THE IMPACT OF THE CODE OKIE SERVICE-LEARNING PROJECT ON A TEAM OF UNDERGRADUATE STUDENT TEACHERS

A RESEARCH PRESENTATION

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EXTENDED ABSTRACT

Service learning (SL) in the computer science (CS) discipline is often incorporated into upper-level courses (Harms, 2015; Goldweber, 2011; Ferguson, Liu, Last, & Mertz, 2006; Stone, MacKellar, & Madigan, 2012; Brooks, 2008). Unlike other courses in the curriculum, the learning outcomes of typical SL projects include not only enhancement of technical knowledge, but also exposure to social knowledge, and reflection of personal activities (Brooks, 2008). This research introduces an on-going SL project called *Code Okie: One Line at a Time!,* and discusses its impact on a team of undergraduate student teachers, primarily in the areas of self-directed learning and communication skills. These target skills are essential for the prospective employees in the computing industry that rapidly changes due to technological advances and innovations (Zander et al. 2012).

The Code Okie was incubated in order to increase access to CS in the high schools of Oklahoma through computer programming workshops. Particularly, it aims to bridge the gender, geographical, and ethnic gap in CS (Goode, Chapman, & Margolis, 2012). Participating high school students learn basic programming constructs, interaction between hardware and software, and different applications of CS. In order to develop and deliver the contents of the workshops, an undergraduate team called CS Ambassadors was formed in the Spring of 2017 through the support of a Student Transformative Learning Record (STLR) grant from UCO. The ambassadors ranged from freshmen to seniors at hiring time.

The nature of the project required the ambassadors to conduct self-directed learning. They had either little or no prior experience in the required activities. A sophomore reflected, "Before this project, I had little to no contact with Python. I had to learn it... As such, I was required to learn the nuances of it." Another sophomore wrote, "The first draft of my first lesson was essentially a list of blocks used in the game that I created. I was encouraged to expand on this by explaining how each block worked, then by explaining why each block was needed. Weeks of fine-tuning old lessons and writing new ones helped me adopt the proper mindset for describing solutions to problems for students."

The ambassadors also reported a great deal of improvement in communication skills. A sophomore reflected, "I also had difficulties following teachers and writing notes... Now I am able to record what people say in meetings and take notes." Another sophomore stated, "Through brainstorming sessions, I learned to listen to others' opinions and dispute different points of view in a professional manner." A junior reflected, "I also learned how to send emails in professional manner, and how to network with people." A senior wrote, "I slowly but surely was able to improve my public speaking skills to a point where I did not think possible."

The ambassadors will be present in the session to share their experiences in detail. Participants attending this session will have two takeaways. First, regardless of class standing, students will perform a

self-directed learning when proper guidance and constructive and detailed feedback are regularly provided by peers and supervising faculty. Second, teaming students across class standings greatly helps students at low class standings to enhance their discipline knowledge.

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