



Elaine Higgins, Alice D'Arby, and Mark King

Elaine Higgins: [00:00:00] It's so important to broaden children's view of what our jobs are, and what our industry is, and the wide range of roles and opportunities that you have.

Annalies Corbin: [00:00:15] 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. So, welcome to the program today.

Annalies Corbin: [00:00:52] Learning Unboxed is on the road of sorts in the middle of a global pandemic. But today, we are headed to Ireland to talk about innovations in education there. And joining us, we have three wonderful guests that are going to talk about the great work that's happening. First and foremost, we have joining us Alice D'Arcy, who has been involved with STEAM Education Limited since it was founded in 2014. And she currently manages the company and is fully involved in the development, delivery, and training in relation to all of the STEAM programs there. So, Alice, welcome to the program.

Alice D'Arcy: [00:01:29] Thank you. Thanks for having us. We're delighted to be here.

Annalies Corbin: [00:01:31] Wonderful. And joining Alice is Elaine Higgins, who is a Materials Engineering Manager with DePuy Synthes and is part of the JJ family of companies, which I'm sure she will explain all of that and make sure that we got everything all sorted out. And she leads a technical virtual team, and is involved in lots of engineering and 3D printing. So, Elaine, welcome to the program. And joining as well is Mark King. Mark is an educator of 19 years experience working with children. And right now, he is with the O'Connell Primary School in Dublin. So, Mark, welcome to the program as well.

Mark King: [00:02:14] Right. Thanks for having me.

Annalies Corbin: [00:02:15] We are thrilled to have all of you. And so, hopefully, one of the things that's obvious is these three folks somehow are doing something amazing together, which brought them to the program. So, Alice, let's start with you. Give us the 30,000-foot view overview of sort of what exactly STEAM Education Limited does and how, I suspect, that synergy brought the three of you together.

Alice D'Arcy: [00:02:45] Okay. Thanks, Annalies. We were founded in 2014, because we noticed that there was a gap in STEAM education in Ireland. So, science, technology, engineering, arts, and math. So, STEM from a multidisciplinary group of people, seeing these gaps and trying to find a better way to fill them while facilitating

enhanced STEAM education in Ireland, but also supporting the teachers involved in the primary school sector, and working with industry and academia. So, really boosting the expertise that's already there in the country to help primary school teachers to help the children.

Alice D'Arcy: [00:03:27] Elaine and DePuy Synthes were one of our first companies that joined the STEAM community and Mark King's school is supported by the Naughton Foundation, which is a foundation that supports a lot of our companies and has been involved since the very beginning. So, that's how we ended up working together. We've been working together for several years now with the primary school children, ages from about 10 to 12 years old. And I think it's been going really well. So, we're really delighted that everybody's still involved.

Annalies Corbin: [00:03:55] That's wonderful. Wonderful story. So, Mark, let's balance that out a little bit. So, give our listeners who come from all over the world, may not be very familiar with the sort of educational system in Ireland, so as the school representatives sort of in this mix officially here today, so help us understand, there was a need here for a reason, so I guess that's the big question is, so what was the rationale or the reason for something that was missing or needed to be amplified, maybe is a better way to put it, in the Ireland education system that made this project or this collaboration meaningful and necessary?

Mark King: [00:04:33] The ideology behind the STEAM education lends itself to primary school enough, I think it engages the kids very, very quickly. Like all you would have a scientific background, but a lot of teachers wouldn't have scientific backgrounds and they might be a little bit apprehensive about teaching science. And I think the STEAM education philosophy lends itself to teachers developing professionally themselves, but what it also does is it completely engages the children, the layout of the lessons, and the way the lessons are taught by the guest scientists or engineers to come into the classroom, it completely engages the children. It's completely inclusive. So, children from every different level, academically, linguistically, they can all engage the lessons on their own level and learn basically the different aspects of the lessons quite easily.

Annalies Corbin: [00:05:34] Yeah. Hey, that hands-on, very applied STEAM and STEM education that we see in lots of places around the world, universally, that's what I will have teachers and community members tell me, is that it's so engaging and it's accessible, right? And those are all the wonderful things that we collectively and collaboratively love about this type of teaching and learning. So, thank you very much for that.

