

RESEARCH BRIEF 5

Open 
Portfolio
Project

MakerEd
Open Portfolio Project: Research Brief 5

MAKER PORTFOLIOS IN INFORMAL EDUCATION

Stephanie Chang & Lisa Regalla, Maker Ed
Anna Keune & Kylie Peppler, Indiana University

Portfolios in After-School, Community, and Library Programs

Informal education programs offer incredible opportunities for youth, allowing them to expand their learning, immerse themselves in new and exciting environments, and zero in on interests. It would seem that these types of environments would also be ideal for the development of portfolios, as youth are able to spend a long duration of time working on a single project or refining a set of skills. Through our field site visits, however, it's evident that, no matter what the educational setting, youth-oriented makerspaces and maker programs are working through similar challenges. Convinced that portfolios are a compelling means for assessing learning and abilities, sites are still figuring out which facilitation methods are most effective, what tools to use, and how to best capture work, work in progress, and the process of making. These informal programs do bring together groups of passionate instructors and peers, determined to set the stage for youth to learn and grow.

In combination with several of our prior research briefs, this particular brief concludes the snapshots into the 10

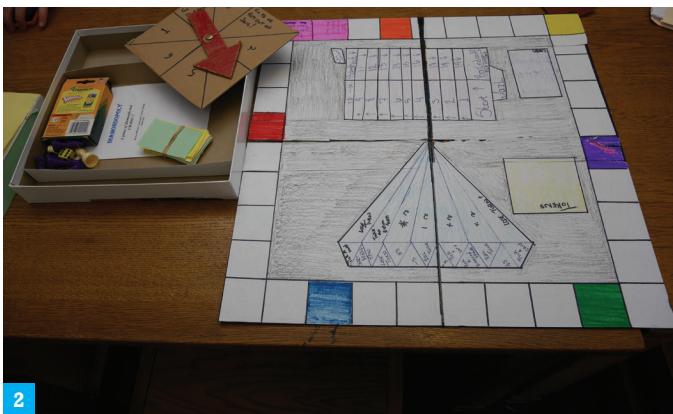
field sites that participated in our Open Portfolio Project research. In this brief, we highlight Millvale Community Library near Pittsburgh, PA, Digital Harbor Foundation, a teen makerspace in Baltimore, MD, and the Bay Area Video Coalition (a San Francisco, CA, nonprofit that offers programs on digital media production)—three youth-oriented programs at non-school sites that reflect the growth and insights of their distinct communities and programming.

Millvale Community Library: Making and Shaping the Library

The [Millvale Community Library](#) is one of 10 field sites the [Open Portfolio Project](#) core team visited to learn more about the ongoing portfolio and documentation practices of makerspaces. Led by Library Board President and volunteer Brian Wolovich, the community of Millvale helped restore a former shop front into a light-flooded library and a place for youth and adults to continue to imagine, create, and transform their community. Their makerspace, where most of the library's maker programming happens, is located toward the back of the library and is accessible through the front and back doors. During our two-day visit in August 2014, young makers and adult library visitors entered the library, browsed books and the internet, and joined ongoing maker activities.

The makerspace includes large table spaces in the center of the room **(1)**, filled with playdough, hot-glue guns, hammers, and nails on Maker Thursdays, and the space is veiled in fabric pieces and textile works in progress on Fiber Fridays. Other themed days include Bike Tuesday, when all bicycle-related projects are tinkered with, and a gardening and crafting theme on Wednesdays. The shelves and closets along the walls are filled with books, circuitry blocks, games, fabric scraps, bicycle pumps, yarn, jars with consumables, and works in progress. A colorful glass mosaic of flowers leans against





2



3

the fireplace, and the cement on the floor next to the fireplace creates one of many impromptu workspaces for projects in progress. Much of the work in the library is in progress and continues to be shaped in collaborative efforts with the youth makers.

The projects in progress and their provisional workspaces are a predominant part of the documentation at the Millvale Community Library makerspace. A wooden sign with illustrations of tools, including pliers, a hammer, and scissors, is leaning against a bookshelf. Through small projects like this, Maker Corps Members, who are summer staff trained by the Maker Education Initiative and working on-site at Millvale, are hoping to disseminate some of their learning and teaching into the space to lend support even after their summer engagement.

During our visit, we learned about the unique process behind the design and development of the board game “Diamondopoly” (2). Initially a brainstorming exercise over the course of two weekends, library visitors were asked to come up with board game ideas and rules and write them on sticky notes, all added to a larger poster. The ideas and rules were compiled by a team of maker educators and youth, and an oversized game board was created. After a few rounds of playing the game, one of the female makers, who recently turned 18, decided to translate the game into a boxed version and name the game after herself, Diamond. Since then, the game has traveled all the way to a gaming convention in

Indianapolis and continues to be developed further.

