

## **Survey Research Response Rates: Internet Technology vs. Snail Mail**

**Patricia A. Lanier**, Department of Management,  
University of Louisiana at Lafayette

**John R. Tanner**, Department of Business Systems, Analysis, and  
Technology, University of Louisiana at Lafayette

**Michael W. Totaro**, Department of Business Systems, Analysis, and  
Technology, University of Louisiana at Lafayette

**Gavin Gradnigo**, McNair Student, University of Louisiana at Lafayette

### **Abstract**

*According to Pew Internet & American Life Project Surveys, the percentage of U. S. adults online has increased from 40-45% in March 2000 to 70-80% in December 2009 (see <http://www.pewinternet.org>). A significant percentage increase such as this suggests a concomitant increase in response rates for online survey research. The implications of increased response rates for online survey research as compared with the more traditional “snail mail” approach should lead to enhanced optimism for academic researchers in the various business disciplines, who, quite often, rely heavily on survey data for research purposes. A 1998-1999 study compared accounting academicians’ response rates of surveys with differing modes of distribution and response, the results of which showed that response rates via “snail mail” were roughly twice that of email and WWW form response rates (Odom, Guillian, & Totaro, 1999).*

*The current study compares survey response rates among three different distribution and response modes: so-called “snail mail”; email; and a WWW form. A total of 1800 surveys were distributed among six different business disciplines (Accounting, Economics, Finance, Management, Marketing, and Management Information Systems). In addition to comparing response rates among the three different distribution and response modes, this research also compared response rates among the six business disciplines, as well as other demographic characteristics such as tenure status, rank, institution type, institution size, and AACSB accreditation status. Regular mail was the most frequently used response method for the majority of the respondents in this survey. Results of this*

*study may prove beneficial to researchers who rely on survey instruments in acquiring research data.*

---

---

## **Introduction**

Academic research among the various business disciplines quite often involves the use of surveys. Antecedent to publishing survey results is the requirement that those to whom surveys are sent actually take the time to complete and return surveys (Baruch & Holtom, 2008). Greater reliability of survey data is a function of higher survey response rates (Baruch & Holtom, 2008). Stated differently, low response rates provide researchers with smaller data samples, which inherently decrease statistical power (Rogelberg & Stanton, 2007). Hence, the issue of survey response rates is an important one for business researchers. Although traditional, paper-based surveys continue to serve as an important medium through which to collect survey data, the continued expansion of the Internet and its concomitant services such as the World Wide Web and email provide business researchers with alternative distribution and collection modes for survey data.

## **Purpose**

There are several considerations when selecting the mode or modes employed in the design of a research survey. Typically, factors such as cost, response rates, and timeliness are primary drivers in the mode selection process. Various cost structures exist for the diverse survey distribution and collection modes. For example, in the case of traditional, paper-based surveys, there are costs associated with printing copies of the survey instrument, mailing envelopes, and return envelopes. Other related costs (per the traditional, paper-based survey approach) include postage for mailing and returned surveys. In contrast, a Web-based, Internet survey, involves costs for hosting, although it is much quicker and easier to create and deploy. Finally, email is perhaps the easiest (and least costly) method by which to send surveys and receive completed surveys (via the survey respondent's *reply* button). For example, Schleyer and Forrest (2000) compared the cost structure of a Web survey to an equivalent mail survey. Findings from this study revealed that the Web survey was 38% cheaper than the equivalent mail survey would have been. Furthermore, Truell (1997) provided support for the use of email surveys based on their environmental friendliness since this mode requires "few if any envelopes, ink cartridges, paper, paper clips, staples, and other resources that may harm the environment" (p. 59).

Given the variance of survey cost structures, researchers who rely on survey instruments for acquiring research data may find it helpful to know which of the survey distribution and collection modes are likely to provide the highest response rates. Research on response rate comparisons among survey modes is mixed. In a meta-analysis of survey mode research, Fricker, Jr. and Schonlau (2002) found that in studies where the respondent was allowed to respond either by mail or by means of the Web the majority of the respondents tend to choose traditional mail. In fact, the findings are quite dramatic with most reporting significant response rate variances of up to 4 to 1 mail responses as compared to Web responses (See for example Raziano, Jayadevappa, Valenzuela, Weiner, & Lavizzo-Mourey, 2001). In contrast, Couper, Traugott, and Lamias (2001) surveyed 1,602 University of Michigan students using a Web-only survey mode and reported a 42% response rate. Overall, there is no consistent evidence that Internet-based surveys realize higher response rates than other more traditional methods.