Annalies Corbin: [00:06:00] Same sort of tossed question, Elaine, back to you, because oftentimes, when I have conversations about these really, really successful, innovative, collaborative programs that are doing these great things in schools, what you will find when you dig just a little tiny bit is there is a very meaningful industry partnership or component in the middle of all of this that, quite frankly, is critically important to the success of the program. So, talk to us a little bit about your companies, not just their involvement, but more importantly, the rationale for why. Why do this thing? Why invest in the time and the energy from an industry perspective?

Elaine Higgins: [00:06:43] I think it's twofold. One is for the kids and the children, and bringing STEAM and STEM subjects into the fore and into the classroom. Another one which sometimes doesn't get articulated is around the development of our own engineers and scientists. So, it gives them an opportunity to go out and practice their presentation skills in a, sometimes, hostile environment. Keeping control and teaching to maybe up to 25 to 30 11-year-olds is a good training arena for opening your presentation skills.

Elaine Higgins: [00:07:25] But that's just one side of it. And I think the biggest thing is about bringing STEAM and STEM education into the classroom, and supporting our educators. For me, it's around creating that talent pipeline. It's all about getting people interested, showing that you don't have to just be one way to get into

science and engineering. It's so important to broaden children's view of what our jobs are, and what our industry is, and the wide range of roles and opportunities that you have.

Elaine Higgins: [00:08:00] And seeing that ideology of you can be what you can't see, I think, is very important, which is why me in particular, I wanted to do the teaching. I coordinated it, but I also did the teaching myself, because I wanted to experience it. But I also wanted to give back, because it was something that wasn't really there when I was young. And I think it's very important to give back. And I think from a business point of view, really, it comes down to that talent pipeline, because the bigger the pipeline is, the more success we have and the more diversity we bring into our industry.

Annalies Corbin: [00:08:32] Oh, absolutely. I hear that repeatedly, right? It's all about workforce development. At the end of the day, there's a very self-interest. From the industry standpoint is, back to your point, expanding the pipeline, making sure that we've got people moving through. And quite frankly, from the educational standpoint, what we know is not only can you not be what you can't see, you can't do what you don't know, right? And so, you have to have exposure to the potential, to the opportunity, and the rate and pace of technological shift that's happening in the world today.

Annalies Corbin: [00:09:08] We're talking about imagining or helping kids imagine the potential of careers that haven't even been invented yet with our youngest kiddos. So, Alice, I want to sort of bring this back around and help our listeners have a sense of, give us an example. So, you've formed this amazing partnership, I assume, with multiple schools and industry partners along the way, but give us, our listeners, what exactly is this partnership doing? Give us something really tangible to think about here.

Alice D'Arcy: [00:09:39] Okay. Well, there are about 3,000 primary schools in the Republic of Ireland, as Mark mentioned. Not a lot of teachers would have had science training, or STEM, or technology, or certainly, not engineering. The math, I would say, is kind of limited. So, what we're doing is really bringing the expertise of academia, cutting-edge research, and industry down to a really digestible and accessible set of lessons that also match elements of the primary school curriculum.

Alice D'Arcy: [00:10:12] So, both of the schools, so the school that Elaine worked with and Mark's school, we'd have a look at what our teachers are supposed to be teaching in terms of science in a year. Do they have the resources to do this? No is usually the answer. Do they have the profession support to do it? Again, no is usually the answer. And the schools are not fully supported financially. I'm sure it's the same around the world. They also don't really get a lot of STEM training in initial primary education, so before they become teachers. So, there is that gap.

Alice D'Arcy: [00:10:48] And then, we're expecting them to deliver science curricula that they are not entirely sure of themselves. So, one element of it is removing the fear factor. So, in our training as well, in a normal year without COVID, we would do our trainings in first, and then we might have most companies with 20 scientists or engineers mashed with 20 primary school teachers. Everybody meets and a little bit of that is kind of a deconstruction process, really.

Alice D'Arcy: [00:11:19] So, the teachers are sometimes afraid that they're going to be exposed as not understanding science, and scientists and engineers know their science and engineering, but might be exposed in terms of being able to manage classrooms, or to facilitate and deliver lessons with those loads of scientific jargon or in a manner that really relates to the lives of the children and enables them to connect that to potential pathways for careers.

