"Understanding Teaching Usage of the General Social Survey" Study

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Study Overview

To better understand how the General Social Survey (GSS) and its data are used in course instruction, NORC at the University of Chicago conducted a multimethod study between February and November 2020. The specific aims of the study were to: 1) understand GSS use cases for various disciplines; 2) better understand the challenges to using the GSS in classrooms; and 3) approximate the annual exposure of the GSS in U.S. classrooms.

This study used several methods to answer these specific aims. These included: 1) semistructured in-depth interviews with GSS stakeholders and users (which happened in two waves); 2) a manual environmental scan of textbooks and select syllabi to qualitatively analyze mentions of the GSS; and 3) automated web scraping to identify open-access syllabi containing mentions of the GSS. Due to the COVID-19 pandemic, all interviews took place via Zoom or telephone.

Findings indicate that the GSS is widely used in both sociology and nonsociology courses in the U.S. and abroad. Within the discipline of sociology, the GSS remains an important frame of reference for many topics. In terms of specific course types that utilize the GSS, the most commonly referenced were research methods and quantitative courses. It was also learned that undergraduate and graduate students typically use the GSS differently, with undergraduates often encountering it in lectures and graduate students more likely to use it in research projects. It is also used more widely as a teaching resource, as its relevance and careful measurement over time make it an ideal tool for the classroom. However, faculty-led research often requires data sets that are tailored to more narrow or specialized areas of focus.

There is a perceived complexity of the GSS data that can result in undergraduate sociology students feeling intimidated to use it in their work. This—coupled with the finding that professors do not have enough time to help students learn how to use the data—creates a barrier to uptake in courses by students and faculty. Suggestions for increasing exposure to the GSS, such as the creation of marketing materials and tutorials tailored for universities and their students, were also identified.

Finally, based on a stratified random sample of U.S.-based undergraduate sociology professors and department directors, an inference could be drawn about exposure of the GSS in U.S. sociology classroom settings. It is estimated that approximately 377,600 students annually are exposed, which may fall within a range of 283,200–472,000 students.[1] This is a conservative estimate, and more work is needed to provide a more accurate estimate of exposure of the GSS in classroom settings.

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[1] See Appendix A for exposure estimate procedure.

Key Findings At-a-Glance

GSS Use in the Classroom

The General Social Survey

GSS

The purpose of this study was to understand GSS **use cases** for various disciplines, better understand the **challenges** to using the GSS in classrooms, and approximate the **annual exposure** of the GSS in U.S. classrooms.

FINDINGS

GSS IS PRIMARILY USED AS A TEACHING RESOURCE

Used in research methods and quantitative courses

Used to introduce students to the research methods process and to the use of statistical software

Used differently by undergraduate and graduate students

Challenges to using the GSS in classrooms include:

- Available data may not cover specialized areas of interest
- Complexity of GSS data for undergraduate sociology students can be intimidating.
- GSS Explorer interface is not basic enough for beginner students and lacks ability to quickly and easily create simple visuals of data.

GSS IS USED IN BOTH SOCIOLOGY AND NONSOCIOLOGY COURSES IN THE U.S. AND ABROAD

1,345 textbooks mention the GSS

1,810 mentions of the GSS in course syllabi

1,471 mentions were from U.S universities (81%)

164 mentions were from international universities (9%)

40% Sociology courses and **60%** non-Sociology courses

ANNUAL EXPOSURE

Inferential exposure of the GSS in U.S. sociology classroom settings is approximately **377,600** annually, which may fall within a range of (283,200–472,000 students). This is a conservative estimate and more work is needed.

