

## Student Research Proposals in the Experimental Psychology Course

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*This article describes how a written research proposal can be an effective student exercise in the experimental psychology course. Used in conjunction with reports based on data collected by students, the proposal can be used to encourage students to think creatively about the research process.*

Teachers of undergraduate courses in statistics and experimental psychology generally agree that students should become directly involved in the research process to enhance their understanding of research design and analysis (Edwards, 1981; Singer & Willett, 1990; Yoder, 1979) as well as to develop their writing and critical-thinking skills (Nadelman, 1990; Snodgrass, 1985). In psychology, this involvement typically occurs in the research methods or experimental psychology course in which students are often required to complete a research project of their own design (Chamberlain, 1986; McGill, 1975).

In addition to improving students' analytical and writing skills, the research project brings together important concepts addressed during the lecture portion of the course. Concepts such as randomization, sampling, operational definitions, and research ethics become more meaningful when students have to apply them to their own research. Because it combines attention to conceptual material with experience in analysis and writing, the research project can be viewed as a capstone experience for the experimental psychology course.

The research project has drawbacks as well as benefits. One limitation associated with student-conducted research is the lack of time needed to design and carry out an even minimally sophisticated project (Carroll, 1986; Forsyth, 1977; Yoder, 1979). With little time available and the typical limitations of equipment and laboratory space, many students conduct simplistic studies from which they gain little knowledge about the principles of behavioral research.

Another problem with student-conducted research is that it is virtually impossible for the instructor to provide adequate supervision of individual projects when each student is involved in a unique study. This limitation is of particular concern when one considers the number of research-based ethical issues that may arise in a moderate-size class.

Several authors have developed techniques designed to address these problems. For example, Carroll (1986) described what he called the *jigsaw technique*: Small groups of students complete a research project to which each member makes a separate contribution. Chamberlain (1988) suggested that recent "core articles" in psychology be used as a basis for student projects (p. 207). Chamberlain's technique involves at least a partial replication of an experiment from a core article. Data collected by individual students are pooled and analyzed by each student in separate research reports.

Another technique that introduces students to the research process and avoids many of the problems associated

with the student-conducted research project is the research proposal. This article describes how the research proposal can be combined with data-based research projects to provide students with a comprehensive introduction to the research process.

In my course, students are required to write three APA-style research papers. The first paper is a group project similar to Carroll's (1986) jigsaw technique; the study is based on data collected by the class, and each member of the group is responsible for one of the major sections of the paper (i.e., introduction, method, results, and discussion). Each section contributes 5% to the student's grade in the course. The second paper is an individual report also based on data collected by the entire class, worth 10% of the student's grade. The third paper, worth 20% of the student's grade, is the research proposal, which is due at the end of the semester. For this paper, each student is required to design a study and submit a written proposal in APA style, including all major sections of an APA-style manuscript.

The introduction takes much the same form as it does in a typical research report; it includes a fairly thorough literature review and the specific research issues being addressed by the proposal. The method section describes the subjects, equipment or materials, and procedure that would be used to complete the proposed study. For the results section, I ask students to identify the appropriate statistical tests and include a specific account of the expected results of the analyses. For example, a student who proposes to conduct a two-way analysis of variance is expected to indicate whether a significant interaction is predicted, as well as the specific nature of the interaction. The discussion section focuses on the consistency of the expected findings with previous research, potential confounds, ethical considerations, and directions for further research.

The research proposal has most of the advantages of the student-conducted research project without the drawbacks that result from limitations of time, equipment, and space. For example, critical thinking involves problem solving and hypothesis testing (Baron, 1988; Halpern, 1989; Neimark, 1987), and these processes are important components of both research projects and research proposals. However, because the research proposal has fewer practical constraints, students can be creative in selecting topics for their research. I frequently remind students that they can consider various methods and subjects for their proposals and that they can select a topic based on their own interests, regardless of the practical limitations. Students seem to have taken this advice to heart; perhaps as a result, their proposals often seem more mature, both conceptually and methodologically, than the typical, student-conducted project. For example, recent proposals have included the effects of neuroleptics on amphetamine poisoning in rats, social adjustment of children in day-care centers, and the capacity of neonates to imitate adult models. Students have even suggested that they will use a grant from a specific agency to fund their research.

