Use of Survey Research in Top Mass Communication Journals 2001–2010 And the Total Survey Error Paradigm

Louisa Ha, Xiao Hu, Ling Fang, Sarah Henize, Sanghee Park, Alex Stana & Xiaoqun Zhang

This study identifies trends and practices in survey method use in mass communication research based on the Total Survey Error Paradigm. A content analysis of 479 survey research articles published in four top mass communication journals shows that articles in each journal differ significantly in survey mode. The self-administered print survey was the most common survey mode and most studies opted for non-probability sampling. Funded studies were more likely to employ probability samples and addressed survey research errors. Lack of information on response rates and survey limitations was a common problem in the articles. The analysis shows the surveys employed in mass communication research did not show adequate efforts in minimizing the total survey errors.

Keywords: Survey; Mass Communication Research Method; Response Rates; Survey Errors; Research Trends

Louisa Ha is a Professor, School of Media and Communication, Department of Telecommunications, Bowling Green State University, 302 West Hall, Bowling Green, OH 43403, U.S. Email: louisah@bgsu.edu
Xiao Hu is a Doctoral Candidate, School of Media and Communication, Department of Telecommunications, Bowling Green State University, 302 West Hall, Bowling Green, 43403, U.S.
Ling Fang is a Doctoral Candidate, School of Media and Communication, Department of Telecommunications, Bowling Green State University, 302 West Hall, Bowling Green, 43403, U.S.
Sarah Henize is a Healthcare Analyst, Huron Consulting Group, 550 W. Van Buren Street, Chicago, Illinois 60607, U.S.
Sanghee Park is a Doctoral Candidate, School of Media & Communication, Bowling Green State University, West Hall, Bowling Green, 43617 U.S.
Alexandru Stana is an Assistant Professor, Department of Communication, Fayetteville State University, 1200 Murchison Road, Fayetteville, U.S.
Xiaoqun Zhang is an Assistant Professor, Department of Media Arts, University of North Texas, 1155 Union Circle, Denton, TX 76203, U.S.
Content analyses and surveys are the most commonly used quantitative methods for mass communication research. Considerable research assessing the content analysis practices in communication research has been published with the aim of improving the use of the method, such as inter-coder reliability calculation or sampling. In contrast, even though there is a high use of surveys as a research method, there is a lack of research examining their use in mass communication. Even research method texts in mass communication use non-mass communication research survey examples.

The Total Survey Error (TSE) paradigm is a major survey research assessment framework. The minimization of total survey errors is necessary for survey research to yield valid, representative and reliable results. In addition, the choice of survey method and its implementation will affect a study’s validity and reliability and the data-collection medium used in surveys changes with technological development over time. The researchers of the study are not aware of any published study evaluating surveys in mass communication research that employed the TSE paradigm. Hence, this study fills such gap in the field of mass communication by offering a comprehensive review of survey method use in mass communication research in 2001–2010 and identifies trends and related problems based on the TSE paradigm. The goal of the paper is to enhance the quality of survey research especially in the field of mass communication.

Surveys are a method to collect self-reported data from respondents through a structured questionnaire with standardized questions. Successful use of surveys requires interdisciplinary knowledge of statistics, cognitive psychology and project management. Surveys differ from in-depth interviews in that they strive to obtain responses from a large number of respondents following pre-defined constructs of the research, either in open-ended or close-ended format. Nonetheless, use of questionnaires is a necessary but not sufficient condition to constitute a survey. The survey method does not count those questionnaire-embedded experiments which include a stimulus and a manipulation of condition the participants receive in the study. There are cases that surveys are deliberately used by researchers in lieu of experimental manipulations because of the difficulty to create the environment stimulus such as high level of partisan views on an issue like native Americans on native American issues, or the subjects are not allowed to be exposed to the materials for experiment because of institutional review board restrictions such as sexually explicit materials.

Survey Research Use in Mass Communication and Other Method Reviews in Mass Communication

In past reviews of research methods used in mass communication, survey research was either the most common or second most common method of data collection used in quantitative research. Most communication research method reviews only examined the choice between quantitative and qualitative approaches by researchers, but not specifically on the method of survey research. Marcias et al. is the only
published study dedicated to survey research in communication-related journals which examined articles published from 1990 to 2002, prior to the common use of online surveys.\textsuperscript{10} The study, using research databases and keywords to identify articles from 54 refereed communication-related journals, was prone to sampling errors because many research articles using surveys did not contain “surveys” as a keyword or title for the manuscript, and the database included many journals of varying quality. The journal types the authors reported ranged from communication, health (e.g., Health Affairs) and marketing or consumer research (e.g., Journal of Consumer Research). Moreover, there was no report of the research topic or how communication research was defined in the study. Many non-communication research studies could have been included in the analysis.

The Total Survey Error Paradigm

The Total Survey Error paradigm is a theoretical framework that aims to maximize survey data quality within the cost constraints of the researcher.\textsuperscript{11} Total survey error (TSE) is “the accumulation of all errors that may arise in the design, collection, processing and analysis of survey data.”\textsuperscript{12} A survey error is defined as the difference between the true value of a survey response in the population and the estimate of the value indicated in the survey data. The concept of TSE evolved from Deming’s identification of 13 factors that affect the usefulness of a survey.\textsuperscript{13} The official term “Total Survey Error,” coined by Anderson, Kasper and Frankel,\textsuperscript{14} covers individual non-response, measurement and processing error in survey data. According to Groves et al.’s survey methodology text, the two basic components of survey errors are representation errors (coverage errors, sampling errors, and non-response errors) and measurement errors (which include construct validity, measurement errors, and processing errors).\textsuperscript{15} Coverage errors occur when the survey did not reach all of its target population by research design such as online surveys will not reach people who have no access or do not know how to use the Internet. Sampling errors are caused by sample size and the sources of sample, as well as by the way the sample is selected and recruited. Non-response errors are caused by certain groups of the sample refusing to participate in the study or respondents who did not complete portions of the survey questionnaire. They also include undeliverable recipient addresses and unavailable survey respondents. Measurement errors are caused by respondents, interviewers, survey question design, and various interview factors.\textsuperscript{16} For example, respondents might provide inaccurate information knowingly or unknowingly. Interviewers’ characteristics may influence participants’ responses. Poorly constructed questions, confusing instructions or misunderstood terms in the questionnaire are common errors in survey question design. Some modes of survey are more prone to errors, as demonstrated in Schrum’s study,\textsuperscript{17} because of the difference in the pace of the survey modes. Processing errors refer to errors caused by data entry mistakes and other errors during data processing.