RECOMMENDATIONS

INCREASE EXPOSURE TO THE GSS

Create **marketing materials** tailored to universities and their students

Develop **video tutorials for YouTube** on how to use GSS data

Develop **template lesson plans** and assignments

ENHANCE THE GSS EXPLORER

Improve the **analytical and data visualization** capabilities

RESEARCH METHODS

METHOD 1
In-depth Interviews with GSS Stakeholders and Users

Wave 1:
9 GSS stakeholders
6 Sociology professors
3 Sociology directors
4 AAPOR members

Wave 2:
14 Sociology professors
7 Sociology directors
3 Data Explorer users

METHOD 2
Environmental Scan of Textbooks and Select Syllabi

University of Chicago library
Google
Amazon Textbooks

METHOD 3
Automated Web Scraping of Open-Access Syllabi

Open Syllabus
1,810 GSS mentions identified in course syllabi

Study Background and Purpose

The National Science Foundation (NSF) awarded funds to NORC at the University of Chicago (NORC) to conduct the National Data Program for the Social Sciences (NDPSS, No. 1851332) for the 2019–2021 cycle. The NDPSS generates General Social Survey (GSS) data and International Social Survey Programme (ISSP) data. The NSF's Sociology Program expressed interest in learning more about how GSS and its data are used in college instruction and funded NORC to design a multi-methods sub-study aimed at understanding exposure of the GSS in the classroom.

This current study sought to better understand how the GSS is used in coursework and which disciplines use the data for teaching. To achieve this goal, the GSS team collected information on the extent to which the GSS is used in undergraduate and graduate courses and how the GSS team can better support innovative uses of the GSS, e.g., to teach data science and advanced analytic skills, in coursework.

Study Aims

To better understand how the GSS and its data are used in course instruction, a multi-method study was designed and fielded between August and November 2020. The specific aims of the study were to:

- Understand GSS use cases for various disciplines
- Better understand the challenges to using the GSS in classrooms
- Approximate the annual exposure of the GSS in U.S. classrooms

Study Design

Between February and November 2020, the GSS conducted a mixed-methods sub-study aimed at understanding GSS use cases in classrooms. The methods and sampling design are described below.

Study Methods & Samples

This study used several methods to answer the specific research aims. These included:

1) Semistructured in-depth interviews with GSS stakeholders and users, which happened in two waves. Wave 1 included three different sets of interviews. The first set of interviews

was with a purposive sample of key GSS stakeholders, including GSS board members (former and current), GSS principal investigators, and NSF program staff. The second set of interviews was with a random sample of college instructors and department directors sampled from the 2018 American Sociological Association (ASA) Guide to Graduate Departments of Sociology. The third set of interviews was with a set of researchers who use the GSS who were recruited using crowdsourcing from the attendees at the 2020 American Association for Public Opinion Research (AAPOR) conference. Wave 2 included two different sets of interviews. The first was with a stratified random sample of college instructors and department directors sampled from online lists of colleges and universities in the country. The second was with a random sample of GSS Data Explorer users.

2) A manual environmental scan of textbooks and select syllabi to qualitatively analyze mentions of the GSS.

3) Automated web scraping using the online tool, Open Syllabus, to identify open-access syllabi containing mentions of the GSS.

Each of these and the final samples are described below.

1) Semistructured In-depth Interviews with GSS Stakeholders and Users (Two Waves). In total, across Waves 1 and 2, 46 interviews were conducted. Table 1 outlines, by Wave, the final samples for each set of interviews and total number of interviews conducted. Following the table, details for each Wave are provided. Across all interviews, for participants who responded but did not conduct the interviews, this was because they did not use the GSS and therefore did not feel comfortable participating further.

Table 1. Total Number of Semistructured In-depth Interviews

Wave	Population of Study	Sample Frame	Samples Drawn/ Contacted	Initial Responses Received	Interview Appt Non-Response	Interviews Conducted
Wave 1	GSS stakeholders	17	17	17	8	9
	Sociology professors	182	100	15	9	6
	Sociology department directors		60	12	9	3
	AAPOR members	940	Crowdsourced	4	0	4
Wave 2	Sociology professors	677	179	34	20	14
	Sociology department directors		50	12	3	7
	GSS users	255	60	7	4	3
Totals		2,071	466	101	53	46

Wave One. For the in-depth interviews with GSS stakeholders, a total of nine participants were selected from a list of 17 key stakeholders that included current and former GSS board members, GSS principal investigators, and NSF program directors. The nine participants consisted of five board members, three principal investigators, and one NSF program officer.

