

Washington State University

College of Education

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Will defend the dissertation

Date: November 15, 2018

Time: 12:30 P.M.

Location: TriCities - Floyd 209

Faculty, students and the general public are encouraged to attend.

THE INFLUENCE OF ACADEMIC PREPARATION AND SELF-EFFICACY IN A PROJECT-BASED STEM PROGRAM SITUATED IN A PUBLIC COMPREHENSIVE HIGH SCHOOL ON GRADUATES' CHOICE OF AND PERSISTENCE TOWARD STEM DEGREES

Chair: Tamara Holmlund

As our schools, communities, and government seek to prepare students for post-secondary education and careers in STEM fields, many districts have created stand-alone project-based STEM-focused schools. While this type of school has been the focus of studies, research is lacking regarding inclusive project-based STEM programs within comprehensive high schools. Since most children in the United States are educated in traditional comprehensive high schools, it is important to understand how these schools could increasingly promote self-efficacy and academic preparation, inspire students to pursue STEM majors, and build their capacity to persist toward STEM degrees.

The study utilized social cognitive career theory in a mixed methods format framed by sequential explanatory design to understand the impact of self-efficacy and academic preparation on STEM program graduates' choice of and persistence toward a college degree in a STEM discipline. The study involved fifty-two graduates of a STEM program situated within an urban comprehensive high school.

The academic preparation of the students in the STEM program included project-based learning and Advanced Placement classes. Survey results showed significant relationships between graduates' number of Advanced Placement classes, their high school career goals, and their choice of and persistence toward a college degree in a STEM discipline. Interview results showed that self-efficacy was cultivated by learning through projects within STEM program classes. Additionally, the self-efficacy developed in the project-based academic context positively influenced graduates' choice of a STEM career and their persistence toward a STEM degree.

This study provided research findings that may inform leaders of comprehensive high schools of potential student benefits gained by developing a project-based STEM program. If the implementation of a STEM program is not feasible, the study findings suggest additional areas of application.