Demco IDEAS & INSPIRATION

How to Create a School Makerspace Webinar Q&A Log

Questions from live Demco webinar, as answered by Nick Provenzano, technology coordinator and makerspace director at University Liggett School in Michigan

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Q: What are some of the safety tips to consider in a makerspace? Are there any certifications that teachers need to able to teach students how to use power tools?

A: The age of the students using the space always needs to be considered when furnishing your makerspace with tools. In the space at my school, students in grades 6–12 have access. The one standard rule is that power tools cannot be used without adult supervision. I'm lucky to be in a space that has the room to allow for a separate space for the power tools, so it is easier to manage. The middle and high school students have been very respectful of the rule.

We also give every student a tour of the space with the classes at the start of the year. This allows me to go over the safety rules and procedures. Teachers are with them, so they can see how the space is run as well.

As for certifications, we do not have anything in place to prevent teachers from using any of the tools. We have a common-sense approach for the adults using the space: Don't use tools you do not know how to use safely. That has worked so far. I would check with the appropriate administrator in your school or district to see if there is anything on the books regarding power tool use.

Q: How can I get middle and high school students on fixed schedules to participate in the makerspace?
Q: Do you have suggestions about how to utilize an "open makerspace" with a fixed library schedule?
Q: How might I introduce maker activities when classes don't come on a schedule?

A: The best way to get the most out of your makerspace is to have project-based learning integrated into the curriculum. Students who have an opportunity to demonstrate understanding through the creation of projects will use the makerspace more often than those students creating the same cookie-cutter projects the rest of the class is making. Those fixed schedules make it tough to get to the space, but if teachers are designing lessons that allow for project creation, getting to the makerspace is much easier.

An open makerspace is a great thing to have in a library. This allows the free flow of students throughout the day, so they can stop in and tinker or work on other projects. Identifying the space and talking with students about the types of tools they like to work with is a great start for an open makerspace. The space can be out in the open and use regular library tables. Sometimes, just setting out some crayons and coloring sheets can get students to sit and create.

Getting students into a makerspace is always a challenge when classes are not using the space for projects or other work. I have found that having ready-made makerspace projects that students can dive into helps. Getting the word out through school announcements and getting teachers who are supportive of the space to nudge students into the space also helps.

Ultimately, the best way to do this is to talk to students and teachers to find out what they are interested in and what would bring them into the space to work. Learn more about this in my blog post "How to Get Students and Staff Excited About Your Makerspace."

Q: What ideas can you share around scheduling and promoting the makerspace?

A: Co-planning with teachers to have students create artifacts that demonstrate understanding of a specific part of the curriculum is the best way to get students into the space. Having small windows of dedicated maker time in the library is not particularly helpful, especially if they are not consistent. An open space that allows for students and teachers to drop in and make is more productive.

You can also hold maker competitions and get the word out to teachers to encourage their crafty students to come to the makerspace and create. Partnering with the art department is another great way to engage students and teachers in the space.

Q: How can I manage large groups of kids (up to 40) in the makerspace at the same time?

A: Depending on the age group of these students and the tools that are being used, a group of 40 should not be supervised by one adult. Making with that large of a group needs to be a joint effort. Hopefully, a teacher's not dropping students off for maker time and leaving. That teacher should be there to support the leader of the makerspace and to learn about some of the tools to inform their instructional practices.

If that can't be addressed, then your goal should be to find interesting things for students to work with so that they stay out of trouble — students act out or cause issues because they are not engaged.

If the students are down there for a specific project, make sure there are enough supplies for everyone and that directions are clear. Identify students that can help others who get stuck on their projects.

Q: What ideas can you share on how to use the makerspace in after-school programs?

A: After-school programs are a great way to engage learners. The design of the program really depends on the types of things the students want to explore. If the students love Minecraft, run a Minecraft camp in the makerspace. If they love electronics or coding, run a Raspberry Pi club. Programs like these need to be created based on the feedback from students. Each makerspace created needs to be tailored to the needs of the students and flexible enough to evolve as the students' wants and needs evolve.

Q: How do you get teachers to think outside the box and utilize makerspaces with their current curricular demands?

A: This is always a tough one because this is about institutional change. I always suggest that you find that one teacher who is willing to take risks and try new things. If you have more than one — great! Let them be the cheerleaders for the space based on their usage. Ask for time before a staff meeting to share some of the success stories from using the space and let staff members play and interact with some of the tools. Some teachers' interest will be piqued and they'll want to start using your space; others will never get on board. Don't stress about the teachers who don't want to change. Focus on the ones who are excited and leverage their excitement to encourage the teachers on the fence.

Q: Should there be a process of design before students freely create in a makerspace or just let them go at it?

A: Every maker is different and their design process will look different. I encourage students to take time to jot ideas onto paper or dry-erase boards so they can look at them from a different perspective. Sometimes, they need to skip the design stage, fail, and then realize the value of the design process. I do not have a hard-and-fast rule for creating. I do not want to discourage anyone from making because their making process doesn't match what I believe the process should be.

Q: What recommendations do you have for a district-wide makerspace? Is there a way to make it successful? How should I write the makerspace vision and sell the idea to the entire school?

A: If by district-wide makerspace, you mean one space for an entire district to use, that may not be the best idea. If the makerspace is placed in one school, that is the only school that will really use it. If it is placed in a central office building, it will not be used often. Making needs to have

very few, if any, barriers. Students should be able to pop in and create. Teachers should be able to take a class down the hall to work on a project. Leaving the building for a project is just too much of a hassle for teachers. I personally do not see how you could make it effective unless there is a set class that will use the space every day. Creating a travel schedule to get to the space that includes buses or other transportation does not seem like a viable plan.

When writing a vision for a makerspace in a school, you should focus on exactly what teachers are already doing and how a makerspace could support them. Talk to teachers and see how certain tools might change their lessons. Talk with students and see if there are items that might support their learning. You want to approach it in a way that shows you can offer support and that it doesn't require wholesale change. People will be scared away if they think you are asking them to change their work, but if you offer support for what they are already doing, you are sure to interest them.

Q: When did you start planning? How long did you need to be ready to open?

A: The sooner the better! It is never too early to start planning. Have conversations with students, teachers, parents, administrators, and anyone else that might have some thoughts on the space. Visit schools, attend conferences, sit in on webinars, and reach out to whomever might have information on starting a space. Gather all of the information you need to help create an informed opinion on the space you want to create at your school.

How long you need depends on what you have available to you when you start researching. If you have a space and some money, you can get started in a couple of months. If you need construction and are waiting for grants, it might take until the start of the next school year. Every space is different and will require its own nuanced timeline to get up and running to support learners.

Q: What is a reasonable budget to start a makerspace?

A: I can't give a number here. A number will turn some people off because it is too much and others might find it too limiting. What I can say is that you need enough money to support students and teachers as they explore what it means to create something to demonstrate understanding.

The tools of a makerspace do not have to be high tech. They can be cardboard, yarn, and duct tape. They can also be 3D printers, CNC machines, and design tablets. Every school needs to come together as a community to find the best way to build their space and then support it each school year. It is not an easy task, but it is important to think about the long-term plan for your makerspace. If you have a couple hundred dollars and add some maker tools to a table in the library, you have a makerspace. Do not let anyone else's makerspace define yours. Every makerspace is special because it is the perfect one for your community.