# Maker Corps Case Study

## REM LEARNING CENTER

By Alice Anderson, Science Museum of Minnesota

Situated in the shade of palm trees in the Miami, FL area, the REM Learning Center serves children aged 12 months to nine years. The hallways and classrooms of the REM Learning Center look like many other high-quality child care centers. Pictures of kids and their teachers line the walls, artwork brightens every corner, and windows reveal colorful and well-organized classrooms. But tucked at the end of a long hallway you will come across a room rarely seen in a child care center; the Play Make Share Studio. In this room, the "toys" are tools and the "play" is open-ended creative work. Teachers become helpers and children design, build, and decorate whatever they dream up.

The *Play Make Share Studio* is the vision of Ryan Moreno, the son of the co-founders of REM Learning Center, Rose Mary and Ramiro Moreno (the acronym REM stands for Ryan and Eric Moreno, their two sons). Dr. Ryan, as the kids call him, was a former Mechanical Engineer who later joined REM as the STEM Educator. Ryan's wife, Jacqueline, holds a doctorate in Developmental Psychology and is an administrator and oversees childhood assessments at REM. Together, Ryan and Jacqueline have designed the experience students have in the *Play Make Share Studio*, carefully considering everything, such as safety, age-appropriate materials, facilitation strategies and assessment.

> **"*Play Make Share Studio* is modeled off of a design studio type of approach. It's just a flexible space. We were finding that the classroom as it is it's more towards either academics or certain areas that are developmentally appropriate. This space was… a little bit more open ended and allowed for more creative exploration."**
> **– Ryan**

Ryan's interest and background in Engineering education led him to visit the New York Maker Faire, where he was first introduced to Maker Ed. After a year of following their activity from afar, he decided to apply to have Maker Corps Members dedicate their summer to the *Play Make Share Studio*. By the time the MCMs began in June 2014, *Play Make Share* had been open for nearly a year

and a half and Ryan and Jacqueline, along with the classroom teachers, had been experimenting with different program designs. By having two dedicated Maker Corps Members during the summer, they could increase the number of visits children had to the studio, continue to experiment with different materials and facilitation strategies, and begin to build the expertise of their staff.

## MAKER CORPS MEMBERS

The two MCMs, Barbara and Victoria, are current teachers at REM. Both are also pursuing degrees; Barbara is working on her Master's online and Victoria is finishing up her undergraduate degree. Since both were teachers at the school already, they had been a part of some of the experimentation over the year. Ryan encouraged both to apply, with the hopes that they would like to try something new and share their expertise in child development and classroom connections.

*Victoria helps a student build a creature with laser-cut wooden pieces.*

Since both Barbara and Victoria were working and in school, attending all of the Development Camp meet ups was difficult. However, sometimes with Dr. Ryan's prodding, they revisited recorded sessions. They both found the Possibility Box to be a lot of fun to explore and exposed them materials they had never used before. During the summer their focus was in the studio, but Ryan continued to reach out to other Miami-based Maker programs and searched for other Maker programs designed for preschoolers.

Because the play and making here is open-ended, Barbara and Victoria become helpers and facilitators. For both of them, this was at times a challenging role reversal from their classroom identity. While they talked about letting children play and work independently in their classrooms, the guidance of a curriculum, theme or teaching goal ultimately directed their actions. In *Play Make Share*, the experience is meant to be truly student-directed and independent. As Ryan put it, "*Really I would say that's the main goal; being able to adapt quickly to new information, new materials, new tools, and be able to incorporate them into what they feel passionate about.*" By the end of the summer, both women felt more confident and comfortable in their role scaffolding student learning in *Play Make Share*.

**"That is kind of what you want with children. You want to make sure that you're teaching the whole child how to live within a community. That's what I love about 'Play, Make, Share.' They're not all going to be engineers, that's just not going to happen, but that foundation is going to be there. It may not all necessarily go into computers or any, but the foundation is going to be there." – Barbara**

## MAKER PROGRAMMING: PLAY MAKE SHARE STUDIO

It is clear from visiting the *Play Make Share* studio that this team has designed a space for children where they are inspired, feel confident and can act independently. Children walk into the space and know the routine: wash hands, put on safety glasses and sit (on plywood chairs they made, no less) at the center table. Sometimes Ryan show them a new material or technology, but he always asks, "What would you like to make today?" Children then say what they would like to do and then go to find their materials and tools – all of which are accessible to them. Some students will sit a little longer and talk with a teacher about ideas and others will jump right in, but within five minutes the room is humming with activity.

