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CUR Focus

Integrating Undergraduate Research into Economics General Education

Abstract

Social science disciplines are less known for integrating undergraduate research into their curricula, particularly in lower-level undergraduate courses. Here we describe an initiative undertaken by three economics faculty members at the University of Wisconsin–Superior to introduce undergraduate students to short, data-based social science research in economics general education courses—Economics in Society, Principles of Microeconomics, and Principles of Macroeconomics. Three course research assignments and one student survey assessing students' learning outcomes were developed and implemented. The main goal is to expose a large number of undergraduates to social-science research early in their academic careers, better preparing them for capstone courses and future careers. The semester-end student surveys confirmed that the undergraduate research assignments produced positive effects on student learning. According to the overall survey results, more than two-thirds of students agreed that the research assignments enhanced their knowledge of economics and research methods, data collection, analysis, critical thinking, communication skills, and ability to work both independently and in a group. The significance of this curriculum initiative is that the research assignments and the overall approach can be replicated and transferred to any undergraduate course in the social sciences.

Keywords: *assessment, course assignments, economics, general education, student learning outcomes, undergraduate research*

Introduction

Science, technology, engineering, and mathematics (STEM) disciplines have a long history of integrating undergraduate research into their curricula, as these fields are often taught using a combination of lectures and laboratory classes. Social sciences, for various reasons, are less known to incorporate undergraduate research into their curricula, particularly in lower-level undergraduate courses. Some social science instructors find it difficult to simultaneously mentor students, which is mainly due to instructors' lack of understanding of how to extend the faculty-student interaction and student learning beyond a classroom environment (Cox and Orehovec 2007). Some faculty members also do not believe that authentic undergraduate research can be pursued without institutional support (Pukkila et al. 2013). In addition, some instructors perceive that their students do not have the necessary subject knowledge and skills in research methods to engage in research (Bost 1992). Generally, the literature on integrating undergraduate research into social science disciplines is limited (Ishiyama 2002; Seymour et al. 2004; Parker 2012). However, DeLoach et al. (2012) offer a comprehensive taxonomy and practical guidelines for those interested in integrating various-level undergraduate research activities into economics undergraduate courses. Their taxonomy and guidelines can be also successfully adapted to other social science disciplines. We followed these guidelines in our initiative at the University of Wisconsin–Superior (UW-S) to introduce students to undergraduate research in three general education economics courses. Also, through survey-based assessment, we demonstrated the effectiveness of undergraduate research on students' self-rated learning outcomes.

The initiative began in 2014 when UW-S received a University of Wisconsin System Growth Agenda Grant and established the Undergraduate Research, Scholarship and Creative Activity (URSCA) Center. The objective for establishing the center was to enhance students' career preparation through undergraduate research. The center currently offers an annual Summer Undergraduate Research Fellowship Program, provides students with travel grants for conferences and other professional development events, promotes research internships, and provides funds to faculty to support the integration of undergraduate research across the curriculum in various disciplines, including the social sciences. The initiative described in this article was made possible by one of the center's grants.

The objective of this project is to integrate undergraduate research into all economics general education courses: Principles of Microeconomics, Principles of Macroeconomics, and Economics in Society. The first two courses are required for all business and economics majors, whereas the last one is required for business minors. Other UW-S students can also take these courses to fulfill the social-science general education requirement. These courses are offered every semester and serve approximately 200 students per year. Since these lower-level courses serve as prerequisites to higher-level ones, students enrolled in these courses are introduced to undergraduate research earlier in their academic careers and thus receive better preparation for their capstone courses and future professional lives.

With this general intent, the UW-S economics faculty have identified seven student-learning outcomes associated with integrating URSCA in these courses curriculum, including the promotion and application of knowledge, introduction to basic research methods, promotion of critical thinking and decision-making skills, data management and analytical skills, communication skills, and ability to work independently and in a group setting. A survey-based assessment tool was developed to assess students' learning and the effectiveness of integrating undergraduate research into the economics curriculum. The results of this assessment were then used to improve students' undergraduate research experiences and the courses' curricula.

