

Reflection on Research Experience

Overview of research experience gained in STATS 346:

Program Evaluation of Head Start Family Involvement

Longwood University

- Program Assessment of at-home programs
 - Survey design and implementation
 - Qualitative and quantitative analysis of open and closed-ended questions
 - Analysis and reporting of key findings
- Aug. 2023-May 2024

Learning how to use complex statistics to interpret social phenomena is the most important skill that I've gained from my time in STATS 346. In fact, in terms of my future career as a sociologist, I believe that it's one of the most important skills that I'll have gained during my entire undergraduate career. I remember in the beginning of this course, Dr. Pederson said something along the lines of, "I won't put up with any complaining about how you can't do math or about how statistics is overwhelming—the information I'm giving you in this course is literally priceless in terms of the long-term success that each of you hopes to achieve." Even though the first time I entered our classroom I was seriously daunted by the prospect of a college-level math course, I quickly began to understand and wholeheartedly agree with that statement once we began covering course content.

The body of data that our class analyzed during SOC 345 was data that my peers and I all helped collect during the fall 2023 semester. My peers and I helped our professor conduct a program assessment of take-home parent/child activities (which were designed by fellow students) to test how much each activity encouraged family engagement. These activities, which

were referred to as “Family Fun Time Activities” or simply FFTAs, were completed by families with children who were enrolled in Head Start programs in and around Farmville, VA. This past semester (the spring of 2024), all the SOC 345 students practiced analyzing the data that we collected from the FFTAs by performing by-hand calculations, as well as by using coding syntax to run tests and create tables from the data in SPSS and R Studio. Overall, we found that activities that explicitly involved counting, spelling, and/or writing generated more enjoyment and family engagement than activities that were more focused on abstract creativity or fine-motor skills. These findings provided valuable insights into how future classes can better design their FFTAs to promote family engagement.

Having the opportunity to contribute to a program assessment was particularly meaningful to me, because it opened my eyes to the immense value of having a methodological framework with which to identify social problems, pinpoint their causes, and create plausible, effective solutions based on the story the data is telling. I believe that our government needs to put a lot more time, funding, and energy into conducting program assessments on everything from police departments to the efficacy of public school counseling departments—while *also* being held accountable for making use of the information that these assessments provide to build a more just, equal society.

During SOC 345-346, I also gained the valuable skill of designing survey instruments with a variety of different question types (Likert Scales, open-ended questions, multiple choice, etc.) I found it fascinating to work with my peers and professor on rewording questions so that they would produce the most useful, streamlined answers from participants. I think statistics is a beautiful mathematical discipline because 1) There’s humanity behind the numbers we test, and

2) The survey-design and analysis processes showcase the immense power of word choice and phrasing.

Participating in our class research project also helped to familiarize me with the trials and errors of survey implementation. The project that I worked on was in its sixth iteration, and the survey implementation strategy that we used still wasn't perfect. Our professor thought that by expanding the participant pool to Farmville's surrounding—as well as immediate—counties, we would be able to diversify and increase the survey responses we got. This did not prove to be the case, however, as our group actually ended up getting fewer survey responses than ever before. Although disappointing, this outcome taught us some invaluable lessons about survey implementation (such as the importance of building a strong relationship with members of *every* organization where surveys are distributed beforehand, the difference that it makes when participants are able to recognize place-specific symbols—like the Longwood logo—and through that recognition become more invested in participation, etc.)

When we started analyzing the quantitative and qualitative data that we received from our survey instrument in SOC 346, I was able to fully grasp how the design of the survey's questions directly predicted the way that our data would appear in its raw form. This was an important moment for me because it heightened my understanding of the importance of working to design survey instruments with intentionality, long-term specificity, and efficiency in mind from the start. It was also during data analysis that I realized just how much influence sample size and category sizes have on trends and statistical test results. Immense power lies in the researcher's ability to decide who will be counted/categorized as what. With this fact in mind, I am now better able to critically analyze statistical charts and reports that I come across both in my academic coursework and in my day-to-day life as an American consumer. I hope to continue to

hone this skill in graduate school so that I can continue to produce reliable, accurate findings in future publications, and so that I may recognize when others have failed to do so.

It was also through the data analysis and data reporting phases of SOC 346 that I gained experience re-coding data in SPSS and R Studio to run specific statistical tests such as z-scores, confidence intervals, independent sample T-tests, ANOVAs, one-way chi squared tests, Pearson's correlation coefficients, and OLS binary regression models. Learning about the purposes and applications of these tests in class, as well as having the opportunity to practice running them by myself, has given me a strong foundational understanding of how to pull desired information from sociological data sets. Additionally, the practice that I gained writing a report of our class's key findings has given me a foundational understanding of how to tell a compelling story with numbers.

Moving forward, I plan to draw from the experiences I've had and the knowledge that I've gained in my undergraduate statistics courses to help me attend a graduate program at a high-ranking, competitive grad school. Once I'm in grad school, I will build on my undergraduate statistics foundation and develop more specialized, technical skills and knowledge so that I will be prepared for a career that involves making serious social change in America and around the world. No matter where I end up or what I end up studying, I know that I will be able to apply the analytic skills that I've picked up from Dr. Pederson to better understand the world around me, and to better explain the realities of the world to others.