners understand that.

Joe Rosenbaum: [00:05:23] Yeah. So, as Julia said, she's over at Boston After School and Beyond. They're about building the capacity of the field. Over in United Way, one of our strengths is our connections with

corporate partners and our ability to mobilize volunteers in unique ways that are engaging and helpful for everybody involved. So, we've been leveraging these connections that we have with our corporate partners in the STEM space to help provide career exposure to everybody that we work with and partner with, both in the informal space, as well as schools.

Joe Rosenbaum: [00:05:52] We're just trying to get as many kids to take advantage of these opportunities as possible. But it's very difficult for a STEM educator or a teacher to help plan these things to make sure that the activity is going to be high quality when they go to a company to really work in that in-between space. And so, United Way, we're sort of the middle person to make sure that we're doing all the logistical planning. We deal with the bus.

Joe Rosenbaum: [00:06:15] We help plan the activity, because we have the youth professional expertise, where, you know, a company might not have that. And we do all that heavy lifting for the informal educators and for the teachers so that when they show up, it's plug and play for them. And then, hopefully, after time, the companies as well, since they've gone through this once or twice, it's a lot easier for them. And so, it's easier for them to just snap their fingers and say, "Yeah, just get a group of kids here and we'll have a great time."

Annalies Corbin: [00:06:41] Yeah. And so many communities struggle with this very thing, right? I hear all the time, you know, schools will tell me, "Well, you know, we're not getting what we need from the community or business and industry partners", or, you know, "Here's this list of things that we want." And the business and industry partners will tell me, "Well, we really want to engage with the schools, but we're not sure how exactly to do that", right? And so, there's a misalignment of, A, the need, but also the expectation and the way to go about it.

Annalies Corbin: [00:07:07] And so, often, you'd need that sort of something in the community that is the middle ground to be able to help them make those connections. So, that's pretty awesome, because I hear that need all the time. So, can you give us, Joe, an example? Can you walk me through sort of one of these business and industry partners and the offering that they have? And then, sort of how do you ensure the quality of the program? How do you work with that industry partner to craft the thing?

Joe Rosenbaum: [00:07:35] Yeah, great question. So, we work with everyone across the industry, including some consulting firms that you wouldn't typically think of as STEM.

Annalies Corbin: [00:07:42] STEM is everywhere.

Joe Rosenbaum: [00:07:44] STEM is everywhere. But as you say, the company, when we first say, "Let's do an activity", typically, we have one of two responses. One is, "We have no idea what we're doing", or, two, which is the more worrisome is, "We know exactly what we're doing. We don't need your help."

Annalies Corbin: [00:07:59] Yeah.

Joe Rosenbaum: [00:07:59] So, typically, what we do is we work with them no matter what their answer is around what they're thinking. We help them brainstorm by kind of asking that question, what is it you do on a day-to-day basis? What are the tools you use, the skills you use? And then, how do we kind of bring that down to that sixth, seventh, and eighth grade level? And we're really the ones to help translate that for the companies.

Joe Rosenbaum: [00:08:19] Then, we have them go back and brainstorm with their team a little bit more and develop something to be about a 45 to 60-minute activity for the students or if there's going to be more

students, we'll break it down and go take between different activities. They'll bring that back to us. And again, we'll kind of give them some feedback. And then, if there's time, we typically do a dry run of the activity.

Joe Rosenbaum: [00:08:40] And me and my co-worker, a STEM coordinator, will pretend to be middle school students and kind of throw wrenches into whatever they're doing, so they can get kind of an idea of how to prepare for having students in the space. And then, typically, we also do a training with the company as well as close to the field trip as possible just to give them an idea of best practices and working with middle-school-age students, so they feel prepared for something that doesn't typically happen in the workplace.

Annalies Corbin: [00:09:07] I assume that as teachers start to reach out to me after they hear this program, one of the questions they're going to ask is, how exactly do these folks at the United Way then understand and craft that really high level, rigorous and engaging activity? Right? Because most folks are going to assume in that traditional sort of educational setting that you have no idea what you're doing. And so, why are you doing it? How is it that you, United Way or Joe or your team, are crafting these activities that are successful?

