

The Impact of Textual Messages of Encouragement on Web Survey Breakoffs: An Experiment

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Abstract: This paper tests a new method for encouraging Web survey respondents to complete a questionnaire once they have started it and, thus, reduce the number of breakoffs. This paper builds upon prior studies that have examined the effects of using feedback mechanisms in Web surveys to encourage questionnaire completion and breakoff reduction (Crawford, Couper, & Lamias, 2001; Couper, Traugott, & Lamias, 2001; Conrad, Couper, Tourangeau, & Peytchev, 2005; Heerwegh & Loosveldt, 2006; Matzat, Snijders, & van der Horst, 2009). The proposed method displays textual messages of encouragement intermittently to Web survey respondents. We hypothesized that such messages would reduce the number of breakoffs or, at minimum, delay eventual breakoffs. We tested this hypothesis by mounting a Web survey experiment on a national sample of college students (National Survey of Living Learning Programs, 52 institutions, $N = 110,427$ students). The sample was divided into 3 mutually exclusive groups that received: (1) no messages of encouragement (control), (2) brief messages of encouragement with generic content, and (3) brief messages of encouragement that contained content tailored to their specific school. The results suggest no association between displaying messages of encouragement and deterring or delaying breakoffs. Further, no association was found between messages of encouragement and the amount of time respondents spent logged in to the survey instrument or the number of items presented to them. The failure to find evidence is analyzed and detailed recommendations for further research on the relationship between feedback mechanisms and survey completion are given.

Keywords: Web survey, breakoff, encouragement, feedback

Introduction

Minimizing Web survey breakoffs is a persistent challenge facing the survey industry. Breakoffs threaten the inferential quality of Web survey data, which can adversely impact their use by researchers and regular data users. Only recently has scholarly research begun to construct a theoretically-driven framework that identifies factors that influence the breakoff phenomenon and describes how they interact (Peytchev, 2009). The combined literature on Web survey research methods has identified several factors that influence the propensity for a breakoff to occur. These factors can be usefully grouped into three mutually exclusive categories: *respondent characteristics* (e.g., socio-demographics, Peytchev, 2009), *question and page characteristics* (e.g., open-ended question forms, Crawford et al., 2001, number of questions on a page, Peytchev, 2009, questionnaire length, MacElroy, 2000; Hogg & Miller, 2003; Deutskens, DeRuyter, Wetzels, & Oosterveld, 2004), and *survey design features* (e.g., progress indicators, Crawford et al., 2001, incentives, Bosnjak & Tuten, 2003, Deutskens et al., 2004, reminder notifications, Deutskens et al., 2004; Kaplowitz, Hadlock, & Levine, 2004; Crawford et al., 2001).

Of these three categories, only the last two, question/page characteristics and survey design features, are under the control of the survey designer for a given population under study and may be manipulated in ways that encourage questionnaire completion. However, question and page characteristics are often more rigid than survey design features. For example, many study objectives dictate characteristics of the questionnaire. Studies that necessitate the need for qualitative data may have no choice but to include open-ended items, even though such items increase the likelihood of breakoff (Crawford et al., 2001). Similarly, surveys that endeavor to collect rich sets of variables on multiple constructs may be unwilling to sacrifice questionnaire length over greater risk of breakoff. Thus, the greatest potential for minimizing breakoffs may lie in manipulating survey design features that encourage questionnaire completion.

Survey design features that encourage survey completion can be implemented in two ways: *internally* (within the questionnaire) and *externally* (outside of the questionnaire). Most research has focused on external survey design features. Offering incentives (Bosnjak & Tuten, 2002; Deutsckens et al., 2004; Göritz, 2006; Heerwegh, 2006), sending prenotification emails (Kaplowitz et al., 2004; Porter & Whitcomb, 2007) and regular reminders (Deutsckens et al., 2004; Kaplowitz et al., 2004; Porter & Whitcomb, 2007) have yielded mixed results with regard to reducing breakoffs. However, the main focus of these studies has been on increasing unit response rates in Web surveys. Examining the impact of external design features on breakoffs is often a secondary aim.

We argue that, even though external design features may (or may not) influence breakoffs, their primary purpose are to increase response rates and encourage sample persons to, at minimum, begin the survey, but not necessarily to complete it. Conditional on beginning a survey, respondents might require different motivations to complete the entire task. Internal design features that are present in the questionnaire may therefore be better suited for motivating respondents to complete the full questionnaire. Unfortunately, only few studies have proposed and investigated internal design features as a means to deter Web survey breakoffs.

The most frequently studied internal design feature in Web surveys is the progress indicator (Crawford et al., 2001; Couper et al., 2001; Conrad et al., 2005; Heerwegh & Loosveldt, 2006; Matzat et al., 2009). The progress indicator is unique because it provides respondents with live feedback on how far they have progressed through the survey instrument. In experimental studies, the progress indicator has yielded mixed results for minimizing breakoffs. For example, Couper et al. (2001) found a positive, though, nonsignificant, effect on breakoffs when a progress indicator was presented to respondents. In contrast, Crawford et al. (2001) found a negative effect, which they attributed to the progress indicators inability to accurately estimate the duration of the survey when open-ended questions were included in the questionnaire. Thus, respondents likely felt that the progress indicator underestimated the duration of the survey due in large part to the open-ended items.