Alice D'Arcy: [00:11:49] So, we've seen really nice examples, and as Mark said as well, in different levels of academic ability, different levels of support required, all of our programs start from the point of, give it a go. Like the first step is to give everything a go, try everything, it doesn't matter what your background is. We're all going to work together. We're going to participate as equals. So, we have lovely working relationships then. All our programs are designed for teamwork, which we have to adjust slightly, of course, this year.

Alice D'Arcy: [00:12:24] It's really important to bring in those diverse skill sets and allow children to see that you don't have to be like super smart, what's seen as a super intelligent person to be a scientist or an engineer. There's a lot more skills involved. So, there's creativity. These are skills that don't just apply to science and engineering. These apply to real life, lifelong learning competencies. So, really, we're just trying to make that tangible. And we've had really great feedback.

Alice D'Arcy: [00:12:58] So, feedback from the teacher side is usually, oh, I'm not in any way as afraid of teaching science as I was or engineering as it was at the beginning, because I've seen how somebody who knows their science and engineering does this. And then, from the other side, we often hear people saying, oh, I wish we had that when I was in school, so like Elaine might have said that. And then, people are really delighted. And they also say things like, it actually made me remember why I became a scientist, the fundamental basis of why these subjects are important.

Annalies Corbin: [00:13:31] Yeah, absolutely. And I would also hope that from the teacher experience, you get comments about, oh, now, I remember why I went into teaching, right? Because that's one of the other things. And so, Mark, I want you to share with us a little bit about what it feels like on the ground. So, when this program comes to your classroom, what is that experience? Because one of the things that I hear from teachers repeatedly, especially as they're suffering from standardized curriculum and standard fatigue.

Annalies Corbin: [00:14:04] Not that those programs are in any way bad, their intent is often very good, but they normalize almost to the detriment of the individual student's curiosity and ability to learn. Maybe I'll phrase it that way, so politically correct. So, Mark, tell us what that experience is like, actually, at the classroom level, when you're delivering this program, and maybe even give our listeners just a bit of an example of what the program might contain.

Mark King: [00:14:33] I think the program, to start with, basically, if you mention a scientist or an engineer to children, it's pretty magical for the children, oh, there's a scientist coming into the classroom or there's an engineer coming into the classroom, they already expect for somebody to walk in with a white lab coat on, and glasses, and gray hair, because that's the generic vision of what a scientist will be. So, straight away, it arouses their interest. We have a scientist coming into the classroom.

Mark King: [00:15:01] So, first of all, they would ease basically when the scientist comes in. And as a teacher then, you can work in harmony with the scientist who has the expertise. And then, you obviously have your expertise in how to deal with classroom situations and how to deal with groups, so it links in so well. So, from a standpoint, the engineer or the scientist and the teacher, they blend together straight away. The interests of the children peak straight away.

Mark King: [00:15:29] And then, obviously, the delivery of the lessons through the activities that STEAM education sets out would be fun, engaging, hands-on, group work, social learning. And the kids are learning as they go through the lessons, but they don't even realize that they're learning, you know what I mean? Because they're having so much fun. So, it is a break from the norm. For a teacher, obviously, we have to meet targets of curriculum. Alice mentioned the curriculum there.

Mark King: [00:15:58] So, you've got curriculum learning objectives and strategies that you have to cover. And the STEAM lessons, what they do is they meet those, they meet the learning objectives, but in a fun way, it's just a completely different way of delivering science, technology, arts, English, math education so that the children will engage with us. And also, and remembered as well, as a teacher, you're learning your own subject matter, you develop them professionally, because you're listening to an expert in their field.

Mark King: [00:16:31] Okay. So, you're taking that from it as well. So, your knowledge is increasing, your understanding is increasing. And the children, obviously, are probably seeing the teacher in a different light as well, you know what I mean? Because it's fun and it's not, here's the book, answer these five questions on this. It's completely fun-based. And that is the key for me as to why it's so successful, because the children are learning in a fun environment all of the time.