Joe Rosenbaum: [00:09:36] So, one big thing that we use, not just in crafting these activities, but throughout our entire network, is something called the Dimensions of Success. I'm not sure if you've heard it before, but they're The PEAR Institute and we use some of their other tools, like the common instrument, as well. And that's really focused on like how to develop a high-quality STEM activity that's hands-on, minds-on. And so, me and my colleague are both trained in the Dimensions of Success. We've done the activity planning, as well, training. And so, we kind of use that as our foundation when we're working with companies to think through how do we develop a high-quality STEM activity. But we don't necessarily have time to teach all of the corporate partners to do that.

Annalies Corbin: [00:10:15] Yeah. Right.

Joe Rosenbaum: [00:10:16] So, it's really us having that knowledge and that background and that expertise and using the Dimensions of Success and our own experiences and actually seeing these things implemented over the course of the last few years to say, this is going to work, this is not going to work, you can try this, but it'd be a risk, but it might be one worth trying. So-

Annalies Corbin: [00:10:33] Right. Absolutely. And so then, Julia, how is it that you interface in this process, specifically?

Julia Kilgore: [00:10:39] Yeah. Well, we also use the Dimensions of Success across all—as Joe said, across all of our programs. So, we're using that to really be the foundation for what high quality STEM learning looks like with these after school and out-of-school-time Partners. And one thing that I helped to do is to make sure that there's alignment between all these different pieces. So, when we have a partner that, for example, is looking at environmental education that I'm going to make sure that we are making corporate field trip opportunities, that those are aligned with whatever curricular activities are happening through that programs, regular after-school activities.

Annalies Corbin: [00:11:15] And so then, the programs, the activities, are they standard-aligned as well? So, literally, could a teacher who has this—I mean, because one of the things is, how do we sort of help influence formal education through that informal lens of opportunity, that really hands-on, fully engaged? I guess at the end of the day, oftentimes, what we hear, especially in communities that are struggling to figure out how to transition school from sort of the old school version, right?

Annalies Corbin: [00:11:44] Kids in desks in a row and old-timey textbooks. And I use that term really literally. I've got schools that we work with hands-on. For example, I've got a school out west who quite literally, they're still using their 1982 textbooks to teach chemistry when chemistry today is so incredibly amazing and there's so much stuff that's happening new and wow and right now. And the rate and pace is just phenomenal, right? Yeah, that's what they have, that's what they know, so that's what they do.

Annalies Corbin: [00:12:09] So, how—for example, if they're standard-aligned, I mean, how can a teacher who's had that great experience with you then take that back and change their everyday practice in their classroom? Because at the end of the day, that's one of the things that we globally need to have happen. So, what kind of feedback do you get? And either one of you, Joe or Julia, in terms of the way that experience that that teacher in the classroom has with you, that it translates back or, do you know? Do you get that kind of feedback?

Joe Rosenbaum: [00:12:37] No. So-

Annalies Corbin: [00:12:37] It doesn't matter, you guys.

Joe Rosenbaum: [00:12:39] So, I'd say in terms of the field trip activities, they're not all standards-aligned necessarily. I have all the standards at my desk and I try to do my best, but especially, if it's a first time for a company and it's a new activity, you know, first time around is just trying to figure out-

Annalies Corbin: [00:12:53] You're in pilot phase.

Joe Rosenbaum: [00:12:54] We're in pilot phase.

Annalies Corbin: [00:12:55] That's fair.

Joe Rosenbaum: [00:12:57] Exactly. But it's a really good question, because how do you blend what, you know, kids actually have to learn not just in the classroom, but can make those connections in informal setting and then, also translating that to corporate partners We've been working a lot more with corporate partners and with BPS to develop professional development opportunities that are a blend of what is new and happening and actually in these industries. And then, how do we bring that back to the classroom?

Joe Rosenbaum: [00:13:22] We're trying our best to develop those relationships so that it's more company to teacher or educator so that they can start, in the long run, bringing these professionals into the classroom to teach about those new and innovative things, because they've done it a few times and they're volunteering. We actually tested out something about a month ago with some of our engineering partners. I don't know if you want to talk about the Autodesk image training.

Julia Kilgore: [00:13:47] Yeah. So, Autodesk brought a handful of our school-day educators, our informal educators in for professional development, where they went through the design thinking process and they were able to use Tinkercad to kind of get their hands-on, that experience what it's like to use that particular application and think about how they could create a design challenge with their students for them to be able to also understand both the design thinking process and have access to using that technology.

