Using Questionnaire Design to Fight Nonresponse Bias in Web Surveys

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My interest

• I will be using a web questionnaire to survey faculty (and potentially students).

• Some goals of my survey:
  – To understand to what extent EWU faculty require digital/new-media assignments as part of their coursework
  – What specific digital formats, if any, do faculty require
  – Is there a correlation between the types of digital assignments and departments, programs, classes, fields of study
  – What is faculty perception of students’ proficiency in delivering multimodal assignments?
Article purpose: to reduce nonresponse rates

- Design of web surveys aims to control the risk of nonresponse rates, coverage, and sampling error.

- The research presented in this article is only concerned with nonresponse rates.
Propose a categorization of questionnaire characteristics which influence response rates

Summarize design principles for web surveys that will help researchers
  – Know the possibilities of design features
  – Be aware of the impact each choice may have on response rates
  – Choose the “best” design for the survey
Method and scope

- Secondary research

- Authors analyzed existing web survey research and focused on nonresponse rates

- In the context of web survey, “nonresponse” analysis was restricted to the process from the moment the respondent starts to answer the questionnaire.
Terms

- **Dropout rate**: percentage of those who prematurely abandoned the questionnaire (DNF).

- **Item nonresponse rate**: unanswered questions, including “no opinions,” “don’t knows,” or “no answer,” etc, expressed as a percentage of the total number of questions.

- **Overall completion rate**: the percentage of respondents who completed the questionnaire of all those who started the questionnaire.
Six-category classification

Features of web questionnaires that can affect nonresponse can be classified thusly:

• General structure
• Length
• Disclosure of survey progress
• Visual presentation
• Interactivity
• Question/response format
Category 1: General structure

Scroll vs screen
- No statistical difference for complete rates
- Scroll: slightly higher item omission
Category 1: General structure, continued

Embedded vs linked

- Embedded: attach a survey to email for respondent to fill out and send back
- Link: include a URL to web survey in email; respondent clicks link and fills out online survey

• Completion rates for linked method is much higher
• Embedded seems like a deprecated format now
Category 2: Length

• “the decision to carry on till the end of a survey is to a great extent influenced by the effort required of the respondent”

• Length (and perceived length) is a primary factor

• May be measured by
  – Number of pages
  – Number of questions
  – Completion time
Category 2: Length, continued

- Research on web survey length indicates the following:
  - Length affects dropout rate
  - Comparing where respondents drop out in long vs short survey shows that they drop out sooner in long surveys
  - A priori of questionnaire length (i.e., “this survey will take 8-10 minutes to complete”) results in a lower dropout rate.
  - Be careful with a priori approach: when the actual length exceeds the announced length, dropout rates are higher
Category 3: Disclosure of survey progress

- Scroll design, like a paper survey, provides indication of progress inherently.
- Screen design does not.
- Common implementations: progress bar; “you are here,” “show progress” etc.
Research here is not conclusive

- Completion rate in one study was not statistically significant
- Broken or inaccurate progress indicators appear to increase dropout rates
- Instrumentation issues cloud definitive conclusions:
  - How do you account for open-ended questions when calculating “progress” as a function of time?
  - Impact of progress speed, frequency of progress updates (always on, on-demand, intermittent)
  - Impact of downloading progress indicator updates
- Generally: for long questionnaires, permanently-on progress indicators are likely to increase drop out rates. Consider intermittent feedback instead.
Category 4: Visual presentation

“Fancy” vs “plain” – formatted text/tables/colors vs plain text

– “Plain” version resulted in higher completion rates

– Hypothesis of original researchers was that the plain version required less “transmission time” and therefore required less time to complete. It’s not clear if “transmission” in this context refers to an action of the network or the respondents.

– Open question: Is “fancy” visual presentation equivalent to “effective” visual presentation?
Category 4: Visual presentation, con’t

Logotypes

- Positive impact on item nonresponse
- Caused a higher dropout rate – with most dropouts leaving on the page where the logotypes were introduced.
  - Dropouts here were more marked among respondents using the slowest Internet connections
In self-administered surveys, respondents tend to seek out information that:

- Allows them to dissipate any doubt about the meaning of the questions
- Indicates how the answers should be given
- Indicates how to move through the questionnaire

• Online, screen-based surveys provide a number of options to interact with respondents in this context
Interactive options include:

- Jumps between questions which allow the omission of inapplicable questions based on previous responses
- Display of missing data messages alerting the respondent to unanswered questions
- Presentation of instructions or explanations
- Adaptation of question text according to answers given in previous questions
Research concerning the various interactive options on response rates is scarce. Forced-response procedures are the exception.

- Forced-response: respondents must answer a question to advance to the next question. “No opinion” responses are not allowed.

- Not surprisingly, item nonresponse improves dramatically with this model...

- However, dropout rate is much higher

- In one study, a survey with forced-responses generated a dropout rate of 64% compared to 19% where the same survey was given without requiring forced-responses.
Category 6: Question/response format

- Closed-ended vs open-ended
Research regarding open-ended questions is fairly conclusive:

– Higher dropout rates were likely to be found in surveys that included open-ended and/or difficult questions

Research regarding response format and input type:

– Clicking a “don’t know” button vs text box where a response had to be explicitly stated: use a button to improve item nonresponse rates

– Radio buttons vs drop-down selectors slightly impacts item nonresponse rates: use the radio buttons
## Roll up

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<th>Overall completion rate</th>
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