For the in-depth interviews with GSS users, a random sample of U.S.-based graduate sociology college professors and a separate random sample of U.S.-based graduate sociology department directors were drawn, using the 2018 ASA Guide to Graduate Departments of Sociology. This edition includes 199 graduate departments, with 182 located in the United States. Of these departments, 140 offer a doctoral degree and 59 offer the master's as the highest degree. Information was collected between October 2017 and February 2018. The final samples contained 100 professors and 60 department directors. From the professor sample, 15 professors responded to initial communications, and six of them were successfully interviewed. From the department director sample, 12 responded to GSS study team outreach, and three were actually interviewed.

Finally, four survey researchers were recruited from the 2020 AAPOR conference, which had 940 total attendees. This conference was held virtually due to COVID-19; therefore, the conference application was used to crowdsource this additional input.

Wave Two. For the in-depth interviews with GSS users, a stratified random sample of U.S.-based undergraduate sociology college professors and a separate random sample of U.S.-based undergraduate sociology department directors were drawn. Participants for both samples were

drawn from a list of sociology undergraduate programs in the U.S. made available by Google. The list included school name, region, state, total student population, whether a private or public institution, and discipline. These criteria served as the basis to stratify both samples. The final list of schools with sociology departments made available by Google included 677 schools. From this list, a sample of 179 sociology professors was drawn. Of the 34 sociology professors responding to the invitation, 14 interviews were successfully conducted. In addition, a sample of 50 sociology department directors was drawn from this list. Twelve sociology department directors responded to the invitation, seven of whom were successfully interviewed.

For the interviews with a random sample of GSS Data Explorer users, users with ".edu" in their email address domain names that were registered with the GSS Data Explorer between February 7, 2019 and February 6, 2020 were identified. This list included 255 users, and of those users, every fourth person was contacted for an interview. Sixty users were contacted and seven responded. Three interviews were conducted. During interviews with these users, data were collected on the topics of GSS use cases, challenges with its use, and recommendations for resources that would help increase access. GSS users who revealed in their interviews that they were professors who use the GSS in their courses were asked questions from the instructor's discussion guide. All interviews conducted were with professors and department directors in sociology departments, and for reporting purposes they were included in the sociology professor sample.

Finally, using all cases from the Wave 2 sample, an inferential exercise was also conducted to estimate student exposure of the GSS in U.S. classrooms.

2) Environmental Scan of Textbooks and Select Syllabi. A manual environmental scan of textbooks and syllabi was conducted. To do this, the University of Chicago library, Google, and Amazon Textbooks were searched for mentions of the GSS anywhere in their contents.

3) Automated Web Scraping of Open-Access Syllabi. Using Open Syllabus—a nonprofit research organization that collects and analyzes open-access course syllabi—automated web scraping was conducted to identify mentions of key terms related to the GSS. Open Syllabus has a database of nine million English-language syllabi from 140 countries and uses machine learning and other techniques to extract citations, dates, fields, and other metadata from these documents.

Professor/Department Director In-depth Interview Sampling Methodology

To draw the samples for the in-depth interviews with professors and department directors for both waves, a systematic random sampling method was used. The methodology for each wave is described below.

<u>Wave One: Professor/Department Director Samples</u>. For the in-depth interviews with professors and department directors, the ASA Guide to Graduate Departments of Sociology 2018, which included 182 graduate departments in the United States was used. A random sample was selected for both the professors and the department directors using a systematic random sampling method. For the professor sample, every 60th name from the alphabetical listing of faculty was pulled to create two batches of 50 faculty to contact. For the department directors, the department listing was used, and every 567th entry was selected to create two batches of 60 unique schools to contact. Once the samples were selected, the research team contacted batch 1 of the professor sample and both batch 1 and batch 2 of the department director sample.

