Whitman College Pedagogical Improvement Grant FINAL REPORT
Sociology Departmental Inquiry Project (Summer 2024)

Enhancing Survey Design and Quantitative Analysis Skills in Introductory, Statistics, Methods, and Thesis courses in Sociology

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Participants: Michelle Janning, Chris Wakefield, Rachel Nickens, Alvaro Santana-Acuña (Sociology Faculty), Joshua Farrell (Data Scientist & [former] Director of Analytics for Enrollment and Communications)

Goal: The Sociology Department seeks to improve student learning, as well as faculty capacity to teach and advise, in survey design and quantitative data analysis across all levels of our curriculum. Using pedagogical and statistical resources, as well as mentoring from a staff expert, participating faculty will improve their own teaching capacity and revise and align syllabus modules at introductory, intermediate, and advanced levels.

What was the outcome of your project and how did it align with your original goals as stated in your application?

Three syllabi and several course-specific projects (Soc 117, 207, 208) have been mostly revised (final tweaks in late August) to be better aligned and scaffolded with each other and to be more robust and practical in terms of instruction related to survey design and quantitative analysis (and faculty capacity and strengths). The syllabi also align in terms of the tools we are using to teach students in all three courses quantitative analysis. We have decided to use Excel for instruction for Principles of Sociology (SOC 117) and Social Research Methods (SOC 207), with Social Statistics (Soc 208) deepening student learning by using Stata as the primary analytic tool next year. Several helpful Excel instructional videos were made by Chris Wakefield, which will be used in Soc 117 and 207. Whether R will be used in any course in the future remains unclear (see below). The projects for each class build on each other – Soc

117 is an improved survey project including survey design in Qualtrics and data analysis in Excel; Soc 207 contains a survey and secondary statistical analysis paper along with other qualitative projects; Soc 208 contains numerous assignments that build student statistical knowledge and capacity to analyze survey results.

We are grateful to have gained exposure through 3 multi-hour workshops to the open-source statistical program R in our training sessions with data scientist Joshua Farrell, though found R to have a steep learning curve and require considerable coding skills. All participating faculty members gained a basic understanding of the program, including its interface and vocabulary. One faculty member, who already had more experience with R and also participated in an online in-depth R workshop not affiliated with the PIG grant, found it particularly helpful to learn about the different add-ons that may be useful to sociologists. A fourth department member (not in the PIG grant) found the training session to be useful for both research and teaching.

Based on the steep learning curve associated with R and its numerous possible add-on packages for particular statistical techniques, we decided that Stata is the program we'll continue using in Soc 208 (Social Statistics) for next year and that statistical analysis in Soc 117 and 207 will be taught using Excel. Excel is useful for a wide variety of post-Whitman careers, is more practical for students who are not necessarily going to write a thesis in sociology (though it can be used for such a project), and is a tool all (or almost all) sociology faculty can effectively teach.

For seniors using statistics in a thesis, we will continue to strongly encourage (require, perhaps) taking Soc 208 (with Stata), and their methodological thesis advising will be primarily done by two faculty members with existing knowledge of statistical packages, though most faculty members can advise on survey design well, and our thesis advising structure allows for easy collaboration among faculty members.

What sense do you have at this point that your project has enhanced student learning and what will you be looking at in the future to know whether the project was successful?

We already know that the prototyped Soc 117 survey project revision worked well in spring 2024, improving student learning in terms of survey design, use of sources, and analysis. That forms the basis for next year, when the project will continue using this new format and a few improvements. We will assess individual course learning outcomes and we will assess alignment of outcomes across courses per existing College assessment reporting. But a lot of the outcomes need a year to come to fruition: Students taking Soc 117 who enroll in Soc 207 and/or 208, and who complete a quantitative senior thesis *starting in 2025-26* should show evidence of improved preparedness about survey methods and quantitative analysis. All of this will show up in course assessment, as well as in end-of-year departmental assessment of thesis learning outcomes. Importantly, one helpful outcome of the project is that we did a lot of work to align learning goals and scaffold skill sets across 117, 207, and 208. This, we can tell, is already successful insofar as the projects and syllabi are more aligned as we head into the Fall 2024 semester.

What were the limitations or failings of this project, and how, in retrospect, might they have been better addressed or remedied?

A goal of our PIG was to explore R as a possible alternative program for teaching quantitative data analysis. It is used in the Math Statistics courses, and some of our students have attempted to use R for Sociology theses. Based on the activities we have undertaken in this PIG (including 3-days of sociology-specific instruction by Joshua Farrell), we feel that R is not accessible to, or effectively usable by, both students and faculty in Sociology, especially considering the time it takes to learn. R is a program that requires learning essentially a new language and becoming very familiar with a library of complex add-on packages that require understanding of the network of open-source online tools. While free to download, R is expensive in terms of the time and labor required to have every member of the Sociology department learn how to use and teach it. That's not a failure of this project; it is a revelation that paying for more accessible statistical programs such as Stata continues to be necessary. The limitation of teaching R well enough to teach and advise using it would be a very involved project, likely requiring multiple faculty members attending a more intense summer program. We are also not sure that switching to R would benefit our students at the undergraduate level, given that it requires learning a new language at the same time they need to learn about data analysis generally. It remains unclear what we will do if a student who has become familiar with R in a non-Sociology course wishes to use that tool for a thesis.

We did not accurately predict what would be needed in order to make R usable to faculty who were not already familiar with it. R is expensive in terms of time and labor to master. Therefore, the PIG was not successful in expanding advising ability for data analysis specifically (as opposed to survey design or methods more generally) using this platform. It was successful for syllabus, learning outcomes, and project scaffolding and alignment across 3 courses.

How do you envision sharing the results of your work with other colleagues at Whitman (or elsewhere)?

Our work will be apparent in our syllabi, which will be available to any who request and to our students. Additionally, the many resources we have prepared including a SOC 117 Project Guide, SOC 117 Project Prompts, a SOC 117 handout on common errors in survey design, Excel instructional videos, and all revised syllabi will be stored in the Sociology Department shared drive for use by our other colleagues. If there are ongoing conversations across departments about statistics, we can easily chime in with our experience and continue to support the fact that teaching stats across all departments is limited by the type of statistics program and approach to analysis that maps onto a particular discipline. And, our work towards making a more robust inclusion of Excel may be useful for other programs, including staff offices and faculty members.

Our project descriptions and syllabi are available upon request.

Thank you for the opportunity to work on syllabus and project alignment related to survey design and quantitative analysis in Sociology.