



Research That Reaches Out Podcast

Episode 16: Go Baby Go with Dr. Sybil Keesbury and Dr. Philip McCreanor

Hannah Nabi: Hello, and welcome to the Research that Reaches Out podcast from Mercer University. I'm your host, Hannah Vann Nabi. Research that Reaches Out is an initiative at Mercer University in Macon, GA that was launched in 2015 as part of Mercer's Quality Enhancement Plan, or QEP. We work with faculty and students to help them integrate service and research to address real-world problems affecting our communities at the local, regional, national, and global levels.

Today we are sitting down with two Mercer faculty, Dr. Sybil Keesbury from the Tift College of Education and Dr. Philip McCreanor from the School of Engineering. Dr. Keesbury is an associate professor of education and the director of the Holistic Child Program at Mercer. Dr. McCreanor is a professor of environmental engineering and the director of the Engineering Honors Program.

Dr. McCreanor and Dr. Keesbury collaborate on an initiative called Go Baby Go. Go Baby Go is a really cool program that started in 2012 at the University of Delaware and has expanded across the country. Dr. McCreanor and Dr. Keesbury started it at Mercer in 2016. It provides modified ride-on cars to children who experience limited mobility. Go Baby Go integrates community-based research and user-centered design, and Dr. McCreanor and Dr. Keesbury have developed a multi-disciplinary partnership at Mercer that brings together engineering education and holistic child training. Welcome to you both! Thank you so much for joining me today!

Philip McCreanor: You're welcome. It's great to be here.

Sybil Keesbury: Thank you.

Hannah Nabi: So let's start with a little background on Go Baby Go. Tell us a little bit about the program and how your collaboration developed.

Philip McCreanor: So it started as something coming out of the Engineering Honors Program's desire to have our first-year engineering honors students engage with a meaningful project, as well as to create connections among the lower classmen and the upperclassmen in the Engineering Honors Program. Which seemed to be a good way was to have them work on a task together as a group and foster those connections. About the time I was looking at this, I received some information about the Go Baby Go program, and when I saw what they did, I thought it could be a perfect fit for bringing together these disparate groups

and giving them a common task that was approachable. I attended a build at Marionjoy Rehabilitation Center in Wheaton, Illinois to sort of learn about what the programs were and came back and thought it was a perfect fit for this, you know, the honors program as well as Mercer's goals in general. And I recognized that a critical aspect of the program was someone that could help identify children to be served and also help keep engineers constrained with their solutions. You know, engineers could easily adapt one of these vehicles and secure a child in it, and the child would be, you know, overly secure. And the goal is to provide mobility. I reached out to my colleague, Dr. Sharon Augustine in the Tift School of Education. She directed me to Dr. Keesbury. And then I had a meeting with Dr. Keesbury and I'll turn it over to her.

Sybil Keesbury: So, Dr. McCreanor and I met and he showed me a video of a Go Baby Go build and some things from Marionjoy. And my background is in special education, and so immediately I was intrigued by this idea and thought that this would be a fantastic way for us to involve our students, who are also getting some special education training and certification, and to allow them to work with children and families with disabilities, to help in learning about mobility and social skills. And so we immediately started putting feelers out into the community. I reached out to local physical therapists and had them refer families to us to do that first build.

Hannah Nabi: Wow, okay. So, and then everything else since then. So you've done eight builds. Is that right?

Philip McCreanor: I believe it's nine actually.

Sybil Keesbury: Yes.

Philip McCreanor: The Covid cancelled the tenth. So the idea of the Go Baby Go is it's a mobility to sociability program developed by Dr. Cole Galloway, and that's sort of his research, is how your ability to explore your environments triggers emotional, social, intellectual development. And so if a child is not able to explore their environment, those other developments are stunted. And so many times, these wheelchairs are cost prohibitive, difficult to get. And so the idea is to take an electrically powered child's vehicle, lightly modify it, provide sufficient support to the child so they're safe and comfortable, but also maximize their ability to use the vehicle. And then they can take them outside or in the house, wherever they want, and they can now go to things, you know. One of the most moving statements I heard from a mother was how before she received a Go Baby Go vehicle, her child's development was limited by the things she chose to bring to the child. You know, now the child was able to see things and think, wow, that's, I want to go see that. And they can actually go see that. And when we

talk about providing maximum functionality. We have a little guy,, Harrison, who's been to multiple builds. He has a four inch inseam and no upper limbs, and his last vehicle, he can move it. He can drive it, steer it, turn the motor on and off. But he can also, he's very good with his feet, he's able to turn the radio on and off. Beep the horn, shift it into forward, shift it in reverse. So the vehicle is totally functional for him, you know, as a vehicle, and we gave him as much mobility and options as we could.

