Sources of Error
Nonresponse Effects

Do students that respond to NSSE differ from those that choose not to respond to NSSE?

Purpose

Because not all students that are selected to participate in NSSE choose to do so, it is important to consider whether these students are systematically different from those that participate. If there are systematic differences between those who do and do not participate, this indicates that there is a nonresponse effect. This nonresponse effect could potentially introduce error by artificially inflating or deflating results, biasing the results and interpretations. Comparing how responders and nonresponders differed in their engagement addresses this issue.

Data

In 2005, the Indiana University Center for Survey Research conducted telephone interviews with 1,408 nonresponders from 24 different institutions that participated in the NSSE 2005 administration. Both first-year and seniors were included in the sample. These institutions represented a variety of NSSE participants in terms of Carnegie classification, size, institutional control (public vs. private) and geographic region. Minority, male, and part-time students were oversampled to investigate potential bias in race/ethnicity and enrollment status. Seventeen questions concerning aspects of the college experience, including those that comprise the benchmarks of Student-Faculty Interaction, Supportive Campus Environment, and the Developmental Gains subscale, and 4 questions related to background characteristics were asked of nonresponders during the telephone interviews. The data collected from nonresponders was then merged with NSSE 2005 responders from each participating institution for comparative analyses. Characteristics of these students are presented in Table 1.

Table 1: Background Characteristics by Nonresponder Status for NSSE 2005

	Responder (n=10,235)	Nonresponder (n=1.408)
Seniors	49.9%	50.4%
Female	64.3%	52.3%
Fulltime	93%	75.1%
B+ or greater grades	61.6%	55.2%
First Generation College Student	37.6%	46.8%
Under-represented Minority	17.7%	36.5%

Methods

Regression models were used with each of the items (and benchmarks/subscales) as the outcome variables. Seven variables were included as the predictor variables: (1) nonresponder; (2) female; (3) full-time enrollment; (4) senior; (5) grades of B+ or higher; (6) under-represented minority (e.g., African-American, Latino, and Native-American); and (7) first-generation college status. Twenty models used all students to estimate nonresponder coefficients, while twenty additional models used only under-represented minority students.

Results

The patterns of results are presented in Table 2 below. To determine whether a nonresponse effect was substantial or noticeable, the decision rule for logistic and ordered regression was that at least .05 predicted probability difference between responders and nonresponders was needed. For OLS regression, standardized beta coefficients for nonresponders needed to be at least .05. Additional tables can be found [here](#).

For the models that included all students, the pattern of results suggested that nonresponders were more likely than responders to report a supportive campus environment, but no effects were found for student-faculty interaction or developmental gains. Some nonresponse effects were also found for individual items, with those relating to diversity experiences, institutional support for academic success, relationships with administrative personnel, and volunteer experience having the strongest effects overall. The pattern of results for nonresponse effects for minority students closely resembled results for all students.

A few general conclusions can be drawn based on this study's results. First, regardless of their minority status, nonresponders do not differ from responders when it comes to interacting with faculty or reported developmental gains. However, nonresponders reported their campus and administrative personnel being more supportive than their responding peers. Additionally, the substantial negative nonresponse effects for items concerning the use of synthesis as a higher-order thinking skill and gains in thinking critically and analytically provide some general indication that nonresponders do not engage in as much high level academic work that requires synthesizing information and coming to critical conclusions.

In interpreting the reason for the presence of the nonresponse effects, social desirability could explain a portion of these results, but it does not seem likely to explain all of them. Answering an abridged survey over the phone might be a more likely explanation for some of these differences. Results of this study suggest that a NSSE nonresponse effect exists, and that it has the potential to bias results for institutions and any national norm statistics. However, the reason for this effect, and the extent of its impact is still unknown.

The presence of a nonresponse effect could also have a relatively greater impact on certain institutions than others, as the results of this study are based on averages from many different types of institutions. For instance, at those institutions with very high response rates, the effect may be negligible and not causing a bias in the results.

Table 2: Regression estimates of NSSE nonresponse effect[1,2]

		Model Population: All	Model Population: Minority
Benchmarks	Student-Faculty Interaction		
	Supportive Campus Environment	++	++
Subscales	Developmental Gains		
Survey Items	CLQUEST		+
	FACGRADE		
	FACPLANS		
	FACIDEAS		
	OOCIDEAS	+	++
	DIVRSTUD	++	++
	SYNTHESZ	-	-
	ENVSUPRT	+	+
	ENVNACAD	++	++
	GNWORK		
	GNANALY	-	-
	GNPROBSV		
	WRITESML	-	
	ENVADM	++	++
	ACADPR01		+
	COCURR01		+
	VOLNTR04	++	+

[1] Each model controlled for gender, full-time enrollment, class standing, grades, and first-generation college status. Under-represented minority status was also controlled for in the model using all students.

[2] "+" and "-" denote statistically significant, non-trivial positive and negative nonresponse effects, respectively; "++" denotes especially large effects. Large effects were defined as predicted probability differences of .10, calculated using logistic or ordered logistic regression, or .10 standardized beta coefficient, calculated using OLS regression.

References

Sarraf, S.A. (2005). An evaluation of nonresponse effect in the National Survey of Student Engagement. Unpublished internal technical report. Bloomington, IN: Center for Postsecondary Research, Indiana University, School of Education.