

Designing for Play

KATHRYN YORK (PRODUCER): Hello, and welcome to the Big and Little Podcast from Boston Children's Museum. My name is Kathryn, the Museum's Podcast Producer and Digital Content Manager. Today on the show, I'm joined by two great proponents of play, Cas Holman, a professional designer of play and founder of Rigamajig. And our host Neil Tembulkar, the Museum's Director of Strategic Initiatives and an advocate for all things STEAM education here at the Museum.

In today's episode, Neil and Cas discuss how we design for play, the inspiration for Cas's work, and how parents and caregivers can empower their children to take risks through play. As grown ups, we often want to solve kids problems and alleviate challenges before they start. But maybe not all problems are in need of solving. What if the process is more impactful than the end result? With that, let's get started.

NEIL: Hi, Cas. How's your day going so far?

CAS: Hi, Neil. Great to be here.

NEIL: Excited to have you here to chat with us. To start us off, do you mind describing Rigamajig?

CAS: Oh yeah. Rigamajig is a glorified pile of construction debris, glorified in that it's a system of its own. So it's interchangeable in a number of ways. Long wooden planks ranging from about 14 inches to close to 60 inches long. They it's designed so that children can make things that are much larger than themselves.

It's made out of furniture grade 3/4 inch plywood. So it's quite heavy, which is also intentional. Children need to help each other while they work with it. And yeah, so it has hardware, nuts and bolts and brackets.

The way that the children build with it is also very similar to how real things are built in real life. So they come to understand lateral stability. They come to understand-- Of course, for the younger kids they learn, righty tighty, lefty loosey, which is really fun, just the idea of connecting things.

And they can see how things are made when they're out in the world based on what they experience after having played with Rigamajig. They come to understand and then start to hear a lot from parents and teachers that then throughout the rest of their day or afterward they see and recognize the pattern recognition of like oh, brackets, that bridge has a bracket. Or that I used a pulley and now I understand how that up there is happening or nuts and bolts, and going through the world and saying like, oh, I see a nut and bolt. I know how to connect things. I can do that.

NEIL: We have it here at the Children's Museum. And it really is amazing to see the variety of not just what we see made but also how it's used. And to have here it's almost like-- if this was an art museum it's like having Vincent van Gogh here. I wonder if you can dive a bit into what was the inspiration for Rigamajig.

CAS: Well, it's heavily influenced by everything that came before it, not just that I've designed but that I played with that other toy designers and playground designers have done very influenced by adventure playgrounds in Europe. And in the US, we now have quite a few in the US. But the idea that just give children some real materials and the right support and a lot of trust and love, they can do pretty much anything. And so those principles are alive and well and Rigamajig

NEIL: It almost makes me wonder, what did you play with growing up and were there any particular toys or experiences that you feel may have influenced your work later in life?

CAS: Yeah, absolutely. I grew up in the woods in Northern California, and had a lot of time outdoors just playing with whatever was around or whoever was around. So exploring a lot. We had little forts and places, little clearings amongst with a lot of manzanita bushes which was a low dense brush that could grow amongst the pine trees. So we played a lot in those bushes and had little different rooms even some of the forts we like recreated houses.

Then, of course, I was up in the tree fairly often. We rode around a lot on bicycles with other kids who lived in the area. And also my indoor play was a lot of listening to records and dancing around.

In fact, I rewatched The Muppet movie a couple nights ago. I watched the Sesame Street documentary on an airplane recently and was like, I need to revisit The Muppet movie. And I could not believe I knew every single word to every single song, and knew some of the words in the movie as well. So I think that must have been a frequent rental when we rented the VHS and the VCR.

NEIL: Yeah. It's not easy being green, right?

CAS: Oh, man. I mean, the origins of The Muppet Show, which we were-- my whole family watched religiously so. But yeah, so a lot of dancing around when I was indoors listening to records and dancing around. And my step dad he was always working on cars and building cars. So there was a lot of-- I was around a lot of that, and a lot of tinkering and hacking things together, including the cars that he was building.

He built a couple dune buggies. And so I got to help him with some of that. Yeah. So I think I was just always around materials and was invited and in a culture of just put it together and just make it.

And then in the ethos of my mom, she had worked at a Montessori school when I was much younger, when I think up until around when I was five. I raised by a mechanic and a Montessori teacher makes sense when you see Rigamajig.