Many survey researchers have proposed different ways to minimize survey errors.\textsuperscript{18} Dillman, Smyth, & Christian’s Tailored Design Method is one of the most
prominent and widely used methods to minimize survey errors. It advocates the use of multiple motivational features to encourage high quality and quantity of responses and emphasizes that the implementation procedures be catered to the needs of the target study population. The method takes respondent psychology into consideration based on the social exchange theory, and proposes that surveys are social exchanges between the researcher and the participant sampled. Respondents’ willingness to participate and effort spent on the study are largely dependent upon how they perceive the study as a fair exchange of their time and effort. In essence, the more the researcher shows respect for the respondents and tailors to their needs and addresses its concerns, the more likely they will respond to the survey. The Tailored Design Method is a respondent-oriented, rather than a researcher-oriented, approach to conduct surveys. The design is purported by Dillman, Smyth, & Christian to minimize the four common sources of survey errors by maximizing coverage of the study population, obtaining a representative sample of the population, facilitating cooperation and completion of surveys, and developing valid measurement of the concepts under study with an effective questionnaire design.

Impact of Survey Mode on Survey Results

One important way to classify surveys is the mode, or the contact method or medium used in collecting the data during the survey. Common modes are face-to-face, mail, telephone and web surveys. Apart from cost, two other factors have to be considered in choosing the survey mode. First is the pace of the survey. If one wants it to be self-paced by the respondent, then self-administered paper and pencil surveys, mail or online surveys are the best choices. If one wants to control the flow of response and the questions need explanation and probing, then telephone or face-to-face interviews with the presence of an interviewer are the most effective. Nonetheless, the pace of the survey will elicit heuristic processing of survey questions. Telephone surveys are prone to lead respondents to answer without deep thinking because an answer is expected immediately and little time is given to respondents to rethink about the issue. Schrum demonstrated the significant difference in relationship estimates using a mail versus telephone survey experiment for examining cultivation effect. No cultivation effect was found using mail surveys, but significant cultivation effect was found using telephone surveys. Respondents felt pressured to complete the survey and provide the answers the researcher wanted. Second is the social desirability bias, or acquiescence bias. In telephone and face-to-face surveys, respondents are more likely to provide socially acceptable answers and under-report socially undesirable behaviors. The privacy of mail and online surveys has been repeatedly shown to reduce socially desirable answers and increase more accurate answers on sensitive topics in controlled experiments that compared different modes of survey administration.
Sampling and Response Rate

While a considerable number of studies were devoted to the investigation of methodological aspects of articles published in top communication journals, very few have discussed important issues like sampling methods and frames used by communication scholars and other survey researchers. Research methodologists strongly recommend that probability sampling techniques be used over non-probability sampling. The main reason is that only probability sampling allows for the estimation of the representativeness and generalizability to the population of interest to the study. However, probability sampling techniques present researchers with a number of difficulties. Specifically, probability sampling requires both more resources and time to be properly implemented; also, it sometimes leads to lower response rates.

The specific challenge of using surveys as a data collection method is to obtain the cooperation of the sample, especially when generalizability, representativeness, and a large quantity of responses are expected. Hence, minimizing non-response is a prime issue in survey research. Response rate is closely related to the survey package design and implementation, as well as the type of sampling the researcher has chosen to use. Some populations are more difficult to reach than others. In assessing response rates, users need to take these factors into consideration before rushing to a judgment. The American Association of Public Opinion Research (AAPOR) provides standards of reporting response rates four different ways, which are based on percentage of partial and complete interviews, eligible non-interviews, unknown eligible interviews, and non-eligible interviews; they differentiate response rates into cooperation rates, refusal rates and contact rates.

The cost of reaching respondents is a challenge to survey research. Printing and mailing costs are escalating, which, when coupled with the high cost to hire interviewers, forces researchers to consider lower-cost alternatives. In addition, with the proliferation of telemarketing, spam, junk mail, and other scams that are disguised as surveys, participants' cooperation rates in surveys are decreasing. So whether the researcher takes extra effort to encourage the sample to respond is an important factor to consider as an effort in minimizing survey errors. Most importantly, increased penetration of Internet use and other mobile devices and interactive technology make online surveys and other forms of survey modes much more accessible to researchers and respondents. Furthermore, graduate students are exposed to more research method training than before. All communication doctoral programs include research method requirements. These factors may raise the standards of survey research practices in this decade. Finally, the soundness of the research methodology has been ranked as one of the three most frequently addressed items in manuscript submissions reviews in communication journals. Hence, it is necessary to examine how researchers currently combat the challenges of survey research and maintain its methodological rigor in this decade, hence we pose this first research question:
RQ1: What were the survey practices of Mass Communication Research published in top journals in 2001–2010? Specifically, how did mass communication researchers try to minimize the four common survey errors (coverage, sampling, non-response, and measurement errors)? Were there significant differences between the four journals in survey modes, amount of funded studies, and sample?

To assess the impact of resources and funding on the minimization of survey errors, we developed a research question on the difference in survey error minimization effort performance between funded and non-funded survey research.