Building upon prior progress indicator research, Conrad et al. (2005) conducted a Web survey experiment that manipulated the speed of the progress shown in the visual indicator. The speed of progress shown to respondents varied across the questionnaire based on the following groups: slow-to-fast, fast-to-slow, and uniform. The resulting pattern showed that the slow-to-fast group was significantly more likely to breakoff relative to the uniform group, followed by the fast-to-slow group. Only the fast-to-slow group yielded a higher rate of completions compared to those who were not shown a progress indicator, but this difference was not statistically significant. Presumably, respondents in the slow-to-fast group became discouraged with the amount of perceived progress they were making early in the questionnaire, which resulted in a higher rate of breakoffs. In contrast, respondents in the fast-to-slow group may have felt encouraged by their perceived progress and this led them to keep going and complete the questionnaire at a higher rate; however, this conclusion lacks convincing (significant) data.

In sum, it appears that progress indicators can provide useful feedback to respondents, but such feedback does not necessarily lead to higher rates of completion, especially when respondents perceive the feedback negatively. Until now there has been no reliable evidence indicating that progress indicators have any breakoff reducing effects. Thus, finding alternative design features that consistently encourage and motivate respondents to complete a survey questionnaire continues to be an ongoing and meritorious task.

Theoretical background and hypotheses

In interviewer-administered surveys (e.g., face-to-face, telephone), respondents often receive encouragement and motivation to complete the survey from interviewers. This strategy can be effective for eliciting responses and completed questionnaires (Cannell, Groves, Magilavy, Mathiowetz, & Miller, 1987; Cannell, Oksenberg, & Converse, 1977; Fowler & Mangione, 1990; Marquis, Cannell, & Laurent, 1972). However, given that the Web is, by design, a self-administered mode of data collection, this type of feedback mechanism is not possible in Web surveys.

An alternative, yet unexplored, Web survey strategy is to display textual messages of encouragement intermittently throughout the questionnaire. Such messages could contain content that acknowledges the respondents prior contribution and encourages them to proceed further along in the questionnaire. This strategy should be distinguished from the common practice of alerting respondents of input errors (e.g., inconsistent responses, blank answers, etc.) before they proceed to the next question. In contrast, the textual message strategy that we propose is oblivious to the quality of the prior responses and is only meant to encourage respondents to answer more questions than they would have otherwise answered had they not received any encouragement.

To operationalize this procedure, generic messages of encouragement could be embedded at different points in the questionnaire for all respondents to see. By taking advantage of available sample frame information, one could take this approach one step further by tailoring the message content to each respondent. The theory of survey participation suggests that tailored recruitment methods are more effective at obtaining response and securing cooperation compared to generic, “one size fits all,” approaches that are applied to the entire sample (Groves & Couper, 1998). Although the success of tailoring methods is usually reported in the context of maximizing unit response and cooperation, it is conceivable that such methods would have a similarly positive effect on respondents’ willingness to complete a questionnaire once they’ve begun.

To assess the effectiveness of using textual messages of encouragement (both generic and tailored) as a deterrent for Web survey breakoffs, we mounted a basic experiment within a nationwide survey of college students. Random subsets of students received either generic or tailored messages of encouragement that were uniformly placed in the questionnaire, while the remainder of students received no messages of encouragement (control group). The main goal of our study was to determine whether messages of encouragement (both generic and tailored) displayed intermittently to respondents would reduce, or at least delay, Web survey breakoffs.

In this paper, we test three hypotheses and one sub-hypothesis, which are justified below:

H1: The breakoff rate will be lowest for the group receiving the tailored messages of encouragement, followed by those receiving the generic messages, and the control group.

The first hypothesis follows from the logic described in the introduction. We expect that messages of encouragement will motivate respondents to complete the questionnaire and become less likely to breakoff relative to respondents who are not shown the messages. Furthermore, based on the theory of tailored survey recruitment strategies (Groves & Couper, 1998), we expect that messages of encouragement that contain content tailored toward specific subsets of respondents will have a greater impact on reducing breakoffs relative to the generic messages of encouragement.

H2: Tailored messages of encouragement, followed by generic messages of encouragement, are expected to have a stronger positive effect on reducing breakoffs that occur early in the questionnaire as opposed to later in the questionnaire.

This hypothesis differs from the first hypothesis in that the primary interest is not on the overall breakoff rate, but rather the rate of breakoffs that occur at different points in the questionnaire. We suspect that the textual messages will be more salient for respondents when respondents are in the beginning stages of completing the questionnaire, as opposed to later in the questionnaire when they may be subjected to greater time constraints. This expectation is similar in spirit with Conrad et al. (2005) who interpreted their findings as supportive for the hypothesis that the type of feedback (in their case, the speed of a progress indicator) presented to respondents early in the questionnaire has a greater effect on their behavior than the type of feedback provided later. The theoretical justification for this phenomenon is described in Matzat et al. (2009), whom summarize the evidence on progress indicators and conclude that “first impressions matter” when motivating respondents to complete a Web questionnaire.