Annalies Corbin: [00:17:01] Yeah, we hear that. Absolutely. I can tell you that the echo, people who are listening right now, they're hearing you, Mark, because that's exactly what—when we talk with people involved in these types of very applied, very deliberate hands-on programs that—and at the core of them is to hook those kiddos, to tap into their amazing creativity and imaginations, and say, not only is this a fun thing to do, but it could be an entire career and let's all learn together.

Annalies Corbin: [00:17:34] And so, I appreciate that very much. And I especially, Mark, appreciated your comment about the fact that the kids get to see their teacher in a new light, because that cannot underscore enough how critically important it is for kids, especially kids who are hesitant learners, which there are a fair number of those, to cozy up to an adult that they admire and trust to learn together. Not just to be delivered content, but for the teacher to be brave enough to say, I have no idea what Elaine, engineer, does, but she's going to come in here and we're going to build a bridge together, right?

Annalies Corbin: [00:18:14] That's incredibly, incredibly powerful. So, thank you very much for sharing that, Mark. So, Elaine, I saw you shaking your head profusely as Mark's talking about all the engagement that's going on that happens in the classroom, and as an industry person, as an engineer coming in and being one of these visiting scientists, partnering up with a teacher in a classroom, share with us a little bit about what that feels like for you from the industry side.

Annalies Corbin: [00:18:43] Because you're not a teacher, back to Mark's point, there's a whole set of skills that he, as a teacher, has, and whether the teacher is comfortable with that scientific knowledge are not. Their role in there is to at least be able to have the pedagogical sort of influence and understanding in that moment. So, Elaine, talk to us a little bit about coming into that environment and how you, as a research scientist, navigate becoming a partner with a classroom teacher. Not just Science Day, because that's the other thing that often will happen. I talk to schools all the time. Oh, yeah. We've got visiting scientists. They come in all the time. That's very show and tell. That's not deliberate. What's the difference here?

Elaine Higgins: [00:19:26] It's because it's structured and the kids know that you're going to be there for six weeks. And it's nearly a week our company chose to have it, and one engineer will take the first cohort, and the second engineer will take the second cohort. And what I meant that the kids in the same class were seeing different people and getting a different style, but also, we would then get more people to get the experience. So, the two-way of experience. But really back to that initial question, there's a bit of structure.

Elaine Higgins: [00:20:02] There's structure in the lessons, but there's also structure with knowing that you're going to be there at the same time each week, which even just as an engineer, that goes like, tick box at the head, I know where I'm going to be, and you can anchor yourself. And the experience that I had, the teacher was so welcoming of me into the class and so welcoming of my style that I respected their competencies, and

that I wasn't going and cause mayhem, may have happened by accident, which goes back to the fun side of things, but it was really just that mutual respect, I think.

Elaine Higgins: [00:20:43] And I really embraced this. I really leaned into it. Teaching was not on my personal horizon, so it was really a personal opportunity for me to lean into, oh, my God, what's it like to be a teacher? And to really spark that imagination in children, and even if they weren't going to be scientists at the end, just sparkle of like, this is interesting, and it's not just, oh, science. Like it can be fun. And even if it's not your thing or your jam for the rest of your life, to have an appreciation of when these people are on the news, as scientists are all over the news at the moment with what's going on in our world, to have the respect of what it took to get there and the peak of interest.

Elaine Higgins: [00:21:29] And that can be fun as well. And while they're being maybe a little bit serious, that there is a lot of fun in the journey behind us. And most of all, it's really about that mutual respect, and just embracing it, and leaning in, and enjoying it, because there's nothing like hearing laughter and smiles of children. So, if you lean into it, you'll get a lot of love back. You'll get a lot more back than you put in. That's what my own experience was.

Annalies Corbin: [00:21:57] I love that so much. Thank you. So refreshing. Thank you for that, because you're so absolutely correct. There is nothing quite like the joy of being completely immersed in kids learning and the light bulbs going off, metaphorically and otherwise, in the midst of that classroom. So, Alice, I want to talk a little bit about how the program, the actual units that the scientists and the teachers deliver, how is this content created? Because I can guarantee you, because I get the emails after the programs often from folks.

Annalies Corbin: [00:22:35] That's one of the questions that everybody always wants to know. So, how is the content that's going to be delivered actually created? What's that process look like? And I can tell you just sort of hedge our bets here, the reason folks ask this is at least in the US and some other parts of the world, unfortunately, oftentimes, content gets created without educator input, especially content that's coming out from really, really large government-run scientific entities.

