

# Maker Corps Case Study

## DIGITAL HARBOR FOUNDATION, BALTIMORE, MD

By Alice Anderson, Science Museum of Minnesota  
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### **Digital Harbor Foundation Mission Statement:**

*The Digital Harbor Foundation is dedicated to fostering learning, creativity, productivity, and community through education. In 2013 we transformed a closed-down rec center in Baltimore City into a vibrant Tech Center for youth. In 2014 we launched the Center of Excellence to train others how to incorporate making into their own learning environments.*

<http://www.digitalharbor.org>

**Maker Corps Contacts:** Steph Grimes, Director of Education and Jonathan Prozzi, Content Developer

**Maker Corps Members:** Caitlyn Dixon, Elementary Program Coordinator and Mary Reisenweitz, Mid-High Program Coordinator

**Years in Maker Corps:** 2013, 2014, 2015, 2016

### **What's in the mix**

- Mix of staff expertise in technology, educational pedagogy, visual arts
- On-site support for questions and ideas
- Mutually beneficial partnerships with organizations and educators
- Opportunities for youth to grow their skills over time, become members, demonstrate skill and participate in a youth steering committee

### **What's ahead**

- Growing their outreach to educators state-wide
- Focus on retaining female makers
- Figuring out how to engage with other agencies to support youth in other areas of their life (offering free lunches, working with school districts to offer support)

## **Maker Education at Digital Harbor Foundation**

It has only been four short years since Digital Harbor Foundation (DHF) opened its doors in a converted recreation center in Baltimore's Federal Hill neighborhood, but in that time they have built a reputation both locally and nationally for their maker programs for youth and educators. It has not been without some bumps in the road – much of their technology was stolen one spring, their founding executive director took a position as the Senior Advisor on Making at the White House<sup>1</sup>, staff they hoped would stay moved on – but, true to their maker ethos, they've figured it out. At their core has been an interest in using technology in creative ways and developing long-term relationships to support youth and educators become makers.

For them, the term “making” can be low tech or high tech – and they want to retain that openness and inclusion. Jonathan Prozzi, a Content Developer and Maker Corps supervisor said, “We pull it under that umbrella of, you're making with tech, you're making with code, you know it can be creative, it is creative. I think that that is a big part of it, it's not exclusionary.” Steph Grimes, the Director of Education and former Maker Corps supervisor, chimed in, laughing:

“And that there's also this place where we're making with cardboard, right? *[laughs]* That it can be really low tech and it can be really high tech and it all, we can make it all fit. So for us, that has been key to our success. One, so that we don't burn out on either one end of things. If we feel like we've done too much sort of, physical making and really low tech stuff we can jump over the high tech stuff and really like, engage a different part of ourselves as a team, and definitely engage a different audience of our kids, because there are some kids who are super into 3D printing and building things with their hands and wanting to do more sort of physical construction projects. But there are also the kids who are also like, I don't want to do any of that, I want to program and code the day away. So, for us it's really about meeting both of those sets of needs, in the best ways we can. And, knowing that sometimes they need a little bit of both, and so like, we sneak it in.”

Their building includes two main classrooms; a smaller one for younger kids (the NanoLab) and a larger space (the MegaLab) divided by a row of bookshelves to accommodate two separate groups at once that also houses most of their technology, tools, and workbenches on wheels so the space can be moved around. The offices are two rooms that accommodate roughly a dozen staff at any one time. Everything is open, set up for collaboration, and full of treasures and inspiration. Over 2015-16 school year DHF served 1,300-1,400 kids and their first group of members, and 20 youth who have gone through their programs have since graduated high school and are attending college or working in technology fields.