<u>Wave Two: Professor/Department Director Samples</u>. A random sample of both professors and department directors was selected. A Google search of educational institutions in the U.S. that currently offer sociology majors was conducted. This search returned a list totaling 677 undergraduate programs. This list included data points such as school name, region, state, total student population, private/public institution, and discipline. A sample was drawn from this list of 677 schools using systematic random sampling. Data were sorted by student population, region, state, and randomly assigned a number. See Table 2 for the stratification criteria.

Table 2. Stratification Criteria & Definitions

Sort Field	Definition
Student population	Based on total student population of university, stratified into three categories: ≥10,000 student body, 1,500–9,999 student body, <1,500 students
Region	Four geographic regions assigned: Northeast, Southeast, Midwest, and West
State	State in which school is located
Randomly assigned number	Number assigned using Excel function RAND()

The first case was randomly selected, and subsequent cases were chosen based on a predefined periodic interval of 4.5. To ensure randomness while selecting professors and department directors, the n+1 name was captured. For the professor sample, we pulled a primary batch of 150 faculty members and a second batch of 30 faculty members to contact. For the department directors, we selected a batch of 50 unique schools to contact. Once the samples were selected, a Google search by university and discipline was performed to determine the professor's name, title, email, and phone number from the university's online directory. The research team then proceeded to contact batch 1 and 2 of the professor sample and batch 1 of the department director sample.

Key Findings

This study sought to achieve its aims by using a mix of methods and triangulating data to answer the study's main research aims. Findings from the study are reported by data collection method below.

Semistructured In-depth Interviews with GSS Stakeholders and Users (Two Waves)

Overall, findings from across all the interviews indicate how professors and department heads value the GSS and find it easy to use. Two professors specifically talked about their ability to easily pull data into lectures despite being novices to quantitative research and data sources. In terms of student ease of access, professors also found that students are able to complete their assignments and projects with GSS data with minimal need for out-of-office help, especially if using the GSS Data Explorer.

Findings from these interviews also indicate that the GSS is used more widely as a teaching resource, as its relevance and careful measurement over time make it an ideal tool for the classroom. However, faculty-led research often requires data sets that are tailored to more narrow or specialized areas of focus. Interviewees reported that the topics that the GSS makes available may cover broad areas of interest for them, e.g., religion, but more nuanced sub-disciplines, e.g., dogmatic differences in Christian theology, are not accessible via the GSS. Thus, interviewees reported that the GSS was often of general interest to them, but they often preferred to use their own data or seek out other sources of data for more in-depth studies.

In terms of specific course types that utilize the GSS, the most commonly referenced were research methods and quantitative courses (e.g., methods, statistics). It was also learned that undergraduate and graduate students typically use the GSS differently, with undergraduates often encountering it in lectures and graduate students more likely to use it in research projects. One professor provided the following description of their course assignment:

> We have class exercises using GSS to understand survey design and data analysis such as comparing how survey questions have evolved over time, conducting simple data analysis, writing independent research papers potentially using GSS data, etc.

Professors often described using the GSS as a way to introduce students to the research methods process and to the use of statistical software such as SPSS and STATA, GSS Data Explorer, and Berkley Survey Documentation and Analysis (SDA). Cross-tabulations were the type of analysis most often cited by participants as assigned in the classroom—this does not preclude the fact that

some professors assign more advanced methodological work using the GSS. As one professor said:

> *I pull a small sample of data from the GSS and have students work in SPSS. We use GSS in homework assignments by conducting cross-tabulations and looking at relationships between variables.*

There were a few challenges identified in the interviews. Each is detailed below:

Instructor Guidance Is Necessary for Students Using GSS for the First Time. All of the professors who have their students work with GSS data dedicate class time either through one full session or multiple class lab sessions to introduce the survey and walk through exercises with students. As one participant noted, undergraduate students are able to use the GSS easily, but it requires a lot of explanation of the GSS sampling and methods. Following extensive lab instruction, students are able to use it in their projects. Furthermore, coursework assignments that had students work with GSS were all small in size to enable professors to support students and grade more detailed and complex assignments. Therefore, it does not appear that students, especially undergraduates, are able to easily use the GSS on their own, and preparing them to use it requires extensive faculty time. One department director noted that a professor in their department is considering using the GSS for course assignments but does not currently have the time to support students outside classroom time, if needed.

