Experiences Engaging Undergraduate Business Students in Research Activities at a Small Liberal Arts College

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ABSTRACT

Engaging undergraduate students in research activities has been identified as an innovative strategy for improving education in America’s colleges and universities (Boyer). The value of engaging students in research is reflected in the U.S. News & World Report ranking of colleges and universities where undergraduate research and opportunities for creative expression are now distinct categories. While in science and engineering programs research participation is an important step in undergraduate student development and is highly promoted by the National Science Foundation (Stoblein and Kanet) this is not the case for business students whose involvement in research activities have been traditionally limited to graduate studies (Chang).

The author’s College has as part of its mission the development of students into life-long learners. It also has long standing tradition of engaging its undergraduate natural and social science students in research activities. The College knows research activities sharpens students objectivity, enhances their ability to find and interpret relevant information, and improves their written and oral presentation skills.

This article focuses on the author’s first experiences engaging undergraduate business students in research activities. The results exceeded his expectations and he is now planning to introduce research activities in his other courses.

KEYWORDS: Undergraduate business research

INTRODUCTION

Introducing undergraduate research activities has been identified as an innovative strategy for improving undergraduate education in the U.S. (Boyer). Though large universities have been engaging undergraduate business students in research activities for many years, many small liberal arts colleges have just begun offering such opportunities. This is because the relationship between research and the goals of a liberal arts education first need to be addressed by the institution. Unlike larger colleges and universities, small liberal arts colleges are focused mainly on teaching with individual faculty valued as generalists. With their higher teaching loads and committee assignments, faculty at small liberal arts colleges often find it difficult to do their own research and find time to mentor undergraduate students in research. Also, research facilities at many small liberal arts colleges may be also modest at best (Kiernikeys). While balancing a scholarly agenda with heavy teaching commitments easily consumes faculty’s available time, Elgren and Hensel state that utilizing the curriculum to better prepare undergraduates for independent research serves them well and can also prepare them to contribute to faculty’s own scholarly work. The synergy between these two activities has been referred to as act of “enlightened self-interest” (Mills). Additionally, involvement in research projects can make a student’s resume gain more attention from potential employers and graduate schools (Stobleing and Kanet).

APPROACH

Involving students in a class in research activities requires the instructor to modify their teaching strategy in regards to context which is dependent on the student’s interests,
the student’s role as data gatherer, analyzer, or presenter, and finally the instructor’s role as educator, mentor and facilitator (Stoblein and Kanet). The ASHE Higher Education Report states the total experience of undergraduate research activity can be divided into three phases: beginning, middle and end. The beginning phases involves setting the objectives and goals for participation in undergraduate research, the middle phase is the actual engagement of students in research activities, and the end phase is the presentation of findings (ASHE Higher Education Report). The pedagogical sequence for involving undergraduates in research used at the University of Dayton includes five key steps: (1) planning - including designing course topic research projects, (2) coaching - including supplying students with a compact manual on what constitutes good research, (3) evaluating – including the grading rubric used for the course, (4) disseminating students’ findings, and (5) assessing – collecting feedback on the research experience (Stoblein and Kanet).

STUDENT EXPERIENCE

Like most small, liberal arts colleges the author’s college is working to improve the academic quality of its student body. Engaging undergraduates in research activities is seen as one way to accomplish this important goal, and doing so has been part of the curriculum for natural and social science majors for quite some time.

It was decided to introduce research activities in the Introduction to Management Science course and these experiences are from the Fall 2009 traditional semester. The course is a business elective usually taken by juniors and seniors, and sometimes has a lower enrollment. Eight students enrolled in the course and one dropped due to concerns over the needed mathematics and Excel programming skills required.

The first challenge was to obtain the students buy-in to doing research activities. This required explaining in detail what makes good research in a business context. The students had concerns about working alone so it was decided to let them work as a team. The second challenge was teaching them enough about the tools of management science such as linear programming, integer programming, mixed integer programming so they could participate in the research project selection.

At the same time potential venues for presenting the students’ findings were being investigated. The Chairs of Divisions of Natural Sciences and Social Sciences at the College offered to let the students to join their Fall semester poster sessions. Another venue found was participating in a student poster session at the annual meeting of the Environmental Consortium of Mid-Hudson Colleges and Universities which was being held late in the semester at a nearby college.

The students decided to focus on the student poster session at the annual meeting. This set a must have project completion date and also helped them to focus on a research project having an environmental focus. The students used a basic brainstorm technique to identify possible projects. Since time was short they decided to build on a challenging case study in their textbook based on the well known coal allocation model developed by Duke Energy (Anderson). Their idea was to add an environmental constraint to the model that addressed meeting gaseous sulfur emissions.

The students were helped to organize the needed research activities. Two students were assigned to solve completely the case study. The other students researched the EPA’s air quality standards, how sulfur content in coal is related to gaseous emission content, and coal usage by electric generating plants in the US. At every class meeting, students reported on their progress including any difficulties they were experiencing. Rapidly the students identified where more resources were needed.

Once their research was almost done the students focused on their poster and what information it should contain. Quickly they found they had more background information, data, and findings than space on their poster. They were advised to have the poster serve as an overview and to write a detailed summary of their work that could handed-out to interested visitors. Their focus was then on how to produce the poster and they located the needed special paper and roll-fed plotter.

The poster and hand-out were completed about one and a half weeks before the deadline. But upon review it was discovered the word environmental was misspelled in the title. To remedy the problem one of the students had to learn how to run the plotter since the operator had gone on vacation. The student then decided who would make the various presentations. This was followed by several practice presentations and question and answer sessions. The result was the students had a very professional looking poster and well developed complementary hand-out.
FACULTY EXPERIENCE

This first attempt engaging business undergraduates in research activities changed the classroom behavior of both the instructor and students. The instructor saw his role evolve from being primarily a presenter of knowledge to being a more of a facilitator and mentor. This role change was also accompanied by changes in the pedagogy followed in the course, and most importantly, in the growth of the students from passive to active learners.

Lessons learned from this first attempt to engage undergraduate business students in research activities include the following:

- Instructors must design into their course syllabi time and opportunities for research activities. Though this may initially be viewed as taking time away from important topics, these opportunities can be viewed as alternative ways to cover these topics.
- Often ideas for student research can be obtained by the instructor from being active in local sections of professional societies. This helps keep the research relevant to current issues.
- Students have different academic strengths and skill sets, and working together allows students the opportunity to use them to their project's advantage.
- Smaller in size and/or scope research projects are better than one long project that stretches over several semesters. Students need to experience the beginning, middle, and end of the project.
- Students should work in small groups especially if the deadline to present their findings is only two or three months.
- Class size needs to be limited to a reasonable number. If no graduate assistants are available this experience suggests no more than twenty students in the course.
- Both the instructor and the students need to realize their roles in the course, and behavior in the classroom will change significantly. The complexity and number of student questions rose significantly resulting in a much more dynamic learning environment.
- Instructors must be prepared to allocate more time supporting courses with research activities.

These findings support the argument that engaging undergraduate business students in research activities should only be done after individual institutions address the relationship between research and a liberal arts education.

CONCLUSION

The experience of adding research activities to an undergraduate business course completely changed how a course, Introduction to Management Science, was designed and conducted. The student learning process also changed as students learned the meaning of good business research, how it is conducted, and how to present research findings at several different types of venues. The instructor learned business students appreciate an opportunity to investigate a problem for a extended period of time under the guidance of a faculty member. This course concluded with the students identifying projects for next year’s class.

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REFERENCES