During the summer session, students got to work in the studio three times a week for an hour each. By mid-summer, routines were solid and kids were confidently using familiar tools and trying out new ones. The students clearly loved their time there. "*As they're walking down the hall, it's the cutest thing in the world because you can see that little adrenaline going and their just excited and there's a little bounce to their step. They are so anxious that they can't wait to get there. It's almost as, I think Dr. Ryan had mentioned this, some of them are going to the playground where they are just free, free to be themselves,*" Barbara noted.

*Kids collaborate using CHERP, a programming software designed for young children, as Dr. Ryan looks on.*

## IMPACT ON AUDIENCE

The teachers at REM definitely felt that their students are learning and enjoying in *Play Make Share* and parents that we surveyed agreed. Nearly all of the 24 parents that responded to our survey knew about *Play Make Share* and had visited the studio at some point. Even those that were not familiar with the space itself knew about it because their children spoke enthusiastically about the work they did in there.

Parents saw that work as different than what happens in the classroom or at home because their children get experience with real tools, new technology, make connections to real-world ideas, and have freedom for creative expression. Many mentioned that they viewed this work as related to the essential skills of problem solving and creativity.

*"In the space their projects are more sophisticated, beyond what I thought he was capable of."*

*"My child never would attempt to make things on her own, but after attending she is very interested in creating new things and devices."*

*"I feel in* play make share *the kids aren't told how but are shown how and given the opportunity to do."*

A few students had been a part of *Play Make Share* for more than a year, and their approach to the space was markedly different. One girl wasn't sure how to make the octopus she envisioned, so Victoria suggested she draw out a plan. In a straight line, she drew all the materials and the tools she would need to use. As she worked, she checked off which steps she had completed. The teachers agreed that this sort of planning is a skill they love to see and would imagine that other students would develop over time.

*A student plans her construction of an octopus and carefully checks off each step as she works.*

**"As teachers and educators we saw that the children at the end of the year when you ask them 'Ok, come up with something,' they were a lot more elaborate in their projects, were a lot more detail oriented. They had a pretty good planning process, even for four year olds. They could tell you 'this is what I want to make, these are the types of things that I need.' They were able to do a lot of that on their own, so also the amount of scaffolding that we had to do decreased on our part." – Jacqueline**

## BUILDING ON THE MAKER CORPS MOMENTUM

As they headed into the 2014-15 school year, Barbara and Victoria helped lead a professional development session for other teachers in the type of activity and learning that happens in *Play Make Share*. This year, the team plans to include classroom teachers in their students' visit to the studio and help them develop the confidence in letting go and helping their students make. As a teacher, Barbara reflected that being a part of *Play Make Share* allows her to find balance between the more structured academic work of the classroom and the freedom and creativity that the studio allows.

Ryan and Jacqueline are especially interested in ways to assess or document the learning they see happening in *Play Make Share*. They have not found any good resources that truly reflect the planning, designing and engineering their students do. As Jacqueline explained, *"Definitely you can see it in the kids' faces, they've accomplished something that they are just empowered, they feel competent, they love sharing it with their friends. … To us, the other goal of what exactly are they learning and have their learning processes improves is where we are grappling with and have more challenges with. How do we capture that? How do we capture that little light bulb going off or how do we capture that they now understand a different process of thought that before they did not. How do we capture that they are now thinking in steps instead of 'oh look at all of these materials and I'm just going to block things together'. We haven't found a consistent way or a good tool yet to capture that outcome."*

While there is a small but growing Maker movement in Miami, each institution is working with different audiences through different programs and at different scales. Though Ryan has been in contact with MIA Made and the Frost Museum of Science, beyond sharing a goal to offer Maker programming to children, it was difficult to share lessons of "what works" because of their different contexts. And although Ryan is active in the Google+ community and the Maker movement at large, he has had little success with connecting to other providers of early childhood Maker programming in a formal school setting. The REM Learning Center is on the forefront of providing maker programming in early childhood and their efforts to document their students' work and find others to collaborate with will help develop resources for this audience.

*A student practices her soldering skills to make a button with an LED light.*