In the following, we provide details of the development and implementation of the course revisions, brief descriptions of three course-based undergraduate research assignments, and analysis of the assessment of student learning.

Literature Review

A review of the literature suggests a number of positive effects of undergraduate research, scholarship, and creative activities on students' learning. According to Osborn and Karukstis (2009), undergraduate research offers numerous benefits to students through engaged learning, which helps advance their cognitive and intellectual growth, as well as professional and personal growth. Other studies find that these activities allow students to develop their critical-thinking and problem-solving skills, stimulate their intellectual curiosity, and nurture excitement about their respective disciplines (Kuh 2008; Mariani et al. 2013; Guertin 2014; Manak and Young 2014).

Considering the impact of undergraduate and related activities on student learning, some studies suggest that integrating research activities into undergraduate programs should be a core objective of curriculum development in all universities and colleges (Jenkins and Healey 2010; Russell et al. 2015). In line with this recommendation, Pukkila et al. (2013) describe and assess the implications of embedding undergraduate research across the curriculum at the University of North Carolina–Chapel Hill (UNC-C), where instructors are provided with advanced graduate students to assist undergraduates in constructing, planning, and analyzing their research projects.

According to the UNC-C's Office of Institutional Research and Assessment, a multiyear assessment of this initiative demonstrated its effectiveness, with 71 percent of undergraduates reporting their graduate-student mentored research experience as being valuable or very valuable (Pukkila et al, 2013). Although there is no doubt that many undergraduates do benefit from their research experiences, Linn et al. (2015) performed a meta-analysis of student experiences and found that such benefits are usually weakly documented. They cited the need for assessment tools that can objectively measure and document students' progress and identify effective and ineffective aspects of students' exposure to research.

Studies also show that STEM instructors successfully engage large groups of students in undergraduate research through the laboratory component of courses (Thiry et al. 2011; Beckham et al. 2015). Meanwhile, undergraduates in the social sciences, particularly in lower-level courses, are typically less frequently exposed to research activities (Fechheimer et al. 2011). To improve the experience of students in social sciences, DeLoach et al. (2012) propose inclusion of a comprehensive undergraduate research program within the economics major. They recommend that economics programs gradually integrate research activities into their curricula by starting with course-based assignments, then progressing to course-based projects, capstone experiences, and, eventually, collaborative student-faculty research. A summary of their recommendations is outlined in Table 1.

Our initiative attempts to promote the positive outcomes cited in the existing literature by exposing a large number of lower-level undergraduates to short, data-based undergraduate research assignments. As noted above, through end-of-the-semester student surveys, we capture and assess the impact of these activities on student learning, thereby helping expand the literature on the effectiveness of undergraduate research.

Project Overview

In spring 2014, the UW-S URSCA Center awarded the economics program a $6,000 grant. We utilized this grant to develop and implement undergraduate research into the economics program curriculum, specifically in lower-level general education courses. In summer 2014, three economics faculty members teaching the economics general education courses agreed to integrate a set of research-based course assignments or class projects into all sections of the Principles of Microeconomics (ECON 250), Principles of Macroeconomics (ECON 251), and Economics in Society (ECON 235) courses.

The first two courses are required for all majors in accounting, finance, marketing, management, business administration, international business, transportation and logistics, and economics, whereas the third one is required for business minors. Students taking Principles of Microeconomics

Table 1. Summary of Taxonomy of Undergraduate Research, Scholarship, and Creative Activities*