Finally, researchers must also be concerned about response speed. Results of several studies support the conclusion that Web-based surveys provide timelier responses than other survey distribution methods. A study conducted by Truell, Bartlett, and Alexander (2002) compared response times of Web and mail distributed surveys. On average, the Web surveys were returned almost 7 days faster than the mail surveys. However, this is not always the case. As example, Tse, Tse, Yin, Ting, yi, Yee, and Hong (1995) found no statistically significant difference between e-mail and mail survey response rates. Thus, although electronic mail can be disseminated instantaneously, contact and follow-up times also add to the total survey time and may eliminate any initial time savings achieved.

Therefore, given the varied conclusions from previous research and in light of the preceding discussion, this study addressed the following research question: *Are there differences in response rates among the three survey distribution and response modes when examined among the various demographic variables: discipline; tenure status; rank; institution type; institution size; and AACSB accreditation status?*

## **Literature Review**

Researchers are constantly looking for new and better data collection methodologies. Academicians acknowledge that a high response rate is essential to legitimizing survey results. As previously suggested, when a survey obtains responses from a large percentage of those surveyed, the data

and results are seen as more valid. However, in most cases the need for more accurate data is offset by the substantial costs associated with obtaining these data. As universities and colleges reduce overheads to survive in a struggling economy, surveys requiring ever increasing postage and materials' monies are in danger of extinction. Yet, within the past century, the rapid growth of technology appeared on the surface to provide a near perfect mode for reduced cost survey research. Still, evidence on the success of web-based research data gathering continues to be mixed.

For instance, Sills and Song (2002) surveyed international students through the use of a Web based questionnaire. The survey resulted in an overall response rate of only 22% even after three waves of solicitation. Furthermore, these researchers discussed several possible methodological concerns and problems that may arise from using Web surveys including non-coverage of select populations, non-response errors, confidentiality concerns, and technical problems. The research of Odom, Giullam, and Totaro (1999) produced similar results. Their study found that *snail* mail response rates were twice that of email and Web-based form rates for accounting faculty. These findings are consistent with those of later studies (Roy & Berger, 2005; Truell & Goss, 2002).

But some studies suggest that for research populations with easy access to the Internet, response rates for email and Web based surveys may compare favorably with more traditional research methodologies (Couper, 2000). A 2004 study of Michigan State University students found that a Web survey application achieved a comparable response rate to a mail hard copy questionnaire (Kaplowitz, Hadlock, & Levine, 2004). Additionally, Shermis and Lombard (1999) found that although response rates for the email sample versus regular mail sample were significantly lower, the individual item response rates were statistically significantly higher for the email group across several dimensions. More recently, in a meta-analysis of 36 published and unpublished experimental mode comparisons, researchers found no systematic response rate differences (Bosnjak, Lozar-Manfreda, Haas, & Vehovar, 2005).

On the other hand, several comparable studies concluded that neither email, Web-based, nor regular mail offered superior response rates, but rather some mix of mode typologies. As illustration, Dolnicar, Laesser, Matus (2009) compared response rates in a tourism survey and reported that both the pure online surveys and pure paper surveys resulted in biased data. Thus, they recommend that, at present, multi-method survey approaches would produce the most reliable data. Greenlaw and Brown-Welty (2009)

support this conclusion. In a comparison of Web-based and paper-based survey methods, researchers found that mixed-mode, although more expensive, led to higher response rates. Yet, a further examination of the literature once again indicates disparity. Specifically investigating the viability of mixed-mode formats, Porter and Whitcomb (2007) maintain that contrary to previous research, there is little difference in response rates when utilizing mixed-mode contacts.

Although previous studies present researchers with often conflicting and varied conclusions, there are several areas of congruence. Most previous researchers agree that online surveys, in spite of obvious problems, offer many advantages. Wright (2005) detailed some of the benefits of online survey research including access to specific target groups, improved administration and response time, and significant cost savings over traditional paper formats. In view of these possible consequences, researchers need to continue to examine the pros and cons of various survey modes.

