



Mike Wiseman

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Annalies Corbin: [00:00:14] 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: [00:00:49] So, today, we are going to talk about innovations in engineering and the ways that folks really stop and think about, "we're in a moment of crisis and I've got to do something different. And, oh, by the way, I have an amazing set of skills that are going to let me be a participant in what's happening in the world." And we're going to do that with a conversation today with Mike Wiseman, who is the Senior Chief Engineer of Strategic Research at Honda R&D Americas. Mike is a great guy whose passion lies in creating new things through research. So, Mike, welcome to the program.

Mike Wiseman: [00:01:27] Thank you.

Annalies Corbin: [00:01:27] So, Mike, let's start with very, very high level, for our listeners who may not know, what exactly is Honda R&D Americas? And with a real focus on, what the heck does that R&D part mean?

Mike Wiseman: [00:01:41] Well, research and development, I guess, to answer the obvious part of that, but Honda R&D Americas is a lot of words in there that mean a lot of different things. But we have responsibility at Honda R&D for the development of specific vehicles for the North American market, not all vehicles for the North American market, but we have development responsibility. And that's everything from conceiving of both vehicles and technologies that go on to vehicles all the way up to actually testing, producing designs.

Mike Wiseman: [00:02:16] And then, we hand those designs and specs off to our manufacturing facilities who primarily make the products for us. And we do that primarily at the facility I work at for automobiles, but we also have an arm that does power equipment, power sports, and things like that. So, that's, fundamentally, what we do in R&D. So, we have capability for testing of materials, for vehicle systems, designing things from, I guess you could say, things like the interior or the exterior of the car, chassis components, engine components, things of that nature.

Annalies Corbin: [00:02:58] So, is it fair to say that you folks are the idea generators?

Mike Wiseman: [00:03:05] Yeah, I guess you would say that. Fortunately, for us, ideas come from everywhere, but we're the ones who have to take the ideas that are conceived of, whether they come from ourselves or from elsewhere and grow them into something that's tangible, that you can actually build.

Annalies Corbin: [00:03:21] And so, when folks think about Honda, because we're going to circle back around in a second about why on earth are we talking to Honda on Learning Unboxed, right? But I also think it's important that we set the stage for folks to understand that Honda is more than what you might think of initially. So, it's a complex company and set of organizations that are intertwined. Could you give us like two minutes to help folks understand, I guess, the complexities, but also the practicality of what Honda is or is not? Because I don't think people always fully understand what this company does.

Mike Wiseman: [00:03:59] You're definitely right there. We've run into problems before where you try to figure out somebody that you want to partner with on some new technology and you come to find out they're a competitor with you in some other areas. So, it makes things interesting. But Honda, of course, started out as an engine manufacturer. And most people that you talk to that have learned their Honda history know that we started out as an engine manufacturer. We still consider ourselves an engine manufacturer.

Mike Wiseman: [00:04:27] There's quite a few of those that are produced every year, more so than any individual component. We sell those outright to other people just as a product line themselves. But we started off with Mr. Honda making pistons, piston rings actually a long time ago, and he decided to put the engine on a bicycle because his wife needed it. She was riding her bike every day and needed to have some way of getting herself up these hills, and off, and so forth.

Annalies Corbin: [00:05:03] Don't we all? Go up those hills.

Mike Wiseman: [00:05:06] So, she was kind of our first idea person that say, I need help. And he found a way to help. So, it blossomed from there. So, obviously, we were a motorcycle company after making engines that, that grew into a lot of different product lines, of course, the automobile that I'm primarily involved with. But we also make marine engines, engines that are for generators. When we say power equipment, that means lawnmowers, snow blowers, weed whackers, or whatever you want to call them, your so-called lawn trimmers.

Mike Wiseman: [00:05:46] Also, of course, we have financial services and things of that nature, too, that aren't obvious ones. But then, what we used to call motorcycle side, we now call it power sports, and primarily because in North America, of course, motorcycle sales are still robust, but a lot of our growing market in North America is side-by-sides and ATVs. So, those are the little two to four to, sometimes, six-passenger vehicles that we see out there.

