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A Method for Improved Student Survey Sampling

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Assessing characteristics or opinions of a diverse student body can pose challenges at a large university, but staff and administrators find such assessments beneficial when developing new programs or refining existing services. Gaining a nuanced understanding of the types of problems students face can help administrators respond effectively to support student success. Obtaining valid estimates of the extent of challenges, problems, or experiences of students is essential as well. OPAL's efforts in conducting the 2022 OSU Student Food Security Survey illustrate a method for improving the trustworthiness of such assessments when surveying students. Our survey took a random sample of the OSU student population, a method that can be particularly effective when assessing a large population such as the OSU Corvallis student body (~22,000). If a survey is sent to the entire student body (which was also done for comparative purposes), response rates are likely to be low, and results will show response bias toward the subset of the population that is most concerned with issues addressed in the survey, because they are more likely to respond. Our approach sought to significantly increase the survey participation rate, even among otherwise uninterested students, to counteract such bias. In this way, systematic random sampling combined with visiting classrooms for soliciting participation helped mitigate response bias to yield more trustworthy estimates.

Mitigating Response Bias

A university's distinct departments or colleges offer one logical method for categorization within the sampling frame. The 2022 OSU Student Food Security Survey sought to survey the attitudes of on-campus students in Corvallis. To obtain a sample of students to invite to participate, the population was broken down by colleges which comprise the university. From there, specific courses in each college were identified based on the projected number of students in each, which, when taken altogether, represented proportions of the total number of undergrad and graduate students in these departments. While only some courses were chosen, the population sample remained broadly representative of the colleges because any student taking classes in a college had a chance of being in one of these courses.

In order to further mitigate response bias, researchers for the 2022 survey used a technique employed in the 2020 OSU Food Security survey by administering the survey to students during class time. Asking students who were present for class to complete the survey on the spot resulted in very high survey participation. By achieving high participation rates we

were more assured that students not struggling with food insecurity also participated in the survey along with those who were struggling with food insecurity. Both the 2020 and 2022 versions of the survey were also, separately, emailed to the entire student population of OSU a week after the class visits were completed. Response rates and levels of food insecurity were compared across the two survey methods in each study to evaluate how the more robust in-class data collection may have improved the estimates.

Implementation and Ethics

For the 2022 Student Food Security Survey, researchers began by requesting selected instructors' permission to visit for the first five minutes of a class during Week 7 or 8 of the Spring term. The survey was to be administered in class by the researcher using an online link shown on the board or projector. Instructors could choose whether to agree to the visit, and if so, which date they preferred within the given time frame. An initial group of 40 instructors was emailed the visitation request. Two declined, and 19 did not respond. Of the other 19 who agreed, two did not respond to follow-up emails or specify a date. Twenty-one backup instructors were emailed several days later, of which 16 did not respond and one declined. Four agreed. In total, student researchers visited 21 classrooms to administer the survey during Weeks 7 and 8.

An important component of ethical surveying is informed consent. This survey, like many others, provided an informed consent document on the first page. Those students who consented could then move on to the main questions. However, due to the real-time nature of the survey administration and the limited participation window of five minutes, it was necessary to provide students an opportunity to review the consent document ahead of time. For this reason, several days prior to the course visits, participating instructors were emailed a written script containing a link to the consent form that they were then asked to pass along to their affected students via Canvas messaging. While instructors were not required to confirm whether they had sent the message to their students, it was expected that those who had agreed and set a date for the survey administration would cooperate with the request.

Assessing Response Rates and Limitations

Across the 20 classroom visits for which student participation rates were calculated (with one rate not calculated due to unresolved anomalies), percentages ranged from 66%-100%, with an average of 81.8% student participation. This rate is extraordinarily high, especially in comparison to the approximately 10% response rate achieved in the surveys mailed to the entire student body. The class visit percentages may be modestly imprecise, as they are based on headcounts performed by the researchers during the visits. Particularly in large classrooms containing over 50 students, exact counts can be difficult to obtain during the five-minute survey administration. The number of survey responses for any given class was obtained via Qualtrics using timestamp correlation. While not exact, the percentages are acceptable for showing general trends. Their accuracy is bolstered by the similarity of rates from the 2020 survey, in which student counts were more precise due to classes being held online. The very high participation rate of class-collected surveys compared to the mass-emailed versions demonstrate the efficacy of the targeted sampling approach in surveys of university students. In the 2020 survey, the food insecurity rate estimated from course visits

was eight percentage points lower than in the mass-emailed survey, showing the potential response bias errors created by relying on mass-emailed surveys. Data analysis of the 2022 surveys will be complete by Fall 2022.

Visiting classrooms to administer the survey in person, however, did pose some logistical and ethical challenges for the 2022 Food Security Survey. At least one instructor implied that they had forgotten about the scheduled visit, which raised doubts about whether they had sent the informed consent document to their students beforehand. Several large lecture halls with stadium seating posed physical challenges not only in accurately counting the number of students present, but also in administering and collecting paper copies of the survey that were available by request, which some students utilized. Other classroom layout difficulties included one in which the survey administrator had to stand in a position that appeared to block the exit; combined with the instructor's request that the survey be administered at the end of class, it was difficult to convey the voluntary nature of student participation when students may have been prevented from exiting. In one instance, a course that was presumed to be fully in-person contained students logged in via Zoom as well as in the classroom, which affected the count of students present as well as the rate of participation, which was on the lower end of the spectrum (66%).

In addition to coordinating student-researcher schedules with those of the classroom visits, in-person survey administration can present many logistical difficulties as described above. Before implementing this style of survey, care should be taken to consider these logistics so that students' voluntary participation can be assured, measured and assessed.

Conclusion

We conclude that when possible, and when properly conducted, class-visit data that inspires higher participation rates is likely to produce more trustworthy population estimates for the student body. This study illustrates how sampling techniques that permit data gathering from a smaller, but more representative, group of students can improve the quality of the conclusions that might otherwise be drawn from mass emails sent to the whole student body.