

Family Creative Learning: Engaging Parents and Children as Learning Partners in Creative Technology Workshops

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Abstract: In this poster, we present preliminary findings from Family Creative Learning, a series of intergenerational workshops for parents and children to participate in design-based activities using creative technologies such as the Scratch programming language and the MaKey MaKey invention kit. The workshops are collaboratively and iteratively designed with staff at community centers that serve families with limited resources and social support around computing. Case studies of families' participation highlight the ways in which parents and children can support each other in their learning experiences with computing.

Introduction and Background

Design-based activities with computing can introduce young people to creative possibilities, enabling them to not only *read*, or use and interact with technology, but to *write*: to create and express themselves with technology. As they create with technologies, they learn computational concepts and practices and gain new perspectives into the dynamics and processes behind the technologies they use (Brennan & Resnick, 2012; Wing, 2006). Such fluencies are essential in our increasingly digital society.

While many youth are interacting with technology, studies suggest that only some youth are engaging in design-based activities with computing (Livingstone & Helsper, 2007). Youth with social networks who can help them navigate information and opportunities to further engagement, such as parents with careers in technology-related fields, are at a greater advantage to deepen their interaction with technology (Hargittai, 2008). And while researchers have investigated the kinds of roles parents can play—from acting as resource brokers to serving as collaborative learning partners with young people (Barron, Martin, Takeuchi, & Fithian, 2009)—these studies often examine families where at least one parent has a job in the technology sector.

This research explores how to provide opportunities that support the engagement of families who have limited resources and social support around computing. This paper describes Family Creative Learning, a series of intergenerational workshops that engage children and parents in design-based activities with computing using tools such as Scratch, a programming language for children to create their own interactive media such as games, animations, and stories (Resnick et al., 2009). These workshops are designed in partnership with community centers that serve primarily low-income families of color, who have limited access to resources and social support around computing. The current study focuses on the following research question: *How do parents and children support each other in the collaborative design-based activities of the workshop series?*

Workshop Design

Family Creative Learning consists of five workshops in which parents and children engage in design-based activities with technologies. The workshops are grounded in constructionist learning theory, which argues that people learn best when they build personally meaningful artifacts in collaboration or interaction with others (Papert, 1980). Each session builds on the previous one to support parents' and children's development not only in using the tools, but working together to create projects with those tools. The format of each workshop session is split into four parts: (1) **Eat**: Families eat dinner together provided by a local restaurant; (2) **Reflect**: Parents and children divide into two groups and facilitators "check-in" with parents and children separately; (3) **Make**: Families engage in design-based activities using Scratch programming language and MaKey MaKey invention kit; (4) **Share**: Families share their projects and ask each other questions or give feedback.

In the first two days, parents and children work separately on simple Scratch projects. On the third day, parents and children work together on a Scratch and MaKey MaKey project. On the fourth day, parents and children design their own projects with the tools to share at a community showcase on the fifth day.

Methods and Participants

We used qualitative methods to document the workshop process and understand the participants' experiences. During the workshop series, we gathered observations from facilitators and conducted group interviews with parents and children separately during the 15 minute "Reflect" part of the workshop. After the workshop, we conducted 1-hour semi-structured individual interviews with parents and children about their participation.

We implemented the workshops of the current iteration in a Computer Clubhouse that is housed in a community center for urban youth. Computer Clubhouses are informal learning centers where youth engage in creative activities with technology (Kafai, Peppler, & Chapman, 2009). In the community served by this

Clubhouse, at least 80% of the members live in households that are under 200% above the poverty line. At least half of the members live in single-parent households, of which at least 90% are single-mothers. We primarily recruited children between the ages of 8 and 12, but welcomed their younger and older siblings to join the workshop. Five families participated in the workshop series for a total of 15 unique participants with five parents (4 mothers, 1 father; ages 31 to 58) and 10 children (4 girls, 6 boys; ages 3 to 13). Four of the parents were women, and two were single mothers. Three of the families self-reported as Hispanic/Latino and were first-generation immigrants. The other two families self-reported as White. All five families continued participating through the last day with the community showcase.

Case Studies of Family Participation

In this poster, we share case studies (Yin, 2009) of families from the workshop series. These case studies describe their attitudes before the workshop, their experiences working with the computing tools and collaborating on a project, and their reflections on their experiences.

Overall, we found that families interacted in a variety of ways that reflected how families can apply existing learning dynamics—dynamics that they may use during existing activities like homework help—into a new context like computing. At the same time, they could try out new practices as learning partners. For example, in one family, Rosa, a mother of two, came into the workshop feeling that she had nothing to contribute because her daughters were more savvy with technology. However, after working with her daughters on Scratch and MaKey MaKey projects, she began to see how her supportive learning practices, such as giving feedback, providing encouragement, and knowing when to step in to help them and step back when they were progressing on their own, could also be helpful in supporting her daughters' learning and designing with technology. Meanwhile, her eldest daughter, Clara, was trying on new learning dynamics as she supported her mother in getting started with Scratch. While she described feeling “kind of weird” helping her mother, who was older and usually the helper, Clara expressed how proud she felt—and noticed it made her mother happy too.

Discussion

This research highlights design considerations in supporting learning experiences for families as a unit, particularly in the context of design-based activities with computing. Often computing outreach programs serve children or parents alone, without integrating the larger learning ecology that sustains learning in such activities (Barron, 2004). These workshops leverage the learning dynamics that families already use in activities like literacy development and support families in using them in the context of computing.

The case studies of families in these workshops suggest possibilities for intergenerational learning with computing. While parents initially described feeling unable to help their children with technology, they saw how they could apply practices they already used to help children learn. In addition, the design-based context enabled families to experience new dynamics, adding to their repertoire of family learning practices.

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