Mike Wiseman: [00:06:20] And they started off as farmers using—not go-karts, but golf carts. And then, they would modify those. And then, some of our competitors came out with their own version and so forth. But basically, it's a bigger modified version of an ATV, which used to be three wheel, and now, are four-wheeler ATV. So, we make a little bit of everything in that sense. If it's a mobility device, those are the kind of things that we're interested in being a part of.

Annalies Corbin: [00:06:55] Yeah. And it's really funny. Life comes full circle. And so, my other hat, many of our listeners know that I'm, by training, underwater archaeologists and my Honda connection actually started in that space, because on all of our excavations, most of which were like in rivers, lakes, or out in the ocean, or whatever, floating around on floating platforms we worked from, sitting on every single one of those floating platforms are the Honda pump, right?

Annalies Corbin: [00:07:23] And we use them as underwater dredges, and we're literally pumping sand and debris from the bottom, and recycling, and all of that sort of stuff. And that's actually, literally the tool that we utilize in the majority of our work. And so, I have spent many, many hours, up close and personal with Honda pump over the years. So, I appreciate greatly the care and thought that goes into not only thinking up those tools that we need and coming up with a solution, but then the actual manufacturing and the nuances that are tied into making sure that those tools are effective in the work that we do.

Annalies Corbin: [00:07:59] So, that's pretty cool. So, from the perspective of Learning Unboxed then, I know folks are like, why are we talking to Honda R&D Americas at the moment as it relates to thinking about the work of teaching, learning, and the future of work? And for me, that's really sort of a simple no-brainer. When we step back and think about what are we preparing kids for, and I ask that question on this program all the time, the answer is, we're preparing them for the real world or preparing them for the world of work.

Annalies Corbin: [00:08:30] And what I love about the way Honda R&D Americas and many of the other opportunities that Honda brings in the way people think about creativity and solving problems for others, I think that, that's really the meat of how we should rethink and re-contemplate the question of the teaching and learning component, especially in that K-12 space. And so, I think there's a lot of very valuable lessons that can be learned by talking to a senior chief engineer at one of these entities and endeavors.

Annalies Corbin: [00:09:02] And so, Mike, I want to pivot just a little bit to sort of illustrate my point here by talking about the fact that we are all globally sitting in a giant pandemic. And our entire world has shifted in many, many ways. And that shifting and that pivoting also took place in your work and what your company was doing. And so, I want to talk a little bit about sort of the things or the decisions that you guys made and the pivots that you made in particular to the products that you're working on in the moment of crisis, and the skills and the thought that it took to be able, as a company, to make those pivots happen. How's that for a loaded question?

Mike Wiseman: [00:09:42] Hopefully, we'll unwind it a little bit as we go.

Annalies Corbin: [00:09:45] Perfect. So, let's talk a little bit about the Honda Odyssey sort of project that you had to work on. So, first and foremost, COVID hits. There's suddenly all these different needs in the world. So, talk to me a little bit about how Honda sort of views its opportunity, I guess, if you will, to be helpful.

Mike Wiseman: [00:10:03] Okay. Yeah. So, of course, during this period, everything is kind of up in the air and the world is our customer, is our neighbor, is our friend. And we're all trying to make sure that we get through this thing together. So, we're looking at, if you just step it down from our associates or what most people would call employees, but they are our associates, our business partners, our neighbors, and basically, our bigger customer community, we wanted to look to see what we could do to improve their daily lives.

Annalies Corbin: [00:10:40] Right now, everybody's lives are disrupted. And so, we basically opened up to everybody within the company, and then also tried to get the word out through other channels. So, we had mobilized, for example, our Washington DC office, who normally is a lobbying arm of our company, but they're out there and they're also looking at product regulatory things, and so on, and so forth. So, we mobilized everybody to try to get their feelers out there to find out, okay, what do people actually need?

