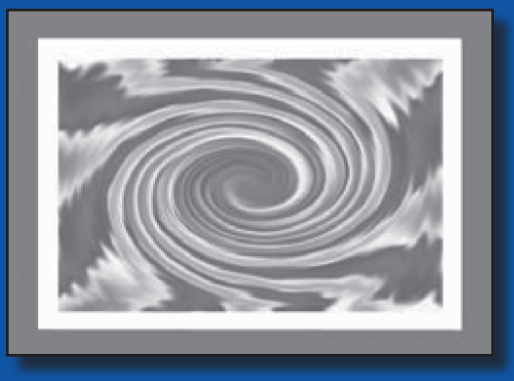

IR Applications

Volume 25, February 1, 2010

Using Advanced Tools, Techniques, and Methodologies

The Big Payoff: Use of Incentives to Enhance Participation in Web Surveys

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Abstract

Students are demanding more convenient and less time-consuming forums in which to be engaged in all areas of their education, including sharing their ideas about their educational experiences. Web surveys are more prevalent as a technologically advanced research medium being used throughout higher education. As such, this methodology is proving to be an effective means of allowing students to provide their input. One arena that has yet to be fully explored is whether or not the use of incentives will encourage a higher response rate among students participating in web-based student survey panels.

The Big Payoff:

Use of Incentives to Enhance Participation in Web Surveys

With the advent of the Internet, it is no surprise that web surveys have become a convenient and useful methodology in higher education survey research. The value of web surveys is twofold. First, conducting research is less time-consuming. Prior to web surveys, the process of developing the survey, administering the survey, collecting data, and entering data into a spreadsheet could take more time than the data analysis process. With web surveys, at the very least, collecting and entering data are automated processes. Second, students are demanding more convenient and less time-consuming forums in which to be involved in all areas of their education, and this includes forums for sharing their ideas about their educational experiences. As a result, web surveys allow students to be more conveniently and quickly engaged than they would have been in the past.

Given the aforementioned advantages of web surveys, they are still subject to some of the same shortcomings as paper surveys, mail surveys, and telephone surveys. One of the most obvious weaknesses is response rate. A low response rate plagues all types

of survey methodologies, and web surveys are no different. Although instant response may seem convenient to some, motivating one to respond is not simple. Is one motivated to respond based upon an intrinsic or extrinsic desire? In other words, the intent of the current study is to determine whether an incentive affects one's desire to respond to web surveys.

Because of the newness of web surveys, much of the literature thus far investigates response rates with respect to the traditional survey methodologies (i.e., paper, mail, telephone). Additionally, the focus of response rates within the spectrum of incentives investigates the effects of promised incentives versus prepayment of incentives. What follows is a historical review of incentives and response rates.

Wotruba (1966) examined the effect of promised payment, prepayment, and no payment or incentive on, among other factors, response rate to a mail-in questionnaire. In a pretest pilot to a major questionnaire mailing, a sample of 150 names was drawn at random and divided evenly into three groups. There were two treatment groups and one control group. In the first treatment group, the questionnaire was sent along with a cover letter and $0.25 prepayment for completing the questionnaire. The second treatment group received the cover letter, which promised a payment of $0.50 for submitting a completed questionnaire. The control group received the questionnaire only without a prepayment or promise of payment.

Wotruba (1966) found no statistically significant differences between the promised-payment treatment group and the control group. However, statistically significant results were found between the two treatment groups. More specifically, the prepayment treatment group returned twice as many questionnaires as the promised-payment treatment group. Wotruba posited that these results were due to a psychological effect. The respondents in the prepayment group may have felt obligated to return the questionnaire given the immediacy of their incentive, which was not the case with the promised-payment treatment group. These findings support the theory or idea that instant gratification may be more motivating than the value of the incentive.

Armstrong (1975) explored not only the instant gratification of prepayment but also the value or amount of an incentive on response rates. Eighteen empirical studies were collected from 14 different researchers. Armstrong detailed one study as the basis for his study. In that analysis, a sample of 100 people randomly selected from the Philadelphia telephone book was administered a 61-item questionnaire regarding a new form of public transportation. The sample was evenly divided into treatment and control groups. The treatment group consisted of 50 subjects who received a $1 prepayment along with their questionnaire. The control group consisted of 50 people who did not receive any money. The treatment group produced a 70% response rate while the control group generated a 22% response rate. The results were statistically significant.

