

STUDENTS' PERCEPTIONS OF 'SUCCESS': A BIOLOGY STUDENT RETENTION PROGRAM

Barbara L. Howard, Timothy Turner, Naomi Campbell, Barbara Graham,
Solomon Garner, Ashton Hamme

Jackson State University, Jackson, MS, USA

Corresponding Author: Barbara L. Howard

Email: barbara.l.howard@jsums.edu

Doi: <https://doi.org/10.34107/KSZV7781.10392>

ABSTRACT

It is no secret that the retention of students majoring in Science, Technology, Engineering, and Mathematics (STEM) has presented itself to be a challenge across the country. The National Science Foundation (NSF) allots substantial funding annually towards this effort. Jackson State University's (JSU) *Students Understanding Chemistry Concepts to Enhance STEM Skills* (SUCCESS) Program is one such effort funded by the NSF. While the JSU Department of Biology had over 900 majors in 2016, data suggested that less than 23% would graduate with a bachelor's degree within six years of entry. According to data obtained, the first four chemistry courses, General Chemistry (I & II) and Organic Chemistry (I & II), were significant barriers to the educational success of many Biology majors. A review of the literature provides many examples of initiatives to improve student retention. A reoccurring theme found that the comprehensive understanding of the students' experiences within a particular major is essential to determining how best to impact student retention in that department. Student focus groups were implemented to evaluate the perceptions of Biology majors enrolled in Chemistry classes who utilized the SUCCESS Program. The overall impression of students in the SUCCESS Program was that it was helpful and beneficial to their classroom success, increased their confidence to learn Chemistry, and improved their understanding of Chemistry concepts. The students often identified scheduling conflicts as a hindrance to their participation. They also felt that the program was needed to help most students pass their tests.

Keywords: STEM, Retention, Biology, Chemistry, Perceptions, Pedagogy

INTRODUCTION

It has been noted that millions of Science, Technology, Engineering and Mathematics (STEM) careers in the United States (U.S.) will develop over the next decade and there will be a need for bachelor- or associate-level STEM degrees in this country [1]. Therefore, it is paramount that the country put forth a substantial effort to meet its imminent STEM need. In concurrence, flaws in the current U.S. science education sector have resulted in pedestrian performances in the areas of recruitment, preparation, and graduation of a diverse, next generation cohort of scientist and engineers large enough to drive the future workforce in the U.S. STEM enterprise [2]. In 2014, underrepresented minority groups (URMs) made up 31% of the U.S. population; however, they earned only 21% of all STEM bachelor's degrees [3]. Because of this, a lot of effort is focused on recruiting and retaining students, especially minority students, in STEM areas. In fact, since 2013 the National Science Foundation (NSF) has allocated more than \$800 million each year towards this effort [4]. The current grant, entitled "*Students Understanding Chemistry Concepts to Enhance STEM Skills*" (SUCCESS), is one such effort funded by the NSF.

Concept of SUCCESS

The Department of Biology at Jackson State University (JSU), an urban, research intensive, Historically Black College or University (HBCU), was experiencing a low graduation rate among its majors. Biology had the distinction of being the largest major in the JSU College of Science, Engineering,