Sybil Keesbury: And one of the, one of the things that I have heard from a parent in one of the original, that first build we did is, they said, you know, up until now, my child has not been able to interact with their siblings outside because they don't have a wheelchair that can get them within the outdoor environment. And so now when the child's siblings are riding their bicycles, this child can use their Go Baby Go car and ride bikes, quote unquote, with their siblings while using the motorized vehicle. So it really impacts the inclusivity of their environment.

Hannah Nabi: So, I mean, this is a truly life changing event for the kids and their families. And that's not something we often, when we do projects with students, they don't often get to participate in something that is, you know, in a day – well, for their experience. I know it's a lot of work on y'all and lots of preparation – but, you know, for the students, in a day, really, changing the course of a child's development. How does participation in Go Baby Go influence or affect your students learning?

Sybil Keesbury: Well, I think in terms of the education students, this really gives them hands on with the family. And they do participate in some of the build aspect of it, but not as much as engineering. It's really, the education students are there the day of the build. They're helping with childcare, they're meeting the families, they're seeing children and families up close and personal and interacting with them, and really are building relationships with these children and families just for the few hours that they're on campus. So it really is putting into place all the things that they're learning in their classes about children and family and child development and those types of things. They're really actually getting to put those into practice.

Philip McCreanor: So for engineering, one, there's team building, you know. Service, I think, you know, I'm a big Kipling fan as far as his idea that engineers were, you know, people that serve others and build things to serve man. The students that we're getting now, many of them have not had hands on experience with physical objects and disassembling and really understanding how the internals of them work. Used to be, you know, I'll date myself, but when your television stopped working you pulled tubes out of the back of it, went down to an electric store, and you checked all your tubes and you figured out which one

wasn't working. You know, when something stopped working, you'd take it apart and figure out what could you fix on it. So much of our consumer items now are not serviceable that few of our students have, you know, opened up something with a motor and seen where the battery goes to and from and how, you know, the steering linkage works. So there's a lot of fundamental engineering experience that they get by opening these vehicles up, figuring out how the power moves around in them, and then figuring out how they can add switches that will, you know, serve that family. In some cases, it's very straightforward. You just put it on the steering wheel. In other cases, we've had ones, you know, where they activate with an elbow. We've done some multi-switch vehicles where we do an ATV and there's, these are generally for children who have the potential to develop the leg strength to be mobile, but they get so strong with their forearm walkers that that's how they get around because they can go fast. They swing. They use their arms like their legs, which, you know, ultimately that will cause damage. But also, they aren't doing their physical therapy. So we set up a vehicle where they have to stand up on the pedals off of the seat and push a button to make it go. As soon as they sit down, the vehicle turns off. So if they want to be driving around, they have to stand up and be using their legs to balance. And for our engineering students to see that, that appears to be really complicated, but it's just a chain of on/off switches that, you know, are logically operated, that all these things have to be in the right position and it goes.

Hannah Nabi: So Phil you mentioned that one of the reasons, one of the things you were looking for is a way to establish stronger connections between first- and second-year students and third- and fourth-year students. So why is that important, and how, how has that sort of changed or affected the culture within the Engineering Honors Program?

Philip McCreanor: So I think often seniors are worn down. So the way we set this up is in the fall, we have the rising sophomores and the rising seniors partner on the build. And then the spring, we have the exiting seniors and the freshmen who are in their second semester participate in the build together. So the seniors are hitting their senior year and they might be a little worn out, whereas hopefully our sophomores are still pretty excited, but they're also hitting some of their more challenging engineering courses. In a lot of cases that fall sophomore year, it's your big, like, wow, I'm going to be an engineer semester. And for those two groups to talk to each other, and the seniors recognize, like, oh man I cleared that hurdle and then tell the sophomores, you're going to clear this hurdle too, I think is hugely helpful to both groups. And then you have these exiting seniors in the spring who have achieved their, their degree, and you often have these freshmen that have, you know, might have had just a really challenging

year and are wondering what they want to do. And now they see this is doable. Plus, I hope the seniors look back and recognize, Wow, three years ago, that was me. A lot has happened since then. And um, they might not notice it consciously, but I think subconsciously that's there and for the freshman to see other people that have accomplished this is important.