When Armstrong (1975) combined the aforementioned study along with the other 17 studies, he found that as the incentive increased incrementally from no money up to $1, the response rate also increased. So, Armstrong was able to show that there appears to be a positive correlation between response rate and prepayment of an incentive.

Conversely, Schewe and Cournoyer (1976) explored the effect of incrementally increasing promised monetary incentives on response rates to a mail-in survey. Randomly selected motorists with out-of-state license plates were administered a survey to evaluate tourism. The survey packet contained a cover letter, the questionnaire, a return envelope, and a sheet promising a monetary incentive for completing the questionnaire. The incentive sheets were valued at $1, $2, $3, and $5, and the promised incentive values were randomly distributed to each motorist. No incentive sheet was included in the control group's survey packet.

Schewe and Cournoyer (1976) found no statistically significant differences in response rates between the control group and the $1-incentive group, the $2-incentive group, and the $3-incentive

group, or between the control group and the $3-incentive group and the $5-incentive group. There was a statistically significant difference in response rates found between a promised incentive of $2 and the lower promised monetary incentives. The researchers postulated that a promised incentive of $2 appears to be a suitable value for the respondent to take the time necessary to complete the survey. And, given that the incentive was promised and not prepaid, this observation was made independent of the potential psychological effects of prepayment.

James and Bolstein (1990) revisited the methodology of prepayment. Yet, one of their objectives was to measure the effect of nonmonetary incentives on response rates. More specifically, a multi-page survey was mailed to 850 cable television subscribers in a suburb of Washington, DC. Candidates were selected using a systematic random selection process. There were four treatment groups and one control group. Those in the treatment groups received a $0.25, $0.50, $1, or $2 incentive. Half of the candidates in the $0.50 treatment group received two quarters and the other half received a 50-cent piece. A similar methodology was used with the $2-incentive treatment group. Half received two $1 bills, and the other half received a $2 bill. The incentives were sent in the first mailing with no incentive sent in follow-up mailings.

James and Bolstein (1990) found "highly significant differences" between treatment groups. Their results showed an increase in response rate as the incentive increased. Nevertheless, there were no statistically significant differences between the monetary incentive and the nonmonetary incentive. The response rate in the fifty-cent piece treatment group did not differ significantly from the treatment group that received two quarters. Similarly, the response rate of the candidates that received a $2 bill did not differ significantly from those who received two $1 bills. Although a novelty item such as a fifty-cent piece or a $2 bill does not affect response rates, a consistent theme of increasing response rates by increasing the prepaid incentive appears to be emerging (Heberlein & Baumgartner, 1978; Warriner, Goyder, Gjertsen, Hohner, & McSpurren, 1996; Yammarino, Skinner, & Childers, 1991; Yu & Cooper, 1983).

As stated earlier, there are very few empirical studies probing web surveys and response rates to a web survey. Porter and Whitcomb (2004) conducted a study in the spring of 2001 to study the effects of a lottery incentive on response rates. There were four treatment groups and one control group. Those in the treatment groups would be entered into a lottery to receive a $50, $100, $150, or $200 gift certificate to a popular online bookstore if they responded to the web survey. An invitation e-mail with a survey link and additional reminder e-mails were sent to over 9,000 high school students. The invitation e-mails were identical except for a passage about the lottery incentive to the different treatment groups.

Porter and Whitcomb (2004) found that, of all the treatments groups, only the $100 lottery incentive differed significantly from the control. But, this incentive group did not differ significantly from the other incentive groups. And, when the $100 incentive group was excluded from the analysis, the remaining incentive groups were not statistically different from the control group or each other. So, there did not appear to be a differential effect of offering an incentive on response rates to web surveys.