## Developing their maker program

From the beginning, DHF has looked to Maker Ed for ideas, guidance and leadership. Steph described how she sees them as a sister organization; paralleled in their age and growth. She explained, “It's perfectly aligned with- I mean it's why we do maker education. It's where we learned about maker education, so it's completely aligned with all of that because it's just an extension of what they're doing...The work that we do I feel like is just an extension of what Maker Ed is doing, and what we learned from Maker Ed.” In finding their own niche, DHF staff relied on the relationship they were building with Maker Ed through the Maker Corps program to figure out what would work for them. Steph said, “It was like okay look, anything that they're doing I want to be a part of because I feel like I can learn a ton from them. And we as an organization can learn a ton from them,

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<sup>1</sup> <http://technical.ly/baltimore/2015/12/28/andrew-coy-senior-advisor-white-house-office-science-technology-policy/>

and that's really when it started. So it started as this sort of admiration of what they were doing and the work that they were trying to doing." In the first year of Maker Corps, Steph gathered lots of ideas for projects from the Possibility Box and the Google+ community, many of which they still use.

Currently, Digital Harbor Foundation offers year-round maker programming for youth starting in 3<sup>rd</sup> grade through a set of programs that level students up to become members of DHF. Summer camps last for two weeks and are open to youth between 3<sup>rd</sup> and 12<sup>th</sup> grades. The Tech Center also hosts Family Make Nights, field trips for schools, and numerous educator workshops. There are also special programs just for girls (the Makerettes), friendly competitions to design, prototype and develop a product for a client (FabSLAM and WebSLAM), and a 3D assistance program which provides technical support and repairs for 3D printers. In short, there are programs for just about anyone to dive into the type of making they want to do in the environment that feels comfortable to them.

Their approach – offering programs on-site and doing outreach and trainings with educators – attempts to both support youth that already have an interest in making with technology and youth that may not have prior interest or experience to become independent makers. DHF educators see themselves as facilitators, mentors and guides for the youth they work with, which is supported by the longer-term commitment youth make to their programs. Mary Reisenweitz, a Mid/High School Coordinator and 2016 Maker Corps Member, described how she tries to remind students that if something doesn't work out right way, support will be available to keep going: "...Really emphasizing this is *one* version of this ... we have lots of time to keep working at this, you can keep getting better at this. Emphasizing that even if it's at the end of the course or whatever, this is not the end of this process." Getting to know youth and families that come to DHF is a core value of the organization. Mary said, "I really *get to know* a lot of these kids. And that is maybe more than anything the most rewarding part of working here."

## Maker Corps at Digital Harbor Foundation

Participating in Maker Corps has truly been a learning experience, starting with the first year of learning what happens when things go wrong. "Our first year as a Maker Corps host site was rough because we were all trying to figure out what it meant," Steph explained. The DHF staff member who was supposed to supervise the Maker Corps Members left for a new job before the summer began, leaving Steph to figure things out on the fly. But while things were getting figured out at DHF, Steph was learning about many other models for constructing their program from other Maker Corps sites as they shared what they were doing on Hangouts. In the third year, they scaled their program back (from four Maker Corps Members to two), hired staff they already had relationships with (rather than having an open-call advertised nationally), and didn't run their programs back-to-back.

These changes have helped make Maker Corps a program that supports their organizational mission and gives staff valuable professional learning opportunities. In the past two years they have offered the opportunity to staff they think might be ready to take on more responsibility and grow with in the organization. Maker Corps Members are encouraged to come up with project ideas for summer camps and document them and participate in the Maker Corps community. In the summer of 2016, the DHF Maker Corps Members are two women with arts backgrounds:

Mary is a recent graduate of the Maryland Institute College of Art (MICA), and is the Mid/High School Program Coordinator. She is especially interested in ways that arts and design interface with making. In addition to running summer camps at DHF, she also led some outreach programming that ran into a number of challenges. That experience revealed to her how supported she felt at DHF – by

other staff and the youth. She reflected, “There’s so many people here. Even the youth who are ready to problem solve and figure it out together, whereas when I was there I sort of realized, whoa, I’m way more alone than I normally am, and it made me very conscious of the community that’s here and how beneficial that as to learning.”

Caitlyn is a former PreK-8 art teacher who oversees the Elementary Programs. She loves the mix of materials on hand for kids to explore at DHF, but often thinks about semi-structured ways for them to play. For example, during a “Brain Break” during her camp, she allowed kids to play with Minecraft, but only in creative mode with the motto, “Be constructive, not destructive.”

