Abstract

This presentation summarizes the results of the analysis of the impact of changes in questionnaire format in a large-scale undergraduate survey program – the National Survey of Student Engagement (NSSE). Since 1999, NSSE has been administered at about 1,100 four-year institutions in the U.S. and Canada. The NSSE has both a paper and a web component.

Two changes were implemented in 2005 that affected the web version of the survey. First, the informed consent information was placed on the first page of the survey and not sent in the recruiting messages. The informed consent page also had a graphic that was specific to each school. Second, prior to 2005, the students had only 4 submits throughout the questionnaire. In 2005, the number of submits increased to 21. As a result, many questions were located in different places in grids.

Placing the informed consent statement on the first page along with a school-specific graphic appears to have increased the proportion of students who visited the website and started the survey. However, the abandonment rate increased. The changes in question placements in screen grids appear to have affected the responses. Many items that changed location in the web version had different distributions between 2004 and 2005 that can be attributed to the position change.
The presentation describes changes to a web survey processes and format that significantly affected the proportion of potential respondents who started the survey and abandoned the survey before completing all questions. Also, we present data that show how changes of items within response grids affect the responses.
National Survey of Student Engagement

Measures student participation in programs and activities associated with desired outcomes of college (e.g., persistence, learning, personal development, graduation.)

Description of the NSSE. Survey measures … (Bob, Todd)

The results provide an estimate of how undergraduates spend their time and what they gain from attending college. Institutional reports allow colleges to compare their students against students attending comparison groups of institutions.
Description of the NSSE. Survey measures students’ self-reported participation in programs and activities that institutions provide for their learning and personal development. Institutional reports allow colleges to compare their students against students attending comparison groups of institutions.

Schools pay to participate depending on number of undergrads enrolled.

NSSE is a conducted by IU CSR for the CPR.
Survey Modes

- Web Only – all contacts by e-mail
- Web Plus – 3 contacts by e-mail with a paper questionnaire sent on 4th contact to a sample of students
- Paper – standard mail survey procedures with email reminders for some schools; web option for most schools

Sample size depends on mode – web largest, paper smallest. Larger schools pay more to participate but get larger samples in each mode. In 2007, some web schools sent announcement letters to students. Generally 5 contacts made with students.
The increase in the number of institutions has been steady through 2007.

Questionnaires can be viewed at:
The response rate has declined slowly over time. There appears to be a substantial decline (2-3 percentage points) in 2007.

**Sample and Response Rates**

- Samples ranged from approximately 35,000 in pilot year to more than one million in 2006 and 2007
- Response rates ranged from low 40s (RR2) in the first few years to mid- to low-30s (RR4, e=.9) in the past few years
Format Changes
2004 - 2005

- Changed perspective from paper questionnaire to web questionnaire
- Login and password became clickable URL
- Informed consent moved from the invitation to the first web page
- Increased submits from 4 to 21

Show before and after views of informed consent in other windows during presentation

Get screen shots here of
2004
2005

In 2004, the design was changed to be more attractive, improved formatting for the first page on the web, and became a more interactive questionnaire
Clickable URL

- Part of change to new perspective
- Make it easier to access survey
- Reduced invitation message length
- Allowed local graphics to be included in first page
- Make it easier to get to the first question
- HSC allowed us non-traditional informed consent form

Clickable URL was a big change because some school email systems did not handle embedded links well in 2004. A poorly rendered link could lead to student frustration and much work for the hotline staff.

New invitation messages – 5 different messages
The ineligibles are included in the table so the numbers not accurate for calculating response rates. Also, the web+ students who completed by paper not included. This table shows outcomes for all who received an email invitation to participate.

The table shows the different methods of accessing the survey between years. In 2004, students had to login so we had a count of all who reached that point. In 2005, we knew who clicked in (implicit login) and also who clicked the “agree to participate button.”

In 2004, about 31% started the survey; in 2005, about 36%. The new format was successful in getting students to look at the questionnaire.
However, more students abandoned in 2005, so the process encouraged more to start but more to abandon at some point during the questionnaire. (NSSE has roughly 100 items and takes 12-15 minutes to complete.) About 11% of students who opened the survey abandoned in 2004; 16% in 2005.

The table also shows the 2004 pages and the equivalent in 2005 where the students abandoned the survey. The students abandoned at different points (red numbers). In 2004, almost half abandoned before sending any responses. In 2005 more students answered some questions but these were short pages. After page 1 (somewhere in page 2) abandonment was about the same.

The long pages caused more to abandon in 2004 before the final page – the demographics. More abandoned during demographic page in 2005 but it resulted in relatively more substantive data.