Underwood, Kim, and Matier (2000) conducted a study to compare response rates of mail surveys to web surveys. Two surveys were administered. One survey was mailed to graduating seniors; a follow-up letter and survey was mailed again to nonrespondents. Freshman and sophomore students received the web survey with the survey link embedded in the e-mail invitation. Three reminder e-mails were sent to freshmen and sophomores with the survey link again embedded in each e-mail. For those who responded to the mail survey and web survey, promised incentives such as discount coupons, a raffle of prizes, and $1,000 travel credit were offered.

The mail survey garnered a 61% response rate while the web survey produced a 36% response rate. Underwood et al. (2000) posited the disparate

response rates to a lack of familiarity with the medium of web surveys. It should also be noted that the mail survey that was administered to seniors was a traditional survey with a reputation, i.e., it had been administered before. The web survey was a newer survey administered to freshmen and sophomores. Consequently, another explanation for the differences in response rates could be due to the reputation of the surveys as well as the populations that were surveyed (seniors vs. freshmen/sophomores). At any rate, the Underwood et al. study showed that similar promised incentives for different administration mediums (web vs. mail) can produce significantly different response rates.

Kaplowitz, Hadlock, and Levine (2004) conducted a similar study. The difference in their methodology compared to Underwood et al. (2000) was that the same survey was administered via mail and Internet. In the study, nearly 20,000 students were sent the survey. The 20,000 students were disaggregated into five groups. Group 1 received a hardcopy survey via the mail preceded by a preliminary postcard and followed first by a reminder postcard and then by an additional hardcopy survey to nonrespondents. Group 2 received an e-mail invitation containing a link to take the survey online; a preliminary postcard preceded the e-mail. Group 3 received a preliminary postcard, an e-mail invitation with embedded link, and a follow-up postcard. Group 4 received an e-mail invitation with embedded link and a follow-up reminder postcard. Group 5 received only an e-mail invitation with embedded link and no other communications. The goal of the research was to measure the effect of surface mail contacts on web survey response rates.

The results showed that although administering the survey through the mail (Group 1) was more expensive, it garnered a higher response rate (31.5%) than the other methods (Group 2 through Group 5). Comparatively, the authors concluded that the response rate corresponding to administering the survey via the Internet was not statistically different from administering the survey via mail (29.7% vs. 31.5%) provided the e-mail invitation was preceded by advance notification only.

Cook, Heath, and Thompson (2000) found similar yet varied results. Cook et al. conducted a meta-analysis of electronic surveys published on the websites of journals such as *Public Opinion Quarterly, Journal of Marketing Research,* and *American Sociological Review* from their most recent issues back to the origins of the World Wide Web in 1994 to determine factors which affect the response rate of electronic surveys. From their research, 49 studies produced 68 electronic surveys for the meta-analysis.

Using an inter-rater reliability with consensus technique to analyze the data, 15 predictor variables were identified. Of the 15 predictor variables, three were considered to be significant in affecting response rate. Those three variables were the number of contacts, personalized contacts, and pre-contacts. The correlations between response rate and number of contacts, personalized contacts, and pre-contacts were 0.435, 0.407, and 0.255 respectively. Oddly, Cook et al. (2000) noted that incentives had a negative effect on response rate (i.e., produced lower response rates). Cook et al. posited that while the researchers may have provided an incentive to complete a long or tedious survey, for the respondents, the incentive or value of the incentive may not have been sufficient to mitigate the time required to complete the survey.

As can be seen from the aforementioned studies, until the early part of the 21st century, most of the research on survey response rates excluded web surveys. As a result, the present study investigates a combination of prepayment and promised payment along with monetary and nonmonetary incentives and their effect on response rates to web surveys. This exploration will further elucidate the relationship between response rates and web surveys.

College administrators are continuously seeking ways to incorporate research knowledge into their decision-making processes. Many research studies are time-consuming and expend numerous college resources to initiate, develop, and distribute findings. Often, decisions require a prompt response with data; hence, web surveys provide an

innovative means of collecting student opinions in an expeditious and efficient manner.

Our institution needed quick, "instant" student feedback to assist administrators in making knowledge-based decisions, and researchers were interested in applying an innovative research methodology to allow the Institutional Research (IR) office to meet this need. At an Association for Institutional Research (AIR) forum, researchers from Davenport University in Michigan presented a topic entitled "Acquiring Timely and Representative Student Input for Strategic Planning" focused on the use of student survey panels to gather information for college administrators' strategic planning initiatives. This prompted our IR office to further refine this idea into a strategy that we hoped would maximize participation of an ongoing student survey panel.

