

Effects of the Bridges to Baccalaureate Program on Student Success



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Abstract

The Baccalaureate & Beyond summer programs at Purchase College, State University of New York are designed to help underrepresented community college students transition to and graduate from 4-year schools. We investigated whether students who participated in summer programs which featured intensive science research (n = 15) or an interdisciplinary class (n = 11), and then transferred to Purchase College were more successful than similar students who did not participate in a summer program before transferring (n = 26). We hypothesized that students who participated in summer programs would be more successful than non-participating students. Students were matched for major, previous credits completed, GPA, and ethnicity. We examined first semester GPA cumulative GPA, graduation rate, graduation major, and semesters to completion. We found that students who completed science research were more likely to graduate with STEM (Science, Technology, Engineering and Mathematics) degrees than similar students who did not complete science research. The average number of semesters to degree completion was marginally higher for students who had completed research than those who completed the summer class. Participation in the summer class did not have an impact on BA attainment, GPA or the number of semesters taken before graduation. We conclude that summer science research uniquely supports the attainment of science degrees among underrepresented community college students.

Introduction

The current work investigates the following questions:

- Does participation in summer research improve academic performance?
- Does participation in summer research increase persistence in STEM?
- Are the benefits of summer research different from the benefits of a similar class-based program

Method

Program

- STEM students work in small groups completing laboratory- or field-based science research with a faculty member.
- Class students participate in an intensive interdisciplinary class on identity and complete individual research projects relating to identity
- All students
 - Reside on Purchase College campus
 - Engage in community-building activities
 - Attend professional development workshops
 - Give a formal presentation summarizing their work



Coding

- We examined
 - major GPA
 - cumulative GPA
 - graduation rate
 - graduation major
 - semesters to graduation



Participants

Program Group

26 students from 5 community colleges (16 females, 10 males) who participated in a summer program between 2009-2014 and then transferred to the college

- 15 STEM research students, 11 Class students
 - 14 African American (10 f)
 - 5 Hispanic or Latino (2 f)
 - 6 Caucasian (3 f)
 - 1 Asian (f)



Comparison Group

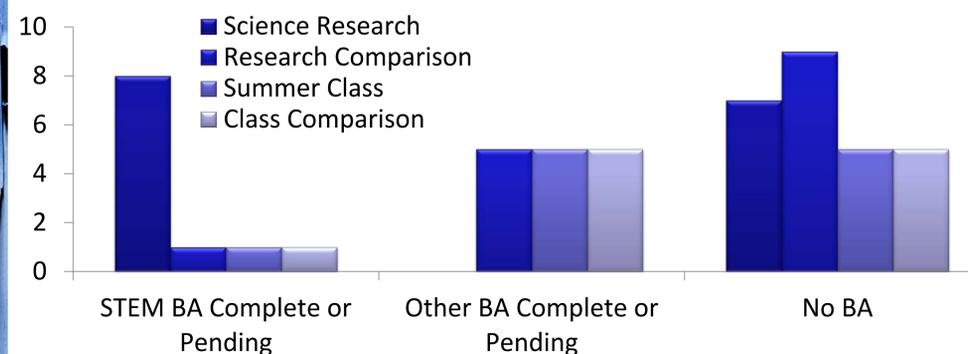
26 Students from 13 colleges (14 females, 12 males) were matched with program participants for major, previous credits completed, GPA, and ethnicity (when possible). Summer Research students had significantly higher Community College GPA (3.08) than the comparison group (2.38). However, many students in the comparison group had attended 4-year-schools before transferring.

- 12 Caucasian (6 f)
- 4 African American (3 f)
- 3 Unknown (1 f)
- 3 Hispanic or Latino (1 f)
- 3 Mixed (3 f)
- 1 Asian (M)

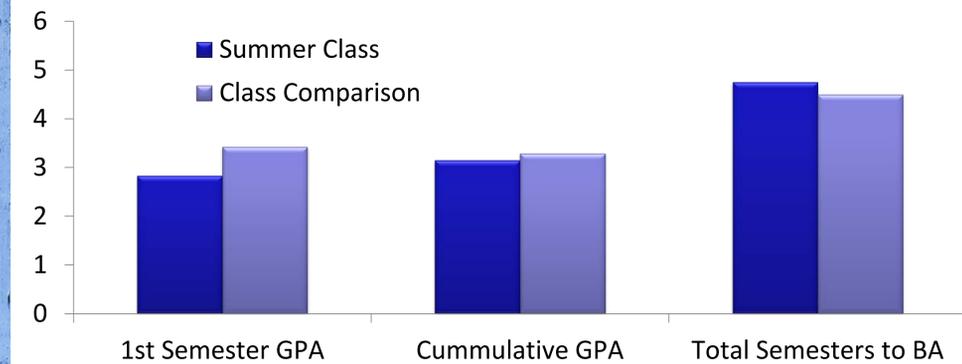
Variable	Summer Research	Matched Comparison	Summer Class	Matched Comparison
Transfer GPA	3.08	2.38	2.72	2.56
Transfer Credits	59	62	50	64
Community College Origin	15	9	11	6
Four-Year College Origin	0	6	0	5

Results

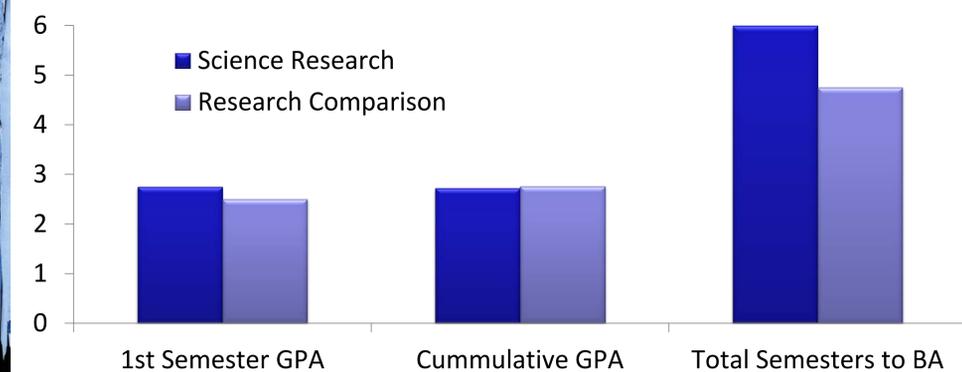
1) A larger proportion of students who participated in summer science research graduated with STEM degrees than students in the matched comparison group or the summer academic program.



2) Class participants were not different than comparison students in First Semester GPA, Cumulative GPA, or the average number of semesters to BA attainment.



3) Research participants were not different than comparison students in First Semester GPA, or Cumulative GPA. However, they did have marginally higher number of semesters to BA attainment.



Conclusions

- Participation in intensive summer science research did increase the attainment of BA degrees in STEM disciplines.
 - The difference observed in pre-transfer grades was probably caused by different grade standard at the students' colleges of origin. This interpretation is supported by the fact that science students and the matched comparison group achieved similar first semester GPA at Purchase College.
- Participation in summer research and science programs did not improve GPA.
- We hypothesize that the increased attainment of STEM degrees can be explained by increased persistence which was demonstrated by the larger number of semesters taken before graduation among science students.
- Participation in a summer class-based program was not associated with increased degree completion despite the fact that students had identical supporting activities and workshops during the summer experience.