NEIL: Yeah. Thank you for sharing. The picture you just painted really highlights the target demographic child to visit the museum in a way. And we encourage play discovery exploration and service of learning so heavily here at the museum. But really you are someone who actually creates and designs them from a blank Canvas. So I'm wondering if you can share a bit more about how you design for play through the lens of Rigamajig specifically.

CAS: Yeah. And a little bit related to even my description of my own childhood. I try not to romance as much as like that was great it was mine and I had fun.

I try not to romanticize that because it's not something that is everybody's experience and I don't see it as better than a kid growing up in the city. It was better for some things and worse at others. For a long time I had a girlfriend who was raised in Manhattan.

And our childhood experiences could not have been more different. Like she would describe and it was in my early 20s. And I hadn't been to New York. So she would make a comment about oh, yeah, every once in a while the rover recess the ball would go over the roof and I'd be like, what are you talking about? Because her playground was on the roof of a building.

And that was just so, I couldn't imagine-- I didn't understand what that meant. I didn't understand a playground on a roof and the ball. I was like, how did you have?

So in the meantime, her social skills were so much more advanced than mine because when did I-- how often did I interact with other humans while I was playing in the woods. And her entire childhood was playing in public spaces where she's surrounded by people and she was fluent in interaction in a way where I was like-- it was more comfortable chasing a squirrel than introducing myself to a person on a park bench. So I think a lot about how to balance what children have.

And in the case of Rigamajig, it was originally designed for use along the high line. I was working with the Friends of the high line in New York City, the elevated railway turned public park. They were looking for ways to engage families and things on the high line. There's all this beautiful landscaping. And the nature up there is just so special.

But it's too many people. You can't actually don't touch. You can't pick anything, and you can't smash the leaves in order to smell them. So it was this tricky moment where I was like, OK, how can we shift their attention so that they can be playing with the industrial or the post-industrial nature of the site itself because it was a working railway that was turned into this public park. And they left in place as part of the design. A lot of the tracks and a lot of the levers, and so if you look closely, you can see this industrial detritus.

And so I was saying oh, what if we make that something that children can engage and play with. So that was a little bit-- so that was some of the driving concept of the original parts and pieces which have evolved a bit based on how it's used now and based on trying to make it a scale that can be sold more easily than a one off that's played with in a public park. The original concept was a little bit also rooted in that the children that would be engaging with it were likely to be children who live in the city and probably don't have a ton of opportunities to play with a bunch of a very large loose parts.

NEIL: Yeah. Now that's-- thanks for sharing the origin story there. That's interesting to hear the gradual light bulb that seemed to go off.

I wonder-- in your opinion, what would you say constitutes success in the products you create? Are there any telltale signs you look for when you're testing your work that signal to you that. Hey, the child is engaged, there's a process of play happening here that you're trying to foster exploration?

CAS: Yeah. I think first and foremost, it's are they engaging with it over a period of time. Does one form or one element shift in numerous ways throughout the hour that they're playing with it? Or is that only a hat? And the goal of the things that I design is that it's not-- nothing is a defined-- it doesn't have a defined identity that the children are engaging with it and imagining what it could be. So everything should not only be used as a wheel but also a hat and also a cookie and also a film reel and a planet that's up in the

sky that they're trying to get the space monster to make it to. So there's this balance of representation that's like abstract enough and yet something that prompts or inspires a line of narrative or storytelling or even if it's something like, oh, this looks like a doorknob, so I'm going to build a house, or this isn't a doorknob this is like a clown's nose. So I'm going to make a circus to go with this clown and I'm going to. Then I'm asking is this too hard? Which is a funny question because hard means a whole lot of things. And in my mind challenge is part of the goal. And that's what makes children come back and keep trying, to have an extended level of mastery and be trying again in numerous ways and iterative. So I did it this way and it didn't work. What if I do it this way.

And at some point my work can easily shift from challenging to frustrating. And so I have to walk a very fine line. And it's interesting I've been talking about this a lot lately.

I had the immense pleasure of working with the design team for LEGO education. A couple of weeks ago I was in Denmark and we were all talking about which problems to solve and which problems are the play. And product designers and industrial designers and engineers we tend to just solve the problem. We love solving the problem.

