

Although students who participate in NSSE are asked to provide their major(s), the accuracy of their responses is largely untested and unknown. To determine the accuracy of student major responses, this study compares student major data from institutional records for one university with students' NSSE responses from 2008, 2011, and 2014. Senior students provided very accurate responses with their first response about their major(s), whereas first-year students' responses were accurate only for about four-fifths of students. Senior students who provided a second major did so with about the same level of accuracy as first-year students' first (or only) major. However, first-year students' second major responses were very inaccurate.

Data

Student responses to NSSE from 2008, 2011, and 2014 were compared to institutional data for students at one large research university in the northeast. Table 1 summarizes the number of students who were asked to participate in NSSE and how many students participated.

Table 1. Sample and Respondent Counts

| Semester | NSSE sample size | | Eligible NSSE respondents | |
|-----------------|------------------|-------|---------------------------|------|
| | FY | SR | FY | SR |
| Spring 2008 | 1,996 | 1,995 | 649 | 582 |
| Spring 2011 | 1,997 | 1,996 | 436 | 355 |
| Spring 2014 | 4,230 | 4,458 | 983 | 939 |
| All three years | 8,223 | 8,449 | 2068 | 1876 |

Note: The large jump in sample size in 2014 occurred when the university changed from a random sample to a census administration.

In this university's data systems, every student has at least one declared major. Some of those majors do not lead to degrees and some students have multiple majors. Additionally, some students place a larger focus on their specialization or another aspect of their program of study – often explicitly in line with how the university promotes and labels some academic programs – and provide that specialization when self-reporting their major. This brief study examines a set of questions surrounding the accuracy of student-provided responses about their major(s), as compared to the official records in the university's data systems.

Methods

Random samples were taken from students in each of these categories: (a) indicated on NSSE one or more majors, (b) indicated on NSSE two majors, (c) had only one major in the university's data systems, (d) indicated on NSSE only one major, (e) had two or more majors in the university's data systems, or (f) indicated on NSSE two or more majors. The sizes of these samples were each 5% of the total population of that category or 20 students, whichever would create a larger sample. Twenty was established as the cutoff value to ensure that each category was reasonably represented without creating a burdensome amount of work. In total, 841 students were included in these samples. Each sample was independently generated and some of these categories contained relatively few students. However, there was some overlap among these samples and fewer than 841 unique students are represented in these samples.

Student responses regarding their major(s) were taken verbatim from the open-ended question(s) in the NSSE instrument and compared to students' majors recorded in the university's data systems. Student responses that were misspelled, slightly different but unambiguous (e.g., Pre-veterinary medicine instead of Pre-Veterinary

Medicine & Animal Biology), or technically correct and unambiguous (e.g., “undeclared”[sic] from a student whose major is listed as Communication Interest, one of several variations of the university’s undeclared major) were considered correct. Student responses that were technically incorrect but unambiguous (e.g., Mass Communication instead of Communication) were considered also considered correct; this is particularly important since several academic programs are advertised and taught as if they are full-fledged majors although they are officially concentrations or specializations (e.g., students who study Spanish receive a degree in Foreign Language and Literature). In summary, this analysis took a liberal approach in matching student responses to university data.

Although it spans several years, this is a single-institution study and its results may not be generalizable to other colleges and universities. Moreover, given the resources available for this study it only used relatively small (albeit random) samples and generalized the findings to larger student populations. It is also possible that student responses were incorrectly deemed accurate or inaccurate simply because students may have changed their major between the day on which their major record was based – the tenth day of the semester – and when they completed the survey.

Results

There are generally high match rates when comparing the provided majors on NSSE in response to the first major question to majors listed for those students in the university data system (Table 2). Similar findings a revealed for those students with a second major (Table 3) It should be noted that some students not only skipped these questions altogether but some also provided incorrect answers, so the total percentage of correct answers is a product of the percentage of students who answered the questions and the percentage of correct answers.

Table 2. Correct Student Responses for First Major Question

| | FY | | | SR | | |
|-----------------|---------------------|----------------------------------|--|---------------------|----------------------------------|--|
| | Indicated one major | Indicated major is a correct one | Major is provided and is a correct one | Indicated one major | Indicated major is a correct one | Major is provided and is a correct one |
| Spring 2008 | 82% | 73% | 60% | 90% | 100% | 90% |
| Spring 2011 | 82% | 75% | 62% | 89% | 100% | 89% |
| Spring 2014 | 73% | 94% | 68% | 79% | 97% | 77% |
| All three years | 78% | 83% | 64% | 85% | 99% | 84% |

Note: Percentage correct is calculated from a random sample of the NSSE respondents.

