

Do students who reply using the paper mode of NSSE respond differently than students using the Web mode?

Purpose

Institutions participating in NSSE can choose from three administration modes: Web-only, paper-only, or a combination of the two (“Web+”). Previous research (Carini et al., 2003) concluded that responses to the Web and paper versions of NSSE were very similar. This analysis revisits this question using data from the 2009 NSSE administration to see if responses to the Web and paper versions are still similar.

Data

This analysis examined responses from 160,819 first-year and 175,989 senior students from 617 colleges and universities who participated in NSSE in 2009. Of these students, 156,838 first-year students and 172,724 seniors completed the Web version of the survey instrument. The remaining 3,981 first-year students and 3,265 senior students completed the paper version. All students used in this analysis were randomly selected from their institution’s population or part of a census of all first-year or senior students.

Methods

This analysis largely replicates the analyses performed in Carini et al. (2003).

First, the two groups of students – Web- and paper-respondents – were compared in terms of their means on the five Benchmarks of Effective Educational Practice, the three Gains scales (Kuh et al., 2001), and the Technology scalelet (Pike, 2006).

Second, the effect of response mode on these nine measures was estimated using multiple regression analysis. By performing two regressions for each measure – one including response mode as an independent variable and one excluding response mode – we can calculate how response mode impacts each measure by calculating the difference in variance explained between the two analyses. The independent variables in each of these analyses are listed in Table 1; most variables were categorical and were dummy-coded with their most frequent response used as the referent category.

Table 1: Independent Variables and Referent Categories

<u>Variable</u>	<u>Referent category</u>
2005 Basic Carnegie Classification	Master’s L
2007 IPEDS Enrollment	n/a
Admissions selectivity	Competitive
Age	n/a
Enrollment Status	Full-time
Major Field	Business
Mode	Web
Race/Ethnicity	White
Residence	Dorm
Sector	Private
Sex	Female
Urbanicity	City

Results

Comparing the mean scores (Table 2) of the students who participated using the Web and paper modes reveals significant differences. However, the scales that differ and the directions in which they differ are vary for first-year and senior students. A clearer picture emerges from the regressions (Table 3). By comparing the two regressions that were run for each scale – one with mode as a control and one without – it is apparent that mode has virtually no effect on these scales.

There are differences between Web and paper respondents but those differences do not appear to be due to the medium in which they participate in NSSE.

Table 2: Means and Standard Deviations of Paper and Web Respondents

	Scale	Web			Paper			Web vs. Paper
		Mean	Standard Deviation	N	Mean	Standard Deviation	N	Effect Size
First-year students	ACa	54.36	13.27	144,507	57.02	13.59	3,963	0.38*
	ACL	43.91	16.34	156,035	44.16	15.86	3,977	0.03
	SFI	35.25	18.22	145,976	37.06	18.38	3,973	0.03*
	EEE	28.48	13.24	141,089	29.23	13.32	3,944	0.11*
	SCE	62.87	18.49	137,784	64.42	18.38	3,920	0.03*
	GNPRC	64.41	22.61	135,837	62.49	22.52	3,950	-0.03*
	GNPSO	55.77	24.59	133,742	55.44	23.95	3,948	-0.03
	GNGED	69.76	22.38	135,886	70.92	22.10	3,950	0.02*
	Tech	68.84	20.34	136,169	69.38	20.91	3,901	0.01
Senior students	ACa	57.79	14.09	164,666	58.38	14.27	3,252	0.08*
	ACL	51.95	17.24	172,159	50.41	16.84	3,264	-0.18*
	SFI	43.51	20.98	165,772	41.87	20.48	3,264	-0.02*
	EEE	42.37	18.32	161,779	38.39	18.08	3,251	-0.43*
	SCE	59.63	19.15	159,158	60.61	19.70	3,233	0.01*
	GNPRC	69.38	22.26	157,607	68.76	22.21	3,251	-0.05
	GNPSO	53.81	25.61	155,906	56.26	25.50	3,249	0.19*
	GNGED	73.66	22.32	157,632	75.18	21.96	3,251	0.13*
	Tech	75.76	19.47	157,395	73.87	20.23	3,218	-0.03*

*Significant at the p<.05 level

Table 3: Effect of Mode in OLS Regressions of Engagement Scales on Selected Student and Institutional Controls

	Scale	Unstandardized Coefficient ^a	Significance ^b	Effect Size ^c	Adjusted R ²	Net R ² Change ^d
First-year students	ACa	.562 (.283)	0.047	0.006	0.034	0
	ACL	-1.646 (.344)	< .001	-.013	0.026	0
	SFI	-.844 (.386)	0.029	-0.006	0.023	0
	EEE	-.634 (.281)	0.024	-0.006	0.043	0
	SCE	-.710 (.399)	0.075	-0.005	0.030	0
	GNPRC	-3.202 (.491)	< .001	-0.018	0.008	0
	GNPSO	-1.371 (.530)	0.010	-0.007	0.029	0
	NGGED	-1.487 (.483)	0.002	-0.009	0.019	0
	Tech	-.687 (.444)	0.122	-0.004	0.010	0
Senior students	ACa	.277 (.259)	0.285	0.003	0.031	0
	ACL	-2.352 (.313)	< .001	-0.019	0.042	0.001
	SFI	-1.885 (.381)	< .001	-0.013	0.057	0
	EEE	-1.813 (.316)	< .001	-0.014	0.153	0
	SCE	-.085 (.355)	0.81	-0.001	0.034	0
	GNPRC	-.933 (.415)	0.025	-0.006	0.012	0
	GNPSO	1.532 (.472)	0.001	0.008	0.039	0
	NGGED	.719 (.413)	0.081	0.005	0.028	0
	Tech	-1.505 (.365)	< .001	-0.011	0.014	0.001

^a Standard errors in parentheses

^b Significance (two-tailed) of mode variable

^c γ -standardized coefficient

^d Difference in adjusted R² between the model containing mode and controls and the model containing only controls

References

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Additional Details

NSSE. (2010). *NSSE administration modes*. Retrieved from http://nsse.iub.edu/html/survey_modes.cfm