Annalies Corbin: [00:23:02] And I'll just be vague like that. But oftentimes, those research scientists who are just epically amazing in their own fields, they don't really have a very good sense about how to take the amazing science they're doing and making it accessible to that third grader, or to that fifth grader, or to that high school student, or even, quite frankly, in many cases, post-secondary as well. So, that's the reason we get this question. How is this created, Alice?

Alice D'Arcy: [00:23:28] Okay. Well, I think there are two aspects to it. One is probably partly from my own personal background. So, I was a scientist, so I have B.Sc., M.Sc., PhD, but in the ecology and environmental sciences. So, my understanding of science is based a lot on being outdoors in nature, physical, hands on. So, it's a different projection, I guess, than a lot of people would have of science in the first place.

Alice D'Arcy: [00:23:57] So, I have friends who work with sharks and giant tortoises, and people who work all over the course of the day and night, as well as doing lab-based work. But at the same time, I was a real mixed bag, so I was working in the arts. I was doing stop motion animation classes with children. So, I ran my own classes with children as I went along. So, I had the kind of a mixed experience which came together in how we developed these programs. And so, that's one aspect.

Alice D'Arcy: [00:24:31] The other is feedback, feedback, feedback. So, the first two entire years, I think, largely supported by the Naughton Foundation, where we actually ran a 25-week program for the first two years. So, we really covered the entirety of the primary school science curriculum in a way that we thought

would improve the capacity of the teachers to deliver it with the children. But every single year, every program that we run, we look for feedback. So, we get a lot of feedback.

Alice D'Arcy: [00:25:04] In recent years, we get less actually. And less, because I think we practice, we know what works now, we know what works well, so the feedback we tend to get back now is usually just positive, I would say. So, I nearly have to drag information out of people to tweak it at this point, whereas in the beginning, we would have had focused groups, we would have had the scientists involved, the teachers involved, all come back and just tell it like it is. Like what worked?

Alice D'Arcy: [00:25:35] What didn't work? Does the timing work? Is the pitch level right? One thing we're doing at the moment is we have a primary school teacher on staff now, so we're actually kind of going back through our programs and recalibrating them. Again, the level of need our staff teacher thinks is more relevant to the children. So, it's a constant state of improvement, but we would literally guess like hundreds, if not thousands of pieces of feedback every year, that we then go back, look at our programs, and think, okay, is it working?

Alice D'Arcy: [00:26:13] Is it not? How can we make this better? So, it's really persistence, I guess, and constant small changes. So, much like scientific process. We just iterate, how do we make it better? And then, another part of it is that I would usually visit, not this year, obviously, but usually, I would visit at least five or six schools at the end of their programs and talk to the children directly or even hang around the staff room for a little while.

Alice D'Arcy: [00:26:41] So, sometimes, people don't answer questions when they're asked directly, and you kind of have to give them the space and ask the questions in a way that allow them to answer with the fear of being wrong or that the person probably to hold like the answer. And so, we're very conscious of that, that it really works for schools. And we've also obviously visited hundreds of companies in Ireland, and worked with, we have about 60 companies supporting schools now. And each of them are a little bit different, so we've tried to make a model that facilitates engagement by the company that also works for them. So, yeah, it's just really listening, I guess, is the critical thing.

Annalies Corbin: [00:27:24] Yeah, absolutely. And definitely makes for much, much better programs over time. So, Mark, I can imagine teachers around the world sitting back and listening to this, saying, oh my gosh, I wish we had an entity like the STEAM Education Limited in our area that is so very deliberately working with schools, with industry partners, and really providing this sort of linkage for us so that we can have access to this great content and be really comfortable in knowing that when we deliver the content, we're doing so with a high level of fidelity.

Annalies Corbin: [00:28:00] Because I think that's some of the fear, as you alluded to right at the beginning, that not all teachers are necessarily going to be comfortable delivering science or high-end math content. We see this often, especially in primary grades. So, for our listeners, Mark, share with us, do you have a favorite module or activity that you've been able to utilize and deliver through this partnership? And if so, I'm really curious as to why. And Elaine, that same question's coming to you as I'm watching everybody's gears turning here. So, Mark, you're on the spot. Do you have a favorite?