### **Methodology**

In an effort to more closely examine the differences and similarities among various survey methods, a systematic random sample of 1,800 faculty members throughout the United States across six business disciplines (Accounting, Economics, Finance, Management, Marketing, and Management Information Systems) was selected from the Faculty Directories of Dr. James Haselback. Specifically, surveys were distributed in the following manner: 600 paper-based surveys, 600 emails with embedded surveys, and 600 emails containing a link to a Web-based survey instrument (i.e, SurveyMonkey). Usable responses were obtained from 191 faculty members for a response rate of only 10.5%. A widely cited source on survey research indicates that “surveys with response rates over 30 percent are rare, and response rates are often 5 to 10 percent” (Alreck & Settle, 2004, p. 36).

The questionnaire contained demographic questions which would help us learn more about respondents’ backgrounds. Additionally, the instrument included six questions relating to respondents’ perceptions concerning the relationship between publications and merit evaluations. However, responses to these questions were not utilized for this study.

## **Results**

### Personal and Institution Characteristics of Survey Respondents

Table 1 illustrates the personal and institution characteristics of the survey respondents. As can be seen from the table, more than 64 percent of the respondents were from the accounting, management, or marketing areas and more than 35 were from economics, finance, or management information systems combined. Additionally, more than 83 percent had earned tenure at their universities, and more than 85 percent had earned the rank of either associate professor or full professor. This finding suggests that the sample was an older population who might prefer more traditional survey response modes. However, this result is consistent with a recent AACSB report on business school trends showing that the majority of business faculty (44.3%) is full-time tenured faculty. Additionally, in a 2010 Current Population Survey, the Bureau of Labor Statistics shows that the median age for Post-secondary teachers is 45 years of age. This would imply that most faculty members are in the advanced stages of their careers and thus, would have achieved tenure status as well as higher rank. This demographic data is consistent with the overall aging of the U.S. labor force. For instance, the 2010 median age for the occupational classification of Management professional is 44.1. Therefore, the sample demographic appears to be in congruence with overall labor force trends.

With respect to the respondent's institutions, 64 percent were at public (as opposed to private) colleges and universities, of which more than 83 percent were accredited by the AACSB. Also, more than 76 percent of the respondents were at universities of 20,000 students or less. Although no additional experiential data were obtained, there is a possible anecdotal explanation for the high number of respondents from AACSB accredited schools. The AACSB adopted new standards in 2003 which define faculty as either academically qualified (AQ) or professionally qualified (PQ) causing academic publishing to become even more highly prioritized. This increased emphasis on quantity of publications has increased universal faculty awareness of publishing to a greater degree greater than in the past. Therefore, it seems plausible that faculty employed by AACSB accredited schools would be more likely to respond to research survey requests in a collegial effort to facilitate the research success of their peers. However, as stated, this particular research question was not addressed by the current study.

**Table1**  
**Demographic Characteristics of Respondents (n=191)**

<b>Demographic Characteristic</b>	<b>Percent of Respondents</b>
<b>Discipline:</b>	
Accounting	22.7
Economics	16.4
Finance	14.3
Management	21.7
Marketing	20.1
Management Information Systems	4.8
<b>Tenure Status:</b>	
Tenured	83.5
Not Tenured	16.5
<b>Rank:</b>	
Instructor	1.0
Assistant Professor	13.6
Associate Professor	31.4
Professor	53.9
<b>Type of Institution:</b>	
Public	64.0
Private	36.0
<b>Size (Student Enrollment) of Institution:</b>	
0 – 10,000	37.6
10,001 - 20,000	39.2
30,000 – 40,000	14.9
More than 40,000	8.3
<b>AACSB Accreditation Status of Respondents' Institutions:</b>	
Accredited by AACSB	83.3
Not Accredited by AACSB	16.7
<b>Response Method Used to Answer survey:</b>	
Mailed-out	55.0
e-mail	17.3
Survey Monkey	27.7

### Analysis of Response Rates

Exactly 55 percent of all the respondents responded by regular mail, more than 37 percent responded online and more than 17 percent responded via the e-mail embedded survey instrument. Table 2 shows the results of significance tests for the most frequent type of response rate used by various demographic variables of the respondents or their respective institutions. Respondents had to choose regular mail, e-mail-embedded survey, or online submission to return the surveys. As the table shows, significantly more respondents at universities which were accredited by the American Assembly of Collegiate Schools of Business (AACSB) used regular mail. Also, there was a similar result for respondents at non-accredited universities.