Sybil Keesbury: I think one of the things that I've seen with the engineering students that I have enjoyed watching over the years is the amount of growth in the, in the engineering students. That when you get to see those students who participated in their first build as a freshman or sophomore and now they're juniors or seniors participating, and they're guiding the freshmen and sophomores through the builds and are really talking about what an amazing experience it is. That they're getting to do the engineering side of it, but that personal aspect of it and really building those relationships and talking about the families and the kids that they've served in the community, and really seeing that and to see the amount of growth from, you know, that first build to their last build is really incredible.

Philip McCreanor: They'll have done, if they start in the honors programs as a freshmen, they'll do four builds by the time they graduate.

Hannah Nabi: That is really cool. And I know a couple of years ago, y'all brought in a partner, Dr. Alyssa Fiss from the College of Health Professions and physical therapy, and I think she has since left Mercer. But how did, one thing that I think y'all run a really, at least from the outside, really effective, smooth collaboration, partnership. And even when you brought in additional partners, and you also had Bob Watson from tech comm, technical communication, who has gone on to another opportunity since as well. But how, how does bringing in these additional faculty partners with new expertise and new resources affect the build and the experience?

Sybil Keesbury: Well, I think it, it just strengthens our build. We really, you know, we rely so heavily upon the community physical therapists because they're the ones who are referring the children, and they know the children. But when we brought in the Department of Physical Therapy and the physical therapy students along with Dr. Fiss, it really allowed us to expand on the accommodations or the modifications that we were making to the vehicles to really make sure that we were hitting the needs of each individual child as they came in. And with that, it also helped us organize the build better because we started getting more information upfront about the children that were coming for the build. So we were better prepared. So the pre-build became more adaptive rather than just doing the modifications the day that the child showed up.

Hannah Nabi: And what all happens in a pre-build?

Philip McCreanor: So, that's where Bob Watson, you know, joined the group that's. You know, when we say brought people in, one of the exciting things is we haven't really had to reach out to anybody. People have seen what we're doing and said, Hey, can I be part of this. And you know, that's just great because you've got people buying in right away. But the first build we did was in a classroom in the School of Engineering. I think we did 12 builds that day. Is that right?

Sybil Keesbury: It was nine.

Phil McCreanor: Nine. And it was cheek to jowl and it was just, it was crazy. But the night before in the pre-build, we had tables set up, and we had groups at each table, and I modified a car under a camera and went through it step by step, which was not a good way to do things. Prior to that, we had actually had a vehicle disassembly party where I think we had a half a dozen vehicles in there that we looked at. And so we brought all those in, pulled them apart. Some of them were, would have been really easy to modify from the engineering perspective, you know, electronics and things were where you needed them and set up the way you wanted them to be set up. But from a functional standpoint, the pinch hazards, it would've been inconvenient for the parents. So we ended up with two vehicles out of those six that we did, we decided to do a build with. And so the first one, we went under a camera and that's where Bob Watson, you know, volunteered his services and worked with the tech comm students to develop an instruction set. And it was digital. So the first time we did some of these, there are some packaged instruction sets and you have to print them out in color because wires are color coded, and it's probably 50 bucks a manual, minimum, to print those out in color. And so, Bob, Dr. Watson set up an electronic website that, you know, boom. You just logged in. There it is, and had his students work on that with him. And then as we added new cars, in some cases, he'd send some students over. They'd follow along and they built out the instruction set. And what was amazing about this is, one year we received a pink Maserati and a red Maserati, and you'd think that the only thing different was the color. And the pink Maseratis had a completely different wiring harness. So Bob was able to, once we figured out that was going on, he was able to log into the site, take a couple pictures, and say, hey, if your car is pink, follow this track. If your car is red, follow this track. So it was amazing to be able to do those things, you know, in motion and have those instruction sets. And really, this is the, so one of the scholarly contributions of Go Baby Go is to put these instruction sets out there for other people to use.

