

Leveraging Undergraduate Research to Foster Diversity and Achieve Equity

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Postsecondary campuses are serving a more diverse student population than ever before. It is increasingly critical that *all* students have access to the experiences that help them to succeed in college, become effective problem solvers, and reach their longer-term career goals. Studies have shown that undergraduate research experiences improve educational outcomes for all students and are especially powerful for those who come to higher education as the first in their families to attend college, or who are from communities traditionally underrepresented in higher education (e.g., Kuh 2008). The summer 2018 *Scholarship and Practice of Undergraduate Research* (SPUR) explores how campuses have used undergraduate research as a strategy to support underrepresented, first-generation, and/or low-income students to excel in college and achieve their longer-term goals. This issue's authors examine how programs' underlying philosophies, structures, partnerships, approaches to mentoring, and culturally relevant practices affect student engagement and outcomes. The articles and vignettes present a wide and complementary variety of perspectives on this work.

John E. Banks, Carla Fresquez, Heather Haeger (California State University Monterey Bay), Semaehy E. Quinones-Soto, and Lisa Hammersley (CSU-Louis Stokes Alliance for Minority Participation) offer a discussion of the CSU-LSAMP program outcomes, with a particular focus on the most recent five years on the CSU Monterey Bay campus. Survey results show that the LSAMP students' self-assessment of their preparation for graduate study, confidence in their identity as a researcher, and other key indicators of success were very high following their research experiences.

In another assessment-focused article, Dominique M. Galli and Rafael Bahamonde (Indiana University Purdue University Indianapolis) provide an in-depth analysis of their long-running Diversity Scholars Research Program, which was founded at IUPUI in 1997 and served 165 students from 1997 to 2017. SPUR readers will enjoy digging into the broad overview of the program, detailed outcomes data, and analysis of lessons learned.

Writing from a theoretical perspective, Susan G. Mendoza (Grand Valley State University) and Dave A. Louis

(Texas Tech University) explore the concept of scholarly voice, and how minoritized and underrepresented students approach undergraduate research experiences with conceptions of their scholarly identity and abilities that are different from their majority peers. Research experiences offer opportunities and potential pitfalls for these students, working within the context of disciplinary and academic norms that may be unwritten and unspoken. Their article offers valuable advice for mentors and educators.

The three practice articles in this issue focus on a variety of student populations, each offering particular insights into how to build culturally-relevant programs and partnerships that support student research. Noelani Puniwai-Ganoot (University of Hawai'i at Mānoa), Sharon Ziegler-Chong (University of Hawai'i at Hilo), Rebecca Ostertag (University of Hawai'i at Hilo), and Moana Ulu Ching (Conservation International-Hawai'i) have developed a research internship program that introduces students to environmental science and natural resource management within the context of Pacific Islander culture and values, offering a unique and powerful blend of culturally grounded education and workforce preparation. Terry Vaughan III, Maria Mendez, and Luciano Berardi (DePaul University) write about the nearly 20-year history of the Mitchem fellowship program at DePaul, offering early exposure and preparation for research to selected second-year students who come from first-generation college, low-income, and underrepresented backgrounds. The authors offer some perspectives on outcomes and lessons learned.

Developing partnerships with diverse communities can be critical to the success of programs designed to engage underrepresented students. Ted Martinez, Nena Bloom, Amy Whipple (Northern Arizona University Flagstaff), and Steve Chischilly (Navajo Technical University) present the results of their jointly developed Research Experiences for Undergraduates program funded by the National Science Foundation, which has been in operation for 18 years. The program provides summer research experiences in environmental sciences to undergraduates, with focused recruitment of community college students and the ultimate goal of retaining these students in four-year STEM degrees and careers.

The five vignettes in this issue offer insight into engaging a variety of student populations in research experiences in their brief summaries. Kristin Boudreau, David DiBiasio, and Zoe Reidinger (Worcester Polytechnic Institute) write about specific considerations for engaging

LGBTQ+ students in research. Reginald Rogers and Todd Pagano (Rochester Institute of Technology) share their approach to undergraduate research experiences designed for students enrolled in Rochester's National Technical Institute for the Deaf. Charles Kim (Howard University) shares an approach to ensuring cross-disciplinary inclusion via a vertically integrated research project framework. Lennie Amores (Albright College) suggests a new model for undergraduate research that resonates strongly with students of color: public scholarship. Rounding out this issue, Heather Bock and James Hewlett (Finger Lakes Community College) suggest that one approach to increasing access to undergraduate research for students who are underrepresented is to more effectively engage community

colleges in the integration of research and teaching by offering more course-based research opportunities at two-year colleges.

These articles offer a rich resource for SPUR readers responding to the current national imperative to increase educational equity and student success through engaging underserved students in the powerful learning and growth gained through undergraduate research.

Reference

Kuh, George D. 2008. *High-Impact Educational Practices: What They Are, Who Has Access to Them, and Why They Matter*. Washington, DC: Association of American Colleges and Universities.

Errata

Editor-in-Chief's Note: Since the publication of Pawlow and Sleeper's article ("Multifaceted Undergraduate Research Program Assessment Plan: Benefits, Challenges, and Utility") in the spring 2018 SPUR, the authors have learned that insufficient acknowledgment was provided of the models for their survey instrument. The additional citations are the following:

Lopatto (2004); Singer and Weiler (2009); Ward, Bennett, and Bauer (2003)

References

Lopatto, David. 2004. "Survey of Undergraduate Research Experiences (SURE): First Findings." *Cell Biology Education* 3: 270-277. doi: 10.1187/cbe.04-07-0045

Singer, Jill, and Daniel Weiler. 2009. "A Longitudinal Student Outcomes Evaluation of the Buffalo State College Summer Undergraduate Research Program." *CUR Quarterly* 29(3): 20-25.

Ward, Christine, Joan S. Bennett, and Karen W. Bauer. 2003. "Content Analysis of Undergraduate Research Student Evaluations." Unpublished report available as of May 2003 at <http://www.udel.edu/RAIRE/Content.pdf>.

We regret the errors.