The Impact of Undergraduate Research Experiences in Education

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Background

UC Irvine undergraduates can complete a bachelor of arts in Education Sciences (introduced in Fall 2014) and a minor in Educational Studies. The curriculum emphasizes social and public policy, research and evaluation, digital learning and teaching technologies, and human development. Both the major and the minor expose students to academic research and require 40 hours of practicum experience. Student outcomes associated with participation in Education Sciences research opportunities have not been documented.

Research Questions

This study was guided by our interest in determining how research experiences influence the following four potential student outcomes:
(1) improvement in oral and written communication
(2) enhancement of critical thinking and problem solving
(3) improvement of technology skills
(4) improvement of self-regulated learning

Method

Our sample consisted of 40 undergraduates who participated in research in the School of Education. We administered a 60 question self-report survey to determine how experience in research influences important student outcomes. These surveys contained questions about their research experiences. Additionally, we conducted qualitative interviews with participants. Together, the data provide support for incorporating research experience for students, including pre-service teachers.

Results

Self-Report Survey Questions	T-test
Speak effectively	0.02*
Draw conclusions based on evidence, facts, and ideas	0.01**
Work independently	0.02*
Understand and apply scientific principles and methods	0.00***
Use knowledge, ideas, and perspectives gained from my area of research	0.05*
Demonstrate understanding in my chosen major of study	0.04*
Effectively utilize technology	0.05*
Effectively utilize data analysis software	0.04*
Understand and apply research ethics	0.02*
Get along with people whose attitudes, opinions, and backgrounds are different	0.04*
Identify my strengths and weaknesses	0.01**
Feel confident about future plans	0.01**
Understand the link between academics and the real world	0.02*
Feel comfortable interacting with faculty members	0.02*

*$p < 0.05$ **$p < 0.01$ ***$p < 0.001$

"The research component allowed me to become independent with my own knowledge and expand on what I want to learn instead of what is given to me in classrooms.... Just seeing the professors on campus, talking to them about research, and seeing them excited about their own research is pretty great." – Senior Education Sciences Major

Discussion

Our findings support the idea that access to faculty and faculty mentorship is crucial to student development and engagement. Additionally, participation in research increased students' academic efficacy. Many of the participants in this study were first-generation college students. These are students who often need to seek support outside of their immediate social support network, which may explain the additional finding that interpersonal relationships among student researchers improved self efficacy. Notably, research experience influenced students' long-term goals. Many students report that they chose to pursue graduate work as a result of their research experience.

Broader Impacts

The key to successful student outcomes following research may be the relationships—both those formed by students and faculty mentors and those between student researchers—that these experiences foster. This may have particular benefits for first-generation college students. The positive benefits for students found in this study support increased faculty outreach to get students involved in research, as well as the development of an undergrad research workshop for School of Education students, to provide support.

Future Analyses

Future research should resurvey to carry out regression, and will benefit from surveying students outside of the School of Education. Additional studies should determine the nature of student research projects, as well as the multiple undergraduate pathways to research participation.

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