Mark King: [00:28:40] Yeah. I come from a scientific background. I did a degree myself in biology, so I have a love of biology. And I have had experience of both the biology modules the STEAM Education do and the engineering. So, obviously, you probably think that I would side towards the biology, but I actually had an engineer in my class last year only. He was absolutely brilliant. And there was a lesson on building a bridge out of pasta and Blu Tack.

Mark King: [00:29:18] And I found that fascinating, that the way the boys had to see the work together in groups and they had to think logically about how they were going to basically build a bridge that could take waste out of spaghetti, pasta, and Blu Tack. And I found that fascinating, the amount of discussion that it generated in the classroom, from boys who normally wouldn't engage in discussion in the classroom, but they obviously had an idea in their mind, and because of the environment of the lesson, they automatically probably subconsciously started to contribute to a discussion, which they would never do in another subject area.

Mark King: [00:30:04] So, I found that lesson absolutely fascinating. There was a couple of other lessons. Building a table out of paper was the same as well. So, it was all completely about the children collaborating with each other, sharing their ideas, and then obviously, there was the practical side, where they would have to go and build it. That was my favorite lesson out of all of the lessons that have been done in my classroom. Very simple, but absolutely amazing to watch the kids work collaboratively together to build something out of very, very basic materials.

Annalies Corbin: [00:30:38] Yeah. I'm chuckling to myself, because I love the fact that that was one of your favorites, because it's one that we use as well. We don't have Blu Tack. We use little baby marshmallows. We get those. They are easy. But you're absolutely right about the way people engage in it. And I love the fact that you highlighted this was so accessible that students who normally don't participate or participate in the same way suddenly rose to the occasion.

Annalies Corbin: [00:31:06] And part of that is because you gave them a different way to learn than was the norm, right? And so, suddenly, you bumped up against the comfort level, I suspect to some extent. There's a whole host of different sorts of things going on there, but the fact that you've got all this collaborative engagement is just really wonderful. So, thank you for that. So, Elaine, and I warned you, same question tossed to you in terms of, what has been one of your favorites? And why?

Elaine Higgins: [00:31:35] I think there were two. I think I have to say the module that was around prosthetics and medical devices. That's the company I work for. I have to say it, because it actually brought some of what I do to life for me. And it was very, very educational. It was very, very practical. And we were making a prosthetic prosthetic hand out of tubes and string. And it was just so much fun. And again, the groups and the kids can interact in a different way. I was lucky enough to be with a mixed school, so it was both boys and girls.

Elaine Higgins: [00:32:19] And there were some very competitive young males that really wanted to be so good at building the prosthetic arm. And that was one that really sticks in my head. The other activity that really sticks in my head, and this is for a slightly different reason, is around materials and protecting an egg. Had an egg and we had to build a way to throw it and to protect it. And it actually gave a group that didn't interact with some of them, maybe the more very—not very, but the more abstract concepts of science.

Elaine Higgins: [00:32:56] Actually, the creativity. And I'll bring back that word that you used and that I had used at the start. It brought a creativity with the group of girls. And they were like, you could really see the light bulb go off, and go like, this is what science is? I get to protect an egg and throw it around with this? And I know, yeah, it did take a lot of convincing that a parachute wasn't the way to work it. And I did my best with my memory of terminal velocity and it was just going to work. We need absorption, like the absorption in the cars and like shock absorbers.

Elaine Higgins: [00:33:38] And it was just so fun. And yeah. There was a lot of happiness out of the room, and I think I might have disturbed a couple of other classes, but that's no way for anyone to ever think that you shouldn't do science. But it was definitely a very favorite class of mine. And it was really nice to see different

people, different students engage with different activities, because it really is a program that can engage everybody from all of the aspects and to really just give that spark of STEM and STEAM activities to children that may not have seen it before. So, yeah.

Annalies Corbin: [00:34:16] Yeah, absolutely. That is so wonderful. Again, those are great, great, great examples. And I would also like to point out, science should be loud. It should be boisterous. It should be fun. It should be everybody all in all the time, a hundred miles. Just go, go, go, go. So, that's wonderful. Thank you for that. So, Alice, I want to close our conversation by asking you the same question. What's your favorite over these last few years? But more importantly, what's next? What's coming? What's the fun sort of next iteration in this journey? Because I, having been an organizational founder, I happened to know for a fact, it is truly a journey.

