Numbers, please: Uses and Misuses of Online-Survey Panels in Digital Research

Gian Fulgoni

Journal of Advertising Research

Vol. 54, No. 2, 2014
INTRODUCTION

The Internet has provided market researchers with a dramatically more cost-effective way of recruiting respondents and conducting surveys. Over the years, these savings have helped drive widespread use of online-survey panels to answer myriad research questions. In 2013 alone, 43 percent of all research surveys completed in the United States were conducted online, generating total revenue of $1.8 billion.¹

Concern over online sample quality, however, has been on the rise. In 2006, Kim Dedecker, then vp/global consumer and market knowledge at Procter & Gamble, first spoke publicly and persuasively about the online quality issues experienced by P&G.² Her revelations led the Advertising Research Foundation (ARF) to create the Online Research Quality Council, which in turn, led to the ARF “Foundations of Quality” research initiatives (FoQ 1 and FoQ 2 [Please see “Is Mobile a Reliable Platform for Survey Taking?” on page 141]). FoQ 2 specifically sought to identify online-survey quality issues in the areas of respondent recruitment procedures, sample sources (river, panel, community), and router sample optimization practices (Walker and Cook, 2013; Bremer, 2013; Thomas, 2014).

Separately, comScore has revealed disturbing behavioral patterns of members of online-survey panels. People who join online-survey panels, comScore has reported, tend to be heavier users of the Internet—two to three times more so—than the average consumer. As a result, answers to questions about cross-platform media consumption or multi-channel commerce behavior can be skewed toward heavy Internet use—potentially leading to errors when the data are factored into cross-platform or cross-channel decision making.

This skew is in addition to the challenge all survey methodologies face when asking respondents to recall their past behavior—something most consumers simply cannot do accurately.

Cross-platform and cross-channel measurement are important because digital technology is transforming the way we consume media and the way we buy products. As such, it is imperative that researchers understand the advantages and downsides of the various methodologies that can be used to measure online behavior.

ONLINE-SURVEY PANEL MEMBER CHARACTERISTICS
Most online-survey panels are recruited with online invitations. The extent of this recruiting can be seen simply by conducting a Google search: The query, “How to get paid for online surveys” recently yielded approximately 18 million search results, prominently including sites that recruit survey respondents.

Probability sampling generally is not used in recruiting online panels. Rather, respondents are recruited by running solicitations in the form of online advertisements or by extending invitations at Web sites specifically built to recruit consumers to join an ongoing survey panel and complete surveys.

Typically, the sample used in an online survey is weighted demographically so as to ensure that its characteristics are representative of the population being studied. Unfortunately, as has been identified by the ARF FoQ studies, this does not always guarantee that the sample is representative on a behavioral basis.

comScore uses its own 1-million-person U.S. panel to identify behavioral characteristics of survey-panel members. People who are members of the panel have given the firm explicit permission to install its measurement software on their computers. This software unobtrusively and electronically measures the details of the panelists’ online behavior while requiring no workload on the part of the respondent. It also records whether a panelist completes surveys provided by market-research firms other than comScore.

As a result, the researchers can compare the online behavior of the subset of comScore panelists who belong to any survey panel with the behavior of those who did not complete any such surveys (and who, therefore, can be assumed to not be members of survey panels).

An analysis employing this software conducted in 2006 revealed a skew toward heavier Internet usage among those panelists who were members of online-survey panels (See Table 1). An index measured the ratio of heaviness of Internet usage among survey panelists compared to the average Internet user; an index reading over 100 indicated that survey panelists were heavier than average for that particular activity. In particular, the analysis showed that survey panelists spent 2.55 more time online and spent $1.93 more on e-commerce than the average Internet user. This trend likely is driven by the fact that heavier users of the Internet are more likely than an average user to be exposed to a solicitation to join a survey panel.

### Table 1

<table>
<thead>
<tr>
<th>Members of Ongoing Survey Panels Are Substantially Heavier Online Users than the Average Internet User</th>
<th>Survey Index *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Spent Online</td>
<td>265</td>
</tr>
<tr>
<td>No. of Pages Downloaded</td>
<td>281</td>
</tr>
<tr>
<td>No. of Searches Conducted</td>
<td>75</td>
</tr>
<tr>
<td>Checks Sought Online</td>
<td>193</td>
</tr>
<tr>
<td>% Making Online Credit Card Applications</td>
<td>295</td>
</tr>
<tr>
<td>% Using Online Bill Pay</td>
<td>274</td>
</tr>
</tbody>
</table>

### INAPPROPRIATE USES OF ONLINE-SURVEY PANELS

There are many research applications for which an Internet bias does not present a problem, such as gauging digital advertising effectiveness or measuring attitudes and sentiments toward a broad variety of issues (Please see “Uses and Misuses of Online-Survey Panels in Digital Research” on page 133). Two, however, can yield survey results that, in turn, lead...
to erroneous conclusions regarding digital behavior: the measurement of cross-channel consumer engagement and the measurement of cross-channel purchasing.