But often in solving the problem we are removing the play. And also will ask like, I'm sorry, wait, what's the problem though? Why is that a problem? Is pushing two buttons really a problem we need to solve or does that create a whole bunch of new problems? And/or like what else could we be doing if we're not spending all-- investing all this energy to make us only have to push one button instead of two buttons. I think the way that we solve problems for children we actually are doing them an immense disservice by taking away their ability to practice things to figure things out, especially I think the overuse of instructions robs them of the ability to get in and figure it out, which is very playful. I think that we're terrified of emotions as a culture, our own and theirs, and so we don't let them argue, we don't let them be sad. We don't let them be frustrated. We don't--

And so a lot of what happens in play can be children practicing I'm frustrated. Am I going to throw it and expect somebody to fix this for me? Or am I going to hang out with it and try again?

And that's what they're learning when they play. We get very hung up on like steam and math and all these accessible things. But in fact, they're learning how to be good humans. There's so much else going on socio emotionally.

So this is all to say. I have an awareness of all these things when I'm playtesting and looking for like, what makes it successful depends quite a bit on what we're assessing, what we've decided is our goal. Is this something that we designed as a way for children to practice conflict resolution through play in which case I'm designing a way to help kids get in fights, which I've never had anything that explicit. But I mean, what's the goal? So gauging what's successful by well, what are we trying to help facilitate here.

NEIL: Oh, yeah. And I'm glad you touched upon a lot of the social emotional elements of Rigamajig and just play in general. We see it here in the museum in a lot of different areas where it's about children learning to share with each other, learning to overcome frustration, and learn about how their emotions can influence their play and their interactions with others, and how they can learn more about themselves along the way.

And something else you said, which it's something I see in the museum a lot, which is a grown up or a caregiver telling a child Oh, that's not how you're supposed to use that. Is that something that triggers you sometimes?

CAS: Yeah. But I understand. Grown ups have had a lot more time immersed in a culture of right and wrong. In fact, I'm writing a book about play for adults trying to help adults remember how to play because we all know how to play. We just have learned a lot of reasons to not play.

When I hear adults say no, you're not doing that right or like here often we see adults take over the play and the child becomes the assistant and teacher training and in some of the staff trainings we do with different organizations that use Rigamajig, we have different ways of helping them prompt the adult to be maybe your technical support and the child is the creative director. Like let's shift your solutions to what if we, so we can have a lot of I wonder why this or what if we tried this. And so that you're modeling that it's OK to not know and the goal is to figure it out not to necessarily succeed.

The goal is to ask and try because again, back to if the child can't get the lid off of something, the instinct is like OK, just go do it for them. Like OK, hey, I need help. Well, does helping mean do it for them or does helping mean help them figure out how to do it for themselves? And what does that mean for them in the future.

And also that it's OK if you don't know as the adult. It's OK to not know. And not that even if you do know, that you can say let's figure it out and then you and the child are in it together figuring it out.

NEIL: Yeah. Now, I definitely understand what you're saying. And I thought I may have read somewhere a quote you said about how even if it's an adult who's not with a child but an adult who's just going about their day, going about their work life, it actually might be beneficial for them to approach life with a sense of play and wonder. Is that still something that I'm sure that's going to be a part of your book maybe?

CAS: Yeah. Yeah. Absolutely. And also just rethinking what we think-- what we understand is playful or what we understand as play.

Like conversations can be really playful. I find myself fairly often with friends or with my design students. When I was a professor we would kind of make shifts in different semiotics really of like well, what if we did this, like how would we read a doorknob if it were square.

So this playing with ideas but also language can be really playful. What happens when you shift certain words to something else? What does-- how does that change the meaning or how does that change what we were trying to do or trying to communicate?

I think a big part of it is there's something in play and risk, not risk like physical risk as we talk about. I mean, I talk about physical risk quite a bit but based on playground design. But just for an adult, what's risk-- the risk involved in play is much different than it is for children. For an adult just playing is a social risk.

If a five-year-old is running around a grocery store with a truck driving it along the floor and running around or flying, it's totally fine. Everybody's like great, yeah, good for you. If a 50-year-old did that, that would not be OK. There's a new understanding that's required in order to frame and talk about and understand adult play.