RQ2: Were funded studies more likely to display more effort in survey error minimization practices than non-funded studies?

To examine how much the increasing ubiquity of Internet, availability of online survey software, and increasingly unfavorable survey climate affect the choice of survey mode and other survey practices, we chose to divide the 10-year-study period in equal halves (2001–2005 and 2005–2010). Linear trend assumption might not apply because of yearly fluctuation in types of articles and topics being published.

RQ3: With the changes in media technologies and survey climate, what were the changes in articles published in 2001–5 and 2006–10 in survey use and practices?

**Method**

A content analysis of research articles published in top mass communication journals that were likely to publish survey research, as shown in prior studies in the field of communication, was conducted. The journals were purposively selected to reflect the state-of-the-art use of survey research in the field of mass communication. These journals’ experience in handling survey research articles, rigorous review standards, and low acceptance rates should best reflect the high scholarly expectation of the practice of survey research as a research method for the field of mass communication. Consequently, the flagship journals of the three major mass communication associations: *Journal of Communication* (International Communication Association), *Journal of Broadcasting and Electronic Media* (Broadcast Education Association) and *Journalism and Mass Communication Quarterly* (Association for Education in Journalism and Mass Communication), were included in the study. In addition, *Communication Research*, a non-association affiliated refereed scholarly journal with the highest rate of articles using quantitative methods according to Cooper et al.’s study with a very high impact factor (*Thomson Reuter's Journal Citation Report*, 2010), was also included in the list. Because the total number of articles was manageable (N = 1493), a census of all the original research articles published in the top four journals from 2001 to 2010 were examined in the study to avoid sampling errors and achieve a sufficient sample size for statistical analysis. This is similar to a previous research method review on mass communication articles in 1990–2000 which also employed a census of journal articles instead of a sampling of journal articles.
We began the research period from 2001 because Internet has become more popular as a mass medium, and more researchers are familiar with it. Also, there were already a few method review studies on research published prior to 2000 that we could use as comparison for some of the measures. Only articles using either survey research method only or combining surveys with other research methods (N = 479) were subject to the detailed content analysis. All the articles were analyzed according to a standardized coding scheme that was designed to measure survey research techniques. Some of the measures, such as funding agency and topic focus, came from prior studies. Other survey-specific measures were developed based on a review of the survey research literature. All coders were doctoral students who took a prior graduate communication research method class and who were enrolled in a survey research class at the time of coding and were junior authors of this paper. In-class demonstration and training were conducted. The senior author served as the second coder and randomly selected 10% of the articles for double-coding. The inter-coder reliability was computed based on Perreault and Leigh’s inter-coder reliability coefficient (Ir) because it does not have a multiplicative chance agreement assumption and explicitly measures true level of agreement that might be expected by a true level of reliability (Perreault and Leigh, 1989). The overall inter-coder reliability coefficients for all of the measures were 0.83 (ranging from the highest of 0.93 in “other methods used in conjunction with survey” to the lowest of 0.70 in “techniques used to boost participation”).

Measures

Survey Modes. Eight modes of survey data collection were examined: (1) face-to-face, (2) telephone, (3) mail, (4) self-administered paper and pencil without mailing, (5) Web, (6) E-mail and (7) Interactive Voice Response System (IVR), 8) mixed mode: When a study used more than one mode, it was classified as mixed mode.

Sample/Population Scope. Because geographic scopes will affect the difficulty and complexity in recruiting a sample that is representative of the population, four geographic scopes were identified for the sample or population of the study: (1) international, (2) national, (3) regional, and (4) local.

Sample/Population Type. Nine different types of samples/populations were identified: (1) consumers/general public, (2) college students, (3) young adults (age 18–35), (4) elderly, children or minority (they are especially protected under the human subject review board), (5) business executives, (6) special professions (e.g., journalists), (7) members of community organizations, (8) people in special conditions (e.g., cancer patients), and (9) others.

Sample Size. Sample size in this study referred to actual number participants of the study, not how many were attempted to be recruited as participants. We analyzed this variable in relationship to the scope of the population.

Sampling Methods (Probability vs. Non-probability). Nine common sampling methods or ways samples were being drawn/recruited were identified. Those
considered as probability sampling methods were (1) simple random sample, (2) stratified random sample, (3) systematic sample, and (4) cluster sample. Those considered as non-probability sampling were: (1) convenience sample, (2) snowball sample, (3) quota sample, and (4) purposive/judgmental sample. If the study recruited and selected subjects not by any of the above methods, it was coded as “other” (such as census).

Sampling Frames. Sampling frame is the list or source that the researcher obtained to recruit the sample. Fifteen types of sampling frames were coded, ranging from public and private databases, college class rosters, school district high school or elementary school student list, geographic cluster, telephone book, all eligible phone numbers as in random digital dialing, membership directories, mailing list from commercial vendors, online panels, specific web site/online forum users, consumers on location, etc.

Funding Support and Agency Types. Following the Kamhawi and Weaver’s study, this study examined the reported funding sources of the study, if any, by government, university, and private funding. However, we further differentiated private funding to non-profit/private foundation funding and company/industry sponsored research, respectively.

Response Rates. There were three ways we coded response rates. If the articles reported a response rate, we would use that rate, even if how the response rate was calculated was unknown. If the article did not specifically mention its response rate and coders could find the actual sample size and the number of people the researchers reported sending out invitations, we calculated the response rate based on AAPOR RR2 (total interviews/total invitations). If the article did not have the minimum information to determine response rate, then it was coded as missing and not included in the response rate analysis.

Research Focus. We used the Cooper, Potter and Dupagne’s categorization of 10 research focus in mass communication for comparison purposes: (1) Audience, (2) Industry, (3) Personality, (4) Production, (5) Distribution, (6) Content, (7) Individual Effects, (8) Social Effects, (9) Regulation, and (10) Can’t tell.

