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LEARNING BY DOING, AND DOING WHAT OTHERS HAVE DONE: STUDY REPLICATION IN THE CLASSROOM

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Introduction

The study of sociology comprises both theory and method, a combination which has resulted in persistent challenges to pedagogical practice in the lower level undergraduate classroom (Cutler 1987; Takata and Leiting 1987). While teaching of general theory is well-suited to the classroom in the instruction of frameworks, teaching the application of theory requires the introduction of data for those frameworks. Similarly, while specific methods can be outlined in the lecture classroom format common to lower-level coursework, teaching the application of methods remains key to building a solid understanding of the discipline and its practices (Cutler 1987; Van Valey 1977, 2001). Therefore, a new emphasis on student “hands-on” learning which integrates both theory and method is emerging in sociological pedagogy (Karp 1995; Takata and Leiting 1987; Van Valey 1977, 2001).

These emphases are both complementary to and in keeping with South Dakota State University’s Lead Forward Objectives. These pedagogical approaches place technological literacy, communication ability, practical skills and critical thinking at the forefront, all of which contribute to student outcomes of international competitiveness, social awareness, and ability to adapt to social change.

Previous practice and observations

This new pedagogical emphasis has taken multiple forms in the classroom. Among these, a national initiative co-sponsored by the National Science Foundation and the American Sociological Association concentrates on student interpretation and analysis of secondary data through the use of hypothesis testing with the aid of new software and technology. Members of the SDSU Sociology Department were selected to participate in this program. The program’s intent is to concentrate on student application of theory and method through the development of modules integrating WebChip software. Faculty used data analysis modules in previous classes at SDSU, and they proved especially effective for medium-sized classes (30-50 students), but not as effective in larger ones (51-150)—the most common class size at the 100-

and 200-level of instruction. One of the key problems was student accessibility and understanding of software.

The challenge facing us for this project was to maintain the strengths of the original hypothesis testing model and hands-on learning experience in a fashion that was more appropriate and accessible to students in larger classes at the lower level. For the fall term of 2003, we decided to implement an alternative practice of hands-on pedagogy in SOC 240 Introduction to Rural America, a large class with an average fall enrollment of 90.

In that term, there were two sections of the course offered. One section had an enrollment of approximately 90 students, the other had an enrollment of approximately 50 students including five distance students at three locations. This disparity in enrollment allowed us the opportunity to examine the pedagogical outcomes in varying class sizes. The end goal was to maintain the applied strengths of the NSF/ASA model, but to develop an alternative vehicle for hands-on pedagogy that was less reliant on student use of specialized technology. The project, integrated in future sections of the course, will impact approximately 200 students per academic year.

A new strategy

To accomplish the above-mentioned goal, we designed a modified study replication and data comparison exercise which used data generated in the classroom and hypothesis testing. Following previous research, we knew that the best way to get students interested in social research and the methods involved was to have the students think seriously about past studies including: how the researchers identified the research question, how they reported findings, and how they selected methods of analysis (Cutler 1987).

Student data bank results, mirroring those of the larger study, were then compared to the study outcomes as presented in Glen Elder and Randall Conger's *Children of the Land* (2002). This text was selected because it provided several advantages: 1) the study emphasizes the social context of rural and small town youth in contemporary Iowa, which is a comparable population to students at SDSU; 2) the text contains many of the survey instrument questions in appendices to the text, which provided a model for survey construction and method; 3) the study outcomes are reported at length in the text, clearly identifying variables and multiple forms of analysis; and 4) the text clearly identifies and demonstrates hypothesis testing.

The new instructional model contained three components requiring both individual and student group completion. The first component was the individual completion of six in-class surveys; the second component involved student group formulation of hypotheses for testing with class survey data. The final exercise was the completion of a data analysis paper, including reporting of results from their hypotheses testing and comparison of their data outcomes with those from the text.

Implementation

Children of the Land was the first of three texts in the course, so this hands-on approach was introduced in the first third of the term. The text progresses through topical chapters, including background and demographic information, family structure, work, school and civic activities, church participation and youth aspirations. At the conclusion of the first six chapters, students in the course completed a series of questions drawn from the survey questions included in the text for that chapter. As we progressed through the text in reading and lecture, we simultaneously built an original data base of approximately 60 variables corresponding to the text's primary concerns. The teaching assistant was solely responsible for maintaining student confidentiality in relation to data entry, and for tracking participation points awarded to student respondents. In this way, we modeled the importance of confidentiality in research, as well as use all steps of the exercise for evaluative purposes.

Data was entered in SPSS software, which facilitated the process of hypothesis testing for the final exercise. Student groups submitted hypotheses electronically, and received their results through e-mail attachments of data results. This process proved most beneficial to distance students, who otherwise would not have had access to campus-based data analysis software, such as SPSS.

Results

Results for this innovation were determined by performance and learning objective outcomes through comparison with outcomes of the previous module exercise. Overall, the data analysis papers for the replicated study exercise demonstrated many of the same qualities and skills as the data analysis modules developed for other classes through the NSF/ASA program. The majority of both classes devised testable hypotheses on their first attempt. Further, with the guidance of the Conger and Elder's analysis, the papers were more thorough in their discussion of specific data outcomes. The students also demonstrated understanding of additional methods skills in survey instrument construction through the use of questions, a learning exercise not possible through the data analysis module.

There were two notable problems which emerged in this exercise. First, although the students saw the original data base and devised hypotheses from it, they were never involved in the computer work that transforms raw data into a hypothesis test. Therefore, the students still remained somewhat separated from a hands-on experience of data analysis, and a few of the students (those having trouble with hypothesis formulation) had great difficulty in conceptualizing the connection between the raw data and their hypotheses. Second, replicating a large scale study which appears in a book proved confusing for some of the students when the time came to analyze their own data. Their own hypotheses were inappropriately compared to

particular outcomes reported in the book. For example, while the students had crosstabulation data to examine for hypothesis testing, Elder and Conger used several correlation tables of weighted measures. A good share of this confusion can be related to the students' exposure in the text to statistical methods considerably above the level of the course, as well as to the above noted separation from data transformation.

Recommendations and Impacts

We will include the replicated study exercise in this same course in upcoming terms with some alterations. First, we will try to expedite the survey process by exploring on-line student entry of survey responses. This change will address the problem concerning student separation from data transformation and maintain student confidentiality while rewarding evaluative participation points for the exercise. Second, more lecture time will be given to explanation of the connection between survey questions, variables, hypotheses, and outcomes analysis. This additional time will be conducted in an on-going format, so that students are more consistently exposed to the progressive logic of sociological methods, as well as to the conceptual substance.

Overall, the replicated study exercise proved more effective than previous models, as indicated in levels of both student enthusiasm and performance outcomes. Indeed, one of the greatest strengths arising from this exercise is the use of Elder and Conger's study. The students not only were engaged in hands-on research work, they were also engaged by the process of seeing the outcomes based on their lives and those of their regional peers. This form of engagement is the most important base for learning, and a very satisfactory outcome of the exercise.

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BIOGRAPHY

Meredith Redlin is an assistant professor in the Sociology Department. Her pedagogical focus is on increasing student experiential learning in the classroom and on creating effective pedagogies in both traditional and distance formats.

Mario Hesse is a graduate student in the Ph.D. program in the Sociology Department. His research interests include the mechanisms of social control pertaining to juvenile detention, juvenile deviance and demography.