## A peek inside the program

On one side of the hallway, nine young kids are working towards creating their very own 3D printed toys. The week has involved working with legos, lots of drawing and learning to use Tinkercad before making their final product. Caitlyn walks the room, looking to see if kids have their hands up or a red flag up on their computer that tells her they need help. She’s relentless in her encouragement. One boy asks for help while she’s on her way over to another kid. “I’m going to have you struggle until 1:52,” she says, pointing to the clock. “I’m going to let you figure this out. I know you can do it.” The boy nods and turns back to his computer. Another child interrupts her. “Why don’t you ask your friend for help?” Caitlyn suggests. As she settles down next to the child she’s been trying to reach, she notices that the child is looking defeated. “I hear a frustrated sigh. Is this harder than you wanted it to be?” The child nods and Caitlyn gives her shoulder a squeeze. She helps the child make the image on the screen longer. “What’s your next step? Do you want me to walk you through the next one?”

Meanwhile, on the other side of the hallway in a much larger classroom, there is less need for an instructor’s help but just as much engagement and persistence. In the VectorFab course, an older group of kids work independently on building their own maze using the Inkscape software to map the route. Mary is there to support, guide and remind them of what their work is for the day. Projected on the screen Mary has posted the tasks for the day: “Finish assembling cardboard creatures. Finish designing our mazes. If time, finish previous projects.” As she moves around the room, the kids try and test their limits. “Does it have to be a maze?” one girl asks with a slight smile. “Yes,” Mary responds. “But what did you have in mind?” The girl smiles and shakes her head. The youth have access to templates and instructions in an online forum for the class, so as the students have increased their comfort with the software (this is the beginning of their second week in the camp), they are mostly self-paced. They are all working to have their mazes laser cut by the end of camp.

## Sustaining their maker program past summer

Since Digital Harbor operates making programs year-round, summer is a time to test out year-long content and give participating staff that extra investment and responsibility. After the summer of 2015 their Maker Corps Members both took other positions, which had an impact on the organization and their program’s momentum. Steph reflected, “We felt this gap and this loss, at the end of the summer, like wow, they were amazing people and we put a lot of stock into them and training and effort and interest in what they were doing and what they were bringing to the table, and it was all phenomenal and high quality and awesome. And then at the end of the summer to just like, lose them, felt- felt like a really big loss.” In 2016, Mary and Caitlyn, who were already employed at DHF, were offered the Maker Corps role and have continued to work at DHF.

## Learning from Maker Ed and the Maker Corps Community

Steph and Jonathan have continued to participate in Maker Corps because they believe that the professional development for them and their Maker Corps Members, and connections they gain are invaluable.

**“We’re a really small staff, and so for us to put together professional developments internally, takes.... there’s just so many things that everybody’s doing, and so many hats that everybody’s wearing that I feel like any opportunity where we can sort of tap into what we know is high quality, and going to do a good job, where then we don’t have to fill that gap, like that just makes sense to us.” – Steph, Digital Harbor Foundation**

Mary was excited to be a part of the online community, and shared things she had learned with the rest of the staff. She also enjoyed the hangouts, especially those she could join live. She noted that the generosity of other sites to share their experiences made her also want to share back with the community. Even when sites aren’t similar, Mary felt like she could learn with other members. She said, “There’s some common ground and that we’re all trying to figure out how to get more kids in our spaces...” However, she has found making meaningful connections online a challenge. Dreaming big, she said, “I think that in an ideal world where everybody has infinite time and resources finding ways to actually be able to visit, like for Maker Corps members to actually be able to visit other Maker Corps sites, would be super, super useful, because I think that that’s one of the things I’ve learned here, maybe more than anything else is learning through experience, and learning on your feet, is so, so crucial.” Mary wondered if one way to help foster connections would be through smaller communities of Maker Corps sites centered around a specific issue or challenge. She felt that because each site’s context varies, it can be hard to say that something that works in one place will also work in another, but to have the support to discuss strategies to address a shared challenge would be helpful.