	Course activities	Course projects	Capstone experience	Collaborative research
Examples	Short assignments, experiments	Research papers, surveys	Thesis, senior-year experience papers	Grant-funded studies
Course level	All	All	4th year	3rd or 4th year
Time required	Days, weeks	Weeks, months	Semester(s)	Summer, semester(s)
Prerequisites	Content knowledge and basic research skills	Content knowledge and basic research skills	Integrated content knowledge and research skills	Integrated content knowledge, research and teamwork skills
Goals and objectives	Application of concepts and theories	Integration of concepts and theories	Student learning and program assessment	Advanced learning and graduate school preparation
Research type and student decision-making	Highly structured, common instructions, few decisions	Structured, students make some research decisions	Unstructured, students make most research decisions	Varied structure, high degree of faculty oversight, joint decisions
Mentoring focus	Individual or group, simple	Individual or group, complex	Individual, highly complex	Individual, highly complex

and Principles of Macroeconomics are exposed to at least two undergraduate research assignments, whereas students taking Economics in Society are exposed to at least one undergraduate research assignment. As previously noted, other students can also enroll in these courses to fulfill their general education requirements in social science.

One undergraduate research assignment was developed and implemented in each course in a way that complements and reinforces the material learned in the course. The developed assignments meet the Council on Undergraduate Research (CUR) criteria for student learning through undergraduate research. Grades for the research assignments are assigned based on the following performance areas: data collection, analysis, report writing, and discussion/communication of findings. To maintain uniformity, faculty agreed that every research assignment would have an identical weight in each course grade—5 percent of the final grade.

When designing the undergraduate research assignments, we considered different learning styles of students and course materials. According to A. Y. Kolb and D. A. Kolb (2005), undergraduate business students represent various learning styles, including divergent, assimilating, convergent, and accommodating. Students with a divergent learning style prefer to gather information and use "brainstorming" to come to a solution; the students tend to focus on arts. Individuals with an assimilating learning style prefer to work with abstract concepts and logic and tend to focus on science careers. Students with a converging learning style prefer to apply theories to practical matters and tend to prefer technological careers. Individuals with an accommodating learning style prefer a "hands-on" approach and tend to focus on marketing and sales careers, in which action is essential. The literature on business and economics students (e.g., Bergevin 1993) also suggests that finance and accounting students mainly have a convergent learning style, whereas marketing and management students predominantly have accommodating and divergent learning styles.

Given these differences in learning styles and the fact that most students in general education courses are freshmen and sophomores, we decided to give them detailed instructions to guide them through the research assignments. Every assignment required data collection and analysis, plus a written report, and, in some cases, group discussions to disseminate the students' findings. As a result, students had to conduct an elaborate search or inquiry to collect information on a particular topic. Afterward, they used the economics concepts and theories they had learned to explain their collected information and data. In this way, course assignments were effectively transformed into undergraduate research projects that provided opportunities for students to connect their academic learning to real life using their respective learning styles. This important and necessary connection between education and experience leading to learning has been stressed since Dewey (1938).

A brief description of each assignment is given below and shows how a research-engaged teaching approach can effectively utilize students' various learning styles:

- Project in Economics in Society (ECON 235): The Opportunity Cost of Not Having a College Degree

For this project, a convergent style of learning (D. Kolb 1984)—that is, focusing on the practical utility of a theoretical concept—was utilized. According to Ghazivakilit et al. (2014), this learning style is tied to better academic performance of students. The project was designed to show business minors the usefulness of economics concepts in making personal life decisions. Students researched the opportunity cost of not having a college degree by finding out how much they could realistically earn during their professional careers with their degree of choice. For this purpose, students were introduced to the National Association of Colleges and Employers Salary Calculator so that they could research and collect salary data specific to their occupation of choice, degree, and other criteria. Students later were asked to compare the costs and benefits of having a college degree by investigating their own probable earnings with and without a college degree. This prompted them to critically analyze in their written reports whether college education was worth the investment of time and money.

- Project in Principles of Microeconomics (ECON 250): How Does a Market Work?

