



# Factors Affect Response Rates of Web Survey and Strategies

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## Abstract

With the continuous development of network technology, the Internet has gradually promoted the development of web surveys. Compared with other survey models, the web survey has unique advantages, which makes researchers prefer conducting web surveys. However, web surveys also have drawbacks that cannot be ignored, most notably the low response rates. Therefore, it is necessary to study what factors will affect the response rate of online surveys and put forward practical strategies to improve the response rate of web surveys. In our paper, the process of web surveys used in the four-stage operation and corresponding factors will be first discussed. Then, five major factors will be indicated, including sampling methods, contact modes, invitation design, pre-notification and reminders, and incentives in the survey delivery process. Next, the main five factors impacting the response rate will be analyzed based on data analysis. Finally, five strategies are presented corresponding to those five main factors. Further research is needed to evaluate the potential synergy of combining several of the above five factors and the potential value of five factors in improving response rates.

## Key Words:

Web surveys, response rate, factors in survey delivery process

## Introduction and Background

With the continuous development of network technology, the Internet has gradually promoted the development of web surveys, which may be more significant than other survey modes such as telephone surveys. In the past ten years, online survey has gained tremendous popularity as a new survey mode through websites (Kempf Leonard, 2005). Whether in academia or the professional field, the web-based survey application has been increasing.

Web-based surveys are defined as a data collection method in which a survey is sent to a sample of respondents who can respond to the survey via the internet (Kempf Leonard, 2005). Web surveys can be sent to respondents through a variety of mediums such as email, telephone, postal cards, social media, etc. In web-based surveys, respondents answer questionnaires with the help of a web browser, and the survey results will be stored in a web-based database.

Compared with other survey models such as telephone surveys and postal surveys, the web-based survey has unique advantages, regarding the decreased cost, convenient data collection, the convenience of conducting, survey reusing, easy modification, etc., which makes researchers prefer conducting web-based surveys (Manfreda, Bosnjak, Berzelak, Haas & Vehovar, 2008). Specifically, web-based surveys are much cheaper than other survey methods such as telephone or paper-and-pencil surveys due to the least amount of resources required. Geographical distance is no longer a consideration since a web survey eliminates the need for travelling (Joinson, Woodley & Reips, 2007). Random sampling from e-mail groups is also easy, and a larger sample size is possible, including surveys of total populations (Kempf Leonard, 2005). Time efficiency can be achievable because compared with the traditional survey models, online questionnaires are distributed and submitted by participants immediately, which makes web surveys exceedingly fast in acquiring feedback from respondents. At last, the web-based survey, a paperless survey method, is also environmentally friendly, which is crucial in an age of awareness and ethical sensitivity toward environmental issues (Gill, Leslie, Grech & Latour 2013). The above advantages show that web-based surveys will become more and more popular as a data collection method with the increasing popularity of network access.

However, web-based surveys also have drawbacks that cannot be ignored, most notably the low response rates. In the past few years, the low response rate of online surveys has been a concern of many researchers. Previous research has shown that online surveys generally have a 10-11% lower response



rate than other survey methods such as paper and telephone (Kelfve, Kivi, Johansson & Lindwall, 2020). A recent meta-analysis, including more than 100 experiments, confirmed these results and showed a 12% difference in response rates between web surveys and other models (Daikeler, Bošnjak & Lozar Manfreda, 2020). A low response rate will lead to non-response bias and unrepresentative samples and further negatively impact the generalizability of research results.

