

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.

What version of the ACT Aspire assessment does your school primarily use?

- Paper & Pencil only
- Online testing only
- Both Paper & Pencil and Online
- Don't know / did not use this year

Figure 1a. Traditional item format

What version of the ACT Aspire assessment does your school primarily use?

- Paper & Pencil only
- Online testing only**
- Both Paper & Pencil and Online
- Don't know / did not use this year

Figure 1b. Modern item format

Acknowledgements

The author would like to thank Jeff Schiel for his feedback and helpful suggestions on early versions of this paper.

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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

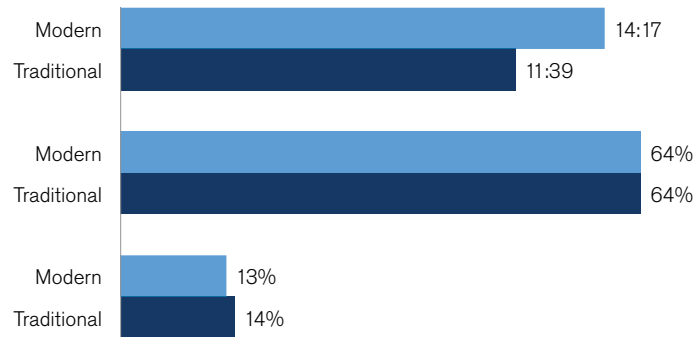


Figure 2. School administrators' survey behavior, by item format

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 ($\eta = .03$).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

What version of the ACT Aspire assessment does your school primarily use?

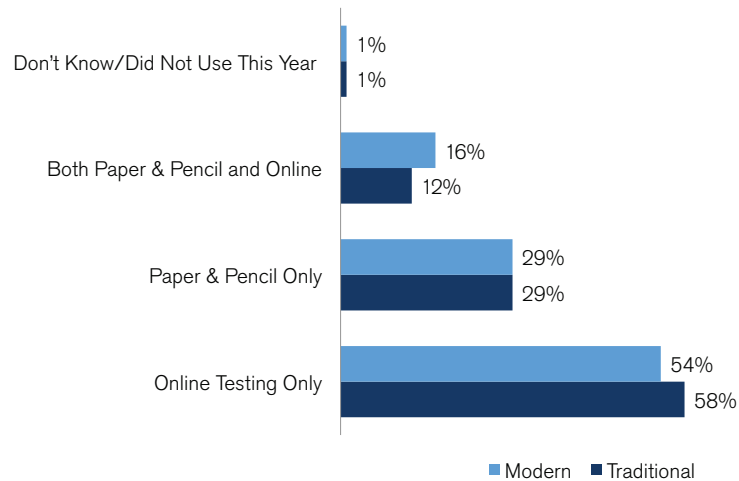


Figure 3. School administrators' response patterns: % of respondents who chose each item option, by item format

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.

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

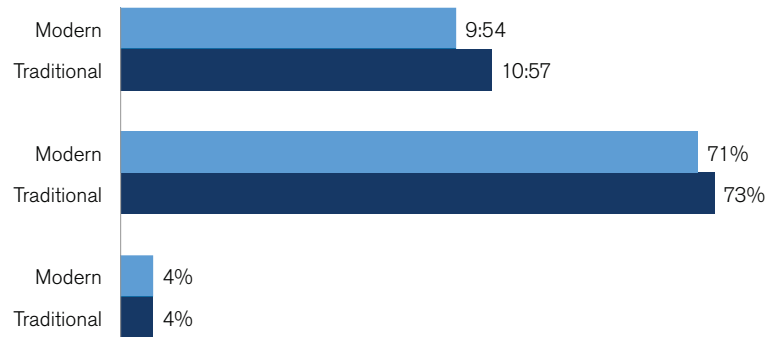


Figure 4. Students' survey behavior, by item format

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 ($M = 10$ minutes and 57 seconds) relative to those given the modern item display ($M = 9$ minutes and 54 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 ($\chi^2(3) = .690, p = .875$) and no practical difference ($\varphi = .01$). Figure 5 displays the frequency distribution of responses for this survey item.

Which of the following statements best describes you?

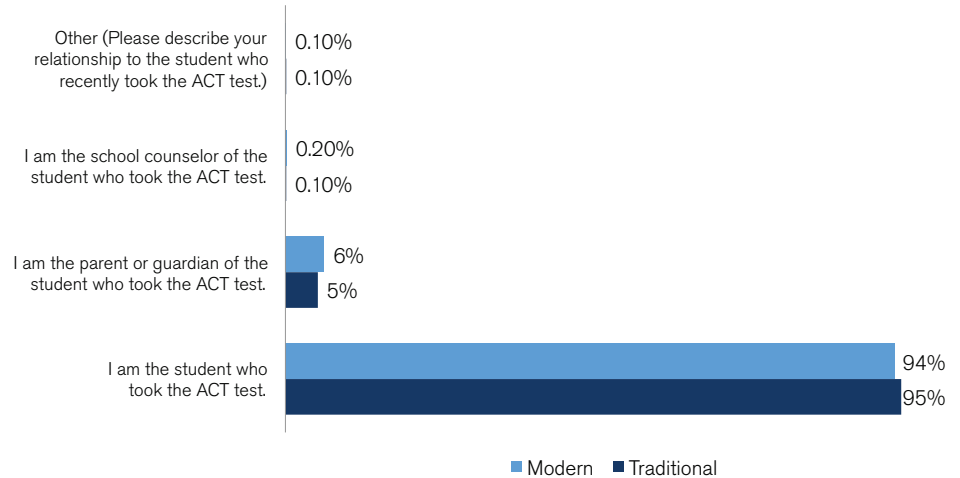


Figure 5. Students' response patterns: % of respondents who chose each item option, by item format

Summary

Whether survey respondents are given the traditional survey item format of radio buttons or a more modern feel where respondents click a row to make a selection does not statistically influence four key response behaviors: response rates, completion rates, completion time and response patterns. Of interest, however, is the fact that it took less time for students to complete the survey when provided the modern item view. The opposite was true for adult survey takers.

This 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.³ 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.
- 2 Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, New Jersey: Lawrence Erlbaum Associates.
- 3 Moore, R. (2015). *Students' online survey behavior: Types of devices student use and how this relates to time they take to complete a survey*. Retrieved from: www.act.org/research/researchers/briefs/2015-4.html.