After careful consideration, with the continuous student panel methodology in mind, the Instant Feedback Student (IFS) Panel was developed, and a pilot study was initiated. Given the use of web survey technology and the use of student-supplied e-mail addresses, one of the goals of the pilot study was to define and identify how this method would work within the IR office. Ultimately, the panel would be implemented as an additional research medium within the IR office, and several surveys would be administered to the panel. Yet, the success of the panel was contingent upon active member participation as defined by the panelists responding to each web survey they received. So, the question at hand was whether active participation needed to be encouraged with an incentive. To answer that question, an empirical study was undertaken, and the two following formal research questions were explored.

> ***Research Question One***: What effect does the timing (prepaid vs. promised) of an incentive have on the number of web surveys completed?
>
> ***Research Question Two*:** What effect does the value (monetary vs. nonmonetary) of an incentive have on the number of web surveys completed?

The literature thus far analyzes responses to single surveys notwithstanding the administration medium. However, examining the research questions above not only adds to the literature on response rates and web surveys but also elucidates the role of persistence in responding to multiple surveys via the Internet.

Method

In the Winter of 2007 using random assignment, 450 students were screened and recruited for the IFS Panel. A file of over 11,000 prospective recruits was created by identifying students who attended the Fall 2006 semester and were currently attending the Winter 2007 semester. An SPSS syntax was used to randomly assign each student in the file to one of three groups (two treatment groups and one control group). One treatment group, the prepaid-incentive group, represented the students who would receive the incentive before the panel began. Another treatment group, the promised-incentive group, represented students who would receive the incentive at the conclusion of the panel. And, the control group represented students who would not receive an incentive.

Three screeners were designed to recruit students according to the noted treatment and control groups. The screeners were designed such that only after a respondent agreed to be a panelist were they informed of an incentive. In other words, those students who would receive the incentive before the panel cycle began were notified that they would receive their incentive beforehand. Those students who would receive the incentive after the panel cycle ended were notified that they would receive their incentive afterwards. And, those students who would not receive an incentive were not notified about an incentive.

The screeners and each group sample file were loaded into a CATI system. The CATI system was programmed to randomly select students to be interviewed. Only students who agreed to be a member of the panel were recruited for the panel as well as recruited for each of the treatment and control groups. In all, 450 students were recruited

for the panel and equally divided among each treatment and control groups.

For each treatment group, a monetary and nonmonetary incentive was awarded. The monetary incentive was a $25 check. The nonmonetary incentive was a padfolio (portfolio for notepads) valued at approximately $4. Half of the students in each treatment group received the check, and the other half received the padfolio.

Although an incentive was given, the students were not made aware of which type of incentive they would receive. During the screening process, if students agreed to be a member of the panel, they were notified that they would receive "a small token of our appreciation for agreeing to be a member of the panel." Three different cover letters were mailed to welcome members to the panel. The incentive accompanied the cover letter to the prepaid-incentive treatment group. The letter to the promised-incentive treatment group reminded them that their incentive would come upon completion of the panel. The letter to the control group thanked them for agreeing to participate in the panel.

Results

There were four surveys administered. An invitation e-mail with an embedded survey link was e-mailed to accounts provided by the student. Each survey remained active for two weeks. Approximately one survey was administered each month. Table 1 below details the response rate for each survey.

Table 1
IFS Panel Response Rate per Survey

Survey	Response Rate
Student Entertainment	51%
Online Course Demand	54%
Course Scheduling Preferences	54%
Priority Registration	54%

As can be seen from Table 1, a substantial response rate was logged for each survey. An average response rate of 53% was registered for the entire cycle of the panel. The differences regarding the timing and value of the incentive follow.

Research Question One: What effect does the timing (prepaid vs. promised) of an incentive have on the number of web surveys completed?