H3: The total elapsed time respondents spend answering questions and the number of questions presented to respondents, on average, will be greatest for the tailored message group, followed by the generic message group and the control group.

The third hypothesis is an indicator of whether messages of encouragement were effective deterrents of breakoffs, which should be reflected in terms of respondents spending more time logged-in to the survey instrument and having a greater number of survey items presented to them. Our expectation is that these outcomes will hold true as the messages of encouragement should motivate respondents to answer more questions relative to those who do not receive any messages.

This implies the following sub-hypothesis:

Sub-hypothesis: Among respondents who eventually breakoff, the elapsed time they spend answering questions and the number of questions presented to them will be greatest for the tailored message group, followed by the generic message group and the control group.

This sub-hypothesis asserts that, even though respondents may end up abandoning the survey, displaying messages of encouragement will motivate respondents to prolong their participation and delay their breakoff. The elapsed time spent in the survey instrument and number of questions presented to respondents prior to their eventual breakoff should therefore be greater, on average, compared to respondents who do not receive any messages of encouragement.

Methods

We mounted a Web survey experiment within the 2007 National Survey of Living Learning Programs (NSLLP). The NSLLP is an annual multi-campus survey of college students that evaluates how participation in college and university Living-Learning Programs (LLP) shape academic, social, and developmental outcomes (Inkelas, Vogt, Longerbeam, Owen, & Johnson, 2006). LLP programs are specialized University Housing programs that offer undergraduates the chance to integrate their coursework and their out-of-class experiences in a variety of ways. Some benefits of the program include taking courses in residence halls, meeting with faculty informally, or being part of a cohort of students who take similar courses and share similar academic interests. Many schools operate their own LLP programs independently and sign-up to participate in the NSLLP to assess the differences between their LLP and non-LLP students on key outcomes as well as to evaluate the overall effectiveness of their LLP programs.

The NSLLP is thought to be a good candidate for breakoff research due to several burdensome questionnaire characteristics, including: 1) the large number of survey items (approx. 250); 2) the sensitivity of various topics covered (e.g., alcohol abuse, standardized test scores and course marks, sexual orientation, victimization, discrimination, etc.); and 3) the large number of grid questions which constitute the majority of items in the questionnaire.

The NSLLP was administered online to undergraduates (LLP and non-LLP) ages 18 and older who were enrolled at a participating postsecondary institution in the United States and living in a residence hall at the time of the survey. A total of 52 postsecondary institutions participated in the 2007 NSLLP. A stratified random sampling design was used to select eligible students. Each university/college was responsible for drawing a random sample of their students who would receive an invitation to participate in the NSLLP. Each sample was comprised of both LLP participants and a control sample of demographically matched students that were matched on gender, race, and academic standing from the general residence hall population. The LLP and non-LLP sample size was 48,422 and 62,005, respectively, for a total sample size of 110,427. Each sample member was sent an invitation email from the University of Maryland study director containing a description of the study and link to the survey. Data collection took place between the months of January and April, 2007. All data collection operations were performed by the Survey Sciences Group, LLC. All analyses were performed using the SVY package in Stata (version 9). This package properly accounts for the stratified random sampling design used in the NSLLP.

Generic messages of encouragement

The Web survey experiment consisted of two experimental groups and one control group. Students in each independent school sample were randomly assigned to one of the three groups. Both experimental groups were exposed to messages of encouragement. One group received a generic message (Generic) and the other group received a tailored message (Tailored). A total of three messages were displayed to respondents in each experimental group. The messages were placed approximately uniformly throughout the questionnaire. Each message was displayed on the top left-hand side of the page located directly above the survey questions. The font size of the messages was set noticeably larger than the size of the questions themselves in order to increase their saliency for respondents. The Generic group received the following messages displayed in the order below and shown in Figures 1–3:

1. We value your contributions! Thank you for your information so far.
2. Way to go! The responses you provided so far are very helpful.
3. Keep going! Only one more section left.

2007 National Study of Living Learning Programs

About You	Before College	Academic Life	College Environments & Campus Life	End
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Questions? support@ssqresearch.com

We value your contributions! Thank you for your information so far.

Are you...

(Select all that apply)

- African American/Black (not of Hispanic origin)
- Asian or Pacific Islander (includes the Indian sub-continent)
- American Indian or Alaskan Native
- Hispanic/Latino (Spanish culture or origin)
- White/Caucasian (Persons not of Hispanic origin, having origins in any of the original peoples of Europe, North Africa, or the Middle East)
- Race/ethnicity not included above

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Figure 1. Screenshot of first message placement.