Annalies Corbin: [00:11:13] Because there's a lot of ideas that people had of, what can we do? But the bigger question was, what do people actually need? It doesn't make any sense for us to start designing and developing a new face mask, for example, with nobody actually needs that. All they need is just the one that they have better, or more, or something like that. So, that was kind of how we started things. The Odyssey

project specifically started in Japan, being a global company, of course, we're headquartered out of Japan, and we found out that our mother company in Japan was actually retrofitting some Odysseys with a shield design.

Annalies Corbin: [00:11:54] And you would think that it would be easy enough. You would just see what Japan did and just say, okay, we'll do the same thing. Not so fast. The air conditioning systems in our vehicles are very different from the way they are built in Japan. There's a lot of reasons for that, that, probably, I couldn't explain very well. But in any case, the Japan system has actually two units, one for the front and one for the back. Ours has one that pushes air around the entire vehicle.

Annalies Corbin: [00:12:26] And so, when Japan made their vehicles for their market, they were able to basically put a shield in, and then they already had separation of the front and back air. So, that was that was a huge difference for us to build these Odysseys. It wasn't as simple as putting a shield in and letting it go. And the second part of that was a customer in North America is very different than a customer in Japan. We tend to be larger people, whether it's by weight or by height, and things of that nature in North America.

Annalies Corbin: [00:12:57] And so, what they did was actually use the B pillar. And if you think about looking at the side of a vehicle, the A pillar is the one where the windshield is at, just keep going A, B, C as you go back to the vehicle, every place where you see a pillar. So, the B pillar is the one that's right behind the driver passenger seat, front passenger seat. And so, what we did was we put a plastic shield down there, but we realized that people's feet weren't necessarily going to fit very well.

Annalies Corbin: [00:13:31] In Japan, it wasn't such a problem, but we had to figure out how to get the shield down, still seal it off, but still leave enough comfort space for people to be. At least, the way ours was set up, it wasn't as easy. So, those were the two main things that I guess I would say that was very different from what we did in Japan. So, the people that I mobilized to be able to work on this was a lot of our interior experts. It was people who do ergonomics and planning of layouts, of interiors, and things like that.

Annalies Corbin: [00:14:06] So, there were about two or three folks from our engineering side in that sense that I mobilized. Our HVAC experts that I mentioned before that have knowledge, it seems weird, we talk about people going to school to be something, whether it's a mechanical engineer or whatever it may be, I doubt too many people are thinking that they'll end up in their life as some HVAC expert and really thinking about how air flows, things of that nature, but it's really great that we have people like that because they're really knowledgeable and they're very valuable to us.

Annalies Corbin: [00:14:40] So, those folks came together and helped us to shape the way we wanted to design the shield, let air flow, but also limit the air flow back into the front of the vehicle because that was the most important part of this, was that if somebody was in the back as a potential patient that had COVID-19, we didn't want that air to move back into the front of the vehicle, the person that's actually going to be interacting with multiple patients, we didn't want to infect them.

Annalies Corbin: [00:15:13] So, that was our primary objective. And so, we used a CDC guideline for kind of temporary medical spaces and figured out what the airflow differential needed to be. And so, our HVAC guys took that and tried to figure out how best can we set the fan settings for front and rear to get that pressure differential, how best to seal off the front versus back when it comes to the shield itself, and things like that.

Annalies Corbin: [00:15:45] Ultimately, we ended up, and I say all of these things that are going on, the course of time, there was about four days that we got all of that thought out, and said, okay, here's what the design is going to be like. The rest of the time really was just actually mobilizing to get the vehicles in one place, get the people there, get the materials that we needed to be able to build it, and actually execute the

building and delivery. It was about 10 to 12 days from the time it was conceived of until the day that we actually delivered them to the City of Detroit.

Annalies Corbin: [00:16:20] That's wicked, wicked fast in these industries, right? I mean, I want to make sure our listeners understand, what you guys were able to do is just almost off the charts, right? I mean, that's not your every day.