Perceived Complexity of GSS Data. Another theme echoed by the interviewees is that undergraduate sociology students are typically intimidated by quantitative data analysis. All of the research methods courses discussed were required courses for the sociology majors, and therefore all students, even those who do not have an interest in quantitative research, must take it. Therefore, seven of the interviewees commented that the GSS interface and Data Explorer are not basic enough for beginner students and that they have to use their lessons to explain concepts in a way that is not intimidating. Moreover, respondents felt that the current GSS-related materials are too advanced for beginner audiences, e.g., existing materials overview weighting and sampling. One professor discussed how students in her course conducted GSS analyses but then struggled with how to write the methods section of their research papers. Another professor noted that students struggle with the basics of survey research such as understanding sampling, how variables are named, and what missing variables are. Consequently, this professor created his own videos that demonstrate the GSS Data Explorer and show how to search variables, download data, and so forth to support students.

Limitations of the GSS Data Explorer. Interviewees also cited the data visualization capabilities from the GSS Data Explorer as barriers to use. One participant noted that when they need quick visuals to include in a PowerPoint lecture, they go to the Pew Research Center because it is

easier to Google a topic and find a visually appealing graph from Pew to use. On the other hand, the GSS required more time to search variables and then clean up visuals. Conversely, another professor noted that they also did not feel that the data visuals from the GSS were sufficient but used it as an opportunity for students to learn how to create their own visuals from data. Two participants also mentioned that the limited number of racial categories was a barrier to using GSS data in lectures and research.

To counter these barriers, suggestions for enhancements and promotional and educational materials, described below, were shared by the interviewees:

Create Easy-to-Use Tutorials. Participants suggested that GSS use could be enhanced through the development of short and simple video tutorials about the GSS, GSS website, and Explorer that could live on YouTube for instance. These tutorials should be geared toward a beginner research audience, like undergraduates, and should demonstrate how to work with GSS data and the Explorer (e.g., to search variables, where to download data, and other actions) but also should provide some basic survey research context. Since professors have to spend class time guiding students through the basic elements of survey research and GSS data in their courses, having short videos that they can assign to students or share as resources to help with out-of-class assignments can help to free up faculty time. One professor noted that because they have had to move their courses online due to COVID-19, they record class sessions and make them available to students afterward. Because students can consult these recordings, fewer have needed out-of-class support for GSS assignments; GSS recorded tutorials may be similarly useful for students and faculty.

Redesign GSS Overview Materials. To address the issue of current GSS-related materials being too advanced for beginner audiences, participants requested basic handouts designed to help make undergraduate and novice researchers aware of the GSS and understand how to use it in their work. A basic handout simplifying the GSS methodology would help students better understand it and how to talk about the work they did. Another participant requested a handout listing the variables and the years of data available. They wanted something simpler than the current codebook or what the Explorer provides to allow students to get a high-level overview of the data that are available on the GSS to help them see if it is the right data source for their coursework.

Make Enhancements to the GSS Data Explorer. A few participants suggested that it would be useful if the GSS Data Explorer included an interactive function that would allow users to run basic analyses such as cross-tabulation and analysis of variance (ANOVA) tests. Similarly, four participants recommended enhancing the GSS Data Explorer's data visualization capabilities so that students and professors can easily pull visually appealing graphs directly from the Explorer

into projects and lectures. One participant cited the St. Louis Federal Economic Data (FRED) as a good model of a data source with good graph-making capabilities on its interface.

Build the GSS into Template Lesson Plans and Sample Assignments. Interviewees suggested that template lesson plans and sample assignments that include the GSS would be useful. These would especially be useful to new instructors. One participants further suggested organizing this kind of template resource by topic (e.g., religion, race, gender, family, and so forth) so that professors who teach topic-specific courses or lessons can go to the topic and pull assignments, activities, or lectures that use GSS data in those areas.