**Measuring Consumer Engagement in a Cross-Platform World**

The issue of cross-platform research is at the top of the research agenda for marketers. A survey of marketers, agencies, and sellers conducted by the Association of National Advertisers (ANA) and AC Nielsen in October 2013 predicted that spending on cross-platform media campaigns would grow from 20 percent of budgets today to 50 percent within three years.\(^3\) And, 88 percent of respondents to that study said that multi-screen campaigns would become very important in delivering marketing messages effectively.

As this new reality emerges, marketers want tools to allocate advertising dollars holistically and to plan their campaigns across an increasingly complex landscape.

Unfortunately, however, simply asking online-survey respondents to estimate their time spent online versus time spent watching television can lead to large errors. One reason is that experienced researchers know that consumers have trouble accurately recalling how they spend their time. There is another even bigger problem, however, when using online-survey panels: If the respondents are heavier-than-average users of the Internet, their responses will skew toward Internet usage and away from television.

Consider the following results of two recent online surveys:

- A 2011 Forrester consumer survey concluded that time spent online in 2010 was equal to time spent watching television.\(^4\)
- Basing their conclusions on a variety of data, most of which were survey-based, http://www.emarketer.com/Article/Digital-Set-Surpass-TV-Time-Spent-with-US-Media/1010096 recently reported that consumer time spent online in 2013 would exceed time spent watching television.

A far different picture emerges when examining media engagement based on passively observed behavioral panels, such as those provided by Nielsen for television and comScore for online. Such panels are not subject to the online-survey behavioral bias mentioned earlier, and they are less likely susceptible to recall errors. Moreover, they generally are regarded as providing the most accurate measure of engagement with television and the Internet, respectively.

These behavioral data show that consumers’ time spent online (using computers, smartphones, and tablets) during Q3 2013 represented only 50 percent of the time spent watching television, a far different result from what one would conclude using online-survey research (See Figure 1).
Miscalculating consumers’ cross-media usage through the use of online-survey data can lead to sub-optimal media-buying decisions that waste advertising dollars. For example, an important concern for media planners is how consumers’ time spent online and viewing television compares to the advertising dollars spent on each medium. In 2013, the Interactive Advertising Bureau (IAB) reported that digital advertising dollars were equal to approximately half of television advertising dollars. So, if one uses online-survey data that show that the Internet captures as much (if not more) of consumers’ time than television, the conclusion would be that advertising dollars are underspent on digital.

As the evidence is that survey panelists are heavier-than-average Internet users, this result is probably just the result of this bias. In fact, using Nielsen and comScore behavioral measures (i.e., time spent on the Internet is 50 percent of time spent watching television), one would reach the conclusion that digital and television advertising spending actually are appropriately allocated—or at least are in accordance with consumers’ engagement on each medium.

**Measuring Consumer Spending Across Channels**

Another use of online surveys in digital research is to gauge consumers’ online spending behavior (i.e., e-commerce) versus in-store consumption. And, as in the case of cross-media measurement, using online surveys produces results that are biased toward the Internet. For example, an Accenture study conducted in 2013 based on a sample of 500 Web survey respondents concluded that “two out of five consumers will spend the majority of their holiday purchases online this year” (See Figure 2).

Extrapolating from the Accenture data (and using the most conservative bottom-of-the-range number; i.e., 75 percent for the 75-percent-to-99-percent range, 50 percent for the 50-percent-to-74-percent range), these results indicate that e-commerce...
accounts for approximately 30 percent of consumers’ overall discretionary spending. Using the mid-point of the range (i.e., 87 percent for the 75-percent-to-99-percent range, 62 percent for the 50-percent-to-74-percent range), one would conclude that e-commerce represents as much as 40 percent of consumers’ spending.

To further estimate the Internet bias in survey panels regarding cross-channel buying, comScore recently conducted its own study using 1,000 online-survey panelists, asking them to estimate their spending online versus in-store across 17 discretionary product categories, including

- apparel and accessories,
- consumer electronics,
- computer hardware,
- toys,
- event tickets,
- books and magazines,
- home and garden,
- furniture and appliances,
- sport and fitness, and
- jewelry and watches.