Julia Kilgore: [00:14:14] And that particular activity was about redesigning the classroom space so that it's more inclusive, sparks joy, and just creates a more welcoming environment overall. So, that was just one example of a way that we're kind of helping our educators to be able to have their firsthand experience of what it's like to use these concepts and principles and then, take that back to work with their students.

Julia Kilgore: [00:14:37] And I would add to what Joe was saying that I think one of the best ways that those educators are seeing this, the benefit of this approach is also by watching their students have these experiences. I think once you have that field trip and you see the kids being able to engage with those mentoring professionals and enjoy that corporate environment through that hands-on activity that they're doing there, they're going to be more interested in continuing with that type of educational opportunity with their youth.

Annalies Corbin: [00:15:04] And clearly, I mean, that's exactly what we see as well, right? So, we use very, very similar processes. And so, when we are developing our piloting programs, very similar thing, we're going to design thinking, rolling them out. We're working with the business and industry partners, which is, that's the intriguing part, right? You know, the translation between what business and industry, A, does, right? And B, needs.

Annalies Corbin: [00:15:26] Because they're not necessarily one and the same when you think about the fact that what they do right now is not what that middle schooler will be doing for them if they were to becoming an employee X number of years down the road. So, talk to me a little bit, Joe, I'm curious about the internal conversation with those industry partners, because, are you building programs for the moment or are they thinking about their workforce and their future of their workforce? Does that enter into the conversations that you're having with them?

Joe Rosenbaum: [00:15:58] Yes. I mean, it's probably biased a little bit, but all the companies we've been working with are so passionate. They're like more passionate about it than we are. And I think, definitely, a part of that is like, "Oh, we have a workforce needs, so there's urgency." But I think there's also something about like inspiring the next generation, being able to be somewhat of an educator and mentor to these students. It really is a great feeling for everybody all around. And so, we start it off with just these field trips or bringing people in the classrooms.

Joe Rosenbaum: [00:16:28] And now, it's evolving into creating these professional developments. We're creating this even longer form, ones that we're calling externships, which is two days a week, two weeks, where you actually have teachers and educators going to the company, getting an overview of the industry, learning about things that they can do in the classroom, and kind of working together more directly with those industry partners to think through, how do we sort of update what we're doing? How do we make this relevant to the students? So, it's not like, "Oh, why do I have to learn math? I have a calculator, I'm not going to need math."

Annalies Corbin: [00:16:54] Right.

Joe Rosenbaum: [00:16:55] It's like, "Oh, wait, there's actually several careers in this that are not just lucrative but also fun and can be fun and interesting and engaging. And so, I think it's going to take a long time. There's no question about that. But the energy is there and I think everyone is on board with it. It's just a matter of funneling that energy in a way that is going to be more sustainable for the ecosystem as a whole.

Annalies Corbin: [00:17:20] Yeah, I definitely see that as well. And so, can we talk a little bit about that externship piece? Because lots of states are struggling with this. And this concept of teacher-based externships keeps coming up all across the nation. And some places have figured it out and it works really well. And other places, culturally, from the sort of standpoint of their formal educators, there's massive push back. We've experienced this in Ohio. So, you know, I'm speaking of the push back piece sort of in real time. So, tell me a little bit, one of you, about how that externship program actually works. When does it run? And

what kind of feedback are you getting from the teachers? And are we talking about a lot of folks participating or is it still kind of in early phases?

Joe Rosenbaum: [00:18:04] Definitely in early phases.

Annalies Corbin: [00:18:06] Okay.

Joe Rosenbaum: [00:18:06] But of those that have gone through have spoken very highly of it. We've been collecting data throughout and we've been testing different versions of the externships. So, over the past summer, we had a two-day version, we had a one-week version that ran multiple times and were half days. And then, we had a full-blown two-week version, full days for different sets of teachers. So, obviously, the ones that were only a week, half days were better attended than the two full weeks with the project and all that.

Joe Rosenbaum: [00:18:33] The feedback that we were getting, though, was essentially, "Now, what? We've gone through this program, what do we do next?" And so, we've been thinking as a team of like, okay, what is the sort of second level of this? So, we're applying to some grants right now. We're trying out some new things. But essentially, what we want to do is have that more intro overview type of externship, which then leads to engagement throughout the year in terms of these field trips and bringing professionals into the classroom throughout the year, potentially co-developing some sort of curricular supplement to go along with what's going on the classroom that's project-based and maybe culminates in that field trip.