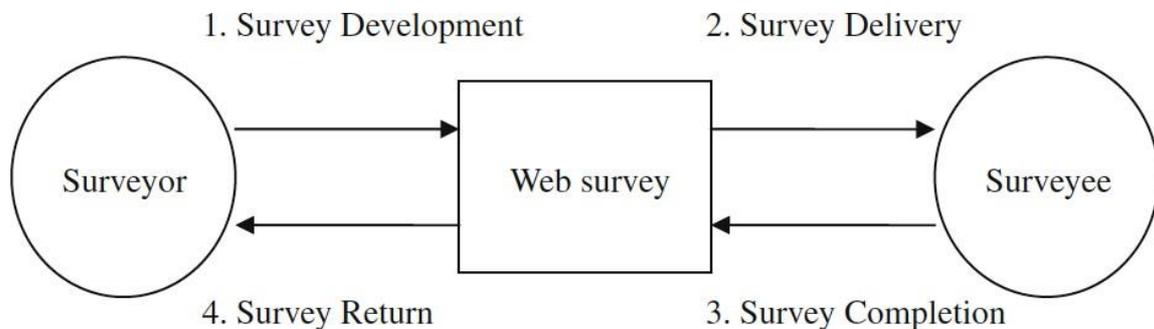
Therefore, it is necessary to research which factors will mainly influence the response rate and put effective practical strategies for the online survey to improve its response rate so that the online questionnaire survey system can comprehensively analyse the data and give feedback to the questionnaire designer. Our paper aims to evaluate those factors influencing the web survey response rate. Specifically, the factors in survey delivery will be focused on in our research paper because factors in the survey delivery process, aiming to attract and make potential participants determine to do the surveys, are the most significant part of operating web surveys.

Our research paper is divided into six parts. Firstly, the background of web surveys will be introduced, and then the process of web surveys used in the four-stage operation and corresponding factors will be discussed. Thirdly, prior to doing the data analysis with potential factors, the factors in the survey delivery process will be described in detail. Next, the factors in the survey delivery process impacting the response rate in web-based surveys will be discussed based on data analysis. As for the strategies part, the content will be based on the data analysis from the previous part. Finally, the conclusion of the whole paper will be demonstrated.

## Process of Web Surveys

The following model presented below is the conceptual framework to understand the whole operation of a web survey process. The process of web-based surveys consists of four basic steps in total (Fan & Yan, 2010).

Figure1: Conceptual Framework of Web Survey Process



The first step is web survey development. It involves the operation of web-based investigation surveys designing and developing, which is like developing a mail survey and printing out the required hard copy for use. The main factors are the content of web questionnaires and the presentation of web questionnaires, including who the sponsors are, what the topic is, how to present web surveys, question writing, question ordering, and visual display of web questionnaires (Fan & Yan, 2010). For example, black text on a white background has better response rates than white text on a black background; simple surveys have higher response rates than complex surveys.

The second step is web survey delivery. It involves the process by which investigators contact potential participants and deliver web surveys into the hands of each respondent, much like the process of mailing and distributing mail surveys to each potential respondent. In this part, five major factors that influence the response rate of web-based surveys in the whole process will be presented. Those factors include sampling methods (who should be surveyed), contact delivery modes (how web surveys should be informed), invitation designs (how potential participants should be invited), the use of pre-notification and reminders (how different notifications and reminders should be used), and the use of incentives (how effective incentives should be considered) (Fan & Yan, 2010).

The third step is to complete the web-based survey. It involves the process by which a web survey participant, logs on to the survey website, completes and submits the survey, and logs off from the website,



just like completing an email survey. This part includes three factors: social-related, respondent-related, and design-related factors (Fan & Yan, 2010).

The fourth step is the web-based survey return. It involves how investigators download and collect web survey data and enter it into a research computer in a specific format for data analysis, which is like the submission process for a completed mail survey. In this step, survey software programs and data security are of paramount importance (Fan & Yan, 2010). The survey software programs in different browsers will help participants to conduct web surveys. Additionally, investigative data should be protected from deliberate hacking and accidental disclosure (Fan & Yan, 2010).

## **Factors Affecting Response Rates in Web Survey Delivery**

In our research, we mainly focus on the factors in web delivery, including sampling methods, contact delivery modes, invitation designs, pre-notification and reminders, and incentives. The reason is that the factors in the survey delivery process will impel potential participants to make determinations doing the surveys. In economics theories, people are expected not to do anything without reasons or incentives (Gibbons & Roberts, 2013). Thus, factors in survey delivery will make people believe the survey is attractive enough and ensure respondents receive the survey invitation through different communication techniques, easily find the survey website, and delightfully open the web survey. In a nutshell, if potential respondents do not glance over the survey, the survey development is insignificant, the survey completion is impossible, and the survey return is meaningless. Thus, factors that influence the response rate in the web survey delivery process are of the most vital importance and should be mainly researched.

