

# **TEACHING STUDENT RESEARCHERS IN HIGHER EDUCATION: A BUSINESS PERSPECTIVE**

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## **ABSTRACT**

*Research for undergraduates has been a focus for researchers for quite some time. The purpose of this study is understanding the variables involved that may increase research skills among the student population in higher education. This literature review includes peer-reviewed articles between the years 2008-2017. Time and money were a limitation. Future researchers should use different methodologies to better understand these ever-changing dynamics. Literature results include the instructor's support inside and outside of class, partnerships with external organizations to increase student innovation, and conferences should be provided for students to present their data.*

**JEL:** I2, M1

**KEYWORDS:** Research, Undergraduate, Latino-Ethnic Group

## **INTRODUCTION**

Researchers have found a connection between research and business/employer success (Andreassen, Grinenko, & Makarova, 2016; Sabir, Thomas, & Willison, 2017). Many successful contributing factors show an increase in the student's research knowledge (Andreassen et al., 2016; Banister, 2017) that may increase success rates (Andreassen et al., 2016; Morreale & Shostya, 2017). The purpose of this study is to understand the variables involved that may increase research skills among the student population in higher education. The goal is to increase higher education success rates of graduate students through mastering research skills at the undergraduate level. This research study will include a literature review as a method to further understand the variables involved in increasing the successful completion of a research study. Functional theory will be included to better understand student's research success rates in higher education.

## **LITERATURE REVIEW**

The purpose of this study is to understand the variables involved that may increase research skills among the student population in higher education. The goal is to better prepare undergraduate students with research skills to support graduate research and attain successful outcomes. Student researchers not only master research projects but business partners benefit from the success rates of student researchers (Andreassen et al., 2016; Andreassen et al., 2016). Specifically, undergraduate, and graduate researcher's success rates contribute to business partner success rates (Andreassen et al., 2016; Andreassen et al., 2016). However, undergraduate researchers need more support to increase success rates (Buff & Devasagayam, 2016; Homes, 2017). In the past, case studies (Andreassen et al., 2016; Andreassen et al., 2016; Banister, 2017; Bergamini & Navarro, 2014; Buff & Devasagayam, 2008; Buff & Devasagayam, 2016; Charlton-Robb et al., 2013; Holmes, 2017; Luke, 2013; Morreale & Shostya, 2017), surveys (Abdulraouf, Khalifa, & Mouselli, 2016; Laker et al., 2013), and interviews have been conducted to understand contributing factors for research success rates in students in higher education (Sabir et al., 2017). This research study will be using a literature review between the years 2008 to 2017 to better understand the variables already known

to contribute to student researcher's success rates in higher education. Literature reviews are used to thoroughly review all the literature and primary data gathered on a topic and problem (Bry et al., 2017). This research study will try to exhaust the literature review to comprehend how or why the variables involved in influencing success rates among student researchers in higher education are involved.

In the past, research has focused on better understanding what helps student researchers succeed (Abdulraouf et al., 2016; Sabir et al., 2017). Environments that support research and supply needed resources are sought out by student researchers (Abdulraouf et al., 2016; Sabir et al., 2017). Student researcher's success rates were influenced by teachers (Banister, 2017), partnerships with outside organizations (Charlton-Robb et al., 2013), and conference opportunities (Buff & Devasagayam, 2008). Regardless of the influences on success rates, further research is needed to better understand the success rates of student researchers in higher education (Holmes, 2017). The varying influences on student researcher's success rates will be reviewed thoroughly.

Research was conducted on graduate (Andreassen et al., 2016; Luke, 2013) and undergraduate student researcher's success rates (Andreassen et al., 2016; Charlton-Robb et al., 2013). Many variables influence the success rate of student researchers (Holmes, 2017; Laker et al., 2013). Undergraduate research has been found to be influenced by organizational partnerships (Andreassen et al., 2016; Andreassen et al., 2016), efforts provided by teachers (Banister, 2017; Holmes, 2017), conferences provided to present the research conducted (Buff & Devasagayam, 2008; Buff & Devasagayam, 2016), and overall support (Laker et al., 2013). On the other hand, graduate student researcher's success rates in higher education were influenced by organizations that support research conducted outside of the academic environment (Abdulraouf et al., 2016; Luke, 2013; Sabir et al., 2017). Although, data proves student researcher's success rates were influenced by external variables, research in this field is still needed (Holmes, 2017). This paper will now elaborate how teachers, organizations, and conferences influence student researcher's success rates.