Table 3. Correct Student Responses for Second (Additional) Major Question

| | FY | | | SR | | |
|-----------------|-------------------------------|---|---|------------------------------|---|---|
| | Indicated an additional major | Indicated additional major is a correct one | Additional major is provided and is a correct one | Indicate an additional major | Indicated additional major is a correct one | Additional major is provided and is a correct one |
| Spring 2008 | 14% | 20% | 3% | 20% | 55% | 11% |
| Spring 2011 | 15% | 50% | 7% | 26% | 100% | 26% |
| Spring 2014 | 12% | 40% | 5% | 17% | 85% | 14% |
| All three years | 13% | 37% | 5% | 19% | 80% | 16% |

Note: Percentage correct is calculated from a random sample of the NSSE respondents.

In summary, these results show that most senior students – about 84% – provided accurate responses to the first major question. The accuracy improves considerably (to 99%) if only the 85% of senior students who answered the question are considered. Responses from first-year students were not as accurate, with only about 64% providing an accurate response for the NSSE major question. This accuracy improves (to 83%) if only the 78% of first-year students who answered the question are considered.

Responses to the second major question were less accurate. Although only 19% of senior students indicated an additional major, about 80% of those responses were correct. For first year students, however, the picture is dire. Although only 13% of first-year students reported an additional major on NSSE, just over a third (37%) of the provided answers were correct.

Looking at the results in more detail, the accuracy of reported major fares well if and only if students (a) have only one major **and** (b) indicate only one major in NSSE (Table 4 and Table 5). Nearly all (99%) of the senior students in that situation provided an accurate response, as did 89% of the first-year students in the same situation. Many students who genuinely have multiple majors may have struggled to correctly provide at least two of them, especially first-year students; about 87% of senior but only about 65% of first-year students with multiple majors correctly provided at least two of them.

Table 4. Single Major Students and Responses

| | FY | | | | SR | | | |
|-----------------|---------------------|-------------------------|-------------------------------------|---|---------------------|-------------------------|-------------------------------------|---|
| | Have only one major | Indicate only one major | Correctly indicate their only major | Have only one major and correctly indicate it | Have only one major | Indicate only one major | Correctly indicate their only major | Have only one major and correctly indicate it |
| Spring 2008 | 95% | 68% | 86% | 57% | 83% | 70% | 95% | 71% |
| Spring 2011 | 92% | 67% | 85% | 70% | 80% | 64% | 100% | 80% |
| Spring 2014 | 92% | 60% | 93% | 60% | 81% | 63% | 100% | 71% |
| All three years | 93% | 64% | 89% | 61% | 82% | 65% | 99% | 73% |

Note: Percentage correct is calculated from a random sample of the NSSE respondents.

Table 5. Multiple Major Students and Responses

| | FY | | | | SR | | | |
|-----------------|----------------------|--------------------------|------------------------------------|--|----------------------|--------------------------|------------------------------------|--|
| | Have multiple majors | Indicate multiple majors | Correctly indicate multiple majors | Have multiple majors and correctly indicate at least two of them | Have multiple majors | Indicate multiple majors | Correctly indicate multiple majors | Have multiple majors and correctly indicate at least two of them |
| Spring 2008 | 5% | 14% | 25% | 65% | 17% | 20% | 45% | 95% |
| Spring 2011 | 8% | 15% | 35% | 60% | 20% | 26% | 65% | 95% |
| Spring 2014 | 8% | 12% | 35% | 70% | 19% | 17% | 95% | 70% |
| All three years | 7% | 13% | 32% | 65% | 18% | 19% | 68% | 87% |

Note: Percentage correct is calculated from a random sample of the NSSE respondents.

As described above, senior students provided accurate responses to the first major question, as many (84%) of those answers were correct (Table 2). The situation is very similar for the responses provided as an additional major, with the majority of senior students correctly declining to provide an additional major and the large majority of those who did provide an additional major were correct. Responses from first-year students were less accurate, with only about two-thirds providing an accurate response to the first major question and about one-third providing an accurate response as an additional major.

In all cases, the responses were more accurate when a more restricted student population is considered. Limiting this analysis to only students who provided a response to the first major question and excluding students who skipped the question raises the accuracy of students' answers to the first major question to 83% and 99% for first-year and senior students, respectively. This is quite heartening, as this is the subpopulation with which researchers work when considering (self-reported) student major and NSSE data.

Students' responses about additional majors, however, are less accurate, even when only the subpopulations who provided an additional major are considered. As previously noted, about four-fifths of seniors who provided an additional major were accurate but only about one-third of the responses from first-year students were accurate. Accuracy greatly improves when the subpopulations are limited even further to students who genuinely have more than one major and omit students who only have one major. Of course, that information is extraneous to self-reported NSSE data and unavailable to many researchers. Therefore, it is important to have evidence supporting the accuracy of student responses to NSSE.