Joe Rosenbaum: [00:19:11] And then, over that next summer, the dream would be to—if you have high school students, they are now interning at that company you're working with, potentially even having the teacher spend some more time over the summer, doing more job shadowing and working with that student capacity that's more professional in the setting. And then, you can build out a longer-term relationship with the school or the informal education and the companies. And so, we can kind of get out of the way and they can kind of do their own thing to be more sustainable. But again, it's very hard.

Annalies Corbin: [00:19:41] It is really hard. And so, Julia, when you think about the data that's coming out of this very early-phase externship program, what are some of the common threads that you saw?

Julia Kilgore: [00:19:54] Yeah. Well, one of the most common things we hear from our out-of-school time educators is that they're really excited to be doing these types of programming experiences with their youth, but they don't always have that confidence to be delivering that content, whether that's the kind of hard science behind it or some of those career pathways that are available to youth. So, definitely, seeing their confidence building as a result of being able to engage with different professional development opportunities. And also, you know, the corporate partners are now going to coming to us.

Julia Kilgore: [00:20:29] So, based off of that summer experience where they did have a really impactful experience with the educators, they're coming back and saying that they want to do more of this and we're able to start packaging it up in different ways so that we can reach those educators whenever they are available. Because sometimes, the longer summer one might just be too much of a commitment for them, so we've created kind of smaller, more condensed offerings that build on the best pieces of what we did during the summer offering so that they're able to kind of engage in different ways and come back to that learning.

Annalies Corbin: [00:21:00] Yeah. And I think that's because it is tough. Teachers struggle. Two weeks is a lot of time sometimes, right? Especially when you're looking at, you only had—you know, you're few weeks or however does the structure of a particular school is, that off time is pretty precious. And even though most folks are more than willing to engage in their own professional growth, two weeks is still a lot. So, I hear that as well.

Annalies Corbin: [00:21:22] I love the idea that you have crafted around being able to expose the teachers to this industry partner through the programming, through the field trips, through the potential externship, that then translates into the opportunity for students to intern there as well. So, tell me a little bit about—so, is it any or all students or is it students coming from that particular classroom or that teachers sort of experience to those—as those high school students matriculate through that?

Annalies Corbin: [00:21:52] How does that piece work? Because that's a piece that I've not seen done well that directly connects a teacher who's had an experience with the business and industry through that deliberate notion of that externship or a variety of other means that could be and then, that translating directly into the students being placed on an ongoing and regular basis. I've got some great examples of seeing it, but there's not a lot of them out there.

Joe Rosenbaum: [00:22:16] Yeah. So, the Boston Private Industry Council here, that's the workforce investment board in the city, they do a great job of internships over the summer, both generally and specifically in STEM. We're very lucky in the Greater Boston area to have tons of STEM companies here.

Annalies Corbin: [00:22:30] Exactly. Everywhere. Yeah.

Joe Rosenbaum: [00:22:34] And so, yeah, lot of STEM companies, but again, it's not necessarily part of this larger system. Contextually, too, throughout the city, there's starting to be a shift in terms of the grade level breakdown. So, typically, we're like everyone else, in your high school, a few middle schools, and K through eights. But now, they're starting to shift to be K through six and seven through high school. So, there's lots that goes on with that. It creates kind of—as it's changing right now.

Annalies Corbin: [00:22:59] Sure. Sure.

Joe Rosenbaum: [00:22:59] So, we're all trying to figure it out. But the exciting thing, I think, about that change for this piece of it is that you can focus on more of that career exposure in the seventh and eighth grade period of time and then, lead up to some sort of internship opportunity through some pathways programs at some of the schools that are focusing on that and create more of a system around—you're only—you have, you know, four or five corporate partners with a few different schools and you just have paired them up with them, they know they're doing the same thing every year. We're not there yet, but that's absolutely the dream, because, you know, things change. We're not necessarily going to be here forever.

Annalies Corbin: [00:23:37] Right.

Joe Rosenbaum: [00:23:38] You have to—you can't necessarily depend on funding that's always there. And so, building out the system is really important while we can. And hopefully, as you move through, you'll see that system level set a bit, but also hopefully be really innovative. And some of those opportunities around that 7-12 and building those pathways translate into some, you know, early college sort of like systems so that we're utilizing, at minimum, those last two years of high school for less of high school and more of the real world in some capacity. And there are a few early college programs in the area. So, it'd be intriguing to sort of see how that level set happens. So, as you think, Julia, about the work that's happening through these STEM programs, what do you see is sort of the next opportunity for it from a growth standpoint?