### ***Sampling Methods***

Contrary to mail surveys, sampling in web surveys may have challenges in the coverage error and sampling error (Couper, 2000). Because of the coverage error, not everyone can access the WWW, which cause a biased population. At the same time, people who can access the WWW may not have equal chances to participate in the survey due to the internet down, travelling, etc., resulting in sampling bias.

### ***Contact Delivery Modes***

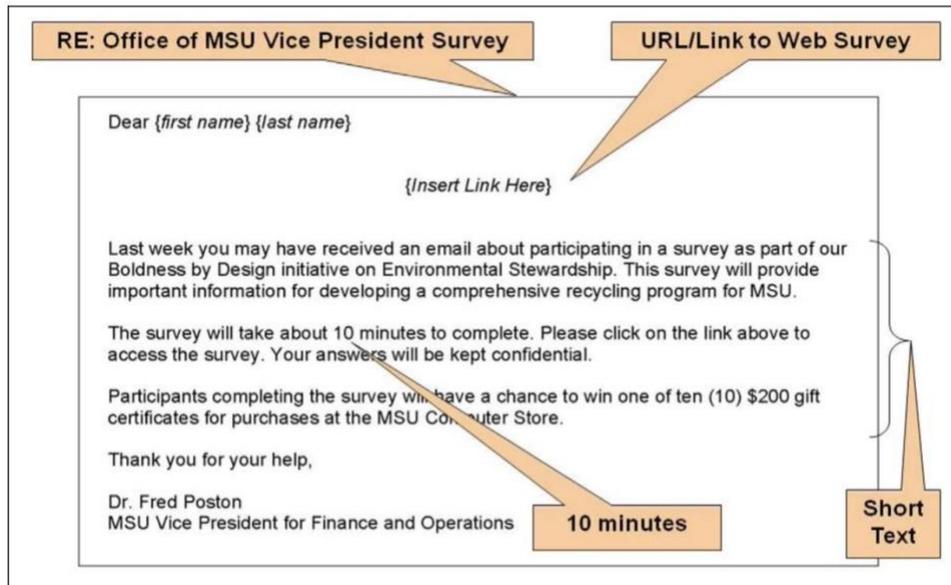
Contacts are messages which are sent to the participants for obtain the survey data (Porter, 2004). The Main goal is to inform the respondents to compete the survey. The way to inform the respondents is significant because the if the respondents do not get the contact message, they may not find the survey website and open the web surveys. Thus, the response process is terminated automatically. Existing literature indicates that the most popular delivery model of web surveys is the email, which has advantages of low delivery cost and time efficiency(Sammut, Griscti & Norman, 2021). However, due to relatively low internet coverage in some areas or the increasing use of spamming filters, some researchers may use other alternative methods such as telephone, postal mail, etc. At the same time, mixed invitation model to compete surveys are often conducted to balance the cost, reduce survey errors, protect privacy and ethnics, etc. (de Leeuw, 2005; Dillman & Tarnai, 1988).

### ***Designs of Invitations***

It is commonly perceived that the response rate of web surveys can be influenced by the design features of the invitation email, while the efficacy and appropriateness of design elements of invitation are not well understood. In our research paper, we mainly focus on the four design elements of web survey invitations: length of the invitation text, location of URL link, and survey effort, and subject line.



Figure 2: Short Text Invite with 10-Min Effort, Top URL, and VP Subject Line Design



For the invitation length, Nieson (2000) indicated that the text should be short and designed for browse through while other authors (Klofstad, Boulianne, and Basson, 2008) did not find the significant difference between long and short email invitations. To explore invitation length, longer invitation of 182 words (Figure 3) and shorter invitation of 80 words (Figure 2) will be researched in our paper.