Mike Wiseman: [00:16:32] Yeah. No. You develop a product like an automobile in years, not in days. In this case, it almost felt like hours, but we weren't developing an entire vehicle either. It was really a system, a component that you would put into a vehicle. But even that is crazy fast. And so many things came together to make it happen. And you don't just put things like that in a vehicle and not think about the safety of the customers that are going to be riding in it, so we have to engage a lot of different government into this as well. So, we have a lot of people that have knowledge in safety, and product regulatory, and things like that, that really were instrumental in this. I mean, they're kind of the unsung heroes, really, of this whole thing.

Annalies Corbin: [00:17:21] And I think that the other thing I love about this is what an amazing learning opportunity, right? And not just thinking from a teaching and learning standpoint, but I mean, I have no doubt that if you were to sort of pull that team after the fact that there was an awful lot of learning that took place in those 12 to 14 days from your team, right? I mean, you had to think about things differently to be able to make the retrofits happen. And, yes, your content expertise on a particular thing, but when you combine those with other opportunities, I guess, if you will, or the need and what you had to accomplish, the learning curve internally had to be pretty steep.

Mike Wiseman: [00:18:05] Oh, yeah. It was unbelievable. I had likened it to riding a bucking Bronco. It felt like you got on and you had so many people that had so many ideas on how best to do things that all you really had to do is try to herd them in the right direction, but obviously, we'd never built a shield for a vehicle like that before. And what we needed to do to conceive of that, what kind of requirements do you have? What's the necessary steps? Yeah, that all happened in a day or two. But once we got started, it was pretty much, everybody was off and running. It was just a matter of trying to pull them back in to teach the rest of us what we needed to do.

Annalies Corbin: [00:18:51] Yeah, to get that done. And I think that therein lies that intriguing opportunity because I repeatedly tell folks in the education space, whether it's formal or informal, that the greatest learning takes place at that sort of modify stage of the design cycle. And that's one of the reasons why at PAST, we talk about ourselves as being an education R&D prototyping facilities, that R&D piece that is really, really important to us.

Annalies Corbin: [00:19:18] And clearly, it's fully steeped, obviously, in the work that you guys are doing. But the connected piece there is that as we do the research to sort of solve some type of problem, whether it be a global problem or a small localized problem, we use the same process, and we use it over and over again, and have that expectation that there will be multiple failure points that then become an opportunity to learn more and make the product even better.

Annalies Corbin: [00:19:45] And I think that as we sort of step back from that, one of the key things that I hear from educators, again, informal as well as formal educators over and over again is how do we best help folks be prepared to when that moment comes that you just described to not panic? How does that work? I mean, you've got folks who are obviously, they're full-on engineers or designers, take your pick, HVAC specialists.

Annalies Corbin: [00:20:14] They've had a lot of both education and life experience, but when you get into these crisis moments, it's a natural human tendency to think, oh, my gosh, I don't know that we can do that, or how could we do it timely enough or fast enough? And so, how do you, from a sort of a management or an administrative sort of level, coach the confidence necessary to get this project done?

Mike Wiseman: [00:20:37] Yeah. I'm not sure how much of it is coaching and how much of it is mindset to be honest with you. I think in a lot of cases, you don't necessarily teach it, but it comes from repetition and you do things over, and over, and over again, meaning not in this case that you're doing, you're building this thing, but you have a repetition of you have problems. You'd have those problems that come up out of nowhere and you have to solve them in a quick way, that kind of conditions you for when something comes along quickly, okay, let's not panic, let's step back and think about it logically, what do we need to do next?

Mike Wiseman: [00:21:20] And I think students can do that when they're really in their infancy, when they're in college, when they're in high school, you can get yourself put into those positions, there's so many opportunities for students to do hands-on work. It seems like there's always a finish line. And in some cases, there's a little finish line. If you get into some of these, like race teams or whatever it may be, I think all the way back to when my kids were in Cub Scouts, then they had time when they're really, ultimately had to figure out the best way to build the vehicle and you had a date that, that race was going to take place, good luck, there you go.

