Comparing Data Quality and Cost from Three Modes of On-Board Transit Passenger Surveys

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The optimal survey mode depends on a bus agency's data needs, but the low-tech paper survey is still the best option for many on-board passenger surveys.

This report presents the findings from a study investigating the relative data quality and administration costs for three different modes of surveying bus passengers that produce results generalizable to the full passenger population. The three survey modes, all of which were distributed or administered on board the transit vehicle, were self-complete paper surveys (the "paper" mode), self-complete online surveys (the "online" mode), and interviewer-assisted tablet-based surveys (the "tablet" mode).

Study Methods

The research was set up with an experimental design, so the same questionnaire was distributed via the three survey modes. All factors about the survey and distribution process were kept identical to the extent feasible, so the only variation would be the survey mode itself. The survey was administered on a subset of San Francisco bus routes chosen to represent a heterogeneous set of passengers.

Findings

The online mode performed by far the worst for almost every metric tested and so cannot be recommended. Therefore, the key findings summarized here discuss only the paper and tablet modes.

The paper mode had better return and completion rates by most definitions tested.

The paper mode had a much higher return rate than the tablet mode if the return rate is defined as the percent of passengers approached by a surveyor who returned a survey. Similarly, looking at "complete" surveys, paper performed at least 11 percentage points better than the tablet mode by many definitions of completeness tested. However, tablets performed marginally better than the paper mode when "complete" was defined as obtaining a response to every survey question.

The socio-demographics of the survey respondents were similar for both modes.

An analysis of the socio-demographic characteristics of the respondents for each survey mode showed that the tablet and paper surveys performed within five percentage points of each other for all population sub-groups. Although small in magnitude, these differences were statistically significant for some population groups important for equity analyses.

Changing survey mode changes customer satisfaction ratings.

Four survey questions asked respondents to rate service quality, and the mean rating for all of them was higher for the tablet mode. The differences were statistically significant.

The paper mode had much lower administration costs.

The study assessed cost in terms of the on-board surveyor and data entry time required to generate a completed survey. The tablet mode required from 50% to 100% more labor hours than the paper mode, depending on the definition of a "complete" survey, because of the additional surveyor time required for the tablet method.

Implications for Practice



Source: www.vta.org.

First, and most importantly, the findings demonstrate that there is no single best survey mode. The choice of mode should depend on an agency's priorities for what questions most need to be answered, what population groups are most important to represent, and the precise definitions that will be used to define a concept like a "complete" survey. Nevertheless, the study findings suggest several implications for current survey practice:

1. Online surveys administered via an invitation distributed on the transit vehicle are a poor option.
2. The old-fashioned, low-tech paper survey is still the best option for many bus passenger surveys that aim to produce results generalizable to the full passenger population.
3. Changes in survey results that accompany changes in survey methods should be interpreted with caution.



About the Authors

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To Learn More

For more details about the study, download the full report at ***transweb.sjsu.edu/project/1206.html***

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