With respect to tenure status, significantly more tenured respondents used the regular mail system than either the e-mail-embedded or Web-based mode. However, the non-tenured respondents were relatively evenly divided as to which response method was selected.

When considering preferred response method by academic rank, those holding the rank of assistant professor made relatively equal use of all three response methods. However, respondents with the ranks of both associate professor and professor responded via regular mail more than any other method. This is consistent with previous similar studies (See for instance Odom, Guillian, & Totaro, 1999). This makes intuitive sense since assistant professors are typically younger in age than associate or full professors. Similarly, Couper et al. (2001) reported relatively high response rates for a Web-based survey of college students. Because today's younger population can be expected to be more computer-literate and Internet-savvy, it follows that this demographic would feel more comfortable with and perhaps, prefer the electronic mode of response.



**Table 2**  
**Results of Significance Tests on Type of Response Mode by Various Academic Demographic Variables**

Demographic Characteristic	Percent			$\chi^2$	p-value ( $\alpha$ )
	Regular Mail	Email	Survey Monkey		
Discipline:					
Accounting	62.8	16.3	20.9	16.930	.000*
Economics	58.1	25.8	16.1	8.968	.011*
Finance	40.8	14.8	44.4	4.222	.121
Management	51.2	17.1	31.7	7.220	.027*
Marketing	55.3	13.1	31.6	10.158	.006*
Management Information Systems	55.6	22.2	22.2	72.000	.368
Tenure Status:					
Tenured	56.1	15.9	28.0	39.911	.000*
Not Tenured	48.4	22.6	29.0	3.355	.187
Rank:					
Assistant Professor	38.5	23.1	38.4	1.231	.540
Associate Professor	56.7	11.6	31.7	18.300	.000*
Professor	55.5	18.9	22.6	26.816	.000*
Type of Institution:					
Public	52.9	13.2	33.9	28.579	.000*
Private	57.4	25.0	17.6	18.206	.000*
Size (Student Enrollment) of Institution:					
0 – 10,000	64.7	16.2	19.1	30.206	.000*
10,001 - 20,000	40.9	22.5	36.6	3.915	.141
30,000 – 40,000	40.8	14.8	44.4	4.222	.121
More than 40,000	80.0	6.7	13.3	14.800	.001*
AACSB Accreditation Status of Respondents' Institutions:					
Accredited by AACSB	53.6	16.1	30.3	33.187	.000*
Not Accredited by AACSB	58.1	22.6	19.3	8.581	.014*

\*Significant at  $\alpha = .05$

Additionally, significantly more respondents from both public and private universities used regular mail to respond more than e-mail or Survey Monkey. Similarly, when type of response rate used was compared by the size of the enrollment at the respondents' universities, respondents at institutions with enrollments of 10,000 students or less used regular mail to respond significantly more frequently than e-mail or Survey Monkey. However, the response method of respondents at universities with 10,000 to 20,000 students, and those with enrollments from 30,000 to 40,000 students was relatively evenly-divided between regular mail, e-mail-embedded, and Web-based surveys. On the other hand, respondents from institutions with enrollments of more than 40,000 students more significantly responded using regular mail.

Furthermore, respondents from accounting, economics, management, and marketing all used regular mail significantly more than either the email-embedded or Web-based survey. Conversely, the response method chosen by professors from both finance and management information systems was evenly-divided between the three response methodologies.

Thus, by far, regular mail was the most frequently used response method for the majority of the respondents in this survey.

### **Study Limitations**

Differences in survey response rates may be the result of business faculty perceptions about, and predisposed preferences for, a particular response mode. That is, traditional, paper-based surveys may be used most often because they happen to be the preferred mode by business faculty. Response rate differences among heterogeneous groups was indicated in a study by Shih and Fan (2008), with college-level respondents seemingly more responsive to Web surveys, while respondents such as physicians and school teachers appear to have a preference for snail-mail surveys. The current study does not examine nor account for such perceptions and preferences.

