Introducing Students to Social Science Research

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Abstract:

We examined the benefits of introducing hands-on research experience into introductory social science courses. Fifty-six students in introductory psychology collected data in a large-scale community research project for their course assignment, while a comparison group of forty-three students in introductory psychology completed term papers. Students in the research group completed a feedback questionnaire, indicating that the community project provided a meaningful learning experience, and that they endorsed the provision of research experience to other students. However, pre and post-testing with a reliable measure of interest in engaging in research revealed no significant change in interest relative to the comparison group. Implications for further research are discussed.

Key Words:

Introductory social science, hands-on research.

Introduction

Developing students' capacity to become informed consumers and producers of research are important goals in undergraduate social science education (American Psychological Association, 2007; Howery & Rodriguez, 2006; Maxfield & Babbie, 2008). The likelihood of achieving these goals is dependent on the extent to which students acquire relevant skills and interest in engaging in research. It is assumed that quantitative courses, final year projects and research assistantships that offer hands-on experience will not only provide students with the requisite skills to understand research, but also the impetus to spark their interest in engaging in it (Landrum & Nelsen, 2002; Manning, Zachar, Ray & LoBello, 2006). The few studies that have

examined undergraduates' perceptions of participating in social science research suggest that hands-on participation does indeed produce desirable effects. Students who participated in community-based research projects in a psychology methods course (Chapdelaine & Chapman, 1999) and in second-year psychology and sociology courses (McConnell, Albert & Marton, 2008) reported increased understanding of research, for example, while first and second-year liberal arts students who worked on research projects with their instructors reported gains in analytical and learning skills (Ishiyama, 2002). However, although most social science programmes require students to complete quantitative courses (Bushway & Flower, 2002; Perlman & McCann, 2005), many of these courses focus on theory rather than practice (Sizemore & Lewandowski, 2009), and students frequently delay enrolment in these courses (Lauer, Rajecki and Minke, 2006; Rajecki, Appelby, Williams, Johnson & Jeschke, 2005). Moreover, final year projects are typically required only of honours students, and research assistantships are not widely available. Thus, the average student in the social sciences has few opportunities to develop research skills and associated interest during his or her undergraduate years.

There are at least two ways to increase students' exposure to research. One is to increase the number of required quantitative courses, ideally incorporating hands-on research experience into the course curricula (e.g., Bolton, 2000; Chapdelaine and Chapman, 1999; Harlow, Burkholder & Morrow, 2006; Macheski, Lowney, Buhrmann & Bush, 2008). Another is to introduce students to research as early as possible in the undergraduate curriculum. Often, this is achieved by encouraging students in introductory courses to volunteer as participants in faculty or graduate students' research projects (Bowman & Waite, 2003; Payne & Chappell, 2008). It can also be achieved by introducing research simulations into introductory courses, either by employing demonstrations that use students as research participants, generating data that instructors can analyze and interpret within the classroom (e.g., Balch, 2006), or by engaging introductory students in the analysis of prepared data sets (e.g., Atkinson, Czaja, & Brewster, 2006). A more novel approach would involve engaging first-year students directly in real-world, hands-on research projects. It is clearly unreasonable, of course, to expect students in introductory courses to design and implement original projects. However, consistent with the view that exposure to research should be conceptualized developmentally (Halonen, Bosack, Clay & McCarthy, 2003), moving progressively towards the level of self-direction required in a bachelor's thesis, it is not unreasonable to consider engaging first-year students in some of the tasks involved in instructor determined projects, particularly given that introductory social science courses typically include a component on research methods.

Accordingly, we designed a community research project to give students in two sections of introductory psychology exposure to data collection. We selected a common project rather than numerous individual or small-group projects for administrative ease, and because a common project was likely to yield an adequate sample size with sufficient statistical power to allow us to conduct valid data analyses to share with students. We were interested in two questions about the students' involvement in the project. First, we wanted to know if their involvement generated a meaningful educational experience. We addressed this question by soliciting feedback on their participation in the project. We also wanted to know if their involvement in the project

increased their interest in research. We addressed this question in a pretest-posttest non-equivalent groups design, using a comparison group of students who did not participate in the community project, and using a reliable measure of interest in engaging in research as the dependent variable. We hypothesized that the students who participated in the community research project would develop greater interest in engaging in research than those who did not participate in the community project.

Method

Overview of the community research project

The project, which reflects the authors' interest in psychological measurement, consisted of a two-stage survey of community respondents' perceptions of crime, disorder and community cohesion. The first stage (in which first and second-year students who are not the focus of this article collected data) tested the hypothesis that estimates of crime and disorder measured at the level of respondents' perceived neighbourhoods would be lower than estimates at the level of researcher defined neighbourhoods (e.g., census tracts). The second stage, conducted approximately six months after the first, examined the stability of community respondents' perceptions of crime, disorder and cohesion, by comparing their first and second responses. Almost 340 community respondents participated in the first stage of the project, and approximately 150 participated again in the second.