Measures to Boost Response Rate. The presence/absence of any of the four techniques used to boost participation were coded for each study to examine if the researchers took measures to reduce one type of non-response bias – non-participation of the sample: (1) repeated mailings or reminders, (2) endorsement from authority of community leaders, (3) incentives including extra credits provided to students, and (4) other techniques. Other types of non-response bias were examined if they were included in the discussion or limitations of the study in the article.

Data Sources. Because secondary data research does not require a complex data collection process on the part of the researcher as in primary data research, we examined the extent to which survey research articles employed primary data only, secondary data only or both types of data. Secondary data were defined as data not originally collected by the article author.
Changes Over Time. For the changes between the time period of 2001–5 and 2006–10, we focused on the changes in the following: (1) increase or decrease in use of surveys as a mass communication research method, (2) change in survey modes utilized, (3) increase or decrease in use of mixed mode surveys, (4) increase or decrease in other methods used in conjunction with surveys, (5) increase or decrease in secondary data use, (6) increase or decrease in response rates between time periods and survey modes, and (7) increase or decrease in the use of techniques to boost participation.

Results

Differences in Survey Research Practices in the Articles Published in Four Flagship Journals

A total of 479 (32.4%) of all the original, full-length articles in the four journals employed the survey method. Such results are similar to previous studies, such as Cooper, Potter, and Dupagne’s, in which 30.6% used the survey method between 1965 and 1989, and the 33% found both in Kamhawi and Weaver’s and Trumbo’s studies during the 1980s and 1990s. There were 392 (81.8%) articles that used survey method solely, and 87 (18.2%) articles used the survey method with other methods, such as content analysis and field observation. As shown in Table 1, among the four journals, Communication Research (CR) had the highest number and percentage of its articles using the survey method (n = 131, 44.7%), in which 114 articles used the survey method only and 17 articles used survey in conjunction with other methods. Journalism and Mass Communication Quarterly (JMCQ) had 130 articles (32.9% of total articles) used survey method, of which 109 articles used survey method only and 21 articles used survey in conjunction with other methods. Journal of Broadcasting and Electronic Media (JOBEM) had 114 articles (27.5% of total articles) used survey method, of which 103 articles used survey method only and 11 articles used survey in conjunction with other methods.

<table>
<thead>
<tr>
<th>Mode</th>
<th>JOBEM</th>
<th>JOC</th>
<th>JMCQ</th>
<th>CR</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face-to-face</td>
<td>2</td>
<td>7</td>
<td>6</td>
<td>6</td>
<td>21</td>
</tr>
<tr>
<td>Telephone</td>
<td>23</td>
<td>50</td>
<td>47</td>
<td>22</td>
<td>132</td>
</tr>
<tr>
<td>Mail</td>
<td>6</td>
<td>1.3</td>
<td>6</td>
<td>2</td>
<td>47</td>
</tr>
<tr>
<td>Self-administered</td>
<td>46</td>
<td>10.0</td>
<td>31</td>
<td>6.7</td>
<td>53</td>
</tr>
<tr>
<td>Web</td>
<td>13</td>
<td>2.8</td>
<td>17</td>
<td>3.7</td>
<td>26</td>
</tr>
<tr>
<td>E-mail</td>
<td>0</td>
<td>0.0</td>
<td>5</td>
<td>1.1</td>
<td>3</td>
</tr>
<tr>
<td>IVR</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
</tr>
<tr>
<td>Mixed-mode</td>
<td>21</td>
<td>4.6</td>
<td>7</td>
<td>1.5</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>111</td>
<td>24.1</td>
<td>101</td>
<td>21.9</td>
<td>123</td>
</tr>
</tbody>
</table>

Note: Number in bold was the survey mode with the highest occurrence among all journals. Excluded missing cases (those articles without survey mode information).
articles) using survey method, in which 94 articles used survey method only and 20 articles used survey in conjunction with other methods. *Journal of Communication (JOC)* had 104 articles (26.2% of its total articles) that used the survey method, of which 75 articles used the survey method only and 29 articles used survey in conjunction with other methods. A Chi-square test ($\chi^2 = 9.365$, df = 3, $p = 0.03$) showed that there was a significant difference in the proportion of articles using the survey method among the journals.

Among survey articles in the four major mass communication journals during the past ten years, 221 articles (46.6%) collected data nationally, and 174 articles (36.7%) investigated in local settings. Very few (n = 21, 4.4%) studied internationally, and only 58 articles (12.2%) studied in regional settings. Such geographic scopes coincided with the survey’s study population: college students and consumers/general public were the two populations most likely to be studied in the four journals during the last 10 years. There were 178 articles (37.9%) that used consumers/general public as a sample and 107 articles (22.8%) that used college students as study population. Out of the 63 articles (13.4%) that used special professions (e.g., journalists) as study population, 50 of them were published in *JMCQ*.

**Research Focus**

Expectedly, the research focus of most survey research articles in the study was audience (56.5%). The second and third most common research foci in survey studies were social effects (38.6%) and individual effects (24.2%) of media, respectively. Industry (12.7%) was the fourth most common mentioned research focus. Production, distribution and regulations were very rarely the research focus in survey studies.

**Funding Sources**

Of the 467 survey articles analyzed for funding, only 90 (19.3%) were funded research projects (See Table 2). *JOC* had the most funded survey studies (n = 36, 40%), followed by *CR* (n = 27, 30%), *JOBEM* (n = 18, 20%) and *JMCQ* (n = 9, 10%). Further analysis investigating the funding agency type showed that universities were the most common source (n = 41/43.6%), followed by government agencies (n = 33/35.1%), private foundations/non-profit organizations (n = 25/26.6%), and industry/companies (n = 12/12.8%). Some studies were funded by more than one source (n = 13).