On average, survey panel respondents reported spending 39 percent of their total expenditures for these categories through online channels.

So, taking research using online-survey panels at face value, one would conclude that e-commerce represents about 30 percent to 40 percent of consumers’ discretionary spending.

How does this estimate compare, however, to data generally regarded as providing the most accurate measure of consumer buying? Data from the U.S. Department of Commerce (which obtains actual sales numbers directly from retailers) shows that e-commerce sales in the fourth quarter of 2013 ($83.6 billion) actually represented only 14 percent of consumers’ total spending of $595 billion (even if one excludes buying of gasoline, autos, food service, and food/beverage, which predominately are purchased offline).6

The conclusion is clear: Using online-survey panels to measure cross-channel buying over-estimates the actual proportion of consumer spending that occurs online. To paraphrase the late New York Senator Daniel Patrick Moynihan: “Everyone is entitled to his own opinion, but not to his own facts.”

**APPROPRIATE USES OF ONLINE-SURVEY PANELS**

The use of online-survey panels to gauge cross-platform and cross-channel behaviors is problematic because of respondents’ online behavioral skews and their recall errors.

The good news, however, is that the ARF’s FoQ 1 and 2 studies have concluded that online-survey panels can be used to measure precisely a wide range of consumer attitudes and sentiments.

In addition, when used correctly, online-survey panels may provide a useful way to overcome consumers’ limited ability to accurately recall their past behavior. A computer can be programmed to issue online-survey invitations passively and precisely
when it sees the specific digital behavior occurring, without having to rely on a survey respondent accurately recalling that behavior. In other words: When it comes to behavioral research, computers trump respondents—an extremely powerful reality that permits some breakthrough research capabilities. Some illustrative examples follow.

**Measuring the Branding Impact of Digital Advertising Campaigns**

The IAB reported that in 2012, digital advertising spending in the United States had grown to the point where it was equivalent to slightly more than 50 percent of the money spent on its television counterpart. Concurrently, as the Internet continues to become recognized as a branding medium and not just a direct-response vehicle, the need has increased for reliable methods of quickly evaluating the impact of digital campaigns using branding metrics such as awareness, message recall, likelihood to recommend, and purchase intent.

One of the challenges to using survey panels to gauge advertising impact of traditional media is that consumers struggle to remember accurately whether they were exposed to an advertisement. In the case of digital media, however, it is a relatively simple matter to use an ad server to issue a survey invitation to the recipient of an advertisement when it has been delivered or even, through the use of cookies, a few days after exposure.

Respondents can be invited randomly from among the people exposed to the campaign to take the survey, with a control group of non-exposed respondents being used simultaneously. This allows one to measure the impact of the campaign while eliminating any potential survey-panel recall error.

An alternative (and, possibly, superior) approach to the use of a control group is to run a covariate-attribution model based on number of advertisement exposures and apply it to estimate the attitudes of non-exposed consumers. Cross-platform issues do not come into play with this survey application, while the use of benchmarks to compare an individual campaign's impact against other measured campaigns can further help increase the value of results.

With passively collected behavioral data showing that time spent using mobile devices to access the Internet surpasses that using desktop computers, it is vital that publishers and advertisers be able to measure the effectiveness of mobile advertisement campaigns. Again, online surveys provide a simple and effective solution. Survey invitations can be triggered by the ad server after the delivery of an advertisement to a mobile user, and a variety of brand metrics can be collected. Then, using a control group of people not exposed, the incremental impact of the mobile advertisements can be determined. As in the case of the desktop methodology mentioned above, inviting respondents randomly to participate in the surveys helps increase the likelihood that study results are based on a representative sample of mobile users.

Another particularly intriguing survey application is measuring the relationship between the length of time that a digital advertisement is "in-view" to the consumer and the impact of the advertisement. This is an important issue today because the IAB, the ANA, and the American Association of Advertising Agencies together have deemed the viewability of a digital advertisement to be the preferred standard rather than simply counting whether the advertisement was served.

In such cases, the Web site server (along with some computer code in the advertisement itself) is used to measure the length of time that an advertisement was "in-view" to the consumer while a survey is used to collect advertising-impact information from respondents exposed to the advertisements for varying lengths of time.