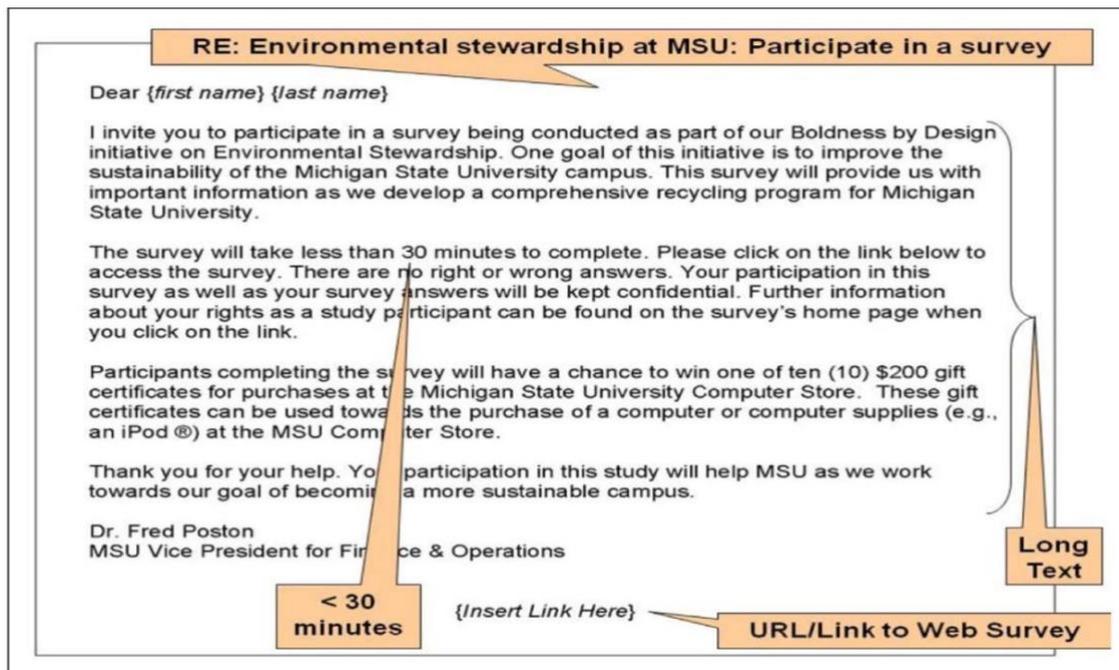
Not much literature indicates whether the location of the URL can influence the response rate. In our research paper, half of the invitations' URL at the top in the body of the text (Figure2) and half of the invitations with URL at the bottom of the invitation text is designed (Figure3). We will see which URL location (top or bottom) will influence the response rate of the surveys.

When we research the relationship between the survey time and response rate, half of the invitations indicate the survey time should be around 10 minutes (Figure 2). Another half should be less than 30 minutes (Figure 3).

Our research paper will also test the subject line of the survey invitation. Half of the invitations are with a subject line with an authority request, "MSU Vice President asks you to take a survey" (Figure 2), and the other half of invitations are with a salient subject request, "Take an MSU survey on-campus environmental stewardship." (Figure 3)



Figure 3: Long Text Invite with Less Than 30-Min Effort, Bottom URL, and Environmental Subject Design.



**Prenotification and Reminders**

Prenotification and reminders are commonly expected to increase the response rate, which means the advance and follow-up notices can make respondents inclined to complete the questionnaire. Suppose a person is exposed to a stimulus that left traces in long memory. In that case, the perceiver processes the stimulus more fluently because pre-existing memory traces facilitate perception and conceptual processes (Bosnjak, Neubarth, Couper, Bandilla & Kaczmirek, 2008). This increased ease of processing is a sign of happiness, which contributes to judging the message of attractiveness (Bosnjak, Neubarth, Couper, Bandilla & Kaczmirek, 2008). For example, increased message processing due to the previous and multiple contacts with similar claims from the same source should lead to higher appeal compared with new unsolicited messages.

Regarding survey requests, prenotification and reminders can make subsequent requests more attractive because the request is emotional and easier to deal with for participants. Thus, prenotification and reminder contacts should be efficient techniques for increasing the response rate in web-based surveys. In the next section, we will verify the thought based on data analysis on sampling.