This project utilized learning by doing—that is, an accommodating learning style (D. A. Kolb 1984). Similar to Lucas's (1988) focus on human-capital accumulation through learning-by-doing, the project for the Principles of Microeconomics course provided students an opportunity to learn through the personal experience of a market situation. Students re-enacted and analyzed the market forces of supply and demand. In the classroom, a perfectly competitive market for an access code for online homework (similar to the one students actually use in this course) was simulated. Every student was assigned the role of either a buyer or seller and participated in 10 rounds of one-to-one verbal bargaining. In this experiential learning project, students used the economics classroom as a laboratory to create their own supply-and-demand data. During this market simulation, students recorded data from each exchange and then aggregated it into the market supply-and-demand schedules. Finally, in their written report they applied the demand-and-supply theory to critically examine the simulated market behavior of buyers and sellers.

- Project in Principles of Macroeconomics (ECON 251): Calculation of Individual CPI and Inflation Rate

Through the economic and financial-accounting nature of this assignment, this project prompted students to again use the convergent style of learning (Togo and Baldwin, 1990). Specifically, students replicated the Bureau of Labor Statistics methodology for measuring the consumer price index (CPI) and calculating inflation. Students started by identifying their own typical weekly basket of the goods and services they consumed. Next, for eight or more weeks students visited stores to collect and record prices of all the goods and services in their baskets. Later they used the price data to compute their own CPI and inflation rate for each week. Finally, they produced a written report on how their cost of living changed over time, analyzed their experience with inflation during those eight or more weeks, and reflected on what they could do to maintain a stable standard of living. Students essentially utilized the economic concepts to analyze their own lives and behavior.

Figure 1. Student Evaluation and Feedback Form

By completing this form, you will help your instructor understand your perception of learning that resulted from this assignment. All responses are collected on an anonymous basis and cannot impact your grade in the course. Please specify your level of agreement or disagreement with the following statements:

Statements	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1.The assignment helped me master the knowledge of economics terms, concepts, and theories.					
2.The assignment improved my ability to apply knowledge to understand how the economy works.					
3.The assignment introduced me to basic research methods and skills.					
4.The assignment enhanced my critical-thinking and decision-making skills.					
5.The assignment improved my abilities and skills to collect, process, and interpret data.					
6.The assignment enhanced my ability to effectively communicate my findings using a professional economics language.					
7.The assignment helped me learn how to work as a researcher independently or in a group setting.					

8.Please provide any additional comments or feedback you may have on this assignment.

Student-Learning Outcomes and Assessment

A set of seven student-learning outcomes was developed for the three undergraduate research assignments described above. These outcomes were built into a self-reported student survey shown in Figure 1 and assessed using seven Likert-items and one open-ended question.

The student survey shown in Figure 1 was administered in all courses and sections. Individual student responses were then recorded in Qualtrics and coded with the identifying course number (ECON 235, 250, 251) and semester-year (fall 2014, spring 2015, fall 2015). In total, 344 individual student surveys were completed and analyzed, spanning 20 course sections (three ECON 235, nine ECON 250, and eight ECON 251) with enrollment caps of 25 students per section, over three semesters, using three instructors. Table 2 shows survey response rates and margins of error, after finite population correction, by course and semester.

Survey data were collected using different modes in different semesters. Specifically, in fall 2014, all surveys were administered in a paper form and then responses were recorded in Qualtrics. In spring 2015, in an attempt to streamline the data-collection and recording process, students were given Qualtrics weblinks and were asked to submit their survey responses online. Unfortunately, as Table 2 shows, this led to lower response rates that semester. Therefore, in fall 2015, paper surveys were used again, and then individual responses were recorded in Qualtrics.

Table 2. Course Enrollment, Completed Surveys, Response Rate, and Margin of Error

Course	Fall 2014	Spring 2015	Fall 2015
Course enrollment, N			
ECON 235	19	17	19
ECON 250	89	56	74
ECON 251	61	80	64
Number of completed surveys, n			
ECON 235	16	14	18
ECON 250	78	48	58
ECON 251	35	42	35
Response rate			
ECON 235	84.21%	82.35%	94.74%
ECON 250	87.64%	85.71%	78.38%
ECON 251	57.38%	52.50%	54.69%
Margin of error with finite population correction			
ECON 235	10.00%	11.34%	5.44%
ECON 250	3.92%	5.39%	6.02%
ECON 251	10.90%	10.49%	11.24%

