Introduction

There has been a well-documented and persistent drop in the number of women in computer science and engineering courses (Corkett & Hill, 2015). While more women are using technology to mediate all aspects of their professional and personal lives, only a narrow slice of women are actually involved in the design and creation processes. Young peoples’ decisions about participation often start early and have been linked to particular experiences (Renninger, Niewandt, & Hidi, 2015). For women, these experiences are less than encouraging. In the US, high school computer science courses are overwhelmingly male dominated (College Board, 2014). Schools serving minority students and those from lower socioeconomic backgrounds struggle to even offer such classes (Goode 2007; Margolis, 2008). Even when opportunities for learning do exist, many girls and underrepresented populations face barriers such as negative stereotypes and dearth of role models and community (Margolis and Fisher, 2002). The Digital Divas program was created to address these issues through the intentional design of environments, materials, and practices for urban girls in Chicago, especially those engaged with STEM learning.

Triggering interest and engagement

Hidi and Renninger (2006) define interest as both the state of heightened attention for and the predisposition to engage in a subject again, which is based upon one’s knowledge, value, and feelings about a subject. The trigger or “spark” of interest can be a result of one or multiple factors, oftentimes environmental such as location, people, or activity structure. The Digital Divas program is developed to trigger situational interest in girls through a combination of community, project-based learning, on- and offline learning, and narrative stories. Triggered situational interest is critical as an opening to move on to subsequent phases that are more independent of environmental factors. Understanding potential effective triggers for girls, minorities, and youth from lower socioeconomic backgrounds is critical to engaging such populations in STEM learning.

In this poster, we describe the Digital Divas program and highlight the use of narratives to engage girls in computational making and the process of developing the narratives through code with girls.

References


Methods. Girls were from schools in underserved communities; 71% self-identified as African American and 29% as Latina. Data collection included observational field notes, semi-formal conversations with the girls, and artifact collection. We used an inductive process (Strauss & Corbin, 1998) to summarize the extensive qualitative field notes and connect data to the theoretical ideas of narratives and interest development, which led us to narrative iteration.

1. Narratives prompted discussions of identity. Girls looked for and found connections to themselves and people they knew in the stories and engaged in discussions about ethnicity of characters.

2. Girls had strong opinions about character design. It really helps, but I thought it would be more than just sketches. I think a way we can make it better is to add color and so we can see what the people. It looked like all the same people.

3. Narratives contributed to interest and motivation. I did like where you get to write Mushrooms because I felt almost like she was real.

When asked about the narratives at the end of the program, every girl who thought the stories were found them to be a source of motivation.