Focus Outreach on Professors and Department Directors. Interviewees did not feel that incentives or specific targeting to students would lead to increased usage, because they generally felt that students, especially undergraduates, are heavily influenced by the data sources that their professors use or recommend for projects. For that reason, outreach efforts about the GSS should be targeted to professors and department directors. Emails highlighting GSS features can be sent directly to professors and department directors so that they can add it to their departments' listservs. This outreach should ideally take place between academic terms, when professors are planning their courses for the upcoming term. NORC GSS staff could also be made available to students to answer questions or to tell them more about the GSS.

Finally, the stratified random sample of U.S.-based undergraduate sociology professors and department directors (the sample from Wave 2) allows us to draw an inference about exposure of the GSS in U.S. sociology classroom settings. Based on this analysis, exposure is estimated to be approximately 377,600 students annually (which may fall within a range of 283,200–472,000, depending on assumed average class size). This is a conservative estimate for undergraduate sociology classroom uses of the GSS, as it does not include textbook uses or uses outside sociology departments. The supporting methodology for calculating this lower-bound estimate assessment can be found in Appendix A.

Environmental Scan of Textbooks and Select Syllabi

The manual environmental scan uncovered a total of 1,345 textbooks that mentioned the GSS. Eighteen textbooks that were referenced in publicly available course syllabi from 31 educational institutions were also identified. Twenty-nine percent of these publicly available course syllabi include the textbook, *Doing Survey Research: A Guide to Quantitative Methods* by Peter M. Nardi, which utilizes the GSS in a number of examples and includes details of what the GSS looks like in its index.

Automated Web Scraping of Open-Access Syllabi

Findings from the web scraping revealed that GSS is used in both sociology and nonsociology courses in the U.S. and abroad. There were a total of 1,810 GSS mentions in course syllabi. Of these, 1,471 mentions were in syllabi from U.S. universities, 164 mentions were in syllabi from international universities, and 175 mentions did not contain country information. Out of the total of 1,810 syllabi identified that mentioned the GSS, 40 percent (n = 722) were for sociology courses, and the remainder (60 percent, n = 1,088) were nonsociology disciplines, including political science, mathematics, and economics, among others.

Limitations

As with most research design techniques, there are limitations, and for this study, there are several worth noting. First, the sample design for the stratified random samples of U.S.-based undergraduate sociology college professors and department directors (Wave 2) includes three limitations that would have impacted the exposure estimation exercise:

- *Geography*. The reported estimated exposure is based on sociology departments in the United States. However, the syllabi data analysis suggests that use and exposure of the GSS is global.
- *Ability to Garner Completed Interviews in Other Disciplines beyond Sociology*. All but one of the interviews were conducted with professors and department directors from the sociology discipline. Despite not being able to interview many nonsociology discipline respondents, the circulation, syllabi, and textbook analyses suggest that GSS is mentioned in many areas of study beyond sociology.
- *Inability to Obtain Textbook Circulation*. Due to not being able to gather data related to textbook circulation and factor in the syllabi and textbook analyses into our estimates, the provided estimated exposure number should be considered a lower bound, with anticipated exposure higher than seen simply from this study.

In addition, the textbook review was conducted during the stay-at-home measures that were put in place due to the COVID-19 pandemic. Due to this, all libraries were closed and full texts could not be obtained. Therefore, this list was curated based on book descriptions and excerpts that included mention of the GSS. With access to full texts, more books may be identified and expand this review.

Discussion

To better understand how the GSS and its data are used in course instruction, NORC conducted a multi-method study between February and November 2020 in order to:

- Understand GSS use cases for various disciplines
- Better understand the challenges to using the GSS in classrooms
- Approximate the annual exposure of the GSS in U.S. classrooms

To achieve these aims, in-depth interviews with GSS stakeholders and users were conducted. As well, a manual environmental scan of textbooks and syllabi and an automated web scraping of open-access syllabi were also conducted. Below the larger implications of this research are discussed.

