Does Item Format Influence Survey Response?

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In spring 2015, the survey software vendor used by the ACT Survey Research department offered a modern, untested item format to its customers. Survey Research wondered if survey participants would respond differently depending on the visual format of the modern item. Two experimental studies were therefore implemented to determine whether the modern or traditional item format had a differential impact on response rate, questionnaire completion rate and completion time, and response choice. Figures 1a and 1b present a sample item illustrating the two formats.

Figure 1a. Traditional item format

Figure 1b. Modern item format

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Completion Time: Average number of minutes and seconds to complete the survey

Completion Rate: Percentage of respondents who completed the survey after starting it

Response Rate: Percentage of all survey recipients who responded to at least one item

**Experiment 1**

We asked 10,000 school administrators who administered ACT Aspire® to their students to complete a survey instrument asking them about their perceptions of ACT and the assessment. We randomly assigned half of the administrators to a questionnaire that displayed the traditional item format and the remainder to one that displayed the modern format. A total of 1,349 administrators responded.

Response rates did not differ significantly according to item format ($X^2 (1) = 1.735, p = .187$), with only a one-percentage-point difference observed between the traditional and modern item format groups (14% vs. 13%, respectively). Moreover, this difference had a negligible effect size associated with it ($\phi = .03$).1 Of those who started the questionnaire, the exact same percentage (64%) in both groups completed it. Those respondents given the traditional item format took less time to complete the questionnaire ($M = 11$ minutes and 39 seconds) relative to those given the modern item display ($M = 14$ minutes and 17 seconds). The difference in completion times was not statistically significant ($t (1311) = 1.79, p = .076$), nor was it significant in a practical sense ($d = .11$). Cohen's (1988) criteria were used to determine the magnitude of the effect, where small $\sim .2$, moderate $\sim .5$, and large $\sim .8$.2 Figure 2 presents the average difference between the two groups for the three outcomes.

The first question that displayed either the modern or traditional format was: *What version of the ACT Aspire assessment does your school primarily use?* Participants in both groups answered this question in almost the same way (i.e., 58% in the traditional group indicated they completed the ACT Aspire assessment online vs. 54% of those in the modern group). The difference was not statistically significant ($X^2 (3) = 4.159, p = .05$). Figure 3 displays the frequency distribution of responses for this survey item.

**Experiment 2**

We employed the same procedures in the second experiment as were described in Experiment 1. However, instead of surveying adults, we surveyed high school students ($n = 50,000$), asking them about their experience with taking the ACT® test. We hypothesized that a younger generation of survey-takers might be more comfortable with the modern item format. A total of 1,979 students responded.
Results for the students were very similar to the results obtained from the school administrators (see Figure 4). Response rates (4%) did not differ at all according to item format. Of those who started the questionnaire, a two-percentage-point difference was observed between the traditional and modern item format groups (73% vs. 71%, respectively) in completion rates \( = .02 \). Those respondents given the traditional item format took more time to complete the survey \( (M = 10 \text{ minutes and } 57 \text{ seconds}) \) relative to those given the modern item display \( (M = 9 \text{ minutes and } 54 \text{ seconds}) \). The difference in completion times was not statistically significant \( (t (1977) = .510, p = .610) \), nor was it significant in a practical sense \( (d = .02) \). Figure 4 presents the average difference between the two groups for the three outcomes.

Students’ first survey item differed by format (traditional vs. modern). Respondents were asked: Which of the following statements best describes you? Results showed no statistical difference in response pattern answers \( (X^2 (3) = .690, p = .875) \) and no practical difference \( (\phi = .01) \). Figure 5 displays the frequency distribution of responses for this survey item.

The finding might be related to ease of responding to the modern item format when using a mobile device. For example, it might be simpler for mobile device respondents to tap to select a bar (large-area tap requiring relatively less precision) than to tap to select a small radio button. Moore (2015) reported that a large percentage of students respond to questionnaires using mobile devices. We intend to examine in future research the relationship between item format and mobile device usage.
Notes
1 Phi was used to calculate effect size for the chi-squared analyses. A value of .1 is considered a small effect; .3 a medium effect; and a .5 a large effect.