You know, Dr. Galloway talks about this, you know, University of Delaware could have held onto this, patented it, you can only do Go Baby Go through us. And he said, there's so much need out there, the chess game is distributing this thing. How do we blast this out so every city has an ability to do these for their children. You know, how do we make that happen, and technology like Dr. Watson's contributions are part of it.

Sybil Keesbury: And I think by adding in Dr. Fiss, we have reached a much bigger audience. We're bringing in children from all over the state now, and we've, you know, we've brought in children from Savannah and Atlanta and North Georgia just because we have that reach now. And so there are, we're not limited just to the Central Georgia area.

Hannah Nabi: Now, what about the, what are your recruitment criteria for recruiting children? Are you serving, because these cars you're offering free to the families that come. So are you targeting a specific demographic?

Sybil Keesbury: So we put a blast out to therapists all over the state. And it's a self reporting. So parents contact me and let me know that they are interested, and they give me the child's, we're looking at children, pretty much ages two to eight. We have done some younger children who were capable of using the vehicle, and we have done some older children that were smaller in size that could fit the vehicle, but they really that, we really are not, we're targeting a child who needs it. We've had a lot of parents email or call. They've seen things in the news and will say, hey, wait, I have a child that could use this. And there's a lot of word of mouth going around about it too. So really, if a parent calls me and tells me that they need a vehicle, I add them to the list. And we go from there. So pretty much, if a parent contacts me and lets me know they have a child who needs a car, we'll do what we can to get them into a vehicle.

Philip McCreanor: That was one of our, one of the nice things is when we work with a therapist and we work with their clients. It helps us model, you know, the client-engineer relationship for the students, the engineering students that are working on this build, they have a technical expert in the area of physical therapy, occupational therapy, something like that, that knows what these child's needs are. And then the engineers are there working to help fulfill those needs rather than just coming in and securing a child however they want to. Which is just, you know, outstanding. And one of the sort of, one of the great lessons we learned was that, our first build we realized we need to do a better job of sort of asking a whole set of questions. We had a little girl there who did not have upper limbs, and every vehicle we had prepared was designed for a child who had a lower body issue. So we had moved all of the power controls to the steering column.

And she was just cute as a button and was there to get a vehicle, and I wish, I don't know if that I wish is true, but that look on my face I suspect was priceless when I was informed that we had a little girl with no arms that needed a vehicle.

Sybil Keesbury: I'm pretty sure that my face said it all when she walked around the corner and I saw her and I went, Oh. I said, Okay, let me let me go talk to Dr. McCreanor.

Philip McCreanor: So I worked with a couple of engineering seniors and a couple of sophomores and said, you know, you've got to figure out a way to create a steering bar for a foot. We've got to figure out which foot is her most ambidextrous, which ones she should steer, not ambidextrous - which she has the most dexterity with - which one should she steer with, which one should she turn it on and off. And, you know, on the fly, we took one of the vehicles apart, rewired it, got floor control, you know, got her a steering arm she kind of put her foot in, and it'd be like driving with your hand on the bottom of a steering wheel. Had to move her foot left to go right and right to go left. And you know, like, how long is this going to take for her to master? And the answer was under five minutes. She was driving around hallways in the School of Engineering

Hannah Nabi: And y'all, so y'all don't turn people away if they show up and you are not prepared or weren't fully informed about their specific needs. You work it out that day.

Sybil Keesbury: Well, so that was, that's the only time that that happened because we learned. We learned very quickly. That I now have a set of questions. And they, they have to sign up for the build. And so there, you know I have a recruitment window that usually ends about two weeks before the build. And so, and you know, I have no shortage of families that are contacting me, but we have a limit on the number of builds that we can do. We've been doing about 15 cars a build. So I'll have families that call me, and if I get above that number and I know we can't accommodate them, I push them to the next build. And so I keep a running list. But I get all of that information now ahead of time. I know exactly what the, what the issues are. I know exactly what modifications they need. I talked to the therapists, the parents tell me very, very clearly, you know, can they just use a push button or do we need, you know, what are the, what are the extra things that we need. So we made that mistake on the first build and we quickly learned from that. So from now, from then on, we get all that information. And as the builds went on, we found more and more, what more information we needed. And so now we've gotten, we've gotten pretty good at getting exactly the information that we need so that there are very little surprises on the days of the build.