A second limitation of the current study is that the distribution mode used for surveys presupposed the same mode for a completed survey. In other words, for each survey distribution mode, respondents were restricted in their options for returning a completed survey. (That is, a completed "snail mail" survey could only be returned via "snail mail"; a completed email survey could only be returned via email; and the email with embedded link could only be submitted via the completed web-form accessible via the

embedded link). A possible extension to this limitation is that both email survey requests and email with embedded link survey requests were made by way of email solicitation. Given the extreme volume of emails received on any given day, there may have been a “dilution” of personalization associated with our solicitation emails. Specifically, we made no attempt to distinguish our solicitation emails from the myriad of commercial and entertainment survey emails that continue to increase via the Web, a challenge that researchers are likely to face for quite some time (Fricker and Schonlau, 2002). Cook, Heath, and Thompson (2000), in a meta-analysis of Web survey research, studied the impact of the number of contacts, personalized contacts, and pre-contacts, the results of which suggest that these factors are most associated with higher response rates for Web surveys. Interestingly, Porter and Whitcomb (2003) similarly examined the effects of email personalization on response rates. Their results show that response rates do not differ significantly based upon email personalization as per salutation, email source address, authority of the signatory, and sponsorship of the requesting office.

A third limitation of this study relates directly to the “Tenure Status” demographic indicated in Table 1. Specifically, as shown in the table, 83.5% of survey respondents had earned tenure at their University, which suggests that our sample may have a preponderance of older, more traditional faculty members. By implication, such individuals might prefer traditional “snail mail” correspondence to that of Internet or Web-based correspondence. Yet, according to Mosisa and Hipple (2006), the overall trend of labor force participation has declined steadily in recent years for all but one age group: persons who are age 55 years or older. In fact, the labor force participation rate for this group began to increase in around 1995, with an increased acceleration beginning at around 2000.

The finding described in the previous paragraph is further substantiated by a July 2008 report by the U.S. Bureau of Labor Statistics (2008), which indicates that employment of workers aged 65 years or older has increased 101 percent, during the period 1977 and 2007. Moreover, the percentage of older workers with less than a high school education decreased from 21 percent in 1997 to just 13 percent by 2007. In contrast, the percentage change of younger workers with less than a high school education decreased from 10 percent to just 9 percent during the same time period. Thus, it is clear that the number of older workers who have extended their education beyond high school has increased steadily during recent years. This suggests that there is indeed an “older worker” demographic present both in academia and industry. The aforementioned is consistent with a

recent study by Gerakos (2010), for which the average age of S&P 500 CEO's is 56.06 years.

### **Conclusions and Suggestions for Future Research**

Our results amplify the reality that traditional snail mail surveys continue to be preferred by business faculty. This is important to business researchers because of the ever-increasing preference to employ electronic means for distribution of surveys and collection of data. Continuation of the research described in the current paper is essential, given the fact that researchers and the institutions and agencies that provide funding are seeking to employ more efficient and cost-effective means by which to carry out survey-based research.

Because the current study does not examine nor address business faculty perceptions and preferences pertaining to these various distribution and response modes, potential future research should focus on ascertaining business faculty perceptions and preferences regarding the various distribution methodologies. Additionally, future research should involve the use of some form of pre-contact mechanism, which, as indicated in "Study Limitations," may result in improved response rates for Web surveys. An important element of such a pre-contact approach might involve brief introduction and explanation about the impending survey, which could, in turn, help mitigate resistance by the increasing density of older faculty members to online surveys. Put simply, research in this area is critical to the future of survey-based research, as electronic delivery and collection systems become increasingly ubiquitous among colleges and universities.