Coincidentally, when we visited, the educators and youth were in the process of conceptualizing how to present makerspace activities to parents of the young makers and to the wider Maker Education network at an upcoming local street festival. In homes outside the library, access to the internet and computer technology is limited, thus documentation of activities focused on balancing print-based media and digital practice. During our design workshop, which stretched across the two days of our visit, we curated a large collection of photographs of summer activities through an emergent practice, in which one idea informed the next (3). Children, who had innovative suggestions and initial ideas, were supported and encouraged to continue developing those thoughts through the offering of materials and further conversation. For example, as youth were browsing through the existing online collection of photographs, one nine-year-old narrated the images with imaginative and funny dialogues. We documented his comments and offered more computers so more youth could add captions to the pictures. The children also marked the pictures that were most representative of memorable making activities. We printed the captions and selected pictures at a local print shop and then spread the prints on a large table and sorted the images in relation to the themes of the makerspace schedule. Subthemes, such as mosaic making and rainmaker construction, were conceptualized as tags and hashtags for loosely connected online portfolios that would span across the existing Millvale Library channels, including social media, blog, and photo repositories.

Much of the documentation was also intended to enhance the greater library space, showcasing the activities of the makerspace through posters displayed in other parts of the library. The poster was constructed on oversized cardboard, blending leftover materials—including fabric, wood, and mosaic pieces—with printed photographs and handwritten youth maker captions.

Through this collaborative practice of commenting, sorting, tagging, and simultaneously working across digital and print media, we noted key design ideas that portfolios would need to have in order to work in the Millvale Library: equal access to the photo repository for all collaborators; the ability to sort pictures as a dialogical process of constructing categories in collaboration; audio recording and drawing features for very young makers (who cannot yet read and write) to record and leave comments; a common account through which everyone can contribute; the ability to show processes and practice, for example through animated GIFs; and the use of paper journals and sketchbooks as repository of ideas.

The field site visit to the Millvale Community Library informs our thinking of emergent portfolio and documentation practices and uniquely presents the role

that works in progress and participatory engagement may have on shaping the makerspace. We generally think of libraries as drop-in spaces, and to some extent the Millvale Community Library makerspace is, because it is open for extended amounts of time and visitors come and go, often several times per day. At the same time, the visitors at Millvale also return frequently and can therefore work on projects over a longer period of time. In this sense, this grassroots community space is unique and can broaden our understanding of what it means to support portfolios in drop-in makerspaces.

Digital Harbor Foundation: Designing Expectations to Tackk

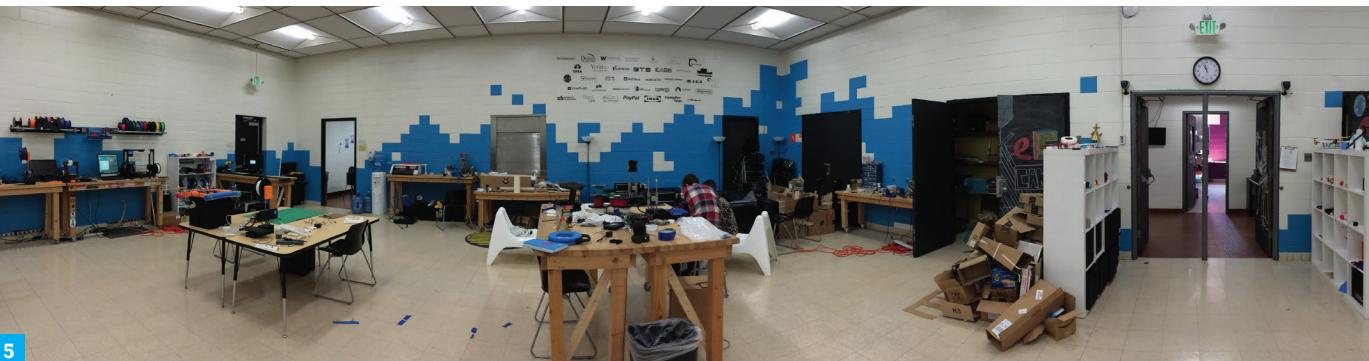
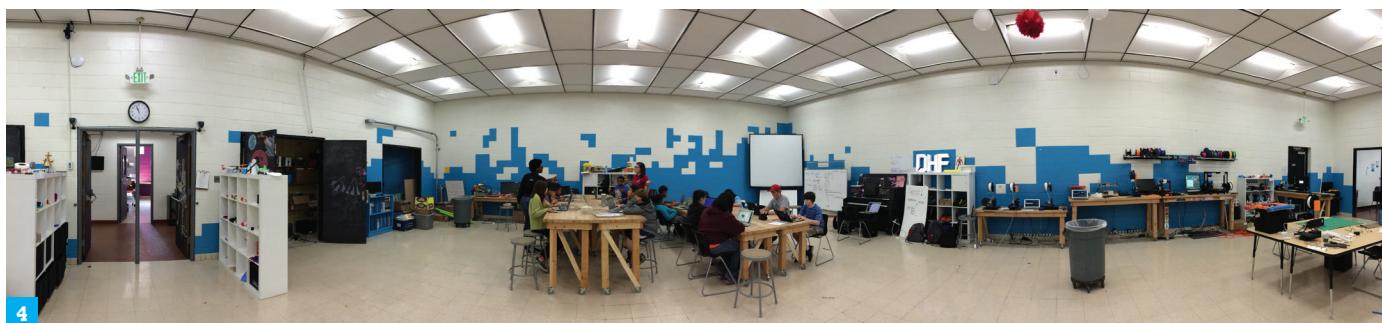
In July 2014, one of the first field sites the Open Portfolio team visited was [Digital Harbor Foundation](#) (DHF), a youth tech center located near the Inner Harbor of Baltimore, MD.

