

# Learning Computing through Transformative Works: A Case Study of Game Modding

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**Abstract**—Broadening participation in computing stands to benefit from investigating computing that happens in non-traditional spaces. To that end, we investigate computational work people engage in outside of the classroom and outside of industry, in game modding communities. Through a series of 9 interviews with a diverse group of young adults, we explore how a small community of fan game developers transitioned from traditional fan activities like writing roleplays and drawing fan comics to reprogramming game code to make their own fan games, with our participants learning a variety of skills necessary for successfully working on collaborative computational projects. We analyze these interviews as a case study to propose potential classroom projects that draw inspiration from how our participants, many of whom are from groups traditionally underrepresented in computing, got involved in and learned programming for a major computational project.

We propose designing an educational project for the classroom that embodies the following characteristics: 1) peer mentorship that emphasizes collaborative learning where students set their own pace; 2) familiarity and grounding within a media object as a starting point, something with a recognizable pattern like a visual novel, videogame, interactive website—something that students can see, dismantle, and reassemble in their own creative vision but still feel comfortable in knowing what a similar result looks like.

**Keywords**—broadening participation in computing, computer science education, fandom, modding

## I. LIGHTNING TALK DESCRIPTION

This talk aims to share initial findings from an exploratory analysis of 9 interviews. This project builds on prior work from a separate set of 22 interviews with members of transformative fandom communities that work on various different computational projects. Findings from those interviews show that our participants, mainly women, people of color, and LGBTQ+ people, generally disliked how computing was taught in high school and college classrooms. In this follow-up study, we hope to provide concrete, practical recommendations for how classrooms can engage with learning different computational skills in a manner similar to how people engaged with computational work in fandom. We propose classroom tools

that mirror the ways our participants described the ways they enjoyed learning through working on modding and rebuilding video games. We plan to use the 2 minute lightning talk to share these concrete recommendations in brief and promote follow-up discussion with other researchers and educators so that we can better refine our recommendations before seeking to publish.

## II. RELEVANCE TO RESPECT

This lightning talk is relevant to the RESPECT community because it presents a preliminary discussion on how to engage underrepresented groups in the computer science classroom. Specifically, this research draws its findings from a community of people engaged in collaboratively carrying out highly technical work (building a videogame) while also involving a diverse group of people. We want to propose a possible classroom project that will forefront the things that made our participants excited to learn computing and follow through with learning the skills needed to work on their fan game. Hopefully, this lightning talk will lead to further discussion with other researchers and educators about how a project like this could be better scoped for the classroom and other learning environments.

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