Alice D'Arcy: [00:35:07] So, this year probably changed the journey a little bit, accelerated some directions and cut others a little bit short. But do I have a favorite? I love all of them. And every time I go back to check, I think, oh, I'd love to do that one again, be able to teach that one myself. I did a short program on health sciences for children with the Pediatric Development Fund, so attached to the new Children's Hospital and the community benefit fund for those. And with that, when I worked with health professionals from all different fields in the classroom.

Alice D'Arcy: [00:35:42] And I love that. We have a math program, math in a box, which I'd say has gotten a little less traction, a little harder to push the math one, but the content in the math one, I really love it, probably because it's a little bit more abstract even than the science or the engineering. And people are so much less familiar with how math relates to the world and real life, quite easy to pick out examples for science and engineering, was kind of abstract math is absolutely beautiful and I don't really get the chance to see that.

Alice D'Arcy: [00:36:16] So, I'd love to get that one up and moving a bit more. And where next? Well, because of COVID really, this year, we developed teacher-led versions. So, smaller boxes, sorts of programs, even more simplified content, put together in a way that teachers can do with themselves until we can get back to the place, which is the favorite of everyone, the real human in the classroom. In the absence of being able to do that, we have a lot of teacher-led boxes heading out next week. Actually, I think Mark is going to do one in a few weeks' time when schools reopen.

Alice D'Arcy: [00:36:54] And then, the other direction that I would like to go in personally is the development of teacher training, providing teacher training opportunities for primary school teachers, because like we meet so many of them that are so keen to do better, to learn more, to find out the best way to engage with their children. That's one. And then, I think the thing that probably needs to be addressed more, and I'd like to do this on a collaborative level, I guess, again, with industry and academia, is I think that the whole structure of the primary education system could do with being looked at and reworked. Shake it up more or less.

Annalies Corbin: [00:37:37] Yeah. For folks just listening and not watching, Mark is doing a joyful sign.

Alice D'Arcy: [00:37:42] Yeah. And I think there is a great willingness actually within all the partners in Ireland for that to happen. So, finding a way to make that happen really is my next kind of personal cause. So, just that.

Annalies Corbin: [00:37:58] Yeah, I love that. Give me a call, I'm Alice, if you want to go down that road, because that's a very similar conversation that we're having in the States. But also, I've been hearing it from a lot of folks that I've been interviewing around the world, this discussion about, it's time for a system overhaul. Not that the system was bad, it was just that it was designed at a point in time where our needs were very

different, and our kids were very different, and the world was a different place. So, sometimes, it's not enough just to tweak as we, on this conversation, we all know that, but sometimes, helping the public understand that just because that's the way I learned when I was a kid does not mean that's the way we should be doing it now. And I have no doubt that's a conversation that you've all sort of bumped up against.

Alice D'Arcy: [00:38:46] I guess if I could add there, I think there are a lot of things that were and still are really good and really positive in the primary education system. And I think in a way, we're going a little bit away from that towards too much, and this is not, in any way, anti-technology or anti-online-learning, like we're human social learners. And a lot of the basics, I think, if we did them more and better, we would get further, things like just the persistence of the course. So, like you said, we're not doing kind of one stop science visits.

Alice D'Arcy: [00:39:24] It's a persistent program that builds a relationship between all of the people involved. And you can't build that relationship in one day, or in a show and tell, or magic show type of science demonstrations, which are all great, but the foundational value that we provide, I think, is bringing all the elements together, including persistent, repetitive interactions with diverse, positive role models that respect the skills from all sides. And the combination of that, I think, is what needs to be worked on.

Annalies Corbin: [00:40:01] I would wholeheartedly agree. Absolutely. And on that note, I want to thank you all so much for taking time out of your day to share your story and your journey with us and with our listeners. Thank you so much for coming today.

Alice D'Arcy: [00:40:18] Thank you very much for having us. It's been a pleasure.

Elaine Higgins: [00:40:21] Thank you.

Annalies Corbin: [00:40:23] 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.