The remaining 377 non-funded research articles analyzed were initially divided into the categories of no funding (n = 94, 39.4%) or unsure/unclear funding status (n = 283, 60.6%). *JMCQ* (110/38.9%) represented the highest number of such cases, followed by *CR* (82/29.0%), *JOBEM* (n = 75/26.5%), and *JOC* (16/5.7%). After reviewing those with unclear funding status, 22 were excluded from the analysis because the study author(s) made no mention of funding anywhere in the article, including footnotes, yet the work necessary to complete them appeared to be unrealistic in the absence of monetary
support. The remaining cases were coded as unfunded studies. For example, Chan-Olmsted and Kim (2001) conducted a stratified random sample mail survey with 400 general managers of commercial television stations and did not report any information about funding. In addition to the significant cost of mailing the initial questionnaires and cover letters, follow-up surveys were sent with reminder cover letters to non-respondents after two weeks. So it was one of those undetermined cases that were excluded in the funding analysis.

Minimization of Survey Errors

Minimization of Coverage Error with Multiple Survey Modes. The use of outbound surveys and multiple survey modes to reach the sample are common ways to minimize coverage error. In this study, we found that 18 of the 479 survey articles coded did not provide survey mode information and were excluded from the survey mode analysis. The survey mode most frequently observed was that of self-administered paper and pencil surveys (n = 146; 31.7%), followed by telephone (n = 132; 28.6%), web (n = 66; 14.3%), mail (n = 47; 10.2%), and mixed-mode (n = 40; 8.7%). E-mail (n = 8; 1.7%) and IVR (an inbound mode, n = 1; 0.2%) were rarely utilized. With regard to variations amongst the four journals, there was difference observed primarily between the top four utilized modes (see Table 1). JMCQ had the highest proportion of mail surveys, while JOC had the highest proportion of telephone surveys. CR had the highest proportion of both web surveys and self-administered surveys, while JOBEM had the highest proportion of mixed mode surveys. However, the total count of modes was similar between JOBEM (n = 49) and JMCQ (n = 42), indicating that JMCQ’s mixed-mode studies often utilized more than two survey modes. As far as mixed-mode surveys were concerned, a combination of self-administered surveys with some other modes was the most commonly found

<table>
<thead>
<tr>
<th>Mode</th>
<th>Non-Funded</th>
<th>Funded</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Face-to-face*</td>
<td>14</td>
<td>3.9</td>
<td>6</td>
</tr>
<tr>
<td>Telephone*</td>
<td>97</td>
<td>26.7</td>
<td>34</td>
</tr>
<tr>
<td>Mail*</td>
<td>33</td>
<td>9.1</td>
<td>12</td>
</tr>
<tr>
<td>Self-administered*</td>
<td>127</td>
<td>35.0</td>
<td>18</td>
</tr>
<tr>
<td>Web</td>
<td>53</td>
<td>2.8</td>
<td>11</td>
</tr>
<tr>
<td>E-mail</td>
<td>8</td>
<td>2.2</td>
<td>0</td>
</tr>
<tr>
<td>IVR</td>
<td>1</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Mixed-mode*</td>
<td>30</td>
<td>8.3</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>363</td>
<td></td>
<td>90</td>
</tr>
</tbody>
</table>

Note: There were 26 studies had either unclear funding status or no mode information excluded from the table.*Proportion is statistically significantly different at p < 0.05.
(n = 30), followed by web (n = 26), mail (n = 22), telephone (n = 20), face-to-face (n = 19), and e-mail (n = 12). Because the use of mixed modes is an attempt to increase coverage of the population, the low proportion of mixed mode survey use in the four journals showed researchers were not very concerned with coverage error.

**Minimization of Sampling Errors.** Across the four journals that we analyzed, 61.9% of all articles that used surveys employed a non-probability sampling technique, whereas only 38.1% opted for probability sampling. The findings of this study were different from Marcias et al.’s (2008) study of surveys in which its quantitative analysis of 565 surveys published in 46 communication and marketing journals over a period of 13 years showed 61.2% of the article they analyzed used probability sampling, and only 29% used non-probability sampling (Marcias et al., 2008).

Among the journals, JMCQ had the largest percentage of probability sampling articles (51.6%), whereas CR had the lowest percentage of probability sampling (21.7%). About 47% of survey articles published in JOC and 34.2% of survey articles published in JOBEM also employed probability sampling. As shown in Table 3, funding did have an impact on the sampling strategy. There were significantly more funded studies employing probability sampling than non-funded studies as shown in Table 3 ($\chi^2 = 5.57$, df = 1, $p = 0.02$). But still only barely about half of the funded studies used probability sampling. Sample geographic scope was closely related to adoption of probability sample. Most of the international and local population (77%) was drawn with a non-probability sample, while a high proportion of national population (49.3%) adopted a probability sample ($\chi^2 = 23.19$, df = 3, $p < 0.01$). In addition, the population/sample type also has significant impact on the sampling strategy choice. Studies with a national sample or a sample with a well-defined list such as executives in a trade association were much more likely to adopt probability sampling than those which studied other populations. Almost all (94%) of studies using college students as sample adopted a non-probability method ($\chi^2 = 81.28$, df = 8, $p < 0.01$).

In terms of specific sampling techniques, simple random sampling accounted for 22.9% of all sampling techniques across the four journals investigated. Stratified random sample was the distant, second-most used probability sampling technique, accounting for 6.9% of all sampling techniques used, followed by systematic sampling (5.4%) and cluster sampling (3.0%). Among non-probability sampling techniques,

<table>
<thead>
<tr>
<th>Table 3 Sampling Strategy by Study Funding Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sampling Strategy</td>
</tr>
<tr>
<td>---------------------------------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Non-Probability Sampling</td>
</tr>
<tr>
<td>Probability Sampling</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

$\chi^2$ (df=2) = 5.57, $p = 0.02$. 
convenience sampling was the most heavily used across the four journals, accounting for 28.7% of all survey articles analyzed, followed by purposive/judgmental sampling (9%), and quota sampling (2.6%).