Mike Wiseman: [00:22:01] And so, it's a different kind of pressure, but all of it, I think, builds on itself to the point where you know that you've got—the world isn't going to be very linear for you. Things are going to happen, you prepare for the inevitable, something's going to change, and you react to it in the right way. And I think you condition yourself to do that. It's not necessarily something that you can teach. You can help people get through things when it's in all—the despair is what you see in the eyes of the people in front of you because not everybody is going to react in a positive manner, so the only thing you can do from a management perspective is to help get everybody on board with the right set of thinking, not necessarily tools of what to do.

Annalies Corbin: [00:22:49] Yeah. And I think that the key takeaway to what you said was that these are folks working for a real deadline. So, whether you're building the pine box car for the derby, you are doing a real thing. And I think that, that's a really, really big piece of it. And I hear folks ask all the time, how to better engage student in this type of learning because it's not so much that it's high stakes, but it potentially could be high pressure, again, because of these real-world deadlines and working in groups, in the collaborative nature, and the iterative problem solving, sometimes, that can feel pretty intense.

Annalies Corbin: [00:23:30] But I think the thing that makes it more tangible and here's the piece where I think that it works really, really well in the K-12 space, is that it's based on solving real-world problems and believing that the students or the team in this case, however you want to look at it, are capable of actually getting across that finish line. That's a really different mindset back to where you started with that.

Annalies Corbin: [00:23:51] So, I appreciate that very much. I want to talk briefly before we wrap things up here in a little bit about another project that's closely related. And again, this moment of COVID-19 and global pandemic, a whole host of needs, as you pointed out. And so, I want to talk a little bit about the work that you guys did with the Ambu bag. And so, tell us a little bit about why was that Honda opted into working on a simple respirator project?

Mike Wiseman: [00:24:23] Okay. It was actually conceived of and started, and I actually got involved once it was already pretty far along. But we had a group of associates, again, being engineers, everybody's curious

about the world around them, and they knew enough to go to look for what are the concerns that exist out in society. So, these engineers, this group of engineers, and they're actually, most of them came from our engine or transmission group, which is a weird thing.

Mike Wiseman: [00:24:56] You wouldn't think that's where you conceive of what these guys are doing. But anyway, long story short, a group of engineers that were across a variety of lines that were electrical engineers, mechanical engineers, mostly mechanical, but they all had a little bit of a piece of this thing and they all just came together and said, where can we help? And I think one or two of the people's spouses work in the medical industry, and they felt like, okay, an Ambu bag is something that we use every day, whether it's in the ER, whether it's in normal use just to give respirations to these people that are lying, having trouble breathing on their own.

Mike Wiseman: [00:25:42] And the problem is that you have—I'm not going to describe an Ambu bag very well, but it's basically that bag with the face mask that goes over a patient and you help them breathe. So, you have to have somebody standing there actuating that Ambu bag. And so, their bright idea was, okay, maybe we can help by reducing the number of people that need to be there, standing there over that patient. And so, they felt like they could conceive of an idea to actuate an Ambu bag by a mechanical method.

Mike Wiseman: [00:26:16] So, they started looking around at all of the different parts of a car that when you basically push a button somewhere, something moves. And so, they took a variety of different types of auto components and made mockups. And that's a big part of what we do in the automobile industry anyway, is prototyping. So, you make a mockup of what you think you want it to do and want it to look like, and see how it performs.

Mike Wiseman: [00:26:44] And so, they did that with several different components. Really, the long and short of it is they came down to two or three different components of these auto parts that could actuate an Ambu bag over, and over, and over again, and decided on one. And I can't go into what it is. There are still some patents with it that are related to this that are pending, but they found the optimal componentry, the optimal design to actuate an Ambu bag so that it could just sit beside the patient, and run over, and over, and over again. There's a lot that goes into that.

Mike Wiseman: [00:27:22] We went out and actually talked to—we have a few different medical facilities that we have partnership with in our philanthropy area. And so, we actually were able to reach out to them directly and go talk to some of the people in their respiratory therapy area and get a feel for exactly what happens in the respiratory therapy field so that we can understand the right way to design this thing. We come to find out, in some cases, you need to make sure people are actuating the Ambu bag and they can feel how much pressure is coming back to their hand through this bag. It's a really interesting thing that we didn't think about and we just thought it was like compress it, let it off.