Importantly, this research has confirmed the value of in-view advertisements, revealing that the impact of an advertisement campaign increases with the time the advertisement is in-view.
**Measuring the Drivers of Digital Consumer Behavior**

Similar to the challenge of accurately recalling their exposure to advertisements, consumers also struggle to accurately recall their past behavior. Again, however, with digital research it is possible to let a computer handle identification of a wide variety of behaviors—with 100 percent accuracy. Then, to collect attitudinal information, survey invitations are issued to the consumers who are known to have exhibited the behavior. There are some very powerful examples of this approach used in the digital commerce sector.

**Web Site Satisfaction**

The level of satisfaction among visitors to a Web site perhaps is one of the most important issues that a Web-site operator needs to understand. In such instances, the Web-site server is used to issue a survey invitation when it sees consumers exiting the Web site, removing any doubt as to whether consumers accurately can recall visiting a particular Web site.

**Shopping-Cart Abandonment**

Using the Web-site server helps to accurately identify cart abandonment at the precise moment it happens and to conduct a survey among the “abandoners” to better understand their actions.

**Visitor and Non-Buyer Analysis**

Conducting surveys among members of a behaviorally tracked panel can be particularly valuable. For example, as actual behavior can be tracked with high accuracy, the drivers of dissatisfaction among panelists who visited a retail Web site—and did not purchase there but, on exiting the site, visited a competitive site and did complete a purchase—can be ascertained.

Ideally, the more that surveys can be used to understand “why” consumers behave the way they do, rather than introducing recall error by ascertaining “what” or “to what extent” consumers engage in a behavior, the more accurate and insightful the survey research will be.

**SUMMARY AND DISCUSSION**

Online-survey panels have brought the market-research industry the attractive benefits of speed and lower cost, but questions of quality still dog the methodology. The ARF is conducting seminal research into a variety of online-survey quality issues, helping to improve researchers’ understanding about how to boost the accuracy and reliability of their use of such surveys.

The rate at which consumers are shifting to the Internet is of great interest to marketers. At the same time, however, using online surveys to measure the rate of media and channel shifting to digital is problematic.

The evidence strongly suggests that online-survey panels greatly overestimate consumers’ actual use of the Internet, both as a medium and as a sales channel. This appears to be the result of survey panel respondents’ being heavier users of the Internet than the average consumer—causing their survey responses to be biased toward the Internet—coupled with respondents’ not being able to recall accurately their own actual behavior. This can lead to large errors in decision making regarding how much marketing spending to allocate to television versus digital or to e-commerce versus in-store buying.

Although cross-platform research using online-survey panels can be error-prone, there are powerful ways in which online-
survey panels can be used to conduct research into digital behavior:

- They can be used to gauge advertising effectiveness within platform: This typically involves using ad servers to identify the consumers exposed to digital advertisements, and then comparing their responses to unexposed consumers using a control group or an attribution model. This methodological design tends to minimize any errors caused by respondents’ heaviiness of Internet use.

A related application is measuring the length of time that a digital advertisement is in-view and understanding the relationship between viewability and campaign impact. This is important particularly in light of the digital industry’s move from served to viewed advertising impressions.

- They can leverage computers to identify behavior without having to rely on the respondents’ accurately recalling whether they had exhibited the behavior. Once that behavior is identified (with 100 percent certainty), the computer extends a survey invitation to the particular consumer.

One example of this methodology: Using Web-site servers to deliver surveys aimed at gauging site visitors’ satisfaction with Web-site functionality. A second: Understanding the reasons why people who visited a retail Web site abandoned their shopping cart.

There are many more such applications, and they all share two common broad-based characteristics: A computer accurately identifies the consumer behavior, whereas an online survey is used to understand the drivers of that behavior among consumers who definitely exhibited that behavior.

About the author

References


3 “ANA and Nielsen Study Reveals Multi-Screen Advertising to Rise Dramatically—Multi-Screen Media Expected to Grow to 50 Percent of Budget in Next Three Years; Measurement Seen as Biggest Issue.” Association of National Advertisers, October 31, 2013.


5 2013 US Holiday Shopping Survey Results.” Accenture.

7 IAB Internet Advertising Revenue Report, 2012 full-year results, April 2013.

Gian Fulgoni is the co-founder and chairman emeritus of comScore, Inc. Previously, he was president/ceo of Information Resources, Inc. During a 40-year career at the C-level of corporate management, he has overseen the development of many innovative technological methods of measuring consumer behavior and advertising effectiveness. He is a regular contributor to the Journal of Advertising Research. GFulgoni@comscore.com