Julia Kilgore: [00:24:28] The pathways that Joe was just mentioning is definitely the next step that we want to take. We've been really focused on this middle school grade band. And we'd like to start to build out the connections from those middle school programs with the high school programs so that students can start to

access programs right up through their entire K-12 experience. We'll probably also go—start going back and creating connectivity with those elementary ages as well. And we'd also just like to create more opportunities.

Julia Kilgore: [00:24:54] We have a handful of programs that are doing really amazing activities with youth where they get to go out and have that real-world application and experience, whether it's through the field trip or just through the interesting programs our partners are offering. We'd like to do more of that so that a student can experience multiple different types of career opportunities before they even hit their high school grades. And that way they can, you know, have a better understanding of what their course progression should look like in high school and start to just be more informed about what that process can look like.

Annalies Corbin: [00:25:23] And hopefully find their passion, right? So, that's the other thing that I love. You didn't—it's not a term that you necessarily use, but we certainly—at PAST, we really advocate for helping kiddos. And especially to your point, that sort of fifth through eighth grade, that's that really sort of sweet, sweet spot collectively to help them explore enough that they're like, "Hey, I am so passionate about this thing." And through the work that you're showing them by doing the field trips and those sort of out-of-school experience, hands-on experience that they may actually find that that thing that they love so much could actually be a career, because the kids don't have a clue, right?

Annalies Corbin: [00:25:59] And unfortunately, a lot of teachers don't either, because they haven't had the time in the course of their career to be able to really dig in and understand the career potential that ties to some kiddo's passion. So, that's pretty, pretty exciting. So, Joe, as you sort of think about the next iteration and as this program grows specifically for you, so what are the next big sort of hurdles that you are looking to sort of take on in the next, say, 12 months?

Joe Rosenbaum: [00:26:27] In the next 12 months. Well, we're trying to meet with some of the communities to think through like where would be a good place to actually pilot this more sort of regional approach. And so, we're meeting with the Grove Hall Alliance, which is in Roxbury. There's a bunch of schools in that area and a lot of other community resources. There's also a community, I think, that could really benefit from having being sort of like a STEM region within Boston.

Annalies Corbin: [00:26:55] Right.

Joe Rosenbaum: [00:26:55] Who knows, you know, what they'll think necessarily, but we already worked with some of those schools through our partners or just in general, we've been working with schools like the Martin Luther King School over there, the Frederick as well. And so, just thinking about like how do we leverage these relationships we already have to test out some cool new things. But there's tons of like we're also—like that's kind of more school-focused in the informal setting, where still, that's sort of where we're primarily looking at. I think something really cool that Julia has been thinking about is sort of developing a more intra-network in terms of being a DoS observer and thinking about how we can scale up some of the educators who don't necessarily have that STEM background.

Annalies Corbin: [00:27:38] Right.

Joe Rosenbaum: [00:27:39] And so, I don't know, I think it would be cool if you talk a little about that.

Julia Kilgore: [00:27:42] Yeah, sure. It's like DoS being the Dimensions of Success we mentioned earlier. We'd really like to create a network of educators that can do cross organization observations so that peers are learning from peers that are doing similar activities and kind of sparks some new ideas for their own

programming through that observation process while providing some great feedback to that partner about what they see for areas of improvement.

Julia Kilgore: [00:28:06] And we have so many resources in Boston that we can tap into to think about that scaling up that Joe mentioned. We have lots of museums and institutions that are specifically focused on STEM. And if we can kind of pull them together to create richer professional development opportunities, I think we can have a really wonderful ongoing professional learning community for all of our educators in Boston.

Annalies Corbin: [00:28:26] And I think that it's, again, another common theme that I see across the communities that I go and either do interviews or we do our own programmatic work in, is that disconnect about what STEM is and what STEM isn't, people get so hung up in the letters and the acronym that they sometimes do forget that STEM is a foundational, right? It's not a thing that sits over here. It's a thing that lives inside of all of the work that we're collectively doing and certainly, everything that we're teaching. I can give you a local sort of example.