In transforming an abandoned Baltimore City Parks and Recreational Center into a space for youth to make and learn, DHF has provided not only a physical location for making but also a close-knit community of youth and families who share skills, stories, and inspiration. Digital Harbor's main lab area is a big open room, filled with a mix of tables, stools, couches, and workspace (**4 and 5**). Its perimeters and walls are lined with tools (e.g., an array of 3D printers), consumable materials, student projects (whether fully finished or still in progress), and whiteboard sketches. When we visited, half of the room was full of summer campers focused on their Tinkercad creations, while in the other half, youth members and staff mingled, diligently working on their own projects.

During our two-day site visit (much of which was centered around observations of the Mega Lab 3D printing summer camp for middle and high schoolers, as well as a series of conversations and participatory design workshops with both staff and youth members), we were struck by the online tool that campers were using to document their 3D printing camp week and projects.

Digital Harbor has been thinking carefully about portfolios and documentation for a while now. They've prototyped numerous platforms already, having tried WordPress and Evernote. At the time of our visit, their year-round youth members and summer campers were using—with much success—an online tool called Tackk. Campers took photos and screenshots, wrote and reflected, and posted paragraphs daily about their individual projects to the group website for that week's 3D printing camp. Camp counselors set expectations for campers to Tackk (a verb now!) at the end of every camp day. The interface is simple but customizable; youth mentioned that it's easy to use and, importantly, the sites look good. Periodically, campers looked at the project sites of fellow campers, and some even tracked the number of views they were receiving. Youth were encouraged to work on their Tackks and projects outside camp as well, setting a precedence for open development. Daily posts also innately showed the progress of and process behind visible project work—an automatic processfolio of sorts.

These observations, conversations, and participatory design workshops revealed a plethora of factors that both youth and staff deem to be critical for any portfolio tool or practice: visual appeal, simplicity of use, open and easy access, automated means of documentation,





regularity of posts and reflection, individual and collective identities, and automatic feedback. Their actions also showed how they best interact and respond to the task (or opportunity) of documenting their work, whether in process or as a finished product. These features are critical pieces of our research into what and how people capture for portfolios.

Bay Area Video Coalition: Portfolios for Self and Others

The Bay Area Video Coalition (BAVC), located in the Mission neighborhood of San Francisco, has been inspiring and guiding the community through digital media production for almost 40 years now. Their *Next Gen* programs, serving predominantly underrepresented youth, provide teens with both the hard and soft skills to pursue their interests and potential careers in digital media production. The *Tracks* program brings students to BAVC (6) twice a week after school throughout the entire academic year. Each month, special workshops related to public speaking and resume building, field trips and panels for industry exposure (including college campus tours), and the like are also offered to build up the nontechnical leadership skills needed for any future career.

At the time of our field site visit in September 2014, the *Tracks* afterschool classes were just starting, with instructors and students mostly focused on getting to know one another and the introduction of technical skills. *Tracks* include classes like G:URL Gamers, Sound Bytes: Beginning Audio, BUMP Records (Advanced Multimedia for Musicians), Reel Life: Beginning Video, and The Factory (Advanced Teen Filmmaking) (7 and 8, following page). No matter which track, in each class students are required to present their end-of-program portfolios at a final showcase and encouraged to pitch and complete a paid social-action project over the summer.