Student involvement in the community research project

Students in two sections of introductory psychology taught by the first author were invited to participate in the second stage of the community research project in fulfillment of their course assignment, or write a paper as an alternative. All students (n = 56) chose to participate in the research project, constituting the "research" group in this study. Students were apprised of the background and purpose of the project, were informed of the results from the first wave of data collection (i.e., that residents did indeed estimate less crime and disorder in their own neighbourhoods than in the larger researcher-defined neighbourhoods) and were introduced to the structured questionnaire used in the interviews with community respondents. They completed training sessions during class consisting of a general introduction to interviewing, a role play demonstration, and practise administrations of the structured questionnaire. This took approximately two hours of class time. They were also directed to practise administering the questionnaire in their spare time. In the interests of safety, and to increase the likelihood of obtaining reliable data, the students worked in pairs during data collection. Each pair was asked to interview approximately 10 community respondents who had agreed during the first stage of data collection to be re-interviewed. The interviews took place on two consecutive Saturdays near the middle of the semester. We ensured that students had cell phones available during data collection. They were able to contact the first author at all times during data collection. Moreover, the local RCMP detachment, which had endorsed the project, was on "standby" in the event of difficulties. Students were also provided with the results of their data collection towards the end of the semester, showing that community respondents' perceptions of crime, disorder and cohesion were quite stable from first to second testing.

Students in two sections of introductory psychology taught in the same semester by another instructor in our department served as the comparison group (n = 43). The students in these sections wrote a paper for their course assignment. All four sections of introductory psychology selected for this study used the same text book and study guide, worked from a common syllabus, and used identical or comparable exams. The research and comparison groups were balanced on gender (84% and 83% female respectively) and age (mean age of 22 in both groups).

Measures

To assess students' perceptions of their research experience, we invited them to complete a feedback questionnaire based on the one used in our evaluation of second-year students' involvement in community research (McConnell et al., 2008). The questionnaire consisted of seven forced-choice questions and three open-ended questions. The forced-choice questions used a response format ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), and were constructed to provide a global rating of the value of participating in the community survey, to assess whether the research experience increased understanding of research, if it increased understanding of course content, if it influenced interest in participating in further research-focused assignments and if it influenced the social climate in the classroom. Further, we asked if they thought that we should continue to offer research experience in our introductory courses, and if they saw value generally in providing students with research experience. The open-ended questions were designed to provide more in-depth information on the benefits and drawbacks of participation, and focused on three issues: what students liked about participating in the project; what they did not like; and how the experience differed from writing a term paper.

We assessed interest in engaging in research by inviting students in both groups to complete the six-item "Interest in Engaging in Research Scale" (IERS). We designed the IERS to measure interest in research opportunities available to undergraduate students (e.g., "I would like to work with other students on a research project", "I am interested in taking a research methods course"). The scale uses a five-point response format ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). We tested the IERS independently on 194 students in introductory social science courses (criminal justice, criminology, psychology and sociology), demonstrating high internal reliability in a Cronbach's alpha coefficient of .88, and adequate temporal reliability in a three-month test-retest correlation coefficient of .71 in a subsample of 62 students. The alpha coefficients for the current study were .83 for the pretest administration, and .89 for the posttest, indicating high internal reliability on both occasions.

Procedure

Students in the research group completed the feedback questionnaire anonymously during the last week of classes, and students in both groups completed the IERS anonymously during the first and last weeks of classes. The community research project and the evaluation of the students' participation described in this article were approved by the college's research ethics committee. Students were informed that completion of the feedback questionnaire and the IERS was voluntary, and that they could withdraw

their consent for the second administration of the IERS at any time without penalty. To ensure confidentiality while allowing us to match IERS data for pre-post analyses, we assigned each student in each group a unique code.

Results

Forty students (71%) in the research group completed the feedback questionnaire at the end of the semester. Descriptive statistics (means and standard deviations) for the seven forced-choice questions are summarized in Table 1. The overall mean for the seven items was 4.13, ranging from a low of 3.55 for item three (*Participation in the project helped me understand the course material*) to a high of 4.60 for item seven (*College students should have the opportunity to participate in research*).

Table 1. Student responses to the seven forced-choice questions

	Mean	SD
1. Participation in the project was worthwhile	4.31	.73
2. My understanding of research increased	3.98	.77
3. Participation in the project helped me understand the course material	3.55	.96
4. Participation in the project produced a sense of team spirit	3.93	.92
5. I would welcome opportunities to participate in research in other courses	4.17	.81
6. Participating in research should remain as the main assignment in this course	4.45	.71
7. College students should have the opportunity to participate in research	4.60	.59

Note. Responses ranged from 1 (*strongly disagree*) to 5 (*strongly agree*).