Note: Economics in Society (ECON 235); Principles of Microeconomics (ECON 250); Principles of Macroeconomics (ECON 251)

The collected survey data were analyzed using descriptive statistics and statistical tests. Table 3 summarizes the findings by student-learning outcome, using data pooled across courses and semesters, as well as data broken down by course and semester. Overall, the results suggest that the majority of students reported improved learning as a result of completing the undergraduate research assignments. According to the pooled results, more than two-third of students who completed the survey agreed that the research activity enhanced their knowledge of economics and research methods, data collection, analysis, critical thinking, and communication skills, as well as their ability to work independently and in a group. At the same time, in almost all cases, fewer than 5 percent of students disagreed with the statement that a given undergraduate research activity helped them attain a particular learning outcome. Hence, the pooled results suggest that students believe the research assignments have been largely beneficial for their learning.

Table 3 also shows that the reported outcomes vary by course and semester. To determine whether the differences in assessment results across courses and semesters were statistically significant, Fisher's exact tests of statistical significance among courses were conducted for each learning outcome. Fisher's exact tests were used because some survey questions had small frequencies of responses. According to these test results, except for one case, differences among courses were not statistically significant. The only outcome that exhibited a statistically significant difference between courses, at 10 percent was the students' assessment of whether the project had introduced them to basic research methods and skills. A closer examination, using Fisher exact tests between pairs of courses, revealed that the lower percentage of students reporting improved research skills in ECON 250 is statistically significantly different from ECON 251 and ECON 235. This may be explained by the fact that, in ECON 250, students did not utilize any external sources for the assignment and might have not realized what specific research skills were introduced and learned.

Fisher's exact tests of statistical significance among semesters were also conducted for each learning outcome. Test results suggest that differences between the fall 2014 and fall 2015 semesters were not statistically significant. However, in the cases of several learning outcomes, the spring 2015 semester

Table 3. Percentage of Students Reporting Agreement/Disagreement with Attainment of Student-Learning Outcomes

	Pooled Results		ECON 235 % Agree and Strongly agree			ECON 250 % Agree and Strongly agree			ECON 251 % Agree and Strongly agree		
Student-Learning Outcomes	% Agree and Strongly agree	% Disagree and Strongly disagree	Fall 2014	Spring 2015†	Fall 2015	Fall 2014	Spring 2015†	Fall 2015	Fall 2014	Spring 2015†	Fall 2015
1. The assignment helped me master the knowledge of economics terms, concepts, and theories.	79.65	3.49	100	92.86	66.66	65.38	77.08	84.48	88.57	76.19	94.28
2. The assignment improved my ability to apply knowledge to understand how the economy works.	86.33	2.61	93.75	92.86	94.44	82.05	83.33	94.83	85.71	78.57	85.72
3. The assignment introduced me to basic research methods and skills.*	74.12	5.23	87.5	92.86	77.78	62.82	72.92	77.59	85.72	59.52	85.71
4. The assignment enhanced my critical-thinking and decision-making skills.	71.14	4.66	75	78.57	83.33	66.67	76.6	70.69	74.28	52.38	82.86
5. The assignment improved my abilities and skills to collect, process, and interpret data.	83.13	4.07	75	92.86	72.22	82.05	83.34	89.66	85.72	76.19	85.72
6. The assignment enhanced my ability to effectively communicate my findings using a professional economics language.	68.61	4.94	62.5	85.71	61.11	61.54	60.41	81.03	80	64.29	68.57
7. The assignment helped me learn how to work as a researcher independently or in a group setting.	71.22	4.94	68.75	85.71	83.33	69.23	68.75	63.8	74.28	66.67	82.86

Notes: Economics in Society (ECON 235); Principles of Microeconomics (ECON 250); Principles of Macroeconomics (ECON 251).
* Per Fisher exact test, ECON 250 was less effective in introducing students to research methods and skills than other courses. For details, see Student Learning Outcomes and Assessment section.
† Spring 2015 results are statistically significantly different, at 10%, from other semesters. For explanation, see Student-Learning Outcomes and Assessment section.

was statistically significantly different. This finding is most likely a result of the online survey administration used in spring 2015, whereas both fall 2014 and fall 2015 surveys were administered on paper.