Student proposals tend to be relatively sophisticated on a methodological level. Consequently, the methodological, ethical, and practical issues that students must address in their papers often require much thought. For example, one student, who proposed to study effects of speech style (masculine vs. feminine) and sex of speaker on listeners' percep-

tion of the message, had to consider whether subjects may be more likely to pay attention to one speech style than the other. To address this issue, the student synthesized information from research on speech styles as well as from studies of attentional cues in information processing.

Perhaps the main difficulty with this approach is getting the students to think creatively when they select a topic. Because many of our majors are not asked to engage in creative thinking in other psychology courses, they generally need some encouragement in this direction. I periodically remind students that they are not required to conduct the study; therefore, they are not limited to particular methods or subjects. To illustrate what former students have done in this regard, I provide a list of proposal titles from previous classes.

A related problem is that students frequently have difficulty addressing methodological and ethical issues in a study that they have not actually conducted. This problem is not limited to students' research proposals. As Neimark (1987) pointed out, we all have a tendency to engage in contexted thinking. Neimark suggested that one way to alleviate this tendency is to participate in exercises designed to encourage context-free thinking. By requiring students to engage in "what if" thinking about potential methodological and ethical issues, the research proposal constitutes just such an exercise.

Critics may argue that because data collection is an essential part of the research process, students who write a research proposal in lieu of conducting a study are not getting a complete, firsthand research experience. For this reason, the research proposal is most effective when used to supplement research assignments based on data collected by students. Under these conditions, the proposal can be an effective way to get the students to think critically and creatively.

## References

- Baron, J. (1988). *Thinking and deciding*. Cambridge, England: Cambridge University Press.
- Carroll, D. W. (1986). Use of the jigsaw technique in laboratory and discussion classes. *Teaching of Psychology, 13*, 208–210.
- Chamberlain, K. (1986). Teaching the practical research course. *Teaching of Psychology, 13*, 204–208.
- Chamberlain, K. (1988). Devising relevant and topical undergraduate laboratory projects: The core article approach. *Teaching of Psychology, 15*, 207–208.
- Edwards, J. D. (1981). A conceptual framework for a core program in psychology. *Teaching of Psychology, 8*, 3–7.
- Forsyth, G. A. (1977). A task-first individual-differences approach to designing a statistics and methodology course. *Teaching of Psychology, 4*, 76–78.
- Halpern, D. F. (1989). *Thought and knowledge: An introduction to critical thinking* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- McGill, T. E. (1975). Special projects laboratory in experimental psychology. *Teaching of Psychology, 2*, 169–171.
- Nadelman, L. (1990). Learning to think and write as an empirical psychologist: The laboratory course in developmental psychology. *Teaching of Psychology, 17*, 45–48.
- Neimark, E. D. (1987). *Adventures in thinking*. San Diego: Harcourt Brace Jovanovich.

Singer, J. D., & Willett, J. B. (1990). Improving the teaching of applied statistics: Putting the data back into data analysis. *American Statistician, 44*, 223–230.

Snodgrass, S. E. (1985). Writing as a tool for teaching social psychology. *Teaching of Psychology, 12*, 91–94.

Yoder, J. (1979). Teaching students to do research. *Teaching of Psychology, 6*, 85–88.

## Notes

1. I thank John Best for his comments on a draft of this article.
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## Psychology Seminar: Careers and Graduate Study in Psychology

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*This article describes a course for junior and senior psychology majors, informing them about career options and graduate school opportunities in psychology. We also discuss details about course planning and organization. Survey results indicate that students experienced substantial changes in the degree they planned to pursue and in their financial planning for graduate school.*

This article describes an upper division course designed to familiarize majors with career opportunities in psychology and related fields. In addition, the course provides information about choosing a graduate school, applying to schools, financing a graduate education, and preparing for the Graduate Record Exam (GRE).

## Rationale for the Course

Faculty members in our department recognized that many majors, even juniors and seniors, were not fully aware of career opportunities that degrees in psychology might afford them. Students seemed even less knowledgeable about issues related to graduate school, such as where to apply, grade point average concerns, assistantships, fellowships, and the like. As a department, we tried various solutions: communicating information through faculty advising and a freshman orientation program, offering a required sophomore-level course on careers in psychology, and developing a one-credit elective seminar class on graduate school issues.

Because each solution was partially successful, we finally decided to combine components of the careers class and the graduate school seminar into a single, three-credit course and to recommend that students take the class during the fall semester of their junior year. Our rationale was that juniors' maturity level would help them to find the course content relevant to their future, and they would have suf-

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