## **Outreach and Collaboration with Community and other Organizations**

DHF has become well-known for their approach to technology and maker education locally, within the state of Maryland, and even nationally. Locally, they have made partnerships with multiple school districts, libraries and out of school networks. Nationally, several other Maker Corps sites mentioned them when talking about other places that they looked to for inspiration for project ideas and ways to talk about maker education. The approach to collaboration and outreach at DHF is a combination of selflessly sharing out what works for them, curiosity about what works in other settings, and a real spirit of “we’re all in this together.” Working with other organizations to extend their reach beyond the Tech Center helps them reach more youth and educators, and informs their programming by learning from other people, places and contexts. As Mary noted, “Everybody here tries to look beyond themselves and often as an organization that means looking to other organizations and trying to find ways to partner with people who are also trying to accomplish things that are bigger than themselves.”

While there are a few other technology or maker youth programs in Baltimore, Steph and Jonathan note that there’s not much overlap – or collaboration – between those organizations. So while there are opportunities for young people in the region, those organizations don’t necessarily communicate to

one another about what their programs are about or look to help youth make connections between opportunities. This is another reason why DHF has reached out to educators and programs in the state. Steph explained how rewarding these collaborations have been, “That has been really beneficial for us, to be able to make those connections, sort of outside the silos, and like, outside the city too, right. ... So they’re coming from all over the state, we’ve had some come up from D.C. and Virginia, a couple from Pennsylvania, so, sort of this whole region is coming together and that’s been really fun to work together and support them, based on all the things we’ve learned over the last almost four years.” That feeling of fun is shared by their collaborators; below are their perspectives.

### **The Maker Movement in Baltimore**

Tia noted that the maker movement is taking hold in Baltimore, and that many state agencies are working to support one another’s efforts. She explained, “Baltimore County is really into the maker movement, in particular highlighting how Baltimore County is a manufacturing and entrepreneurial city. So Baltimore County government, they are pushing a program called Made in Baltimore County. And the library off of that, we’re doing a program called BC Makes where we’re going to highlight a variety of different, careers topics in making in the county. In particular, we’re connecting them with the programs that we offer and kind of on a smaller scale than what the county wants to do. The county is showing the large companies that exist here and the large business that have started here, but we’re saying our programs are small businesses, entre-people who came in who are coming into our branches to learn how to 3D print because they have an idea and they created something out of it and then they sold it on Etsy. Or local artists, local artists and musicians and engineers and creators who aren’t the big bang business but are smaller but what inspires them to make and create, how they got into this business, what they would tell someone who wanted to get into being an entrepreneur creating things on their own. So, that’s a program that we are starting in conjunction with the county, and ours is called BC Makes, Baltimore County Makes. And we’re definitely tying in maker programs with that.”

<https://www.baltimorecountymd.gov/news/baltimorecountynow/made-in-baltimore-county>

<https://www.youtube.com/playlist?list=PLYAZPzI77odrB8TBCEizC4ZvQ7NvgRoGf>

### OTHER TECH/MAKER YOUTH SERVING ORGANIZATIONS

Future Makers: <http://kidsmakethingsbetter.com/>

Code in the Schools: <http://www.codeintheschools.org/>

*DHF hosted Code in the School in the Tech Center as they piloted their program and got started. The organization focuses on computer coding and programming.*

### **Baltimore County Public Libraries, Tia Jennings, Youth Services Coordinator**

<http://www.bcpl.info/teen>

Tia Jennings oversees the youth services programming and staff in the 19 branches of the Baltimore County Public Libraries (BCPL) knows that the role of libraries is changing. “Libraries aren’t just books anymore,” she said. “And the ability to have a service that anyone can walk in the door and try it out,

and if you don't know about it, we'll sit down with you and work with you and teach you how to use it. Especially because I'm in the youth services department, I think maker programs are great for kids because I always think like the jobs they're going to apply in a couple of years don't even exist." Making and using technology is a part of the BCPL's strategic plan for the next two years

Tia is trying to have making programs available at all of the branches and sending librarians to trainings at DHF has been key to growing their capacity. She knows their trainings to be high-quality, but she also appreciates their willingness to create trainings customized for her staff.

