

Support for Broadening Participation through Humanitarian Free and Open Source Software

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ABSTRACT

The necessity and benefits of broadening participation in computing and the roles that computing programs must play in addressing this challenge have been well documented. Elevating the social value of computing has been advocated as an approach to increasing the appeal of computing to both women and other underrepresented groups. This poster adds empirical support for that approach. It reports on the analysis of projects selected by students over four years of a two-semester senior capstone. In this capstone students select Free and Open Source Software (FOSS) communities with which to engage. The students learned about FOSS principles and processes and were introduced to humanitarian FOSS (HFOSS). They completed pre-semester surveys and engaged in a three-stage project selection process. The types of projects that students considered (FOSS or HFOSS) support the assertion that computing with social value is appealing to both females and students in underrepresented groups. Analysis of pre-semester attitude surveys adds additional insight and suggests further avenues for investigation.

CCS CONCEPTS

• **Social and professional topics** → **Computing education**; *Computer science education*; *Race and ethnicity*; *Gender*;

KEYWORDS

open source; capstone; humanitarian; broadening participation

1 INTRODUCTION

The need to broaden participation in computing by underrepresented groups, including women and Black, Indigenous and People of Color has been well documented (e.g. [1, 5]). Many authors have reported that a focus on computing for social good holds potential for broadening participation (e.g. [3, 4]). Engaging students in Humanitarian Free and Open Source Software (HFOSS) projects is one way that has been advocated for to bring social value into computing programs (e.g. [2]).

2 METHODS / RESULTS

Computer science majors at Dickinson College complete a year-long senior capstone in which they learn about, engage with and

contribute to FOSS projects. Students follow a three stage process to *explore*, *review* and *select* a FOSS or HFOSS project with which to engage. The types of projects (FOSS or HFOSS) that students considered at each stage of the selection process have been analyzed using linear regression models both alone and with with pre-semester attitude survey results as covariates.

Analysis of the project selection data shows that female students (n=17) demonstrated greater interest in HFOSS projects than did male students (n=40), and that Black (n=5) and Asian (n=25) students both demonstrated greater interest in HFOSS projects than did White (n=27) students. These results add empirical support to survey studies indicating that female and other groups underrepresented in our discipline are motivated by the social value of projects.

Including pre-semester attitude survey results as covariates showed two additional results. Lower confidence in ability to work with software developers and computing professionals predicted selection of an HFOSS project. Interestingly, the same pattern was not seen in questions about technical confidence. Stronger agreement that community is an important part of H/FOSS development predicted selection of a FOSS project among White students, while for Black and Asian students it predicted selection of an HFOSS project. This suggests that Black and Asian students may perceive H/FOSS communities differently than White students. Each of these findings suggest important avenues for further research.

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