Teachers play an important role in the student researcher's success in higher education (Banister, 2017; Holmes, 2017; Morreale & Shostya, 2017). Collaboration between the college, students, faculty, and industry partners is key (Holmes, 2017). Collaboration contributes to the creation of new innovative ideas through research (Holmes, 2017). Morreale and Shostya (2017) found faculty who aided students in studying abroad contributed to the research experiences needed to successfully conduct research studies. Conducting research while studying abroad increased the knowledge gained about international data (Morreale & Shostya, 2017). Lastly, a scaffolding approach that describes the research process as a puzzle helped students with the research process by allowing teachers to work with students that had different mindsets about research (Banister, 2017). The mindset shift allows the teacher to decrease the stress related impact on students as they take on the research process for the first time (Banister, 2017). Along with teachers, partnerships are another influential factor contributing to student's research success rates in higher education (Andreassen et al., 2016; Charlton-Robb et al., 2013; Holmes, 2017).

Student researcher's success is also dependent on organizational partnerships (Andreassen et al., 2016; Charlton-Robb et al., 2013; Holmes, 2017). Partnerships between organizations and colleges increase student researcher's skills and are needed (Andreassen et al., 2016; Charlton-Robb et al., 2013; Holmes, 2017). Work integrated learning (WIL) connects students with research projects in partner organizations to enhance the learning opportunities for students (Charlton-Robb et al., 2013). Connecting students with organizational partners not only provides students with opportunities to learn about research in their field but also increases the skills needed to work in their field (Charlton-Robb et al., 2013; Holmes, 2017). Business partners benefit from the research applied by students as well (Andreassen et al., 2016; Holmes, 2017). An improved research competence is gained among student researchers who take part in research conducted in the organizational partner's facilities (Andreassen et al., 2016; Holmes, 2017). The benefits from knowledgeable students are shared with other similar companies who hire research competent students

(Andreassen et al., 2016). Lastly, conferences were found to influence student researcher's success rates in higher education as well (Buff & Devasagayam, 2008; Buff & Devasagayam, 2016; Laker et al., 2013).

Student researchers should be encouraged to present their research at a conference (Buff & Devasagayam, 2008; Buff & Devasagayam, 2016; Laker et al., 2013). Conferences are opportunities that allow students to approach faculty members about research and select a mentor for future research projects (Buff & Devasagayam, 2016). Conferences also supply opportunities to view current research studies and encourage other students to conduct their own research (Buff & Devasagayam, 2008). Based off successful research programs, student researchers should be encouraged to present their data or publish (Laker et al., 2013). Additionally, presenting and/or publishing should be rewarded (Laker et al., 2013). Student research influences may be better understood and explained through a functional theoretical perspective.

Theoretical perspectives are used to better understand social phenomenon (Bry et al., 2017). Functional theory will be used to understand the variables involved that may or may not increase research skills among the student population in higher education. Functional theory uses the macro-level of analysis to understand how groups work together to serve a function in society (Bry et al., 2017). In this study, partnered organizations, teachers, and college administration help student researchers by providing services and opportunities that serve a function for student researcher's success (Bry et al., 2017). Functional theory best applies to this study because it analyzes patterns in macro groups and focuses on functions that derive between the macro groups (Bry et al., 2017). Since the purpose of this study is to understand the variables involved that may or may not increase research skills among the student population in higher education, functional theory best applies (Bry et al., 2017).

### Discussion and Recommendations

The overall literature review revealed variables do influence student researcher's success rates in higher education (Andreassen et al., 2016; Charlton-Robb et al., 2013). The goal is to assist undergraduate students to gain research skills so they may be better prepared for graduate school. Teachers (Banister, 2017; Holmes, 2017; Morreale & Shostya, 2017), partnerships (Andreassen et al., 2016; Charlton-Robb et al., 2013; Holmes, 2017), and conferences (Buff & Devasagayam, 2008; Buff & Devasagayam, 2016; Laker et al., 2013) were specifically found to increase student researcher's success in higher education. Thus, implications are faculty or higher education institutions should dedicate more time and money to create faculty-student mentorship opportunities, higher education institutions should be attempting to build partnerships with local research organizations that would willingly assist with research based internship opportunities, and faculty or higher education institutions should provide local conferences that is all inclusive. Most researchers used case studies as a methodology (Andreassen et al., 2016; Andreassen et al., 2016; Banister, 2017; Bergamini & Navarro, 2014; Buff & Devasagayam, 2008; Buff & Devasagayam, 2016; Charlton-Robb et al., 2013; Holmes, 2017; Luke, 2013; Morreale & Shostya, 2017).