Each open-ended question generated two dominant themes. In response to what they liked about participating in the project, 45% endorsed “Learning how to conduct research”, while 38% endorsed “Working as part of a team”. In response to what they did not like about the project, 35% endorsed “Bad weather” while 20% endorsed “Rude participants”. In terms of how participation differed from writing a term paper, 73% endorsed “Hands-on/interactive” while 35% endorsed “Easier/less stressful”.

Fifty-one students (89%) in the research group and 32 (74%) in the comparison group completed the IERS at the beginning and end of the semester. The results are presented in Table 2, showing relatively low interest in engaging in research in each group at pretesting, and a slight decrease in both groups from pre to post testing. ANCOVA (which takes pretest scores into account) revealed that the posttest scores were not significantly different, $F(1,79) = 1.71$, $p = .20$, partial $\eta^2 = .02$, indicating that the research experience had no detectable influence on interest in research.

Table 2. IERS scores (means and standard deviations)

Research Group		Comparison Group	
IERS pretest	IERS posttest	IERS pretest	IERS posttest
3.31 (.77)	3.22 (.92)	3.04 (.76)	2.85 (.66)

Discussion

It is clear that involvement in the community research project was considered meaningful by most of the students. Responses to the forced-choice questions indicate that 88% agreed that participation was worthwhile, that 85% would welcome further research-focused course assignments, that 80% agreed that participation increased understanding of research, and that 78% agreed that it produced a sense of solidarity with others. Given that the community project's focus on perceptions of crime and disorder was not directly related to the course content, we were not disappointed that only 60% agreed that participation increased their understanding of course content (presumably the course's coverage of research methods). Responses to the open-ended questions were consistent with the forced-choice items, highlighting the importance of active, collaborative learning, and appreciation of the practicalities involved in conducting "real life" research. Students were quite surprised, for example, at the high number of community respondents who reversed their decisions to participate in the stage two interviews. The value of participating in the community project was also apparent in the students' strong endorsement of the provision of research opportunities for others, with 93% agreeing that we should continue to offer research experience in the course, and 95% agreeing that college students should have the opportunity to participate in research. Overall, our data are consistent with existing demonstrations of the benefits undergraduates derive from participating in research (e.g., Chapdelaine & Chapman, 1999; Ishiyama, 2002; McConnell et al., 2008).

However, although the majority of students indicated that they would appreciate completing research-focused assignments in other courses, participating in the community project did not influence their interest in engaging in research. There are a number of ways to understand these findings. It is possible, for example, that interest in research will increase with repeated research experience, or as students become involved in more steps in the research process, such as questionnaire design, data analysis and data interpretation. It is possible that interest will increase if they select their own topics for research, or if they consider the instructor selected topic interesting (we suspect that students did not share our enthusiasm for the intricacies of psychological measurement, and, regrettably, we did not assess their interest in the community project topic). It is possible, too, that the IERS is not sufficiently sensitive to detect changes in interest in research. However, it is also possible that interest in research is simply resistant to change. Vittengl et al. (2004) and Holmes and Beins (2009), for example, have shown that interest in research among psychology majors is associated with two interrelated personality variables – openness to experience, which

encompasses curiosity and appreciation of intellectual pursuits (Costa & McCrae, 1992), and need for cognition, which has been defined as the "tendency to engage in and enjoy effortful cognitive endeavors" (Cacioppo, Petty & Kao, 1984, p. 306) – suggesting that undergraduates' interest in research may remain low and stable regardless of increased research experience.

While our failure to enhance interest in engaging in research was disappointing, and while coordination of the community project took more of our time than might otherwise have been spent marking papers, we believe that integrating the project into the two first-year sections provided a viable alternative to the more traditional term paper, in that it was effective in beginning the process of socializing students to the importance and nature of empirical methods, providing direct insight into some of the logistics of research without subtracting substantial time from the general course material. Specifically, students learned first-hand about the operationalization of research variables such as community cohesion, about the administration of structured interviews, about participant attrition, and were introduced to descriptive statistics, correlational techniques and statistical power.

We hope to introduce hands-on research experience into more of our introductory courses. To those considering introducing research into their own courses and evaluating the effects of doing so, we offer the following advice. First, we recommend picking a research topic closely related to the course content: Although our topic was concerned with psychological measurement, it was probably better suited to introductory criminology than psychology. Second, we recommend assessing students' interest in the research topic when evaluating their perceptions of participating in the project. Third, we recommend having students submit a written report on their experience, which may provide an opportunity to more fully consolidate what they have learned. Fourth, we recommend including more objective assessments of learning, addressing the capacity of the project to enhance students' understanding of research methods and the research topic of interest. Fifth, we recommend developing alternative measures of interest in research. We recently developed a scale that measures appreciation of research, suspecting that appreciation is an important precursor of interest in engaging in research, and that it may be more responsive to hands-on experience. Finally, on a strictly methodological note, we recommend using a more rigorous research design whenever possible, in which the same person teaches the research and comparison groups. Although instructor variables such as education, experience and personality likely have little impact on students' interest in research, it is nevertheless advisable to eliminate all potential confounding variables in quasi-experimental research.

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