Research Articles and Essays

A Promising Intervention Model to Promote Postsecondary Transition and Career Development

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Author Note

This research was supported by the U.S. Department of Education Native Hawaiian Education Program Grants (Award Numbers: S362A200035 and S362A210073).

Abstract

The Hōkūlani program is a strengths-based, work-based, and culturally responsive intervention designed to support Native Hawaiian high school students entering science, technology, engineering, and mathematics pathways. Among the five program components, this article will provide an overview of the work-based learning component of the Hōkūlani model intervention.

Keywords: work-based learning, STEM education, culturally responsive

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Science, technology, engineering, and mathematics (STEM) play a major role in solving problems in today's world. Recruiting talented people from diverse backgrounds into STEM fields is essential to ensure high-quality research and practice (DO-IT, 2013). Working together with people from different backgrounds, experiences, and disciplines in STEM fields and having varying cognitive abilities brings about a creative advantage (Packard, 2016). To diversify the STEM workforce, there is a need for high-quality STEM education for all Americans, particularly those who are underserved and underrepresented in STEM fields (National Science & Technology Council, 2018).

Although there is an obligation to draw on new talent sources to make the STEM workforce as strong and diverse as possible (Hossain & Robinson, 2012), Native Hawaiians are significantly underrepresented in STEM fields (Kerr et al., 2018). According to the 2011 U.S. Census, the combined population of Native Hawaiian, Pacific Islanders, and "Other Race" accounted for 4.6% of the overall U.S. workforce but only 1.4% of the STEM workforce (Nguyen et al., 2016). Meanwhile, the STEM workforce will grow faster than any other sector (U.S. Bureau of Labor Statistics, 2017). In Hawai'i, STEM jobs will increase by an average of 11% from 2018 to 2028 (The Alliance for Science & Technology Research in America, 2019).

To improve Native Hawaiian youth matriculation into STEM pathways, we developed and are evaluating the effectiveness of a strengths-based, work-based, and culturally responsive intervention for indigenous high school students called the Hōkūlani model program. Our intervention consists of five components: (a) academic enrichment in science,

(b) mentoring STEM interests and connection to Native Hawaiian cultural practices, (c) college transition supports, (d) family engagement, and (e) work-based learning. To date, our program has served 92 high school students across four major Hawaiian islands with the majority of students identifying as Native Hawaiian and first-generation college students (defined as those whose parents/guardians have not completed a four-year postsecondary degree program). In this article, we highlight the work-based learning component of our program.

Work-based learning allows students to acquire real-world research experience and further develop their career interests (Scott, 2012). It is an effective strategy to enhance students' learning experiences in STEM fields and shape commitment to a STEM career pathway (Salto et al., 2014), especially for underrepresented students (Pender et al., 2010). For instance, the Meyerhoff Scholar Program at the University of Maryland, which pairs each student with a professional in the STEM field and provides summer internships to gain hands-on experience, is nationally renowned as a model for successfully supporting students from underrepresented groups into the fields of science and engineering (Pender et al., 2010).

In our work-based learning program, students complete summer internships at a local STEM worksite, individually or in small groups, while guided by a working STEM professional. Our STEM internship sites represent a wide range of STEM fields, including conservation and restoration, marine, health, computer and agricultural sciences, biology, and engineering. By providing a range of options, students can select an internship site based on their individual STEM interests.

Prior to the summer, students complete a series of lessons designed to prepare them for their internship experience. During the preparation process, students meet and observe the STEM professional(s) who will mentor them throughout their internship and learn more

about their responsibilities and the tasks they will complete at their work site. Students take inventory of prerequisite knowledge and skills that may be required to complete their assigned tasks and are supported to employ self-advocacy skills to share concerns or request workplace accommodations from their internship mentor.

At the culmination of their summer internship, students reflect on the tasks they accomplished—connecting their internship work to community improvement, as well as towards reaching their academic and career STEM goals. In their reflections, 92% of students surveyed (n = 85) felt their summer internship influenced their intention to enter a postsecondary STEM field. Parent/guardian perspectives mirrored the students' views. Most of the parents/guardians surveyed (n = 30) agreed that the summer internship helped their child or children become more interested in enrolling in STEM-related courses or activities, participating in early college or dual enrollment programs, matriculating to a postsecondary institution, and pursuing a STEM-related career. These preliminary findings suggest that Hawai‘i high school students are receptive to guided work-based learning opportunities and these experiences may further foster their STEM interests and intention to pursue STEM career fields after high school.

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