Open-ended student comments and feedback were also reviewed every semester. The most frequent feedback (50 out of 189 comments) from students was that the research assignments were "helpful/helped understand the material." Students' recommendations were also used to improve the assignments. For example, in ECON 251, students now track the prices of consumer goods starting from the beginning of the semester, as opposed to later in the semester, after they learn about the consumer price index. In ECON 250, more steps were included in the instructions to clarify the research activities performed by students. Also, given the pooled results of students' learning outcomes, the economics faculty determined that all of the research assignments should be more writing-intensive, in order to further enhance students' communication skills.

Conclusion

We believe that the significance of this curriculum initiative is that similar research assignments and the overall approach can be replicated and transferred to any undergraduate social science course. The overall benefit is that since general education courses enroll large numbers of students, introducing them to research methods and social science research early in their academic careers helps better prepare them for capstone courses and future professional pursuits. Results of student surveys strongly confirm the positive impacts of undergraduate research on self-reported learning outcomes and—although there is room for further improvement— integration of undergraduate research into social science disciplines is clearly an effective and feasible active-learning strategy.

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References

Beckham, Josh T., Sarah L. Simmons, and Gwendolyn M. Stovall. 2015. "The Freshman Research Initiative as a Model for Addressing Shortages and Disparities in STEM Engagement." In *Directions for Mathematics Research Experience for Undergraduates*, edited by Mark A. Peterson and Yanir A. Rubenstein, 181–212. Hackensack, NJ: World Scientific.doi: 10.1142/9789814630320_0010.

Bergevin, Peter M. 1993. "The Relationship between Language and Learning Style." *The Journal of Language for International Business* 4(2): 1–6.

Bost, David. 1992. "Seven Obstacles to Undergraduate Research in the Humanities (and Seven Solutions!)." *CUR Quarterly* 13(1): 35–40.

Cox, Bradley E., and Elizabeth Orehovec. 2007. "Faculty-Student Interaction Outside the Classroom: A Typology from a Residential College." *The Review of Higher Education* 30: 343–362. doi: 10.1353/rhe.2007.0033.

DeLoach, Stephen B., Elizabeth Perry-Sizemore, and Mary O. Borg. 2012. "Creating Quality Undergraduate Research Programs in Economics: How, When, Where (and Why)." *American Economist* 57: 96–110. doi: 10.2139/ssrn.1875768.

Dewey, John. 1938. *Experience and Education*. New York, NY: Collier Books.

Fechheimer, Marcus, Karen Webber, and Pamela B. Kleiber. 2011. "How Well Do Undergraduate Research Programs Promote Engagement and Success of Students?" *CBE—Life Sciences Education* 10: 156–163. doi: 10.1187/cbe.10-10-0130.

Ghazivakili, Zohre, Roohangiz Norouzi Nia, Fardine Panahi, Mehrdad Karimi, Hayede Gholsorkhi, and Zarrin Ahmadi. 2014. "The Role of Critical Thinking Skills and Learning Styles of University Students in Their Academic Performance." *Journal of Advances in Medical Education and Professionalism* 2(3): 95–102.

Guertin, Laura. 2014. "Introducing University Students to Authentic, Hands-On Undergraduate Geoscience Research in Entry-Level Coursework." In *Geoscience Research and Education: Teaching at Universities,* edited by Vincent C. H. Tong, 215–221. Dordrecht, The Netherlands: Springer Science+Business Media. doi: 10.1007/978-94-007-6946-5_16.