2007 National Study of Living Learning Programs

About You	Before College	Academic Life	College Environments & Campus Life	End
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Questions? support@ssqresearch.com

Way to go! The responses you provided so far are very helpful.

What is your best guess as to the chances that you will:

	No chance	Very little chance	Some chance	Very good chance
Fail one or more courses?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Graduate with honors?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Make at least a "B" average?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drop out of this college or university temporarily (excluding transferring)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drop out permanently (excluding transferring)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Figure 2. Screenshot of second message placement.

2007 National Study of Living Learning Programs

About You	Before College	Academic Life	College Environments & Campus Life	End
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Questions? support@ssqresearch.com

Keep going! Only one more section left.

Since the beginning of the school year, how many times have any of the following happened to you as a result of your own alcohol use?

	Not at all	Once	Twice or more
I have missed or performed poorly in class.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have been confronted by a residence hall staff member.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have had a hangover.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have passed out.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have had memory loss or blackouts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have damaged property.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Figure 3. Screenshot of third message placement.

Tailored messages of encouragement

The Tailored group received similar messages of encouragement with the exception that the messages contained a school spirit theme tailored to the specific respondent’s school. The school’s name and mascot were incorporated into the messages to convey a sense of school spirit. Here is an example of messages that students from Louisiana State University (LSU) were shown if they were assigned to the Tailored group:

1. LSU values your contributions! Thank you for your information so far.
2. Way to go, Tigers! The responses you provided so far are very helpful.
3. Hear the Tigers roar! Only one more section to complete.

Results

Response rate and breakoff rate

The NSLLP achieved an overall response rate of 19.4% (AAPOR RR2) yielding 21,704 participants. Response rates for LLP and non-LLP samples were 22.9% and 16.8%, respectively. Because student participation was solicited via personalized email invitations sent to their school-provided email accounts, it is possible that many invitations were never seen by students who rely heavily on alternative email services (e.g., gmail, yahoo) or those who do not rely on email for school-related communications. The lack of a paper alternative in the present study may have contributed to the low response rate.

Of the 21,704 respondents who began the survey, 3,082 (or 14.2%) broke off. Among the breakoffs, 75 (or 2.4%) occurred before the first message was presented. These cases were removed from further analysis. The frequency of breakoffs occurring at each questionnaire section is displayed in Figure 4 along with the locations of the experimental messages.

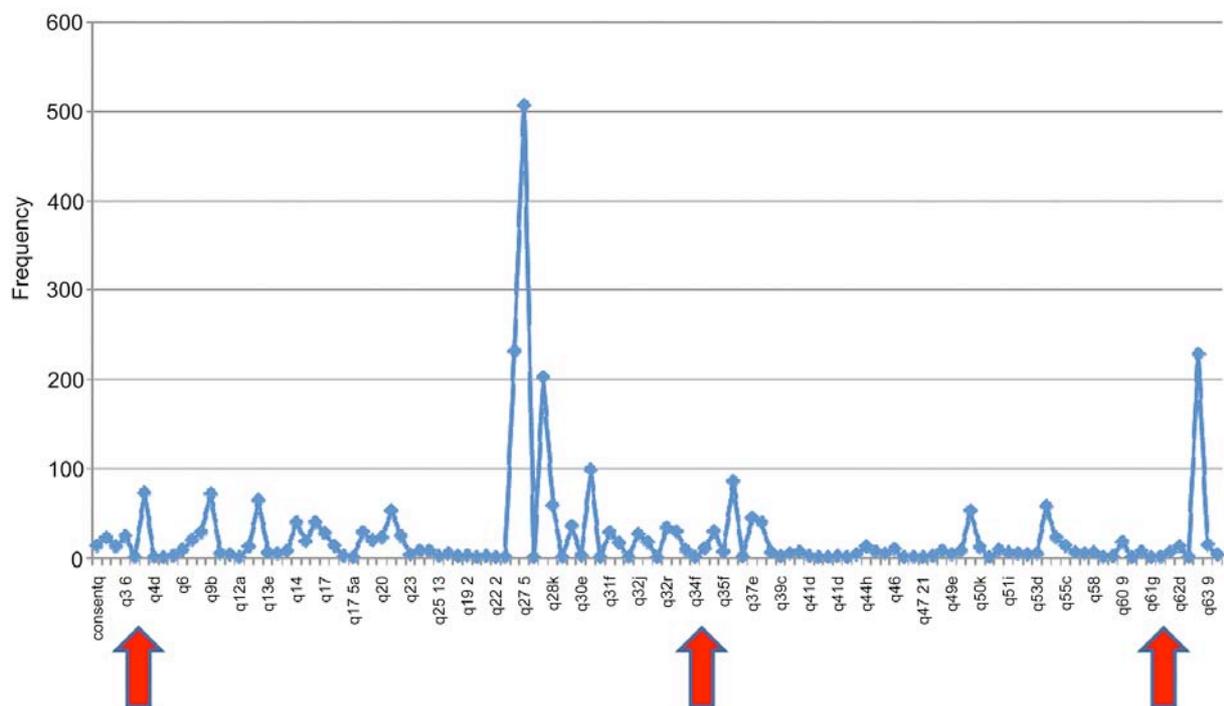


Figure 4. Breakoff frequencies by questionnaire section. Arrows indicate message placement location.

