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# Editorial: New developments in pathways toward diversity and inclusion in STEM: A United States perspective

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## Editorial on the Research Topic

[New developments in pathways toward diversity and inclusion in STEM: A United States perspective](#)

## Introduction

This volume was assembled to honor the Louis Stokes Alliances for Minority Participation (LSAMP) program of the US National Science Foundation on its 30th anniversary. LSAMP has been markedly increasing the success and graduation of underrepresented minority students in STEM for 30 years, establishing new and effective practices for diversity, equity and inclusion (Clewell et al., 2005, 2006; Hicks, 2007). LSAMP began in 1991 as the Alliances for Minority Participation (AMP) as a much smaller program [National Science Foundation (NSF), 2018a] with the goal of increasing the success and graduation of African-Americans, Hispanic and Latino Americans, Native Americans, Alaska Natives, Native Hawaiians, and Native Pacific Islanders with Bachelor's degrees in STEM disciplines.

The program grew over the years adding the name Louis Stokes in 1999 in honor of the US Congressman who championed diversity, education and the AMP program. As the program grew, the Bridges to the Doctorate activity was added in 2003, to increase the success and graduation of LSAMP students from graduate programs. The Bridges to the Baccalaureate project was added in 2013. The main goal of this project is to increase the transfer success of underrepresented minority students from community college to 4-year STEM degree programs and graduation with a STEM bachelor's degree. The Centers of Excellence (later Regional Centers of Excellence) project was also added in 2011 [National Science Foundation (NSF), 2018b]. The main goal of these centers is to increase production and dissemination of scholarly broadening participation research.

There are currently 57 LSAMP alliances composed of more than 650 public and private colleges, community colleges, universities, flagship universities, and other institutions across the United States. In addition, there are nine regional centers of excellence. As a program, LSAMP is responsible for more than 650,000 bachelor's degrees for underrepresented minority students in STEM, to date [National Science Foundation (NSF), 2018c]. LSAMP was largely an implementation program until 2016 when a research component became required. The results of the studies of these programs and their findings are now ready for publication.

The basic element of the LSAMP program is the alliance which is a collaborating group of colleges, universities and other institutions. For 30 years, alliances of the LSAMP program have been developing, testing and collecting data on successful activities. Since 2016, social scientists, education specialists and other researchers have been rigorously studying the best practices of LSAMP as part of a new initiative and many studies have matured to publication. The goal of this special publication was to collect these excellent studies in a single comprehensive volume. By having the LSAMP studies in one place, researchers from around the world have a single reference to consult.

## The Collection

This Research Topic contains 20 articles celebrating the impact of LSAMP and is centered around several main themes. The most common of these themes is transferring of LSAMP scholars from 2-year to 4-year programs or high school to college and the programs to support their transitions. The articles in this theme describe individual efforts with different examples, but they use unique methods to support transfers and their persistence in the new institutions. Sansing-Helton et al. elucidate the problems encountered in transfer from 2- to 4-year schools and report on the benefits of their Inspire program in Wisconsin. San Miguel and Gates describe a 2-year to 4-year transfer approach between two consortia, one composed of community colleges and the other of 4-year universities, that yields synergistic results in New Jersey. Gibson et al. described a hybrid but comprehensive transition program to help high school students enter college and community college students transfer to 4-year programs in Virginia. This study is one of several papers on summer experiences to prepare underrepresented minority students for the challenges of 4-year college programs. Ghazzawi et al. describe the long-term impacts of a focused summer bridge program on underrepresented minority students in STEM. Birkes et al. present an exploratory and descriptive study of a promising transfer bridge program from 2- to 4-year institutions in Georgia. The final article in this thematic group is by Barth et al. and it investigates the variability in summer bridge programs from high school

to college in Alabama in terms of feelings of belonging and STEM self-efficacy.

Another major theme of the collection is the impacts and benefits of mentoring on the success of underrepresented minority students in STEM. The article by Markle et al. is a review of the benefits of structured mentoring on the success of underrepresented minority students in STEM. Kuchynka et al. describe the benefits of two mentorship and active learning interventions on high school and community college students in New Jersey. Beals et al. describe the benefits of an intensive peer and socio-emotional mentoring model for community college students and the development of a mentoring chain.

A third area of focus of the collection is the beneficial effect of undergraduate research experiences in both short and long-term. Research experiences are considered a best practice of the LSAMP program and, as a result, they are widely implemented. Several of the articles report on the benefits of international research experiences. One such article is by Benjamin et al. that describe the impact of the integration of international collaborative research experiences for underrepresented minority STEM faculty, students and graduates. It also credits the professional growth to the LSAMP Regional Center of Excellence that fosters these valuable experiences. Davis et al. document improvements in science identity, research competencies, and intercultural competence of LSAMP students international research experiences. Preuss et al. (B) document the quantitative benefits of international research experiences over a 14-year period at the Texas A&M LSAMP. Domestic research projects are also beneficial. For example, Betz et al. show the benefits of an 8-week research immersion summer program on transfer readiness of community college graduates who will attend Kansas State University the following semester. Preuss et al. (A) also describe the long term effects of undergraduate research at the Texas A&M LSAMP.

The other focus of the collection is on behavioral and social psychology research, models and techniques on improving and evaluating the success of LSAMP students. The article by Moreu et al. provide a review and techniques to develop a climate survey that allows researchers and practitioners to identify the methods to change learning climate. Similarly, Hargraves et al. provide the theory, development and testing of a new survey tool to evaluate the effectiveness of the LSAMP initiatives as tested in the Virginia-North Carolina LSAMP. The article by Garcia et al. describes the organizational brokerage theory and social capital needed by LSAMP scholars to succeed. The final article in this group may fit in another grouping. Miller et al. report on techniques and outcomes in a project using active learning to improve math scores in the emerging scholars program at West Virginia University.

Additionally, there are two articles on the impact of the COVID-19 pandemic and how it disproportionately impacted underrepresented minority communities in Illinois. These are very timely with regard to current events. The first paper is

by Botanga et al. and investigates the role of systemic racism in dealing with the pandemic. The second paper is by Morgan et al. and it directly investigates the disproportionate impact of COVID on minority communities and how it is being dealt with.

## Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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