She said, "What I like best is that I'll describe to them what I think our branches are asking for, and they'll create a training around it. Digital Harbor has been great to kind of meet us where we are." This year she sent two librarians from every branch to DHF to receive training in technology and maker programming, with the expectation that those librarians would train others at their branches. Tia was equally impressed at how DHF's staff reached out after the training to check in with all the participants. She shared, "They are really good at following up with everyone who participated in the training and asking them what worked, what didn't work, what they walked away with, what they'd hoped for, how they're implementing any of the information. So they called everyone in that training, and that was like forty people at least." Tia said this made her, and her staff, feel like a part of their network and deepened their collaboration. Tia herself was a little hesitant with the approach at first, but working with DHF gave her the confidence to take it on. She reflected, "I was a little hesitant to try things, but Digital Harbor definitely made it more comfortable. [They told me] its ok if you fail, just try it. That's what the maker, that's what it's about."

For the library system, an organization with a mission of serving all people with free and accessible resources and programming, the maker philosophy in the way DHF advocates for it, was incredibly complementary. Tia continued, "And I love their philosophy of, everyone – oh this isn't good – everyone, this is accessible to everyone. How, they want to make it accessible to everyone. And then saying anyone can do this, babies can do this, older people can do this. Anywhere, any time. And like, you're already making; you're already making things. Are you cooking? You're making. Are you sewing a button on? You're making. So they normalize it. Makers is such a high thing, like you have to be super smart to use this technology. No actually, making can be a lot of different things and we're all makers. Everyone has access to making; what you do with it, how you continue to grow with it is the actual, the bonus. Like when you find that thing that you made and you're like, Oh that felt really good and then you continue and build on it, that's what's fun. That's what I'm looking for." The two organizations have plans in the works to extend their impact by providing maker kits for patrons to check out.

**"I feel like they're just innovative and open and wanting to get the information out, get the technology out of their doors and into someone's hands." – Tia, Baltimore County Public Library**

**Baltimore County Public Schools, Nick Schiner, Office of Innovative Learning**

<https://www.bcps.org/digitallearning/LearningProjects/>



Nick Schiner coordinates teacher learning and student opportunities in the Office of Innovative Learning for the Baltimore County Public Schools and says that no other organization he has worked with provides the type of maker education professional development like DHF does. The district is relatively new to having maker education be a focus of their efforts, but they have signed on to the Digital Promise and Maker Promise, created a mobile innovation lab with an HP Learning Studio. Nick describes, “We’ve had pieces and pockets of it [maker education] going on for a really long time. Digital Harbor really has been probably our strongest educational partner in terms of helping us craft what our vision is for it and how we can make it possible and meaningful in all of our classrooms. So I know for a fact that after we left that, we did a two-day training in June with 15 to 20 people from Baltimore County – different schools, different levels – some elementary some secondary, and a number of them reached out afterwards to say how valuable the experience was.”

Nick has found working with DHF helpful not only in getting his educators the professional development they need, but also supporting him as a resource teacher and as a maker advocate. He said, “Really where our relationship with Digital Harbor has been helpful is that, while I’m extremely interested in the Maker movement and I had a good baseline knowledge around it, I did not have a full understanding of exactly what that was. I would argue many people in the district didn’t. Because it’s kind of this ambiguous term, ‘maker,’ and working with DHF, they clarified is that there really is no clarification. Making is making, it is the process of creating and for producing something, so that was actually really helpful and liberating because I realized that it didn’t have to be this really narrow- oh you’re doing 3D printing and you’re doing textile work, and woodwork and all that- that it can be computer programming, and that it can be graphic design. So, working with them has actually opened up the number of possibilities and also that in turn has really kind of lowered the barrier of entry for all of our schools.” As a public school district with varying amounts of resources and expertise, knowing that there are many ways to develop a maker experience for youth – high tech and low tech – is fantastic, Nick said. It’s also something he feels like he would not have realized without DHF’s guidance.