Before proceeding to the hypotheses outlined above, a few words about Figure 1 are needed. By far, the majority of breakoffs occurred on Question 27.5. This item asked for students’ permission to use their school records for NSLLP research purposes. Other sensitive items that yielded relatively high rates of breakoffs were those that asked about parental income, nativity/origin, and standardized test scores.

Hypothesis 1: Overall effect of displaying messages of encouragement on breakoff rates

The first hypothesis predicts a significant difference in breakoff rates between the three message groups (tailored, generic, and control) and that the tailored message group would yield the lowest rate of breakoffs, followed by the generic message group and the control group. We did not find support for this hypothesis. The breakoff rate for both the generic and tailored message groups was 14.3% whereas the breakoff rate for the

control group was 14.0%. There were no statistically significant differences between the groups, $F(2, 21577) < 1, p = .89$. Given the response rate differences between LLP and non-LLP students it is conceivable that the messages affected both subgroups in different ways. For example, LLP students have a vested interest in participating in the NSLLP survey and could benefit directly from the results, whereas non-LLP students would not benefit directly from participating in the survey. Thus, non-LLP students may benefit the most from motivational messages of encouragement. However, the interaction between experimental group and LLP status was not statistically significant: generic, $t(21577) = -0.27, p = .79$, tailored, $t(21577) = 1.23, p = .22$.

The survey methods literature identifies several respondent characteristics that are associated with varying levels of cooperation (e.g., Groves & Couper, 1998; Groves, Dillman, Eltinge, & Little, 2002), including gender, race/ethnicity, religious importance, educational performance in high school, and political involvement. We conducted additional analyses to determine whether such characteristics were confounding the overall effect of the experimental manipulations. However, we found no statistically significant interaction between the selected subgroups and the experimental message groups. The lack of subgroup differences was persistent throughout all analyses and, therefore, results presented henceforth are shown for all respondents only.

Hypothesis 2: Effect of displaying messages of encouragement on early versus late breakoffs

This section takes a closer look at the effect that the experimental messages have on preventing breakoffs that occur at different points in the questionnaire. This information can potentially reveal whether displaying a message of encouragement is more effective at reducing breakoffs that occur early versus later in the questionnaire. Table 1 shows the percentages of breakoffs that occurred between message placement locations for each message group. Although the percentage of breakoffs occurring between the first and second messages follows the expected pattern, there were no statistically significant differences in breakoff rates between the experimental message groups (generic or tailored) and the control group for breakoffs that occurred at different points in the questionnaire.

Table 1
Percentage of Breakoffs (N = 3007) That Occur Between Message Placement Locations by Message Group

Breakoff occurring	Control (SE)	Generic (SE)	Tailored (SE)	$F(2, 2954)$	P-Value
Between 1st and 2nd message	72.9 (1.5)	72.5 (1.5)	70.5 (1.5)	1.37	.25
Between 2nd and 3rd message	18.1 (1.3)	17.6 (1.2)	20.0 (1.3)	0.81	.44
After 3rd message	9.0 (0.9)	9.8 (1.0)	9.5 (0.9)	0.15	.86

Note. Percentages may not add to 100 due to rounding.

To assess whether the saliency and effectiveness of the messages is greater for respondents during the early versus later stages of the questionnaire, we examined the relative breakoff rate differences between the experimental message groups (tailored and generic) and the control group for breakoffs occurring between the message placement locations. The relative breakoff rate difference is a standardized measure that allows direct comparison between estimates. It is formulated as:

$$100 \times \frac{BR_{msg} - BR_{ctrl}}{BR_{ctrl}} \quad (1)$$

Figure 5 corroborates the finding in Table 1 which shows that both the generic and tailored messages of encouragement led to a decrease in breakoff rates between the first and second messages, compared to the control group. However, the positive effects of both the generic and tailored messages tapers off as the breakoff rates for these groups exceeds that of the control group in the latter part of the questionnaire. This pattern suggests that the messages of encouragement are more effective at deterring breakoffs that occur early in the questionnaire; however, the lack of statistically significant results indicates that this pattern is inconclusive.

One possible consequence of deterring breakoffs from occurring early in the questionnaire is that we may be simply delaying the inevitable. That is, displaying messages of encouragement may effectively motivate reluctant respondents to progress further along in the questionnaire, but may not provide them with enough motivation to finish the questionnaire. This scenario is examined in the next set of analyses.