NEIL: Yeah. Absolutely. And I'm really glad you're writing a book about it. So one question I really wanted to ask because it's really interesting to me personally is nowadays when children say play, they might mean a video game or they might mean something on their iPad or something I haven't even heard of yet.

And this makes me wonder, how do you reflect on how children are spending their time today versus more traditional definitions of play?

CAS: Yeah. It's tricky. I think people assume I'm a Luddite. Luddite being somebody who's very-- just like not a fan of technology or doesn't believe in technology. And that's not true. And I do think that there's some technology that's great for kids.

I think ideally, they would be able to make the virtual or digital or video games that they're playing with. I remember early smartphones there was like a moment of like, is there a way that we could make our own right if you remember early personal computers like you would build your own and you knew how to customize it and make it work and like that's-- we just let that go. Like that was some time ago we departed from that entirely that you might actually control the means of manufacture. There's nothing-- I don't know, the relationship between Marxism and smartphones is a tangential at best.

So I think it's like that would be ideal. And I think that's the case may in some of the video games, and there's all ways that kids like scratch is great. There are some that they learn from it's peer to peer learning. And I have a few friends who design games that are somewhat open-ended and they do engage the imagination.

The element that I fear gets lost is the participatory nature of making something in real space or collaborating in real time in person because the virtual and digital elements do lend themselves to consuming play almost as entertainment rather than participating and generating play. And you could say like oh, I'm playing a video game, I am participating. I'm playing the game but it's like you're participating in entertainment. I think that there's something where you get to do the thing. But you're not part of-- it's not generative. You are consuming it rather than making it.

NEIL: I see what you're saying.

CAS: And yeah. Again, just like expecting someone else to fill my time expecting someone else to solve this problem. And I'm doing air quotes, "the problem of boredom" or the problem of what am I going to do. And it's like well, what do you I fear that young people are getting so far out of the habit of being in touch with what they need at any point in time, and not only being in touch with what do I need but then out of the habit of getting what they need for themselves.

We look to like if I'm uncomfortable and I catch myself doing this also, if I'm like, I'm nervous or stressed out and I don't want to think about that anymore I'll go on something, I'll go on social media, and just like watch animals romping. I'll make my social media feed is pretty ridiculously. It's all animals being goofy. And I'm aware that that doesn't always necessarily make me feel better. It just distracts me from what was making me feel bad. And then as soon as I get off, nothing has changed. I still have to deal with myself. I just postponed it for a minute.

This is just to say I think that there's something in participating versus consuming. And that play has become entertainment rather than something that we're actively involved in.

NEIL: Yeah. I think that's very, very well said. And it's almost as if maybe there's a step of prompting yourself to embark on a certain endeavor with hands on play and the pre video game era so to speak which then-- when you enter now with video games, it seems like it's just handing you the experience

without you prompting yourself as to what that experience might be. And it's a related anecdote that's stuck out for me.

I think it was mentioned on your website that, rather than prompting kids to design a mug, we might say to design a transportation device for water. So this is that prompt that I'm talking about. So are you able to speak a bit more about say, the power of prompting in a way that sparks creativity?

CAS: Yeah. And I talk a lot about open-ended play or free play. A free play just being like where the child does whatever they want with whatever they want. And so when I talk about that that's less like if Rigamajig is there, you can free play with Rigamajig. But theoretically the free play wouldn't even be saying, here child, play with this thing. It's they can do whatever they want and that also relates to what I was describing with the intuitive what do I need and what do I feel like I need to do next and deciding for themselves.

And with the open-ended play, there's the materials are there, you do what you want. So you can-- and there's-- but there's a way that there's an in-between because not everybody is comfortable with open-ended play. So if a blank piece of paper is a bit much for some and so you're like well, OK, give it a squiggle. And then you're like oh, OK, that's something to go with.

And so I see a lot of the parts of Rigamajig as prompts. So the most common, we have these round pieces with holes in them that are very often wheels. So child sees that and then when they haven't played with Rigamajig, the wheel kind of becomes the entry point because it is its own instructions to some extent. They've seen cars. They can recreate a car based on that they've seen it before.

And what's nice about it is that because they're not following instructions, it's going to be a different version of a car. The way they figure out how to attach the wheels or what serves as an axle they're going to have to invent because there's nothing that says and here's how you make an axle or and here's how you make a cart.