Sampling frames used in survey studies were also analyzed. Among the 86.7% of the articles that provided sampling frame information, we found that the most frequently used sampling frames were membership directories/trade directories, accounting for 23.8% of all articles with sampling frames, followed by college class rosters (21.5%). Other types of sampling frames were found to be much less frequently used by researchers, such as established publicly accessible databases and private databases (each with 4.8%), telephone books (4.3%), and all eligible phone numbers using random digit dialing (6.2%). Unfortunately, 13.3% of articles that we analyzed did not provide any information with respect to the sampling frames used, which prompts caution about the figures we reported above.

Minimization of Non-Response Errors. One way to examine how researchers tried to minimize non-response errors is whether they used any techniques used to boost sample participation. Only 57.4% of all survey research articles (n = 275) reported using any techniques to boost participation. Among these articles, only six of the research articles used endorsement from authority or community leader, and all of them were published in 2001–5. About 22% reported adopting repeated mailing/reminders to boost participation (39 were published between 2001 and 2005, 22 were published between 2006 and 2010). About 35% of the articles reported using incentives technique (including extra credits for class) to boost participation (35 were published between 2001 and 2005, 60 were published between 2006 and 2010). Thus, compared to time period of 2001 and 2005, more survey researchers adopted incentives technique to boost participation in time period of 2006 to 2010. Furthermore, 49% of research articles reported adopting other techniques to boost participation (35 were published between 2001 and 2005, 102 were published between 2006 and 2010). We can see the trend that more researchers used incentives and other techniques to boost response rate.

Minimization of Measurement Error. We examined the minimization of measurement error by the authors’ discussion of the response bias and other limitations of the survey instrument and method. Among the survey articles, we found only slightly more than half of the articles (57.8%) discussed the limitations in the survey instrument or survey implementations or how the survey mode might affect the results. Funded studies (68.9%) were more likely to address response bias and other limitations of the survey instrument or implementation procedures than non-funded studies (31%) ($\chi^2 = 6.25, \text{df} = 1, p = 0.01$).

Trends in Survey Use
Use of Surveys as a Mass Communication Research Method. Compared to previous research method studies, we found the use of survey was quite consistent over the years. There was also no significant difference between 2001–2005 and 2006–2010 in percentage of survey-based articles ($\chi^2 = 4.43, \text{df} = 2, \text{n.s.}$). Among the methods
combined with survey method use, content analysis was the most frequently used method (63%), and experiment was second (36%). However, comparing the time periods 2001–2005 and 2006–2010, we found that the trend of using content analysis combined with survey decreased, while the trend of experiment combined with survey increased (See Table 4).

Changes in Single- and Mixed-Mode Surveys. Although the use of mixed mode survey accounted for a small proportion among survey modes, it did increase slowly from 2001 to 2010. Almost half of the studies employing mixed survey mode (52.5%) were published in JOBEM, with 17.5% in JOC, and 15% in both JMCQ and CR. Although self-administered paper and pencil surveys, telephone, web, and mail surveys were still the most frequently used survey modes, web survey mode significantly increased at the expense of self-administered paper and pencil and mail survey modes (Table 5). Meanwhile, we noticed that the four dominant survey modes used in single-mode surveys were also the most frequently used modes in mixed mode surveys. Researchers combined the most common modes to get the best mixed-mode results. It is notable that as time went by during this decade, the use of web survey, self-administered survey and e-mail survey increased in the mixed survey mode, while the use of mail survey, face-to-face survey, and telephone survey decreased.

Change in Survey Data Sources. Among the 479 journal articles we coded in our study from 2001 to 2010, 378 articles (79.6%) used primary data, 77 articles (16.2%) used secondary data and 20 articles (4.2%) used both primary and secondary data. Four articles did not have clear source information. Despite increasing availability of secondary data sources, the relative percentages of survey data sources did not change at all between 2001–5 and 2006–10. Primary data was still the most commonly used data source for mass communication survey researchers.

Change in Response Rates. As shown in Table 6, generally, the articles published between 2001 and 2005 (N = 121, M = 57.7%, SD=21.66) had a higher average response rate than articles published between 2006 and 2010 (N = 83, M = 53.6%,

<table>
<thead>
<tr>
<th>Table 4</th>
<th>Survey Method Use and Other Research Methods Used in Conjunction with Surveys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Methods</td>
<td>2001–2005 (n)</td>
</tr>
<tr>
<td>Survey only</td>
<td>86.0% (202/235)</td>
</tr>
<tr>
<td>Survey used in conjunction</td>
<td>14.5% (34/235)</td>
</tr>
<tr>
<td>With other methods</td>
<td></td>
</tr>
<tr>
<td>- Content analysis</td>
<td>61.8% (21/34)</td>
</tr>
<tr>
<td>- Experiment¹</td>
<td>32.4% (11/34)</td>
</tr>
<tr>
<td>- In-depth interviews</td>
<td>6.0% (2/34)</td>
</tr>
<tr>
<td>- Observation</td>
<td>3.0% (1/34)</td>
</tr>
<tr>
<td>- Other</td>
<td>11.8% (4/34)</td>
</tr>
</tbody>
</table>

¹An experiment was coded as in conjunction with survey when the survey was separately conducted for different purposes. The survey was not used as a screener or an instrument for pre-test and post-test responses. Embedded questionnaire experiment was counted as experiment.
SD = 23.67). But this difference was not statistically significant (t = 1.26, n.s.) Only 65% of survey articles using probability sampling reported response rates, and the average was 51.6%. It might be that only those surveys with high-response rates reported their response rates. There was also a notable proportion (29%, N = 85) of non-probability sample surveys that reported response rates. Their 62.0% average response rate was significantly higher than the probability samples’ (t = 3.31, df = 199, p < 0.01). Comparing average response rates among common survey modes, self-administered paper and pencil surveys on location was highest at 73.8%, followed by face-to-face at 72.7%, mixed mode at 64.2%, mail at 53.7%, telephone at 48.9%, and web at 46.6% (See Table 6). Compared to the finding by Marcias et al. that personal interviews have the highest average response rate with a mean of 79%, followed by fax at 66%, telephone at 61%, web at 49%, mail at 42%, and email at 30%, our study showed that mail surveys had a higher average response rate than telephone and web. Mail surveys were easier to offer tangible incentives to participate than telephone or web. The response rate was positively correlated to incentive adoption (r = 0.15, p < 0.01). Survey articles (N = 19, M = 62.74%) using incentives had almost a 10% higher response rate than those that did not (N = 99, M = 53.13%).

