Introduction

Rebecca M. Jones, *SPUR Issue Editor*

A Retrospective on Undergraduate Research

doi: 10.18833/spur/3/2/6

Two decades ago, on the channel VH1, the television show *Where Are They Now?* offered retrospective glances into the fates and fortunes of pop stars, star athletes, and rock bands from the past (*Where* 1999). Each thematic episode conveyed stories of romance and breakups, health and illness, triumph and success. Looking back on these individuals once idolized placed them in context and humanized their image. The show gave the audience a perspective on their growth and change, and sometimes their decline. In this issue of *Scholarship and Practice of Undergraduate Research* (SPUR), readers are invited to take an analogous retrospective glance. Since 1993, *CUR Quarterly* and now SPUR has provided a view of this valuable high-impact practice. What has changed in the past quarter century? How has this practice grown? What, if anything, has declined? And how might this perspective be used to place undergraduate research into the vast context of higher education?

The retrospective begins with a case study. Research at undergraduate institutions has always been challenging, and often access to facilities significantly impacts research productivity; George Shields knew this struggle firsthand as the chemistry department chair at Hamilton College. After two years of unsuccessful proposals to the Howard Hughes Medical Institute (HHMI) and National Science Foundation (NSF), Shields received funding to purchase a shared computational facility by leading a collaborative effort across multiple institutions. For 20 years, the MERCURY Consortium has sustained the research efforts of 27 diverse faculty and increased their productivity threefold over their peers in physical sciences at similar institutions. Beyond the faculty research success, MERCURY has profoundly affected more than 900 students who worked with these faculty, and it is their successes that speaks loudest to the profound success of this collaborative model. The consortium would not have been possible without support from NSF.

Following the MERCURY story, Susan Rundell Singer contributes a narrative on NSF's influence on the growth of undergraduate research over the past six decades in the United States. Serving as a unique national patron, NSF recognized the value of faculty-mentored student research, especially at primarily undergraduate institutions, and created targeted awards and programs to support it. For example, the Research Experiences for Undergraduates (REU) program supports individual research programs as well as supplements to existing grants. Over time, NSF's support has evolved to support new team-based projects and in-class experiences. Singer's article eloquently describes the timeline of these changes and illustrates the tremendous significance of grant funding on the advancement of this high-impact practice.

In summer 2008, Mary Crowe and David Brakke assembled and published a review of the literature related to assessment of undergraduate research in *CUR Quarterly*. Now, 11 years later, Crowe and Brakke provide an updated second edition, featuring 25 new articles from the past decade. This new analysis of assessment scholarship is arranged by four broad categories: selected comprehensive sources, impact on students, impact on mentors, and impact on institutions and programs. Bringing another viewpoint on assessment and more than two decades of experience, Julie Foertsch contributes an article regarding the role of summer undergraduate research programs on recruiting and retaining underrepresented students in STEM. The numbers have increased, but the complicated reality and dynamics of matriculating this population to graduate programs remain. Connecting students to "accessible and relatable research mentors," engaging them in their scholarly communities beyond campus, and personally following-up after program completion have been helpful components.

Early issues of *CUR Quarterly* regularly featured two chemists, Mitchell R. Malachowski and Kerry K. Karukstis. Sometimes together, sometimes with others, or sometimes alone, their words could be both inspiring and challenging in the same piece. This retrospective issue concludes with individual offerings from these two former presidents of CUR, each articulating how undergraduate research has evolved. Malachowski discusses the continued value of the faculty mentor in the undergraduate research process, challenging faculty to be "student-focused" in their research. Finally, Karukstis offers a longitudinal perspective on the role of CUR itself in advancing undergraduate research and presents suggestions for the challenges to be faced in the future.

Forty-one years ago, the Council on Undergraduate Research was formed by a group of chemists who wanted to create a directory of undergraduate research programs (Doyle 1991). Michael Doyle, a chemist from Trinity University, was elected the first CUR president ostensibly because he was "willing to be Editor for the *CUR*

Newsletter" (Doyle 1991, 18). Now in a new century and a new decade, CUR has grown into a fully interdisciplinary organization, and our newsletter has become a recognized scholarly journal. What can we conclude from this issue's backward glance? From asking where are they now? Successful programs are possible with creative approaches. Funding and assessment are integral variables. And undergraduate research, including scholarly and creative activity, persists as a valuable vehicle toward improving student outcomes and mentor engagement. With this winter 2019 issue, the past is placed in context, and our perspectives are expanded on these issues. As the new decade begins, let's look forward. In the words of Timbuk 3, a one-hit-wonder that could have been featured on *Where Are They Now?*, "the future's so bright, I gotta wear shades."

References

Doyle, Michael P. 1991. "A Brief History of the Council on Undergraduate Research: The Early Years." *CUR Quarterly* 12(2): 17–23.

Timbuk 3. 1986. "Future's So Bright." *Greetings from Timbuk 3*. Dustbowl Studios.

Where Are They Now? 1999. http://www.imdb.com/title/tt0790397/episodes?year=1999.