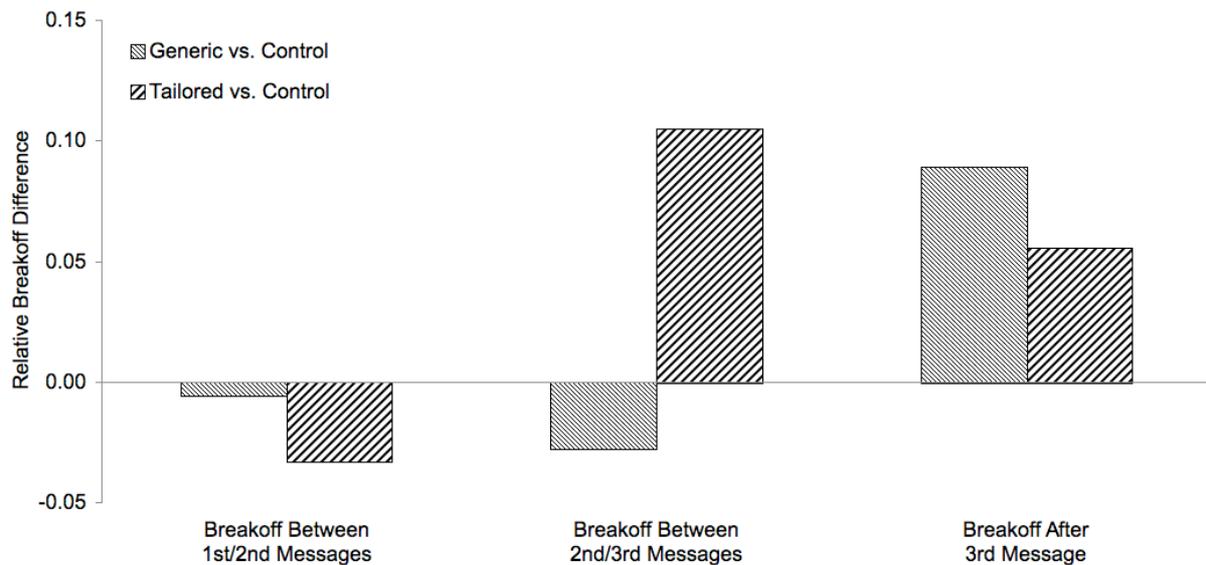


Figure 5. Relative breakoff rate differences between message groups (generic and tailored) and control group by breakoff location.

Hypothesis 3: Effect of displaying messages of encouragement on prolonging survey participation

The third hypothesis asserts that the elapsed time respondents spend answering questions and the number of questions presented to respondents will be greatest for the tailored message group, followed by the generic message group, and the control group. The first row of Table 2 shows the elapsed time respondents spent answering questions by message groups. Overall, respondents who received messages of encouragement spent more time in the questionnaire, on average, compared to respondents in the control group, however there were no statistically significant differences between the groups.

The second row of Table 2 shows average elapsed times for respondents who eventually brokeoff from the survey. These results provide a sense of whether messages of encouragement were effective in delaying eventual breakoffs. Overall, displaying messages of encouragement did not appear to increase the average time respondents spent in the instrument prior to their breakoff compared to the control group.

Table 2. Average Elapsed Time (in Minutes) Spent in Survey Instrument by Message Group and Breakoff Status

Breakoff occurring	Control (SE)	Generic (SE)	Tailored (SE)	F-Value	P-Value
All respondents (<i>N</i> = 21407)	33.8 (0.7)	34.4 (0.7)	34.2 (0.6)	0.19	.83
Breakoff respondents (<i>N</i> = 3007)	21.7 (2.3)	20.9 (2.2)	23.3 (2.0)	0.12	.88

Note. Restricted to respondents who started and ended the survey on the same day.

Perhaps a better indicator of whether messages of encouragement prolonged survey participation is the number of questions that were presented to respondents. Simply examining elapsed time does not control for the extra time that respondents spent reading the messages. Although the messages were brief, they may have surprised respondents or trained them to scan the entire area of pages for which messages were not embedded. The additional time that respondents spent focusing on the messages may lead to a false impression that the messages were effective at increasing questionnaire completion, when in fact they may have simply delayed it.

Table 3. Mean Number of Questions Presented to Respondents by Message Group and Breakoff Status

Breakoff occurring	Control (SE)	Generic (SE)	Tailored (SE)	F-Value	P-Value
All respondents (<i>N</i> = 21407)	250.8 (0.3)	250.2 (0.4)	250.3 (0.5)	0.91	.40
Breakoff respondents (<i>N</i> = 3007)	219.6 (1.9)	215.6 (2.1)	215.8 (2.1)	1.26	.28

Table 3 examines the average number of questions presented to respondents by message group. Overall, the number of questions presented to respondents who received messages of encouragement was very similar to the control group and no significant differences between the groups were observed. Among the respondents who eventually brokeoff, the messages of encouragement did not appear to be effective at increasing the number of questions presented to them prior to their breakoff.