Table 5  Survey Mode Trend Comparison

<table>
<thead>
<tr>
<th>Survey mode</th>
<th>2001–2005 (n)</th>
<th>2006–2010 (n)</th>
<th>Total (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face-to-face</td>
<td>6.0% (14)</td>
<td>3.0% (7)</td>
<td>4.6% (21)</td>
</tr>
<tr>
<td>Telephone</td>
<td>29.4% (68)</td>
<td>27.8% (64)</td>
<td>28.6% (132)</td>
</tr>
<tr>
<td>Mail*</td>
<td>14.3% (33)</td>
<td>6.1% (14)</td>
<td>10.2% (47)</td>
</tr>
<tr>
<td>Self-administered</td>
<td>36.8% (85)</td>
<td>26.5% (61)</td>
<td>31.7% (146)</td>
</tr>
<tr>
<td>Web*</td>
<td>5.2% (12)</td>
<td>23.5% (54)</td>
<td>14.3% (66)</td>
</tr>
<tr>
<td>E-mail</td>
<td>.9% (2)</td>
<td>2.6% (6)</td>
<td>1.7% (8)</td>
</tr>
<tr>
<td>IVR</td>
<td>.0% (0)</td>
<td>0.4% (1)</td>
<td>.2% (1)</td>
</tr>
<tr>
<td>Mixed mode</td>
<td>7.4% (17)</td>
<td>10% (23)</td>
<td>8.7% (40)</td>
</tr>
</tbody>
</table>

Total 100% (231) 100% (230) 100% (461)

* The use of the mode was significantly different between 2001–2005 and 2006–2010 at p < 0.05.

Table 6 Study Response Rates by Mode (n = 202)

<table>
<thead>
<tr>
<th>Survey Mode</th>
<th>Response Rate</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face-to-face</td>
<td>72.7%</td>
<td>9</td>
</tr>
<tr>
<td>Telephone</td>
<td>48.9%</td>
<td>81</td>
</tr>
<tr>
<td>Mail</td>
<td>53.7%</td>
<td>37</td>
</tr>
<tr>
<td>Self-administered</td>
<td>73.8%</td>
<td>37</td>
</tr>
<tr>
<td>Web</td>
<td>46.6%</td>
<td>22</td>
</tr>
<tr>
<td>E-mail</td>
<td>43.0%</td>
<td>21</td>
</tr>
<tr>
<td>IVR</td>
<td>77.0%</td>
<td>1</td>
</tr>
<tr>
<td>Mixed-mode</td>
<td>64.0%</td>
<td>13</td>
</tr>
</tbody>
</table>

Note: Only included those with response rates information.
In response to the above decrease in response rate, we also found an increasing use of techniques to boost participation in 2006–2010, as compared with 2001–2005 \((t = 2.74, \text{df} = 477, p < 0.01)\).

**Discussion**

Our study shows that the survey is still a popular research method in mass communication in the top journals, despite its increasing challenges to survey researchers. It is clear that self-administered paper and pencil surveys were the mostly widely implemented mode in the top four mass communication journals from 2001 to 2010. Very little previous research has investigated survey mode in scholarly communication journals, but there is some evidence that this pattern differs from prior findings. Marcias et al.’s study of survey articles found that mail surveys were the most highly published survey mode in 54 communication-related journals from years 1990–2002, followed by telephone, personal interview, e-mail, web, fax, and other modes. Thus, the commonality between the present research and that done in the past is that telephone surveys are still the second highest utilized by communication scholars. Although mail surveys at present were not used in the same proportion reported as in the past, they were still a common survey mode.

Two modes that differed markedly in representation between the current research and Marcias and colleagues’ work were web and mixed-mode. Web surveys constituted nearly 15% of all modes in this analysis, but they only made up 0.5% of survey articles in their study. This is likely a general reflection of the broad changes in survey research associated with the increasing ease of online data collection. Mixed-mode surveys have not been previously analyzed in a comparable way (if at all) to that done here. However, the slight increase in number of mixed-mode surveys found in this study showed some researchers used them to compensate for decreasing survey response rates and to minimize coverage error. Vanniewuwenhuysen, Loosveldt, and Molenberghs’s study showed that alternate modes lead respondents to answer the same questions differently; this is an important issue for researchers who attempt to compare findings from different survey modes while dealing with minimization of coverage errors in surveys.

Overall, survey research in mass communication published in the top journals did not show very strong efforts in minimizing the total survey errors. The heavy reliance on single-survey modes means coverage errors could be high. The high use of non-probability samples especially among the college students means the results not only cannot be generalized to the general population, but also not to the student population. The lower use of probability sample we found in our study than Marcias et al. may also be due to the type of journals. Their study included many marketing journals in which consumer representation, rather than theoretical contribution, is more valued. Our study did not include any marketing or health journals. We noted that researchers tended to compensate sampling errors with large sample size. The median sample size of the surveys we analyzed was 432.
The lack of statistically significant difference in response rates between surveys using incentives and not using incentives should not be interpreted as evidence of ineffectiveness of using incentives in boosting response rates because the surveys were not comparable in content and population. Rather, as Marcias et al. argue, it is possible that researchers who suspect their survey will have a low response rate use incentives in an attempt to improve this. Many survey experiments have shown the effectiveness of using incentives to boost survey responses. Moreover, the small sample size of those who used incentives in the study and measurement errors of response rate in the coding process in this study were other possible reasons contributing to no difference. In addition, we need to be aware that journal article authors calculated response rates differently.