Annalies Corbin: [00:29:02] So, I reached out to a local museum that I was particularly interested in, because I saw some of things that they were doing and I wanted to be able to do one of these sorts of on-the-road interviews. And the push back I got from them was, "But we're not STEM. You know, we do all this stuff with historic documents." And they have this fabulous program that they do. "Well, we do, you know, English teachers and Social Studies teachers, you know, that, but we don't do STEM." And so, I'll keep working with them, because I definitely want to be able to come back. And what they're doing is fabulous.

Annalies Corbin: [00:29:37] And what they're doing is, in fact, STEM. And the reality of it is, you know, that we do have this disconnect from teachers who don't believe that they wear one of those letters, right? And so, because we, at PAST, as a team of anthropologists, but we come at this from that sort of humanities lens and recognize that STEM is the thing, right? STEM is the science of the people who are involved. And so, helping folks to be able to understand that sometimes can be a pretty tough lift. So, again, I applaud the fact that you're trying to help these folks understand that we can take design thinking and problem-based instruction and STEM and infuse it across every single one of the disciplines and hopefully sort of de-silo all of that. So, that's great.

Annalies Corbin: [00:30:27] Okay. So, Julia and Joe, one of the questions that I get all the time from folks that are listening to the program is what kind of resources might be available? Can folks from someplace else in the US or around the world who are listening to this program and say, "Oh, my gosh, everything that's happening with the BoSTEM program is just really so cool. Could I get access to those resources, use it in my own classroom or my own after-school programs, my own museum?" But I get that question all the time. So, Julia, what is available from the work that you guys are doing for folks right now? And what might be available as we move towards the future to both of you?

Julia Kilgore: [00:31:06] Yeah. The best place for people to look right now is on the Boston Beyond Insight Center. And this is just a center that we've developed on our website to be able to compile resources we've created or around best practices that we recommend. We've done case studies with a lot of our partners that have engaged in measurement and improvement with us for many years now. And we're using that tool as a way to catalog all of those resources and share those back out with the community. So, I'm sure we can pop a link up through your—the Learning Unboxed website.

Julia Kilgore: [00:31:41] But if anybody's interested, please go to insight.bostonbeyond.org and you'll find lots of great resources there. If you're a local in Boston or Massachusetts, we have a professional development calendar that you can check out on our website as well. And many of our trainings are open to formal

educators as well as informal educators, so we just encourage people to check out that calendar on the website and attend any of our trainings that might be coming up in the near future.

Annalies Corbin: [00:32:07] And Joe, what about the future? You know, you've indicated all the way sort of through the conversation that the work that you're doing now is awesome, but that you're constantly thinking about the what next. So, what does that look like for you?

Joe Rosenbaum: [00:32:20] Yes. So, something we haven't discussed yet is that BoSTEM is actually largely funded through the Federal Department of Education, they're called the Education, Innovation, and Research Grant, which I would highly recommend, you know, whatever sort of organization you are to have a look at it. It's a really cool program. High emphasis on that research. So, we're actually doing research over the course of the next, now, two-and-a-half years.

Joe Rosenbaum: [00:32:45] We started this last school year on the effectiveness of this intervention and BoSTEM with all of our out-of-school-time partners. And so, at the end of the research in 2022, we're actually going to have some really good research and data on everything that we've done, as well as a lot of lessons learned. There's not a lot of research in the out-of-school-time space, because it's typically very difficult to research. It's not as uniform as a school day might be.

Joe Rosenbaum: [00:33:10] And so, we've learned a lot throughout this process and we're hoping that others can also learn a lot from sort of the struggles that we've had to go through in thinking through what a research design looks like in this space. Along with that, we're trying our best to develop materials, especially on that corporate engagement side for folks to be both for a company, a playbook that they can look at and be like, "Okay, maybe I can do this. It's not so difficult."

Joe Rosenbaum: [00:33:34] And so, I was on the program, the educator side of what are some best practices in terms of doing these field trips with companies. So, hopefully, that capacity can be built within both of those sides and they can kind of have an easier conversation without, you know, United Way necessarily have to be that middle person to the translator along those lines. If you're looking to do more of this now, United Ways are all throughout the country, I would highly recommend reaching out to your local United Way and seeing what sort of corporate connections they have in the STEM space.