Philip McCreanor: And the foot operated vehicle, one of the benefits was, we've done, we're the first group that has documented doing foot operated Go Baby Go vehicles. And a group of our freshmen actually presented at the Go Baby Go summit several years ago in Jacksonville, Florida on how we did that vehicle. It was an international conference, you know people were Skyping in from Israel and Belgium and, you know, it's giving our students a unique way to reach out and publish things very early on.

Hannah Nabi: And that's actually a good segue into my next question, which is, so it's about scholarship. Right, so, one of the things that I think is interesting is that you've both sort of figured out ways to integrate Go Baby Go into your professional endeavors. Right. So, sometimes with really enormous service projects like this, sometimes it could be difficult to find a way to incorporate it into your teaching or your research or your scholarship. But you both have done that. So with Phil, you've incorporated this and the entire Engineering Honors Program curriculum is built around Go Baby Go.

Philip McCreanor: They still have separate projects at the end of working on in there. They pick up a project in their sophomore year. But we've had a number of students that picked Go Baby Go related projects. So we have some that are working on adaptive toys. We had ones that worked on a joystick control for a vehicle. And another one they're working on, there's a larger vehicle that's a jeep. But it's designed for two children to sit side by side. And there are groups that are using this for larger children but it's an off center, then, the child has to reach left to steer the vehicle. And so we're working on a series of modifications so the child can sit center. And their steering control would be centered. They did a steering bar and they're also working on 3D printing a completely new dashboard and control system. So that, you know, there's a lot that goes on in addition to the builds and some of these things are brought back to the build. We have an industrial engineering student who, her project was managing the builds and helping them flow more smoothly. And that was huge, you know, the way she organized things and staged things and had plans for it all moving around was mammoth.

Hannah Nabi: Ok. Very cool. And then Sybil, you are doing a longitudinal study, is that correct?

Sybil Keesbury: Yeah we're following. I had a student, a couple years back, who wanted to go into graduate school into physical therapy. And so her, she was involved with about three builds, four builds and before she graduated, she went through and created a survey for us to use to follow families. And so every year I have students who are interested in doing undergraduate research and so we are in

the process of collecting data on the families and how they use the cars. And one of the things that we have found out also is that, you know, oftentimes kids will outgrow a car, and they can bring them back to us. And we can put them in the next size vehicle. We're able to keep that child in a car for a longer period of time.

Hannah Nabi: And then are you able to reuse the smaller car?

Sybil Keesbury: Yep. We have, they bring it back. They've brought it back to us, and we can use them for different things in the engineering. If we, you know, if they want to try new modifications or things. Or we have put a new, put those vehicles back out as well. So it really is, it really is fantastic because it you know it, it impacts the undergraduate research as well as you know my own research.

Hannah Nabi: Um, okay, well, we're coming to a close on our conversation, but I always ask our guests to close us out by talking a little bit about why what you're doing is Research that Reaches Out. So if you could please share with us why is Go Baby Go is Research that Reaches Out.

Sybil Keesbury: Well, I'll say that we are truly impacting children and families in the community throughout the entire state of Georgia. And I think there's nothing better or no better explanation of Research that Reaches Out than impacting a child's life.

Hannah Nabi: I won't argue with that.

Phil McCreanor: Yeah, and I'm gonna, I'm going to echo that, you know, this idea of keeping a child on their developmental markers and putting them in a situation where you can see that they, they have the opportunity to be a complete part of society rather than being excluded is mammoth, you know, throughout you know their whole lifetime. You know, to be engaged like that.

Hannah Nabi: Alright, well thank you both. Dr. Sybil Keesbury and Dr. Philip McCreanor, for talking with us today about Go Baby Go. And thank you to our listeners for tuning in to this episode of the Research that Reaches Out podcast at Mercer University. You can check us out on our website at QEP.mercer.edu and subscribe to our show at SoundCloud.com