Thus, the researcher recommends more surveys and interviews. Specifically, more students, faculty, administration, and employers need to be interviewed and surveyed to better understand their perspective on influences on student researcher's success rates in higher education. Overall, undergraduate student researchers were found to need more supportive resources (Andreassen et al., 2016; Banister, 2017; Buff & Devasagayam, 2008; Buff & Devasagayam, 2016; Charlton-Robb et al., 2013; Holmes, 2017; Laker et al., 2013) than do graduate researchers (Abdulraouf et al., 2016; Luke, 2013; Sabir et al., 2017). Higher education institutions are recommended to allot funding for student researchers, which may provide incentive to continue with such demanding programs. Graduate researchers needed organizational partners to provide a nurturing environments that may increase their research skills needed in the graduate student's future employer's environment (Abdulraouf et al., 2016; Luke, 2013; Sabir et al., 2017). Recommendations are to actively involve faculty and organizational partnership. Such partnerships should be regularly evaluated and assessed annually to assure a nurturing and supportive environment is maintained to the

increase research skills needed by future employers. Literature has indicated the research process comes with many learning obstacles (Banister, 2017) along with student needs (Andreassen et al., 2016; Abdulraouf et al., 2016) that may not always be met by every higher education institution. Essentially, closing the student researcher's knowledge gap may assist graduate and doctoral programs by providing undergraduate and graduate students with the research foundation needed to address thesis and dissertation challenges. To better understand influential barriers for graduate researchers, future researchers should focus on different ethnic-group research success rates and contributions, difference research success rates and influences between genders, different research success rates between upper and lower class levels, differences between research success rates among undergraduate researchers in community colleges compared to universities, and measure the past research experiences in successful graduate and doctoral students to compare experiences between successful graduate researchers.

### Assessment

Faculty and higher education institutions are recommended to assess students' progress, skills, and needs to better address student researcher's knowledge gaps. Banister (2017) used a scaffolding exploratory approach to teach student researchers. A scaffolding approach may be applied through a qualitative assessment, and is recommended. Assessing students' research progress and research assignments may be dependent on student's submissions and struggle levels. In other words, the qualitative assessment should target struggling students to adjust the assignments to further scaffold the teaching material. Partnerships between faculty and organizations is also recommended to be assessed because it is crucial to understand future employer's needs for hiring purposes (Andreassen et al., 2016). The researcher recommends a qualitative assessment to understand the employer's needs. Some qualitative assessments may include a survey with open ended questions to capture employer's needs throughout the research process. Additionally, student's undergraduate needs and graduate needs in the research process differ (Andreassen et al., 2016; Luke, 2013). Faculty should be looking for feedback from undergraduate student researchers to eliminate stressful barriers and to understand how to better support students throughout the research process. Another qualitative assessment that may best assess student needs and faculty interventions may include surveys with open ended questions. Lastly, faculty are also recommended to assess the skills gained in the field as graduate student researchers conduct their research projects. A qualitative approach using a reflection paper is recommended. The reflection paper assessment should measure the student's knowledge gained and faculty should compare this knowledge gained to the employer's needs.

### **CONCLUDING COMMENTS**

The purpose of this study is to understand the variables involved that may increase research skills among the student population in higher education. The goal is to assist student researchers to prepare them for graduate and doctoral programs. The literature review methodology was used to best understand this phenomenon. The literature review revealed various variables influence student researcher's success rate in higher education (Andreassen et al., 2016; Charlton-Robb et al., 2013). Overall, student researchers need faculty mentorship (Holmes, 2017), need more resources to conduct successful research projects at the undergraduate level (Laker et al., 2013), need field research experiences at the graduate level (Sabir et al., 2017), and conference opportunities must be provided to allow students to share their results (Buff & Devasagayam, 2008). Recommendations were made to further interview and survey students, administration, faculty, and organizational partners to better understand research barriers. Limitations for this research study included lack of time and funding for some articles. Functional theory was used to best understand how macro groups contributed to student researcher's success rates in higher education (Bry et al., 2017). Lastly, future researchers should focus on different cultural groups, differences between genders, differences in groups between social economic backgrounds, differences between undergraduate researchers in community colleges compared to universities, and measure the past research experiences in successful graduate and doctoral students.

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