We are concerned about the low use of building the survey study’s credibility to minimize non-response bias among the survey studies we examined. Remarkably, only six studies reported the use of authoritative sources or community leaders to endorse the study to boost the credibility of the study. Such endorsement was not used in any of the survey articles since 2006. Discussion of non-response bias was uncommon and only slightly more than half of the articles addressed the limitations of the survey sampling, questionnaire design or implementation.

The results regarding funding source type were consistent with the previous work of Kamhawi and Weaver in that universities were the most likely source, followed by government and private agencies. Although these researchers did not investigate survey studies specifically, their focus on mass communication articles allows for comparison to be made between survey and other modes of research. The fact that funded studies were more likely to display more effort in minimizing survey error by significantly higher use of face-to-face interviews, mail and telephone surveys and use of non-student population to increase population coverage, and more likely to address their survey research’s limitations shows that funding or adding resources can help improving survey research quality. Finally, the most notable finding in this study was that a great majority of articles analyzed did not clearly report funding status. This is troubling due to the fact that, in order for readers to adequately assess the impartiality of a research team, the status and/or source of funding for a study is vital information. Journals are recommended to make it a mandatory requirement for authors to disclose either their funding source(s) or lack thereof (self-funded).

Page length limitation of journal articles may be a cause of the lack of details and clarity of methodological information including funding sources, sample frames, and survey implementation details found in this study. This speculation is supported by the high proportion of unclear funding information in JMCQ, which has the shortest article length limitation during the time of study (5,000 words) among the four journals. Nonetheless, adding one or two lines can already greatly help readers assess the quality of the sampling frame. Instead of saying “a survey of Midwest residents,”
it would be much clearer to state “a mail survey of a Midwest city residents drawn from a simple random (or convenience) sample of a resident database provided by a commercial firm.” Moreover, Neuman et al. found originality and theoretical integration of the manuscript are much stronger predictors of acceptance than sound methodology in their study on factors that predict acceptance of manuscript in *Journal of Communication*. Hence some published articles in the top journals may have methodological weaknesses but still get published because of their originality or theoretical contribution.

**Limitations of the Study and Suggestions for Future Research**

This study focused on the published articles in only four top journals. Survey research articles on mass communication in other journals were excluded in the study. However, the goal of the study was not to cover all communication articles, but try to illustrate the best practices by focusing only those in top mass communication journals. Our assessment of the performance of the research studies using TSE were limited by information available in the articles. As the results of the study show, a considerable number of articles did not provide the necessary information such as sampling frame, sampling strategy information or response rates even though probability samples were reported to be used. Considering these articles were published in top communication journals, some of the necessary information to allow for TSE assessment should be considered mandatory in the journals. Enforcement of survey methodological standards and provision of necessary methodological details lies with the scholarly journal editors, reviewers and the authors themselves.

Complex research designs that employed multiple methods, multiple waves, and multiple studies created difficulties for us in analyzing them. On the one hand, they improved the coverage of the population and reliability of a study. On the other hand, they created different types of data from those obtained via a single-method study or single-mode survey. Future research on research methodology is encouraged to develop protocols on how to assess the increase or decrease in measurement errors that mixed modes, multiple waves and mixed methods studies pose to the study.

Since college students are the second most commonly used population in communication survey research, sample recruitment strategies of college students should be an important topic for research methodologists. College students should not be used as a convenient sample just due to cost constraints. How choosing students as survey participants can meet the research objectives and the implications of using college students as the study population should be given more attention. More studies should be done on comparing the differences in responses between a college student population and the general population in the same local setting, and, further, identifying those measures with crucial differences that cannot be compensated or compromised.

Survey research provides very valuable audience data to mass communication researchers. Nonetheless, its complexity is ever increasing with an unfavorable survey
climate and the multitude of media (mode) available to reach the study population. Appropriate use of secondary data of well-conducted large-scale surveys can be a good alternative for researchers lacking funding support. In addition, the increase in the use of surveys in conjunction with other methods shown in the study indicates that assessment of survey research alone may not be sufficient. How survey research can complement other methods especially the newer methods such as social network analysis remains to be studied. Surveys can provide information on audience motivations, attitudes, perceptions and message comprehension that other methods cannot provide. Publicizing the value of high-quality mass communication survey research and strengthening the rigor in survey research design and implementation will increase its chance of being funded by funding agencies. As this study shows the benefit of funding in improving the quality of survey studies, the tradeoff between accuracy and survey costs as presented by the TSE paradigm will continue to be a challenge for survey researchers.

Notes

[7] Czaja and Blair, Designing Surveys.
[12] Ibid., 817.
[16] Biemer and Lyberg, Survey Quality; Groves, Survey Errors; Groves et al., Survey Methodology.
[20] Ibid.
[22] See note 17 above.
[25] See Note 4 above.
[27] See note 19 above.
[28] “Response Rate.”
[29] See note 19 above.
[33] See note 9 above.
[34] See note 30 above.
[35] Ibid.
[37] See note 4 above.
[38] See note 8 above.
[40] See note 30 above.
[41] See note 8 above.
[42] See note 9 above.
[43] See note 3 above.
[44] Ibid.
[45] Ibid.
[46] See note 5 above.
[48] See note 3 above.
[49] Ibid.
[50] See note 19 above.
[51] See note 8 above.
[52] See note 32 above.

Bibliography