Conclusions

The purpose of this study was to test a new method for reducing breakoffs in Web surveys by displaying textual messages of encouragement intermittently in the questionnaire. This study builds upon prior research into the use of internal survey design features for the purpose of motivating respondents to complete the questionnaire once they have started (Crawford et al., 2001; Couper et al., 2001; Conrad et al., 2005; Heerwegh & Loosveldt, 2006; Matzat et al., 2009). We mounted a basic Web survey experiment on a national population of college students to test whether displaying generic and tailored messages of encouragement would reduce breakoff rates relative to the control (non-message) group. To our knowledge, this is the first experimental study to consider using textual messages of encouragement as a means for reducing breakoffs in a self-administered mode of data collection.

The results of the Web experiment were largely disappointing in their support for our hypotheses. The persistent finding was that displaying messages of encouragement to respondents, regardless of whether the messages contained generic or tailored content, did not appear to reduce rates of breakoff compared to those who did not receive any message. Moreover, there was no apparent increase in the elapsed time that respondents spent logged-in to the survey instrument or the number of questions presented to them when the messages were displayed. One remarkable, though, nonsignificant, pattern suggested that messages of encouragement were more effective at deterring breakoffs early (as opposed to later) in the questionnaire. This pattern is somewhat consistent with the “first impressions matter” hypothesis supported by both Conrad et al (2005) and Matzat et al. (2009) in their study of progress indicators. Finally, there was no evidence suggesting that displaying messages of encouragement simply delayed eventual breakoffs.

There are several possible explanations on why our experimental manipulations were largely underwhelming. We consider three such explanations below.

Message content

It is quite possible that respondents did not find the content of our messages to be compelling. The messages were brief, encouraging statements and the tailored messages were based on a “school spirit” theme. In an ideal design, laboratory testing would be used to test students’ reaction to various types of messages and the most salient and encouraging ones would be implemented during formal data collection. However, the school spirit messages used in the present study were chosen on the basis of available sample frame information (i.e., school name, mascot) and not on the results of a laboratory or field study, which was bypassed due to time and production constraints. Moreover, it is plausible that students who were not actively involved in school spirit activities (e.g., sporting/club events) were less influenced by the tailored messages than those who regularly participated in such activities. Unfortunately, the survey items that assessed student involvement were asked at the end of the questionnaire, after the majority of breakoffs had already occurred, thus, preventing any additional subgroup analyses.

Although the tailored messages did not outperform the generic messages in this study, the theory of survey participation in household interview surveys suggests that tailored strategies can be more effective than generic ones when the goal is to maintain interaction with the respondent (Groves & Couper, 1998). The challenge for future work will be to create effective tailoring strategies for maintaining interaction between a survey respondent and a Web instrument.

Future research may also consider applying Prospect Theory (Kahneman & Tversky, 1979) to the development of effective motivational messages. The basic tenets of Prospect Theory assert that 1) people are risk averse when faced with sure gains, but turn into risk seekers when faced with sure losses; and 2) people tend to be more sensitive to losses than to gains of the same magnitude. Toureangeau and Ye (2009) recently applied these tenets to a longitudinal recruitment experiment where they framed the follow-up survey request in terms of losses and gains. For half of respondents, interviewers emphasized the benefits (“gains”) of completing the follow-up interview; for the other half of respondents, interviewers emphasized the negative consequences (“losses”) involved if they chose not to complete the follow-up. Consistent with the tenets of Prospect Theory, the “loss” framing group yielded higher follow-up completion rates than the “gain” framing group. A similar application of Prospect Theory could be applied in a Web survey context, where motivational messages emphasizing the negative consequences of a breakoff are displayed intermittently throughout the questionnaire.

Message placement locations

The fixed and linear placement of messages in our study may have contributed to the lack of significant findings. Given that the questionnaire contained many sensitive and burdensome items, a better approach might have been to distribute the messages unevenly and maybe strategically position them so that they immediately precede the

items perceived by the survey designer to be the most sensitive and/or burdensome items. In retrospect, the ratio of encouraging messages (3) to survey items (approx. 250) was likely too small and any effect that a single message may have had (if any) on respondent motivation was likely lost soon after it was presented.

We did find the barest of hints that encouraging messages were more effective at deterring breakoffs from occurring early versus late in the questionnaire. This pattern appears to be consistent with previous studies that have found slight, though, nonsignificant, reductions in breakoffs when respondents receive positive feedback early in the questionnaire (Conrad et al., 2005; Matzat et al., 2009). A potentially worthwhile extension would be to manipulate the placement of a single cluster of encouraging messages at different locations in the questionnaire. One hypothesis, consistent with the early feedback pattern described above, is that respondents will breakoff at a lower rate if the cluster of encouraging messages is placed early versus late in the questionnaire.

Message presentation and saliency

The way that the messages were presented on questionnaire pages may have reduced their saliency for respondents and contributed to the null findings that we observed. The messages were located in the top left portion of the screen and appeared simultaneously with (and above) the survey item. Thus, there is no way of knowing how many respondents actually read the messages. In fact, it is quite possible that many respondents did not look at the messages. Eye-tracking studies have verified that respondents often take cognitive shortcuts when answering electronic surveys and do not always scan the entire screen, or even all of the response options, before answering and moving onto the next question (Galesic, Tourangeau, Couper, & Conrad, 2008). We tried to make up for the potential lack of saliency for respondents by increasing the font size of the messages by about 50% relative to the questions themselves, but we have no way of knowing whether this strategy was effective.