**Incentives**

The incentives are a form that can be redeemed by rewards or gifts in exchange for completing a survey (Sammut, Griscti & Norman, 2021). The efficiency of various incentives to encourage survey response is a popular focus of survey methodologies. Thus, in our research paper, we evaluate the effects of prepaid cash and lottery incentives on the response rate to a web survey.

**Data Analysis Between Response Rate and Factors**

**Response Rate and Contact Delivery Models**

Figure 4: Invitation Mode

<i>Treatment</i>	<i>Alternatives</i>	<i>Description</i>
<i>Mode</i>	<i>Postcards</i>	<i>Up to two postcard invitations and final e-mail</i>
	<i>Email</i>	<i>Up to three email invitations</i>



Kaplowitz, Lupi, Couper, and Thorp (2012) tested the efficiency of mailed postcard invitations and email invitations based on a random sample. An initial invitation was sent to all members of the sampling. Additional follow-up investigations were sent to those who did not respond within ten days. As Figure 4 shows, there are two modes: the postcards model and the email model. The postcards mode means two postcard mailings followed by an email invitation, and the email mode means up to three email invitations.

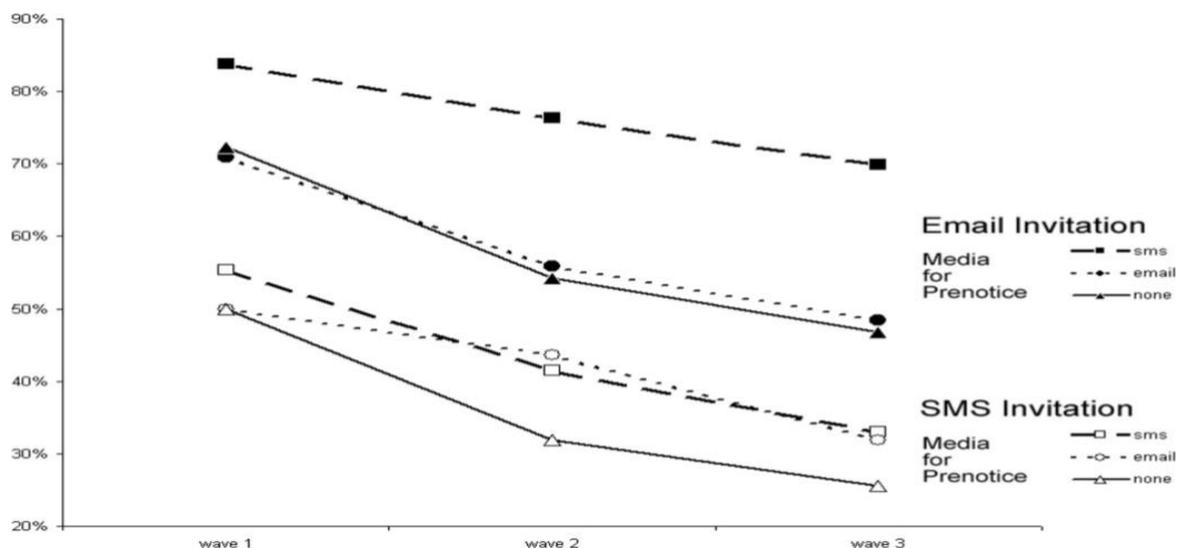
Figure 5: Response Rate (RR1) Differences by Contact Mode and Groups

		Faculty		Staff		Students	
		Sample Size	RRI (%)	Sample Size	RRI (%)	Sample Size	RRI (%)
<b>Mode with 2</b>	Postcard	494	20.9***	687	32.0*	4036	14.0
	Email	987	32.6***	1376	36.3*	8072	15.0
<b>Mode with 3</b>	Postcard	494	33.4***	687	43.2	4036	21.8***
	Email	987	40.3***	1376	42.6	8072	19.4***

Note. Chi-square test of significant differences: \*\*\* =  $p < 0.01$ . \*\* =  $p < 0.05$ . \* =  $p < 0.10$ .