<table>
<thead>
<tr>
<th></th>
<th>NSSE04</th>
<th>%</th>
<th>NSSE05</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opened and abandoned</td>
<td>15275</td>
<td>10.5</td>
<td>36461</td>
<td>16.3</td>
</tr>
<tr>
<td>Abandoned:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before answering</td>
<td>46.6</td>
<td>39.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>After Page 1</td>
<td>26.5</td>
<td>32.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>After Page 2</td>
<td>22.2</td>
<td>15.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>After Page 3</td>
<td>4.7</td>
<td>13.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
What Happened

- More started in 2005 with clickable URL, informed consent on first page, local graphic
- More abandoned in 2005
- Abandoned a little later in the questionnaire
- Overall response for Web and Web+ increased from 34.4 (2004) to 35.5 (2005)

Summary – overall, the change didn’t create a tremendous rise in response but it was counter to the long-term trend of declining response. Unfortunately, there was a significant decline in paper responses in 2005, so the overall decline continued.
Increased Submits and Data Changes

- Increased number of submits from 4 in 2004 to 21 in 2005
- Multi-item questions displayed in grids
- Sixteen (of >100) items substantially changed placement within grids
- Three questions changed from vertical to horizontal display

Second presentation focus – the impact of the changes in the number of submits from 2004 – 2005.

(Present screen shots of 2004 and 2005 in how multiple item questions were displayed to students.) 2004 version – grids were split after 6-7 questions to keep response set onscreen; 2005 more submits.

Most items did not change display or changed little.

Previously both paper and web questionnaire had 3 items displayed vertically but changed to horizontal for web in 2005. Paper display did not change.
The survey responses generally change little each year, so any substantial change likely indicates a change created by questionnaire change. For example, added a 0 option one year to a time use question and distributions changed noticeably; in another year, examples were added/changed and the responses changed.

The paper questionnaire can be compared to web changes since paper didn’t change between years.

The data would be difficult to display in table form – tables available on request.

Absolute change used to calculate average “gross” change between years. We used the first 2 of 4 responses to calculate change, e.g., “never” and “sometimes” in calculation. Most changes showed positive change, i.e., first 2 responses had higher proportion in 2005.

Significance testing – not important with very large sample.
Response Distribution Changes

- The average absolute change from 2004 - 2005 for paper questionnaires was 1.1 PP (19 items)
- Remove one item on paper questionnaire with 8 PP change – average change is 0.8 PP (web version changed very little)
- Item in campus support for voting increased by 24 PP from 2004 - 2005

Why we are comfortable stating that changes in web responses between 2004 and 2005 resulted from format changes.

1. Paper responses changed very little, except for one item.
2. The item on campus support for voting in elections was very sensitive to increased campus efforts to encourage voting. 24% percentage point increase from 2004 – 2005. This change reflected campus encouragement of election participation during 2004 presidential election.

The voting item changed location but it is not included in change calculations because its change is not related to placement.
Paper responses did not change much – by about 1 pp and web changed by almost 3 pp on average for the 16 items. Responses by school change very slowly, so a 2.7 pp change is substantial. And, the change is distributed over many items.

A caution - response and response rates differ by institution. Mix of intuitions across modes would affect responses, so if mix changed then distributions might be affected. It's not likely to be the case because paper schools tend to stay paper and the 2004 – 2005 change is substantial.
A second change – 3 items changed from vertical to horizontal. (screen shots here)
Similar pattern to the grid placement changes – paper changed little; web changed substantially.
Brief summary
When the format changed, the response distributions changed. Alternative explanation are possible but the best explanation is that format changes produced response changes.

Format Changes

- Web responses changed much more than paper
- Schools in both years using web changed about the same as overall change
- Vertical – horizontal display change created changes in distributions
We did not find that specific types of location changes produced similar outcomes. E.g., items that were early in the grid in 2004 and lower in the grid in 2005 had mixed types of changes – little, positive, and negative. The changes are likely related the distribution of the first item in each grid as displayed.
We were successful in increasing the number of students who opened the survey and began. The overall response increased but not nearly as much as the increase in the proportion that started. And, the abandonments, while a little less, still happened, especially early in the questionnaire.

Making changes to layout and format will affect the responses. Which data are better; which are more accurate – who knows?

Small changes that would be considered as random error become meaningful in web surveys where large numbers of participants are possible.
**Contact Information**

<table>
<thead>
<tr>
<th>John M. Kennedy</th>
<th>Robert Gonyea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center for Survey Research</td>
<td>Todd Chamberlain</td>
</tr>
<tr>
<td>Indiana University</td>
<td>Center for Postsecondary Research</td>
</tr>
<tr>
<td><a href="mailto:kennedyj@indiana.edu">kennedyj@indiana.edu</a></td>
<td><a href="mailto:gonyea@indiana.edu">gonyea@indiana.edu</a></td>
</tr>
<tr>
<td>812 855 2573</td>
<td><a href="mailto:tochamb@indiana.edu">tochamb@indiana.edu</a></td>
</tr>
<tr>
<td><a href="http://www.csr.indiana.edu">www.csr.indiana.edu</a></td>
<td>812 856 5824</td>
</tr>
<tr>
<td></td>
<td><a href="http://www.nsse.iub.edu">www.nsse.iub.edu</a></td>
</tr>
</tbody>
</table>