A potentially more promising strategy would have been to display the messages on separate pages (rather than placing them on the same page as the questions) and require respondents to perform an action (e.g., mouse click) in order to proceed from the message page to the next question. (An experimental manipulation contrasting this approach with the approach used in the present study would have been an even better strategy.) The requirement of performing an action would have thereby forced respondents to, at minimum, view the messages. Whether this strategy would have led to fewer breakoffs is still an open question.

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References

- Bosnjak, M., & Tuten, T. L. (2002). Prepaid and promised incentives in Web surveys: An experiment. *Social Science Computer Review*, 21, 208–217.
- Cannell, C. F., Groves, R. M., Magilavy, L., Mathiowetz, N. A., & Miller, P. V. (1987). An experimental comparison of telephone and personal health interview studies. *Vital and Health Statistics*, 2(106). Washington, DC: Government Printing Office.
- Cannell, C., Oksenberg, L., & Converse, J. (1977). *Experiments in interviewing techniques: Field experiments in health reporting: 1971–1977*. Hyattsville, MD: National Center for Health Services Research.
- Conrad, F. G., Couper, M. P., Tourangeau, R., & Peytchev, A. (2005). Impact of progress indicators on task completion: First impressions matter. *Proceedings of ASM CHI 2005 Conference on Human Factors in Computing Systems*, 1921–1924.
- Crawford, S. D., Couper, M. P., & Lamias, M. J. (2001). Web Surveys: Perceptions of burden. *Social Science Computer Review*, 19, 146–162.
- Deutskens, E., DeRuyter, K., Wetzels, M., & Oosterveld, P. (2004). Response rate and response quality of Internet-based surveys: An experimental study. *Marketing Letters*, 15, 21–36.

- Fowler, F. J., & Mangione, T. W. (1990). *Standardized survey interviewing: Minimizing interviewer-related error*. Newbury Park: Sage.
- Galesic, M., Tourangeau, R., Couper, M. P., & Conrad, F. G. (2008). Eye-tracking data: New insights on response order effects and other cognitive shortcuts in survey responding. *Public Opinion Quarterly*, 72, 892–913.
- Göriz, A. S. (2006). Incentives in Web studies: Methodological issues and a review. *International Journal of Internet Science*, 1, 58–70.
- Groves, R. M., & Couper, M. P. (1998). *Nonresponse in household interview surveys*. New York: Wiley.
- Groves, R. M., Dillman, D. A., Eltinge, J., & Little, R. J. A. (2002). *Survey nonresponse*. New York: Wiley.
- Heerwegh, D. (2006). An investigation of the effect of lotteries on Web survey response rates. *Field Methods*, 18, 205–220.
- Heerwegh, D., & Loosveldt, G. (2006). An experimental study on the effects of personalization, survey length statements, progress indicators, and survey sponsor logos in Web surveys. *Journal of Official Statistics*, 22, 191–210.
- Hogg, A., & Miller, J. (2003). Watch out for dropouts. *Quirk's Marketing Research Review*. Retrieved December 21, 2009, from <http://www.quirks.com/articles/a2003/20030706.aspx>
- Inkelas, K. K., Vogt, K. E., Longerbeam, S. D., Owen, J., & Johnson, D. (2006). Measuring outcomes of living-learning programs: Examining college environments and student learning and development. *Journal of General Education*, 55, 40–76.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decisions under risk. *Econometrica*, 47, 263–291.
- Kaplowitz, M. D., Hadlock, T. D., & Levine, R. (2004). A comparison of Web and mail survey response rates. *Public Opinion Quarterly*, 68, 94–101.
- MacElroy, B. (2000). Variables influencing dropout rates in Web-based surveys. *Quirk's Marketing Research Review*. Retrieved December 21, 2009, from <http://www.quirks.com/articles/a2000/20000711.aspx>
- Marquis, K. H., Cannell, C. F., & Laurent, A. (1972). Reporting health events in household interviews: Effects of reinforcement, question length, and reinterviews. *Vital and Health Statistics*, 2(45). Rockville, MD: National Center for Health Statistics.
- Matzat, U., Snijders, C., & van der Horst, W. (2009). The effects of different types of progress indicators on drop-out rates in Web surveys. *Social Psychology*, 40, 43–52.
- Peytchev, A. (2009). Survey breakoff. *Public Opinion Quarterly*, 73, 74–97.
- Porter, S. R., & Whitcomb, M. E. (2007). Mixed-mode contacts in Web surveys: Paper is not necessarily better. *Public Opinion Quarterly*, 71, 635–648.
- Tourangeau, R., & Ye, C. (2009). The framing of the survey request and panel attrition. *Public Opinion Quarterly*, 73, 338–348.