Figure 5 shows the response result for the invitation model before the final invitation (mode with 2 contacts) and after the final invitation (mode with 3 contacts). The results of mode with 2 contacts demonstrate that email invitations yield significantly higher responses from faculty (two emails yield 11.7% more than two postcard mode,  $p < 0.01$ ) and staff (two emails yield 4.3% more than two postcard mode,  $p < 0.10$ ) compared to postcard invitations. However, students did not respond statistically after 2 contacts. The aggregate response increase after the third contact. The more interesting point is that students with the postcard and email combination (21.8%,  $p < 0.01$ ) yield a significantly higher response rate than the email-only group (19.4%,  $p < 0.01$ ), which indicates that the relative attractiveness of using a mixed model.

Figure 6: Response Rates across Different Invitation Mode and Three Survey Waves



Bosnjak, Neubarth, Couper, Bandilla, and Kaczmirek (2008) compare different invitation procedures in a web three-wave survey for 3 consecutive months. The results are demonstrated in Figure 6, which indicates the response rate of one contact model only and a combination of contact modes. We can see the response rate of the email only invitation is higher than the SMS only invitation. At the same time, the figure shows that the combination of SMS and email yields a higher response rate across all three waves than others, which corresponds to the result in Figure 5 (relative attractiveness of using mix model).



## Response Rate and Invitation Design

Figure 7: Invitation Design Elements

<b>Treatment</b>	<b>Alternatives</b>	<b>Description</b>
<b>Length</b>	<i>Long</i>	<i>Long text wording (182 words)</i>
	<i>Short</i>	<i>Short text wording (80 words)</i>
<b>URL</b>	<i>Top</i>	<i>URL link at the top of the invitation</i>
	<i>Bottom</i>	<i>URL link at the bottom of the invitation</i>
<b>Effort</b>	<i>Low</i>	<i>"The survey will take about 10 minutes"</i>
	<i>High</i>	<i>"The survey will take less than 30 minutes"</i>
<b>Subject Line</b>	<i>Authority</i>	<i>"MSU Vice President for Finance and Operations asks you to take a survey"</i>
	<i>Subject Salience</i>	<i>Take an MSU survey on campus environmental stewardship</i>

Kaplowitz, Lupi, Couper, and Thorp (2012) also tested the efficacy and appropriateness of invitation design elements based on the random sample. Figure 7 demonstrates the invitation design elements mentioned in part 3.3 (Design of Invitations). The authors separated the invitation text body length to longer and shorter, URL at top and bottom, survey effort/time took about 10 minutes and less than 30 minutes, and the subject line with an authority request and a salient subject request.

Figure 8: Response Rate (RR1) Differences by Design Elements and Groups

<b>Design Element</b>	<b>Category</b>	<b>Faculty (n)</b>	<b>Faculty RR1 (%)</b>	<b>Staff (n)</b>	<b>Staff RR1 (%)</b>	<b>Students (n)</b>	<b>Students RR1 (%)</b>
<i>Length</i>	<i>Short</i>	741	35.2**	1031	40.6	6052	19.9
	<i>Long</i>	740	40.8**	1032	45.0	6056	20.5
<i>URL</i>	<i>Top</i>	741	35.1**	1031	42.0**	6056	19.5*
	<i>Bottom</i>	740	40.9**	1032	43.6**	6052	20.9*
<i>Effort</i>	<i>~10 min</i>	740	38.9	1032	42.3	6054	21.3***
	<i>&lt;30 min</i>	741	37.1	1031	43.3	6054	19.2***
<i>Subject</i>	<i>Vice President Survey</i>	740	42.8***	1032	45.6***	6054	21.8***
	<i>Environmental Survey</i>	741	33.2***	1031	40.0***	6054	18.7***

Note. Chi-square test of significant differences: \*\*\* =  $p < 0.01$ . \*\* =  $p < 0.05$ . \* =  $p < 0.10$ .

Invitation text length: The results in Figure 8 show that the invitations with longer text have significant and positive effects on the web response rate compared with shorter text lengths for faculty and staff. However, the length of text has no significant impact on the response rate for students.