Nick stressed that DHF is an excellent guide and partner – that they share common goals to get kids excited about making and technology but need to work together on how to figure out how to do that. He noted how whenever he has questions he goes to them first, and when they don’t have an answer, “they’re willing to go on that journey with you.”

**“Shawn and Steph and Jonathan are incredibly approachable, and they just have such a good understanding of it while also acknowledging that it is a journey for them too and they’re growing and they’re learning, expanding their knowledge. Just having a partner like that, they’re not there to sell you on any one thing. They’re just there and their passion bleeds through. And that in turn I think increases buy-in for even those who weren’t sold on it or they were sold on it but really just didn’t see the implications. That’s been hugely beneficial for us.” – Nick, Baltimore County Public Schools**

While there’s no current requirement that BCPS educators integrate making into their classrooms, it’s an approach that Nick hopes gains momentum in the schools because of all the benefits he has observed: genuine collaboration among students, deeper engagement into topics, and more



participation by more students. He believes that by integrating making projects into every unit, including developing a physical project will be a reinforcing experience of the content area. He described observing a classroom of students with behavioral issues work together to program a Sphero to transport an action figure using recycled materials: “The principal said that she had never seen that group of kids engage in work like that and persevere, and fail and not shut down, and iterate, and talk to one another. She said it was one of the most remarkable things she’d ever seen, because those are typically- those kids in that particular class are the ones who shut down when they run into any sort of trouble. [They] try to avoid eye contact and conversation whenever they can and for that hour, you would never know that. You would have *no idea*. So when I see that in the classroom, that’s the data I need. When I see that, that’s what I need- that really shows they’re engaged, they’re invested and they’re ready to learn.”

### **Maryland Out of School Time Network, Ellie Mitchell, Director**

<http://mdoutofschooltime.org/>

Beyond their own walls, DHF also works with the Maryland Out of School Time Network (MOST) as a provider partner and training for their educators. In recent years, MOST has committed to enhancing their STEM programming by partnering with DHF on two initiatives: creating a STEMbassador Learning Community<sup>2</sup> of 21 educators that received professional development from DHF and developing a digital badging system<sup>3</sup>. They are also partners in the BmoreSTEM ecosystem initiative<sup>4</sup> and Ellie Mitchell, Director of MOST, also serves on the DHF board. All of these collaborations emerged organically as STEM became a bigger focus in formal and informal education in recent years. According to Ellie, DHF has been the organization to show other organizations, funders and policy makers how STEM programs can be successful. She said, DHF “was a model, go-to space in the afterschool school time arena where we could showcase young people, particularly older younger people who were doing really cool stuff.”

That “really cool stuff” was supported by excellent educators, educational pedagogy and youth programming features. Ellie is an advocate for program evaluation, both to improve programming and document impact. As such, she uses the Youth Program Quality Assessment<sup>5</sup> and the Dimensions of Success observation tool<sup>6</sup> with her programs and the STEMbassadors. Early on in their partnership, she connected with DHF staff about their shared investment in program evaluation and interest in reframing conversations about what can be achieved by out of school time programs and demonstrate that to funders. She added that DHF has been able to demonstrate that youth are developing skills and confidence which is a precursor to helping them in college and careers – an important message for funders to hear. “Digital Harbor is kind of a place where you can go and whatever you can kind of think of, it becomes a possibility.” Ellie concluded. “And this is I think, unique.”

## **Building their maker program**

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<sup>2</sup> [http://mdoutofschooltime.org/initiatives/stem/stembassador\\_learning\\_community](http://mdoutofschooltime.org/initiatives/stem/stembassador_learning_community)

<sup>3</sup> <http://www.digitalharbor.org/badges/>

<sup>4</sup> <http://bmorestem.net/>

<sup>5</sup> [http://mdoutofschooltime.org/initiatives/youth\\_program\\_quality\\_assessment](http://mdoutofschooltime.org/initiatives/youth_program_quality_assessment)

