Introduction

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Models of Undergraduate Research Mentoring

Many of us are where we are today because of a mentor. Given our role as educators, all of us have mentored students in some capacity. From the days of Homer's *Odyssey* to the modern era, mentoring has been shown to be a critical feature of higher education. Mentoring students, either informally or formally, can be a highly rewarding aspect of teaching. Effective mentorship often results in myriad benefits for students, including academic gains, heightened understanding of the research process, development of a research identity, and preparation for graduate school. Mentorship can also be transformative, leading students to pursue paths that they may not have previously considered.

Despite the importance of mentoring, students can encounter a variety of barriers when seeking a mentor. Several articles in this issue explore effective methods for increasing student access to faculty mentors, especially for first-generation and underrepresented students. Heather Haeger, Carla Fresquez, John Banks, and Camille Smith explore this topic in their article, "Navigating the Academic Landscape: How Mentored Research Experiences Can Shed Light on the Hidden Curriculum." The authors describe an undergraduate research program at California State University, Monterey Bay designed to teach students the norms and expectations of academia and their chosen discipline. Through faculty panels and seminars, students learn about the importance of finding a mentor, as well as information about graduate school (e.g., funding options, grant work, and the difference between academic positions).

Cheryl L. Dickter, Anne H. Charity Hudley, Hannah A. Franz, and Ebony A. Lambert examine the successes and barriers experienced by underrepresented students as they participate in mentored undergraduate research. They describe the William and Mary Scholars Undergraduate Research Experience (WMSURE), a program designed to increase undergraduate research among underrepresented students. The program provides formal mentoring and weekly workshops for students that focus on academic topics, as well as issues associated with discrimination. Additionally, the program offers faculty workshops that address the educational needs of underrepresented students. The WMSURE provides an excellent model of mentored undergraduate research, as findings reveal that program participants feel more supported by faculty, are more interested in research, and more informed about the research process, as compared to students outside the program.

Jeanette Sims and colleagues describe the transformative effects of mentored research for underrepresented students in their article, "Diverse Student Scholars: A Five-Faceted Model of Student Transformation from Embedded Research Mentorship in Marketing Courses." The Diverse Student Scholars program includes curricular and co-curricular research opportunities, with faculty mentoring embedded in elective courses. The benefits of mentorship for students in the program include a greater understanding of the research process, an increased accountability for their work, an involvement in professional development, a heightened appreciation for teamwork, and an increased ability to critically evaluate their own work.

Farron McIntee and coauthors demonstrate that it's never too early to begin the mentoring process in their article, "Developing Undergraduate Scientists by Scaffolding the Entry into Mentored Research." They describe ReBUILDetroit, a program geared toward introducing undergraduate research to underrepresented, first-year students in the biomedical sciences. Students in the program are matched with a faculty member through a multistep, formal process that includes interviewing a faculty member, participating in a speed-pairing event with potential mentors, and ultimately receiving a placement in a lab with their chosen mentor. The authors report significant gains for students in their perceived ability to apply knowledge to research work, improved research and presentation skills, and the development of a scientific identity.

With much of the existing mentoring research focused on student outcomes and perceptions, Janet Morrison and colleagues address an important gap in the literature by examining faculty members' perceptions of mentoring in their article, "Surveying Faculty Perspectives on Undergraduate Research, Scholarship, and Creative Activity: A Three-Institution Study." The authors observe that more than half of the respondents did not believe undergraduate research was valued enough at their institution. Moreover, surveyed faculty identified several barriers that prevent them from participating in mentored undergraduate research (e.g., lack of time and funding).

The vignettes included in this issue address different aspects of mentored research. Catalina Ormsby discusses the University of Michigan's efforts to recruit high-achieving community college students from diverse backgrounds in her

vignette, "Community College Pipeline Programs: Creating Successful Pathways to the Research University." She describes the Undergraduate Research Opportunity Program, a 10-week summer research program that seeks to provide a more seamless transition for students transferring to the university from community colleges. Valerie A. Ubbes discusses how she utilizes inquiry-based pedagogy, constructivist-developmental pedagogy, and relational pedagogy to foster learning in independent studies in her vignette, "Three Pedagogical Approaches to Independent Studies."

As the articles in this issue demonstrate, the future of mentorship is dependent on a constant stream of innovation as well as improved evaluative techniques. As these researchers have ably shown, effective mentoring can take many forms. This in itself leads to the conclusion that good mentoring is not a static construction. As such, faculty and program staff members who wish to modify existing mentoring methods or implement new programs with a mentorship focus may find a number of useful tools within these pages.

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