Annalies Corbin: [00:28:09] Yeah. So, it's not just squeeze the thing and call it good. It's more than that. It's really complex.

Mike Wiseman: [00:28:15] Yeah, it's way more complex than what we thought it was. And there's a long and short stroke of how much goes in. There were so many things to it that was really interesting for us to learn. And we got all the way up to the point where we were ready to test the same for FDA. And FDA was making some, I guess you'd say emergency approvals at the time. And we got all the way up to that point and things started leveling out on the COVID and with the things like that, so we decided not to step forward and actually make these things, not do the final testing for that approval, because it was timely, costly, things of that nature, and that we really didn't think that it was needed at that time.

Mike Wiseman: [00:29:00] Everything has kind of leveled out a little bit and we were in better shape. So, we didn't end up making them, but it was a great exercise to go through for our associates, for myself, and seeing what it is we need to do. And that's ultimately what we ended up doing with that project, was we wrapped it up into, I guess you would say a paper to say, here's how we would do it. If we ever have to do this again, this is what we do. It was a really good experience from that perspective as well.

Annalies Corbin: [00:29:28] And again, that wicked, wicked learning curve in terms of sort of what you were able to do and to demonstrate. And I think that, that's really kind of the beauty, again, of what I love about the way companies who are actively engaged in R&D as a really, really sort of meaningful component of where and how they get to what it is that they're actually, then on the flip side, from a consumer standpoint, probably known for.

Annalies Corbin: [00:29:56] And that's the piece that I love about it, is because people don't really understand what it takes to get to that moment. There is so much that has to happen before anything in the case of a vehicle ends up at that manufacturing plant that people see on TV and they think they understand the car industry because of that. And the act of engaging problem-solving on the front end is the piece that I think is far more interesting than the really cool products that come out on the backside.

Annalies Corbin: [00:30:22] And I think that, that's where the lessons, the best lessons learned really can be from that sort of teaching, learning perspective. And so, I want to close this conversation, Mike, with asking you. So, imagine that you are a teacher, for example, in rural Ohio, and you're contemplating the fact that the coming year is going to be anything but what it used to be. And I have this intriguing opportunity because I have to not only rethink my own practice about how I go about crafting and helping young minds move down the road, but I might have an opportunity to sort of think about that end product very differently.

Annalies Corbin: [00:31:04] So, let's assume that a kid who goes to my program is going to show up one day, actually standing across the desk from Mike Wiseman and asking you for a job, what is the most important skill to you that you want to see somebody walking through the door ready to have? What is that outcome that you need, folks involved in teaching and learning, to make sure that the folks who end up at Honda show up with?

Mike Wiseman: [00:31:38] It may seem silly, but flexibility of thought. I don't think somebody can be rigid in their thinking, especially if you're innovating, and designing, and building something new and useful. I don't think you can do exactly the same thing over and over again or look in the textbook and find out somebody else didn't do that and really make an impact. I think flexibility of thought goes to the somebody being able to think outside of the box, think in terms of, okay, what has been done before, but maybe not just follow what somebody did before me, how can I do this better? And is it always better to do something different? So, you have to have at least the breadth of flexibility to be able to think differently, I think make the biggest impact.

Annalies Corbin: [00:32:37] Yeah, absolutely. Not just for yourself, but for, as we've discovered, during all of the stuff of COVID for the rest of the world as well. So, Mike, I want to thank you very much for joining us today and please share back with your associates our gratitude to Honda R&D Americas, for the work that you've done, being innovative in a time and moment of crisis, and how fast you were able to learn the things that needed to be to make it all a better place. So, we truly appreciate it. And I thank you so much for joining us today.

Mike Wiseman: [00:33:09] Thank you.

Annalies Corbin: [00:33:12] 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 re-imagine education.