And then the prompt element, so in that way, a lot of the materials themselves are prompts. Or with Rigamajig junior, they're much more what I call narrative pieces. So there are pieces that maybe they're more expressive. Maybe it's a wing or maybe it's a cloud or maybe it's like curly hair. And so there's a narrative element that children are inspired to build from and/or build around.

And then with the verbal prompts or the written prompts, that we like to give to teachers as a way of bringing a whole group together and so they can divide the students into groups and then tell everybody build a way to lift a bucket. Even if they're sketching, if you don't have Rigamajig and you're like, OK, imagine or sketch 10 ways of getting to school that are not a school bus or a car. So imagine 10 ways of transporting water that are not a mug or I would say that aren't found in the kitchen.

And that's where you're like Oh, OK, my a bucket, or a hose, or a river. And then like it starts to-- they start to get further and further away from archetypical functional designed products. At a beautiful moment one time I did this where the students were fiercely competitive and we just kept doing-- we would share our-- everybody would share their 10. And as soon as somebody else said when you had on your page you'd cross it out. So the goal was to have more of the unique or the novel ideas. And the one that finished it was the gravitational pull of the moon.

NEIL: Wow. The tides.

CAS: I mean, every we were just like oh, everybody screamed. We were like, it's done. It's over. You're brilliant. Because you go OK, my cupped hands, my mouth full of water, my whole body is a way of transporting water. So you really-- you push it further and further the more you try, the more you go. And so that's-- and I've been calling that-- I'm looking for a new name for this. So if anybody has ideas. I've called it everything from thinking outside of the archetype I think in abstract and the documentary in that phase it was called name by function because it was coming out of this assignment I'd done with my industrial design students where we were like, let's start with the function of the thing and then go from there rather than starting with the name of the archetype or the artifact itself, the archetypal artifact. Do we need a lamp or do we need a way to light a room? So if we name it based on its function, then it opens up what it can be. Do I need a lamp or do I need a window? Do I need a lamp or do I need a jar of fireflies. Or maybe I need to just go to sleep and not be reading at nighttime indoors. Maybe I don't need a lamp I just need to go outside.

NEIL: I really like some of the examples you used there. Most of our listeners they are parents, caregivers themselves. And wonder if you have any advice for any of the grownups who are listening or maybe even educators out there who are trying to cultivate play.

CAS: Slowing down helps. The moment-- if a child comes to you and is like hey, I need this or like, I need help with this, or I'm bored. Take a beat and say, is this a problem I need to solve for them or can we play here. And I'm aware that you do need to actually get to school on time, so not everything is but there might be a way that you can figure out getting to the game of leaving the house with all your stuff by 7:30 AM, maybe that can be playful and therefore less stressful.

And there might be elements of that that the child can be doing as part of collaboration rather than if they're in the habit of saying you need to do this for me or getting us out as all you, maybe it's not. How can you include them in part of the goals of what you're all trying to do together in such a way that they can be responsible for things. And that to them is playful.

I mean, I remember in all of the ways that I played as a kid, it was the most important thing I was doing in that moment. I mean, I even-- my mom would say, come in and eat and I'd be like are you kidding. Yeah. I'm starving but I am so busy right now with this pile of sticks. This is like-- and I just-- I remember the feeling because I'm sure like it translated into all of these ridiculous things I do as an adult that feel important.

NEIL: That pile of sticks was probably a cast of characters, and you probably didn't want to leave the narrative midway through. So I get it.

CAS: Yeah. Or whatever I was like, I'm so close to throwing this Pebble through it. I've been trying to do this for half an hour, you can't make me leave now.

One of the things that gets in the way of just letting kids be is feeling like the play needs to be productive. Like we need to fill their time with something that will get them into Harvard. And that's not the only thing that matters. And in fact, them being whole humans is also going to help them succeed in life. Just trust that learning is happening, play with-- by figuring something out, by having a pile of LEGO that's loose

and them just putting them together with some color, that's learning the same as and I could argue more than following the instructions.

So if they're figuring out how to make their own chair for Teddy, that in my mind is-- even if it doesn't look like a chair and the teddy bear doesn't fit in it, that is a more enriching activity than putting together a kit of parts based on instructions that are solving all the problems for them. Is telling them how to do it. They don't get to learn.