## References

- Alreck, P. L., & Settle, R. B. (2004). *The survey research handbook* (3<sup>rd</sup> ed.). New York: McGraw-Hill/Irwin.
- Baruch, Y. & Holtom, B. C. (2008). Survey response rate levels and trends in organizational research. *Human Relations*, 61(8), 1139-1160.
- Bosnjak, M., Lozar-Manfreda, K., Haas, I., & Vehovar, V. (2005). Web survey response rates compared to other modes-A meta-analysis. Conference Paper-American Association for Public Opinion Research, 1.
- Cook, C., Heath, F & Thompson, R.L. (2000). A meta-analysis of response rates in web- or internet-based surveys. *Educational and Psychological Measurement*, 60(6), 821-836.
- Couper, M. P. (2000). Web surveys. *Public Opinion Quarterly*, 64(4), 464-494.
- Couper, M.P., Blair, j., & Lamais, M.J. (2001). Web survey design and administration. *Public Opinion Quarterly*, 65, 230-253.
- Current Population Survey*. (2010). U.S. Bureau of Labor Statistics.
- Dolnicar, S., Laesser, C., & Matus, K. (2009). Online versus paper: Format effects in tourism surveys. *Journal of Travel Research*, 47, 295-316.
- Fricker, Jr., R. and. & Schonlau, M. (2002). Advantages and disadvantages of internet research surveys: Evidence from the literature. *Field Methods*, 14(4), 347-367.
- Gerakos, J. (2010). Chief executive officers and the pay–pension tradeoff. *Journal of Pension Economics and Finance*, 9(2), 303-319.
- Greenlaw, C. & Brown-Welty, S. (2009). A comparison of web-based and paper-based survey methods. *Evaluation Review*, 33(5), 464-480.
- Kaplowitz, M. D., Hadlock, T. D., & Levine, R. (2004). A comparison of web and mail survey response rates. *Public Opinion Quarterly*, 68(1), 94-101.

- Mosisa, A., & Hipple, S. (2006). Trends in labor force participation in the United States. *Monthly Labor Review*, 129(110), 35-57.
- Odom, M. D., Giullian, M., & Totaro, M. (1999). New technology in survey research: Does it improve response rates? *The Review of Accounting Information Systems*, 3(1), 27-34.
- Porter, S. R. & Whitcomb, M. E. (2003). The impact of contact type on web survey response rates. *Public Opinion Quarterly*, 67(4), 579-588.
- Porter, S. R. & Whitcomb, M. E. (2007). Mixed-mode contacts in web surveys. *Public Opinion Quarterly*, 71(4), 635-648.
- Raziano, D.B., Jayadevappa, R., Valenzula, D., Weiner, M., & Lavizzo-Mourey, R. (2001). E-mail versus conventional postal mail survey of geriatric chiefs. *The Gerontologist*, 41, 799-804.
- Rogelberg, S. G. & Stanton, J. M. (2007). Understanding and dealing with organizational survey nonresponse. *Organizational Research Methods*, 10 (2), 195-209.
- Roy, A. & Berger, P. D. (2005). E-mail and mixed mode database surveys revisited: Exploratory analyses of factors affecting response rates. *The Journal of Database Marketing*, 12(2), 153-172.
- Schleyer, T.K.L. & Forrest, J.L. (2000). Methods for the design and administration of web-based surveys. *Journal of the American Medical Informatics Association*, 7, 416-425.
- Shermis, M. D. & Lombard, D. (1999). A comparison of survey data collected by regular mail and electronic mail questionnaires. *Journal of Business and Psychology*, 14(2), 341-354.
- Shih, T.-H. & Fan, X. (2008). Comparing response rates from web and mail surveys: A meta-analysis. *Field Methods*, 20(3), 249-271.
- Sills, S. J. & Song, C. (2002). Innovations in survey research. *Social Science Computer Review*, 20(1), 22-30.
- Truell, A.D. (1997). Survey research via email: Assessing its strengths and weaknesses for use by the business educator. *NABTE Review*, 24, 58-61.

- Truell, A.D., Bartlett, J.E. II, & Alexander, M.W. (2002). Response rate, speed, and completeness: A comparison of internet-based and mail surveys. *Behavior Research Methods, Instruments & Computers*, 34(1), 46-49.
- Truell, A. D. & Goss, P. (2002). Business education leaders compare e-mail and regular mail survey research. *Journal of Technology Studies*, 28(1), 81-83.
- Tse, A.C.B., Tse, K.C., Yin, C.H., Yi, K.W., Yee, K.P., & Hong, W.C. (1995). Comparing two methods of sending out questionnaires: E-mail versus mail. *Journal of the Market Research Society*, 37, 441-446.
- U.S. Bureau of Labor Statistics. (2008). BLS spotlight on statistics: Older workers. Retrieved from [http://www.bls.gov/spotlight/2008/older\\_workers/](http://www.bls.gov/spotlight/2008/older_workers/).
- Wright, K. B. (2005). Researching internet-based populations: Advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey services. *Journal of Computer-Mediated Communication*, 10(3), article 11.