The GSS holds significant value for instructors in classroom settings, at both the undergraduate and graduate levels. They find it useful and, with experience, easy to use. Moreover, use of the GSS appears to be popular among both sociology and nonsociology disciplines. The findings from both the interviews and the web-scraping analysis support this.

Despite this, the findings from this study signal a strong need for more informational and educational materials that can help overcome some of the barriers identified in the study. Basic tutorials, short YouTube videos that introduce the GSS and explain methods, and other overview materials can help undergraduate students and new researchers and lessen the burden on instructors. This also extends to enhancing aspects of the GSS Data Explorer to improve the analytical and data visualization capabilities it currently offers, and the development of template lesson plans and assignments.

Finally, more work is needed to provide a more accurate estimate of exposure of the GSS in classroom settings. As noted, the exposure assessment that resulted from this study is inferred from the data collected during the study time period. To obtain a more precise estimate would require more time and data. This applies to both U.S. sociology classroom settings and U.S. nonsociology classrooms. As the syllabi analysis suggested, the GSS is broadly used in nonsociology contexts both in the United States and abroad; therefore, this exercise could be extended to better understand nonsociology and international classroom setting exposure in order to broaden our understanding of exposure of the GSS more generally.

Appendix A: Wave 2 Systematic Sampling Methodology & Estimate Procedure

In Wave 2, the sample was stratified by university size, with universities divided into three levels—large, midsize, and small. The universe for large universities, defined as those with more than 10,000 students, was 131. The universe for midsized universities, defined as those with between 25 and 250 students, was 448. Finally, the universe for small universities, defined as those with fewer than 1,500 students, was 98.

Data from this study allowed a rate of GSS use by sociology professionals (i.e., professors and department directors) to be derived. Of the 229 sociology professionals contacted for this study (179 professors and 50 department directors), a total of 46 responded (34 professors and 12 department directors), and 21 were interviewed (14 professors and seven department directors). These 21 professionals were interviewed because they used the GSS. The others declined to be interviewed because they did not use the GSS. Therefore, the estimated rate of GSS users in this sample is 46 percent (21 users divided by 46 total respondents).

To determine an estimate of GSS use by sociology faculty, the rate of GSS users (46 percent) was applied to the total number of full-time equivalent sociology faculty members in the country. According to the federal Bureau of Labor Statistics, as of 2019, there are 10,260 full-time equivalent sociology faculty members at colleges and universities.[2] This resulted in the estimation that 4,720 sociology faculty include the GSS in their courses (10,260 x 0.46). This study also revealed that the average number of courses offered annually by each faculty member who reported using the GSS was two courses (same course in separate semesters; multiple sections of the same course in the same semester; and/or multiple courses), which resulted in 9,440 courses that include the GSS taught per year (4,720 sociology faculty x 2 courses).

On average, sociology courses have 40 students enrolled (averaging across larger/smaller schools and lower- and upper-division classes).[3] Assuming 40 students per class yields an enrollment in courses that use the GSS of 377,600 (40 x 9,440). To get a range of estimates, we assumed that the enrollment number of 30 per class would yield 283,200 individual students per year. Assuming an enrollment of 50 per class would yield 472,000 individual students.

Table B1 outlines the exposure estimation procedure and variables.

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[2] U.S. Bureau of Labor Statistics. Occupational employment statistics; occupational employment and wages, May 2019. Available at: https://www.bls.gov/oes/current/oes251067.htm#(1).

[3] GSS board member conversations, 2020-2021

Table B1. GSS Exposure Estimation Procedure

Variable	Value
Total number of sociology faculty in the U.S. (Source: BLS.gov)	10,260
Rate of GSS users (Source: Current study)	46%
Average number of courses, annual (Source: Current study)	2
Mean number of students per course (Source: GSS board)	40
Final Inferential Estimation	**377,600**

From this procedure an inferential estimate of GSS exposure in U.S.-based undergraduate sociology programs was made. This equated to 377,600 undergraduate sociology students exposed to GSS (which may fall within a range of 283,200–472,000, depending on assumed average class size). Limitations to this estimate procedure are noted on page 12 of this report.