Broadening Participation in Computing through Transforming Media and Technologies

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ABSTRACT

Broadening participation in computing ensures that a diversity of perspectives are involved in creating new technologies. Yet despite initiatives aimed at bringing more diverse groups into computer science as a discipline, underrepresented groups are still under threat to be crowded out of formal computing spaces. However, there are informal spaces where these populations engage in computational projects, learning computing skills outside of traditional academic or industry computing spaces. One such space is *transformative fandom*. We propose exploring how people in transformative fandom innovate and transform technologies, with an emphasis on their involvement in computational projects by and for marginalized communities.

CCS CONCEPTS

- Human-centered computing ~ Empirical studies in collaborative and social computing

KEYWORDS

Informal Learning, Fandom, LGBTQ, CS Education

1 Introduction

Academic and industry-focused computing spaces struggle to recruit and retain diverse student bodies and work forces. Prior scholarship has attempted to understand the barriers to computing education and to entering and thriving in computing fields that different marginalized groups face, yet we still struggle to overcome these challenges. Much of this work focuses on bringing more diverse groups into traditional computing spaces (e.g., computer science classes or industry jobs). In contrast, we investigate non-traditional spaces where people from underrepresented groups are already engaging with and learning computing outside of the context of work or education. One such informal computational learning space is *transformative fandom* where many participants come from underrepresented groups such as women; racial, gender, and sexual minorities; and people with disabilities. What can we learn from this space for informal CS education?

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2 Our Research

Transformative fandom is a group of communities in which people *transform* original media in some way that makes it new—for example, new stories about Captain Kirk or Harry Potter, or remix videos that surface subtext in a movie. In part because transformative fandom has a rich history of attracting traditionally marginalized groups, it is often devoted to increasing representation or critiquing the underlying work [1]. This work also often involves learning technical skills (e.g., web design, game modding, or video editing), though one striking example is the open source, volunteer-run website Archive of Our Own (AO3), a project that enabled women to learn to code through legitimate peripheral participation [2].

For this project, we are examining cases where members of underrepresented groups learn computational skills in communities of practice, with a focus on creating better representations of and safer spaces for their communities: for example, modding video games to increase representation and building social platforms with better privacy settings. These case studies are an opportunity to better understand how underrepresented populations are motivated to get involved in computational projects—and how we might encourage and support them. This work is funded by the National Science Foundation (NSF) under award No. 1936741.

REFERENCES

- [1] Brianna Dym, Jed R Brubaker, Casey Fiesler, and Bryan Semaan. 2019. “Coming Out Okay”: Community Narratives for LGBTQ Identity Recovery Work. In *Proc. ACM Hum.-Comput. Interact.* 3, CSCW, 28.
- [2] Casey Fiesler, Shannon Morrison, R Benjamin Shapiro, and Amy S Bruckman. 2017. Growing Their Own: Legitimate Peripheral Participation for Computational Learning in an Online Fan dom Community. In *Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing*, 1375–1386.