<sup>6</sup> <http://www.pearweb.org/tools/dos.html>

Despite its young life, DHF has accomplished an incredible amount in four years. “Their trajectory was a slingshot,” Ellie said. “And I think that now the growth is going to be slower.” Steph and Jonathan agree. They feel that currently they serve about as many youth as they comfortably can in their space, but they are working to increase their work with educators, as maker education has become part of the educational landscape in Baltimore. Steph said, “I can remember the first year with Maker Corps and sort of coming in and being like, ‘Wow! These places in California, like, they know their stuff, they’ve been doing it for a long time, they’ve already figured out so much.’ And now it’s starting to be like, we sort of rode their coat tails for a little while and learned what we could from them, and now it’s here, it has arrived in Baltimore. Some of the local school districts are signing the Digital Promise, and signing the Maker Promise, and they’re saying like, ‘You’re gonna have Makerspaces in your libraries and every school. So what does that start to look like?’ We’re really grateful and excited to be a part of some of those conversations, and be working with the educators.”

One of their strategies to extend this work was to establish the role of a Maker Teacher Fellow, and invite Scott Delloso a Middle School Language Arts Teacher at Perryville Middle School to figure out what that role could be. Scott met Shawn and Steph at a Maryland educator conference where they demonstrated some technology. Scott is a team leader for Destination Imagination (DI)<sup>7</sup>, an organization that hosts annual challenges for groups to creatively problem solve. He was curious about how a 3D printer might help his team. “From the start they were incredible. They were like, ‘Us! We will help you! You don’t have to go anywhere else.’ And so, the first thing we did is, they actually came to my school,” Scott said. “From there, the relationship just sort of started to grow. Two of the kids from that original DI team, who are now juniors in college are going to be working for DHF over the school year. I’ve continued to have a great relationship with them. I’ll be like, ‘Okay we want to learn about Arduino stuff, let me bring a group in.’ They’ll be like, ‘Hey, we want to know how such and such will work in the classroom, like, can you try this out?’” Their relationship is reciprocal – he tries things out for them in his classroom and they provide him with ideas and support.

Scott’s inclusion of maker education approaches in his classroom and DI teams has been well-received but he still feels a little like a pioneer. “The response is phenomenal,” he said. “I mean, everybody loves, what I’m doing, I just don’t know how... there’s just no initiatives that are coming down, like, that are really enforcing this. ... I feel like it’s coming, but I feel like it’s taking longer than it should.” This year, Scott’s principal has given him a second classroom to open a Makerspace, which he will lead and work with other teachers. His DI teams have grown so large that other teachers now lead three different groups, and Scott will act as coordinator for all the teams. The Makerspace will start as a drop-in program for students and then incorporate badging. Eventually he wants to offer teacher badging. He said, “So that’s how I’m gonna get it *in* the school program. I’m gonna start with afterschool thing, get our feet on the ground, get teachers trained.”

As part of his Fellowship with DHF, Scott has been contributing his thoughts about the similarities and differences between informal and formal maker programs on DHF’s site for educators, <https://blueprint.digitalharbor.org/>. Over the summer he posted his Maker project rubric, which he had tested out with his own students and some of DHF’s summer students (<https://blueprint.digitalharbor.org/articles/maker-project-rubric/>).

This new avenue highlights DHF’s approach to solving challenges. Namely, partnering with other people and organizations to figure out tough problems together, documenting their strategies and

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<sup>7</sup> <https://www.destinationimagination.org/>

projects, and always applying a high level of rigor to their efforts. They are committed to improving their programs and practice to be more inclusive, especially for girls and youth with diverse abilities. Steph and Jonathan spoke about creating an all-girl cohort of their Maker Foundations program as well as the Makerettes<sup>8</sup> group, a special tech club for girls in their programs that meets to complete special projects and explore new technologies. DHF has also worked with the Baltimore OST/Inclusion Project<sup>9</sup> organized by Disability Rights Maryland to become an OST Inclusion Site. They have received training on inclusive practices and have worked to identify inclusion goals for their programs.

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<sup>8</sup> <http://www.digitalharbor.org/whatwedo/projects/makerettes/>

<sup>9</sup> <https://inclusiveostbaltimore.wordpress.com/197-2/>