A one-way analysis of variance with number of surveys completed as the dependent variable with two degrees of freedom was used to evaluate the timing of the incentive in each treatment group and the control group. The data revealed a relationship between the treatment groups and control group that was not statistically significant ($F = 1.110$, $p > 0.05$).

Table 2
Average Number of Surveys versus Timing of the Incentive

	Average Number of Surveys	Sample Size
Prepaid	2.21	149
Promised	2.17	145
None	1.94	142
Overall	2.11	436

It is clear from Table 2 that the timing of the incentive did not have an effect on the number of surveys responded to by either the treatment or control groups. On average, each group responded to essentially the same number of surveys. The differences noted can be considered nominal and negligible. So, providing no incentive at all has the same effect as providing an incentive before the panel cycle started or after it ended.

***Research Question Two*:** What effect does the value (monetary vs. nonmonetary) of an incentive have on the number of web surveys completed?

Given that the promised-incentive group completed their surveys prior to receiving their

incentive and did not know the value of the incentive they would receive to complete the surveys, it was decided that in this case their behavior could not have been influenced by the value of the incentive. Thus, the test of the value of the incentive was measured using the prepaid-incentive treatment group, and it compared the average surveys completed by those receiving the padfolio versus those receiving the $25.

The *t*-test used to evaluate the effect the incentive had on the response rate was not statistically significant ($t = 0.309$, df = 147, $p > 0.05$) between those who received a padfolio and those who received $25 cash.

Table 3
Average Number of Surveys versus Value of the Incentive

	Average Number of Surveys	Sample Size
Padfolio	2.22	74
Cash	2.13	75
Overall	2.17	149

Table 3 shows that the value of the incentive does not have an effect on the number of surveys responded to, at least when it is prepaid. More specifically, whether the panelists received cash or a $4 novelty item, the number of surveys responded to is basically the same.

Although there were no quantitative differences found, qualitative differences may exist. For instance, 450 students were originally recruited for the panel. When the panel concluded, 436 students remained as evidenced by the sample size measures in Table 2.

The group with the largest attrition rate was the control group (5%). The prepaid-incentive group had the lowest attrition rate (0.70%) followed by the promised-incentive group (3%). One could conclude that the lack of an incentive was discouraging to the control group, which resulted in higher attrition for that group. Similarly, one could also conclude that the prepaid-incentive group was encouraged to persist because of the instant gratification of their incentive as evidenced by the lowest attrition rate. Additionally, upon conclusion of the panel and prior to beginning recruitment for the second cycle, active members (those who responded to at least one survey) of the previous panel were asked whether they would be interested in being a member of the second panel. The results showed that 30.5% of the prepaid-incentive and control groups and 39% of the promised-incentive group indicated that they would be interested in participating in another cycle of the panel. So, those students in the promised-incentive group expressed a greater desire to be a part of the second panel. Thus, the qualitative effect of the incentive could be the following. To keep the attrition rate low, a prepaid incentive may work best. To keep an acceptable response rate for subsequent panels, a promised incentive may be most effective.

Discussion and Conclusions

As noted previously, the literature indicates mixed results regarding the value of the incentive (James & Bolstein, 1990; Porter & Whitcomb, 2004; Underwood, Kim, & Matier, 2000). However, the results of this study are particularly useful to IR departments interested in forming cost-effective student web survey panels. The results of this study indicate that the conjunction of the timing of the incentive and the value of the incentive does not affect the number of surveys to which panelists respond. One rationale for the results could be the requirements of the panel. The basic requirements for each panelist are to log on to the Internet and check his/her e-mail for a survey. Most students check e-mail several times a day. The ease with which the panelists could respond to the survey potentially mitigated any of the treatment group effects with respect to the timing and value of the incentive. These results are preferred. For, if there were differences, the cost of such a panel would be quite expensive for departments whose resources may be limited.

There may be the opinion that the differential value of the monetary ($25) and nonmonetary (padfolio) incentive was not large enough to observe a statistical effect. Although this opinion may have merit, there does come a point at which resources preclude response rates and methodology takes center stage. In other words, if recruiting more students at a lesser (or no) cost to the department can produce an acceptably large number of respondents (irrespective of response rate), then this methodology will forgo the need to pay panelists a substantial amount to respond. This methodology can only be cost effective and beneficial to the department in the long run.