Ishiyama, John. 2002. "Does Early Participation in Undergraduate Research Benefit Social Science and Humanities Students?" *College Student Journal* 36: 381–387.

Jenkins, Alan, and Mick Healey. 2010. "Undergraduate Research and International Initiatives to Link Teaching and Research." *CUR Quarterly* 30(3): 36–42.

Kolb, Alice Y., and David A. Kolb. 2005. "Learning Styles and Learning Spaces: Enhancing Experiential Learning in Higher Education." *Academy of Management Learning & Education* 4(2): 193–212. doi: 10.5465/amle.2005.17268566.

Kolb, David A. 1984. *Experiential Learning: Experience as the Source of Learning and Development*. Englewood Cliffs, NJ: Prentice Hall. doi: 10.1002/job.4030080408.

Kuh, George D. 2008. *High-Impact Educational Practices: What They Are, Who Has Access to Them, and Why They Matter*. Washington, DC: Association of American Colleges & Universities.

Linn, Marcia C., Erin Palmer, Anne Baranger, Elizabeth Gerard, and Elisa Stone. 2015. "Undergraduate Research Experiences: Impacts and Opportunities." *Science* 347(6222): 1261757-0. doi: 10.1126/science.1261757.

Lucas, Robert E. Jr. 1988. "On the Mechanics of Economic Development." *Journal of Monetary Economics* 22(1): 3–42.

Manak, Jennifer A., and Gregory Young. 2014. "Incorporating Undergraduate Research into Teacher Education: Preparing Thoughtful Teachers through Inquiry-Based Learning." *CUR Quarterly* 35(2): 35–38.

Mariani, Mack, Fiona Buckley, Theresa Reidy, and Richard Witmer. 2013. "Promoting Student Learning and Scholarship through Undergraduate Research Journals." *PS: Political Science & Politics* 46: 830–835. doi: 10.1017/s1049096513001133.

Osborn, Jeffrey M., and Kerry K. Karukstis. 2009. "The Benefits of Undergraduate Research, Scholarship, and Creative Activity." In *Broadening Participation in Undergraduate Research: Fostering Excellence and Enhancing the Impact*, edited by Mary K. Boyd and Jodi L. Wesemann, 41–53. Washington, DC: Council on Undergraduate Research.

Parker, Jonathan. 2012. "International Comparisons of the Integration of the Research into Undergraduate Degrees in the Social Sciences." *CUR Quarterly* 32(3): 28–33.

Pukkila, Patricia J., Martha S. Arnold, Aijun Anna Li, and Donna M. Bickford. 2013. "The Graduate Research Consultant Program: Embedding Undergraduate Research across the Curriculum." *CUR Quarterly* 33(4): 28–33.

Russell, James E., Allison R. D'Costa, Clay Runck, David W. Barnes, Alessandra L. Barrera, Jennifer Hurst-Kennedy, Elizabeth B. Sudduth, Erin L. Quinlan, and Mark Schlueter. 2015. "Bridging the Undergraduate Curriculum Using an Integrated Course-Embedded Undergraduate Research Experience (ICURE)." *CBE—Life Sciences Education* 14(1): ar4. doi: 10.1187/cbe.14-09-0151.

Seymour, Elaine, Anne-Barrie Hunter, Sandra L. Laursen, and Tracee DeAntoni. 2004. "Establishing the Benefits of Research Experiences for Undergraduates in the Sciences: First Findings from a Three-Year Study." *Science Education* 88: 493–594. doi: 10.1002/sce.10131.

Thiry, Heather, Sandra L. Laursen, and Anne-Barrie Hunter. 2011. "What Experiences Help Students Become Scientists? A Comparative Study of Research and Other Sources of Personal and Professional Gains for STEM Undergraduates." *The Journal of Higher Education* 82: 357–388. doi: 10.1353/jhe.2011.0023.

Togo, D. F., and B. A. Baldwin. 1990. "Learning Style: A Determinant of Student Performance for the Introductory Financial Accounting Course." *Advances in Accounting* 7: 189–199.

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