With so much experience facilitating the design and development of youth portfolios, it was no question

that BAVC's insights are critical to Maker Ed's Open Portfolio Project. All makers consider the sharing of their work to be an integral component of their work overall, and digital making is no different. What is different—and enlightening—are the perspectives that BAVC's instructors bring to the conversation. Most of the Next Gen program instructors and TAs are female, a diverse group of talented professionals with backgrounds and expertise not only in youth development but also in the digital media areas they're teaching. Each spoke to the challenges and approaches of creating and curating their own portfolios of work, all of which informs their students' processes, too. Having qualified women in these roles serves two very important purposes, among others: it situates them as strong leaders and mentors to the youth they teach, and it counters the societal status quo that fields like film, music, and video game design are dominated by men.

Over the years, BAVC instructors and students have experimented with a number of platforms, everything from [Pathbrite](#) to [WordPress](#), [Behance](#) to [Wix](#), [Tumblr](#), [Carbonmade](#), [SoundCloud](#), [Bandcamp](#) and [Vimeo](#). Some platforms are more popular than others, some easier to navigate than others, and some are simply better suited for displaying certain types of media, such as audio or video. The instructors, when asked about their own portfolios of work, reflected the diverse platforms, but more importantly, they brought up a few other key considerations that superseded the debate around best software. Those thoughts resonated throughout our conversations, coming through time and time again. They were:

Youth—and all people—must consider how their identities are presented to the world: for what audience, with what intention, and with what control over their image, reputation, and personal information.

A **portfolio** is useful not only for archiving work but also crucial for self-development. It takes skills to build and maintain, develops fluency in representing oneself, and



shows ability, voice, and work ethic.

When asked why youth should create portfolios, an abundance of thoughts, drawn from personal and professional experiences, surfaced. Instructors called out that, in today's digital age, it is particularly important to control—and curate—one's own identity and work for display. Having an online presence is an opportunity to create a brand, build an aesthetic, and contribute work to share with the greater world. These perspectives also allow youth to step beyond the classroom, for their work is important outside a grade or a teacher's judgment. Portfolios are also a way for youth to show off their skills, whether technical or soft skills. Portfolios may show a professionalism beyond the norm, even confidence in one's own work. A single project or artifact might prove that a student has completed something from beginning to end and can demonstrate their process and skillsets.

It's easy to explain why portfolios are important. It's less easy to actually facilitate the creation of them. The BAVC instructors talked through a number of challenges that they (and the rest of the field) ponder on a daily basis. Finding hosting is difficult, especially when they need portfolio platforms to be accessible, digital, flexible, and free for the youth they're serving. Platforms need to accommodate different kinds of media; they need to be stable and not disappear when the tech company is bought out; they need to have archival functionality. BAVC often receives calls from past students who ask for an old media file, but a community organization cannot keep every audio or movie clip from every student. In a perfect world, a portfolio should be owned by its creators, be linked across platforms, be able to exhibit a group identity, and even credit the organizations and mentors that contributed to its development.

Lastly, when asked about whether—and how—the process of making should be captured in portfolios, the instructors hesitated. Almost all agreed that the process students go through to reach the final product is crucial. Specifically, one instructor noted that process should be emphasized, if for no other reason than to show

that ideas do not come out fully formed and perfect. Nonetheless, the instructors debated the best way to show that process. With digital tools and digital media, does it make sense to save versions of UX designs, solely for the purpose of showing process? To someone unfamiliar with filmmaking, will rough cuts reveal something useful? One asked, "When is something just an exercise or actually a portfolio piece?"

We concluded with a half-satisfactory answer: If an important aspect of portfolios is the presentation of work, it is certainly possible to present process with a level of professionalism and sophistication that shows evolution and self-awareness. Students who design and create a portfolio are able to reflect on their own work and become comfortable explaining and showcasing what they do. With growing confidence, they have the opportunity to demonstrate their skillsets and insights to peers, mentors, and adults. And those actions increase their advocacy and ability as entrepreneurs, employees, or academics. Portfolios are both for oneself and for the world watching.

Discussion

Across these site visits a pertinent question has arisen, one that relates back to a key point from our original research brief: What do we hope to show through documenting the process of making? We assume that design sketches, prototypes, and mistakes will reveal learning that is not innate to the showcase of a final, refined product. A pile of raw materials, or a woodworking project that is tacked together, can be photographed and shown as a step in the process. However, a half-baked audio track or unedited film, as part of digital media culture and expectations, is less likely to be shown or highlighted. In these latter scenarios, are there other artifacts that reveal the same type of learning? Or will processfolios change those norms?

Sites are exploring different ways of documenting process—the struggles, iterations, and successes—with software and hardware tool platforms, with variations on facilitator prompts, and with designed spaces that help to automate documentation. These practices, as they are implemented and improved, contribute to the growing knowledge of the community and collectively may answer that key question.

Acknowledgements

The work of Maker Ed's Open Portfolio Project is made possible by generous support from the Gordon and Betty Moore Foundation. We also thank the members of the National Working Group, who provided constructive comments and valuable insights to our work.