Let them figure out even if the outcome is less beautiful. And of course, beauty is in the eye of the beholder. But it may not look like much. And I see a lot of projects where the children are like look what we did. And I'm like that looks like nothing.

But I watched them undo, do it again, negotiate, they had to like there were some power dynamics about whose idea they were going to do. All of it that when I first started designing seemed like a nightmare. I was like this is a failure. I just designed this thing that is causing-- there is friction, I am not comfortable with nobody's comfortable with friction.

And increasingly the more early childhood people and teachers and psychologists that I hang out with, they're like no, that is the good stuff. So I think back to advice for adults hanging out with children, be aware of what problems you're trying to solve for them because it may not be helping. Maybe you can solve them with them. Yeah.

NEIL: Yeah. Oh, absolutely. That was so well said. And I think a lot of grownups listening to this will probably be reflecting on how they're playing with young ones. And lastly, just want to bring it back to your work, what's next for Rigamajig or for heroes will rise. How might listeners find out more?

CAS: Rigamajig is-- we're always designing new stuff. We have all these add on kits that are curriculum specific locomotion and simple machines and chutes and cradles. So different additional parts and pieces. And then we have some new storage, things that are really cool called workshops so that kids can see all the parts and pieces.

And so I have a team that keeps that going. And in the meantime, yeah, I've designed last year, I finished a new play space for the Liberty Science Center that's called wobbly world, which is awesome. It's definitely the largest.

Yeah. It's really, really great. It's for children under 5. And I had so much fun thinking about toddlers. It was a little bit toddler-specific. And designing a very like iconic space for this really great hands on children's or science museum.

And then I'm working with quite a few museums right now thinking about how children engage art and how to help children understand that art and creativity, and art museums can be part of their lives and part of who they are. The creative. I mean, children are the most incredible artists. They just like know how to engage life. And so trying to connect that to some of these museums spaces has been an interesting project.

And then like I said in the meantime, I'm working on this book, which has been really interesting and I have a wonderful collaborator named Lydia Denworth, who's a science writer. So it's fun.

We have very playful conversations because we have such different brains. And so as we're writing together and trying to hash out certain ideas, that process has been really, really fun. And there's been

some discoveries that feel very new that I feel nervous about because they are new ideas in a way that I haven't experienced in a while. So we'll see.

NEIL: That nervousness is a good thing.

CAS: Oh, we have a publisher and that I think will probably launch sometime in 2025.

NEIL: Amazing. This has been such a fun insightful conversation. I can't thank you enough for joining us.

CAS: Yeah. Thank you. This has been fun. I love what you all do. So it's nice to talk more.

NEIL: Well. We hope to see you at the museum sometime.

CAS: Yeah, absolutely. I mean, except I'm there. I feel like Rigamajig is my alter ego. So I'm secretly there. Well, or I'm there to play when the things that I put into the world is my way of playing with as many people as possible because my older sister didn't really want to play with me.

So I've ever since I was a kid. I'm just like well, you play. Hey, want to play. What are you doing? Want to play? Want to play? Looking for people to play with. So in this way I get to play all over the world all the time.

NEIL: Just this morning there was someone who had spent 45 minutes at Rigamajig and various children came and went and worked with them on the project. And I took the time to make sure I was observing it because-- and I had never really seen-- I'm sure it gets engaged in that way so regularly, it's just that I'm not always observing it being used. But I saw it happening today. And I thought it was serendipitous because I knew you and I would be talking later in the day. It was really fun to see.

And so you're absolutely right. You are omnipresent in our Creative Labs part of the museum. So we-- and I say, we, I mean, me and the listeners we really look forward to everything more to come from you. So thank you.

CAS: Great. Yeah. Thank you so much Neil and Kathryn and everybody at the museum. Thank you for the podcast.

[MUSIC PLAYING]

KATHRYN (PRODUCER): Thanks for listening to this episode of the Big and Little Podcast, and to PNC Bank for sponsoring this podcast. Play is powerful. It fuels our creativity, problem solving, and imagination. Whether you're a kid or a grown up, approaching life with a sense of playfulness and wonder can open one's eyes to new possibilities.

Thanks once again to Cas Holman for joining us today. And if you liked this episode, be sure to subscribe and stay tuned for more.