Given the regular advancement of technology, web-based surveys will most likely become more popular and varied. Checking e-mail may become akin to a telephone landline approach to communication while Twitter, Facebook, MySpace, and other technology-based communication or social networking mediums reveal themselves to be ever-more-instant means of contact and interaction. As a result, surveying students via the Internet will also evolve along with technology. And, although web-based surveys may become an expedient method to engage students, it is recommended that the logistics of engagement be expedient as well.

Limitations

The purpose of the panel was to provide baseline data for college decision-makers and, from this purpose, the recruitment process was designed. This empirical study was born out of that purpose. As a result, a limitation of the study was recruitment through self-selection, which is inherent in the recruitment process. Potentially, this limitation has an effect on the response rate measured as well as an effect on the lack of statistically significant differences by timing and value of the incentive. Voluntary panelists may have been intrinsically motivated to participate thereby nullifying observable differences by treatment and control groups. Future research should seek to eliminate this design limitation by controlling self-selection in the recruitment process.

Editor's Note:

The idea of "Back to Basics" is rich in meaning and has always had an interesting appeal to me. It means that there is a set of basics that provides a founding for our environment. It means that there is a direction for our future efforts, and this direction contains the roots of our past. It also sometimes means that we are caught up in the moment and are in need of a bit of refocusing. This IR Application by Wren and Showers is one of those "Back to Basics" moments. Surveying is one of the most basic of the IR functions. It was that way when Saupe and Montgomery and Fincher wrote about our functions, and it is now when Gerek and Knight and Volkwein write about the role and skills of IR. All along this horizon, the big question has related to getting the best idea of the perceptions of respondents, and this question has typically involved a concern for the return rate.

While the basics of IR have stability, the means of these activities definitely change and, as this article does, it is time to focus the question of return rates on web surveys. The most direct application is the enrichment of what we know about how to enhance return rates on web surveys. In doing this, it considers two aspects of reward—the timing of the reward and the type of reward. It raises many questions along these two dimensions. There are different types of rewards including providing a buffet of rewards and allowing the respondent to select the one of choice. There are levels of rewards ranging from a modest-value reward for all participants to high-value rewards for a randomly selected group from the respondents. Which are most worthy of further study? There are also some variations in the delivery of the reward: sending it in advance, sending it with the notification (e-mail voucher), sending it a week after the e-mail (as a reminder), or sending it after completion.

In terms of rewards of different types and timing, there is a major set of questions about the results of the reward on participants based on the characteristics of the participant. This starts with the need to select the dimensions of participants that should be covered: affiliation (applicant, student, alumni, etc.), age, gender, and discipline come to

mind. Are there other characteristics? Do these characteristics interact with the focus of the data being collected? The assessment of the results of payoffs then needs to be operationalized, and here the key point in this design is compliance with the rule of random assignment. Much remains to inform how to best enhance return rates. As Wren and Showers caution, the results of the past are helpful but not definitive as we use new methodologies with new cultures.

Having made the call for continued discovery, there are a couple more points where this article makes really valuable contributions. First, it demonstrates the importance of sharing research with colleagues. The seed for this work came from collegial sharing at an AIR meeting. The research had a starting point; it advanced this knowledge and is sharing that knowledge back to the profession. This is how it is supposed to work.

Next, this research uses a panel process rather than going out to a new group of students on each survey. This means the response rate to the surveys is conditioned on the willingness of the students to participate in the panel. It also demonstrates, however, that using a panel of students is a viable alternative to picking a new sample every time there is a question. It should be noted that some of the new survey software have the ability to remember previous random selection and exclude those from current selections, so we have options. The question is "What is the better option and when?"

A final note is that the web survey is a transition from the previous ways—although one suspects for some purposes the paper-and pencil is still best. As this is a transition, social networking and new technologies ensure that web surveying is only a transition in the ways we best apply our basic skills. What is next as we apply our basic information-gathering skills?

As noted above, this research answers some of the questions in a basic area of applying IR skills. It also raises many more. For both of these reasons, this is an IR Application well worth reading.

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