Joe Rosenbaum: [00:34:06] Because it's very likely that they can hook you up or help you in some way so that you can take kids off on a field trip or bring a professional into your classroom or into your program. Definitely a great first step. And then, always, you know, I'm hoping, you know, you'll share our contact information. But reach out to Julia or I, we're more than happy to have a conversation, help me think through anything and talk about what we've learned and the resources we have. Even if they're not necessarily on paper now, they are all in our brains. So, please reach out.

Annalies Corbin: [00:34:37] Always, always a problem. It's a good problem to have. But I think collectively, folks, this space, we often have so much of this just sort of living in our heads. Really, really awesome and exciting that this research report's going to come out, you know, 2022 on some levels, can't get here fast enough, because I have no doubt that what you're going to be able to share with the world about the things that you've learned are going to be quite spectacular. So, please keep us posted, because we can always update links and stuff as well.

Annalies Corbin: [00:35:11] So, I always like to sort of wrap our program with a sort of a reflective opportunity. People ask all the time as they're getting started and trying to do this work in their own communities. You know, I don't think that most communities would ever think about the United Way as this connector of

awesome STEM content, because we don't leverage our local United Way very effectively, I think, in lots of places. So, you know, a giant shout out to the work that you're doing there in Boston, with the United Way. And my hope would be that other United Ways pick up and sort of run with that.

Annalies Corbin: [00:35:43] It's not that they're not doing that work. It's just that the community doesn't recognize how to leverage that work. So, I think that's awesome. But as folks are thinking about doing this. So, I want to toss back out to both of you, Julia, we'll start with you. What was a big aha moment, a thing that said, "Oh, my gosh, we're on the right track", in your own mind? And Joe, I ask you, obviously, that same question. So, I'll put you on the spot just a little bit, but was there something that truly resonates with you, Julia, that you want the folks who are listening to hear?

Julia Kilgore: [00:36:18] I would say that we have really been able to pull together an excellent cross sector of partners in this work. And the moment that really struck me was when our corporate partners posted that recent professional development training. And after that training, we couldn't even get the corporate partners and the educators in the room to wrap up their conversation. And following the training, corporate partners came back to us and said that they want to do it again and they want to do it very soon.

Julia Kilgore: [00:36:50] And for me, that just shows that there's such a big appetite coming from that private sector to get engaged with the nonprofit sector. And having the opportunity to bring those two groups together is really going to advance the learning that we can create for educators and really transform the opportunities that we're able to bring forward to our youth. So, I would say anybody out there, just think really creatively about those resources and partners that are available in your community, get those people together, and think about what you can create and hopefully, it'll be something that really makes an impact.

Annalies Corbin: [00:37:24] Awesome. Great advice, Joe. What was an aha for you?

Joe Rosenbaum: [00:37:27] I mean, I know I keep harping on these field trips, but I can't say, you know, more good things about them. I've gone on a lot of these now, helped to plan a lot of them. Obviously, there are varying degrees of quality. But no matter what, you can see how much fun and engagement kids are having, as well as the volunteers as well. It's not an opportunity either side gets very often. And when they do, it's very inspiring.

Joe Rosenbaum: [00:37:51] I mean, Julia and I, we don't necessarily get to work directly with kids, because we're kind of on that level, a different level in terms of interaction. We're interacting more in the nonprofit or the company side, but the field trips are really that, you know, juice that keeps things flowing for us, because there's the energy of the working with the kids and seeing them get inspired, which we don't often get. And it's also just so much fun and energizing to see this happen.

Joe Rosenbaum: [00:38:17] And so, whenever I'm feeling down, I just make sure I go to one of these field trips, because it really reminds me of, why is it we're doing what we're doing and what is the importance of what we're doing? It's not just all the numbers. It's not just all, you know, trying to figure out how to inspire folks. It's also about the actual doing and seeing kids and working with them. It's definitely the best part of the job.

Annalies Corbin: [00:38:39] I would totally and wholeheartedly agree with you. Best part of my day is getting to spend time with the kiddos in amidst of all of this work. To both of you, thank you so much, not just for joining me on Learning Unboxed, but for the work that you're doing. It is quite, quite remarkable. And we certainly applaud you. Thank you for being on the program.

Joe Rosenbaum: [00:39:00] Thank you, too.

Julia Kilgore: [00:39:00] Thanks so much for having us.

Annalies Corbin: [00:39:03] 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 at Annalies Corbin. And join me next time as we stand up, step back, and lean in to re-imagine education.