

# Introduction

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The SPUR editorial team is pleased to present the first issue of volume 3. This nonthemed issue provides a diverse array of topics: from theory and assessment to practice and international perspectives of undergraduate research. The articles touch upon education, humanities, social sciences, and STEM disciplines. The diverse collection of topics and disciplines nicely capture not only the current state of undergraduate research in the United States and abroad but also the wide representation of the Council on Undergraduate Research (CUR).

In the theory section, Bruce Blaine (St. John Fisher College) diagnoses key vulnerabilities in undergraduate behavioral science research projects that result in nonreproducible findings: overreliance on small convenience samples, overemphasis on null hypothesis testing, and opaque statistical computing. His article encourages us to utilize open science initiatives, replication projects, and a common computing environment as pathways to arriving at more credible and reproducible research. For those who teach research methods in the social sciences or mentor undergraduate research, the analysis is food for thought and a call to rethink practices.

The practice article outlines the five principles of culturally sustaining pedagogies (CSP) that highlight cultural diversity as an asset that faculty can draw upon to design effective instruction. Dea Marx and Theresa Torres (University of Missouri–Kansas City) and Leah Panther (Mercer University) describe how CSP can shape the design and implementation of a one-semester undergraduate research course for first-generation students and students of color at a predominantly white institution of higher education through a critical autobiography assignment.

This issue also offers three assessment articles. In the first assessment article, Tunde Szecsi and colleagues provide a rich assessment of the preparation of teacher candidates at Florida Gulf Coast University. Major assignments (artifacts) are analyzed across the gateway, middle, and capstone courses of the teacher education programs that reveal gains in critical thinking, information literacy, and written communication. This longitudinal assessment of scaffolded courses is an impressive model for assessing student learning gains, which can benefit faculty and administrators seeking more robust assessments of undergraduate research. Jonathan Whittinghill and colleagues

provide another valuable longitudinal assessment through a study of Minority Access in Research Careers (MARC) and Research Initiative for Scientific Enhancement (RISE) students at California State University, Dominguez Hills. A decade-long assessment finds that MARC and RISE students have earned higher GPAs by the time of graduation, graduate at higher rates, and enter science doctoral programs at far higher rates than a matched comparison group who lacked the support of these NIH programs. Andrea Brooks (Northern Kentucky University) and colleagues analyze survey data from a campus-wide research symposium in the final assessment article. They asked students about their perceptions of the purpose of research as well as what activities are most important to their research. The authors identify several themes in terms of how undergraduates perceive the purpose of research: conversation, inquiry, personal learning, and process. These themes and the most important activities are compared for STEM and non-STEM students as well as for academic classification (first- and second-year students versus third- and fourth-year students).

The international perspectives article offers an insightful overview of undergraduate research, known as graduation research (GR), in Japan. Takeshi Kushimoto (Tohoku University) analyzes nationwide data on almost 900 humanities programs and 1,100 social science programs, as well as survey data of more than 20,000 students, which reveal a significantly greater percentage of degree programs in the humanities (87.8 percent) that require a compulsory course of GR in comparison to the social sciences (50.6 percent), national public universities that are almost nine times more likely to have a compulsory course than private institutions, and undergraduates who devote more time to GR in the humanities (430 hours) than the social sciences (312 hours) as an annual average. CUR has documented the explosion in undergraduate research across the humanities, and this study from Japan provides intriguing evidence of its preponderance in the humanities over the social sciences.

When we embarked upon the redesign of *CUR Quarterly* to become the journal *Scholarship and Practice of Undergraduate Research*, our goals were to increase the number of nonthemed issues, examine a wide array of topics, and highlight a diversity of academic disciplines through peer-reviewed scholarship. The SPUR editorial team is confident that the first two volumes of SPUR, and especially this issue to launch the third volume, represent the accomplishment of those goals.