URL: The results demonstrate that URL location will influence the response rate of web surveys. The URL at the bottom in the body of the text yields 5.8% ( $p < 0.05$ ) and 1.4% ( $p < 0.10$ ) more response rates than the URL in the invitation text, respectively, for the faculty and students. There was no significant difference in the staff's response to the invitation's URL placement.



Survey effort: The different survey time displayed in the invitations did not significantly differ in response rates among faculty and staff. However, students who received invitations to web surveys with short survey time (about 10 minutes) had a 2.1% ( $p < 0.01$ ) higher response rate than those who received invitations with long survey time (less than 30 minutes).

Subject line: The "authoritative" request in web survey invitations greatly increased web survey responses rate, which are 9.6% ( $p < 0.01$ ) for faculty, 5.6% ( $p < 0.01$ ) for staff, and 3.1% ( $p < 0.01$ ) for students.

### **Response Rate and Pre-notification and Reminders**

Figure 9: Response Rates and Prenotification and Following Reminders

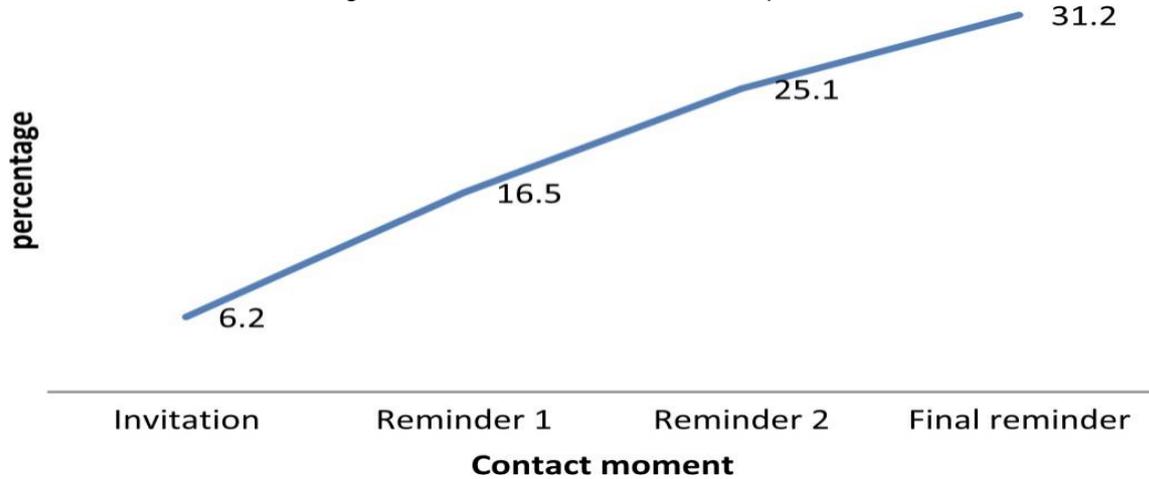
<b>Prenotification</b>	<b>No Letter</b>	<b>Letter</b>
<b>Number of surveys</b>		
<i>Fielded</i>	500	500
<i>Completed</i>	13	31
<b>Response rates (%)</b>	3.0	6.2
<b>Incremental by contact attempt</b>		
<i>E-mail invitation</i>	0.4	2.6
<i>First e-mail reminder</i>	0.4	1.2
<i>Second e-mail reminder</i>	1.0	0.8
<i>Third e-mail reminder</i>	0.0	0.0
<i>Fourth e-mail reminder</i>	0.2	0.6

Dykema et al. (2011) assessed the effects of prenotification and reminders on response rates based on a random sample of 3,550 general interests selected from the American Medical Association (AMA) Masterfile. A prenotification letter using research-specific stationery and describing the purpose of the study is mailed to selected respondents. An email invitation will be sent to respondents to make them complete a web-based survey. After that, contact attempts are conducted by researchers with four times reminders.

Figure 9 demonstrates the response rate difference between the prenotification letter and without the prenotification letter. The statistical results show that the proportion of respondents who received a prenotification letter is 6.2%, and that of respondents who did not receive the prenotification letter is 3.0%. The response between the two has improved slightly but significantly. At the same time, the results also indicated that subsequent e-mail reminders would gradually enhance the response rate.

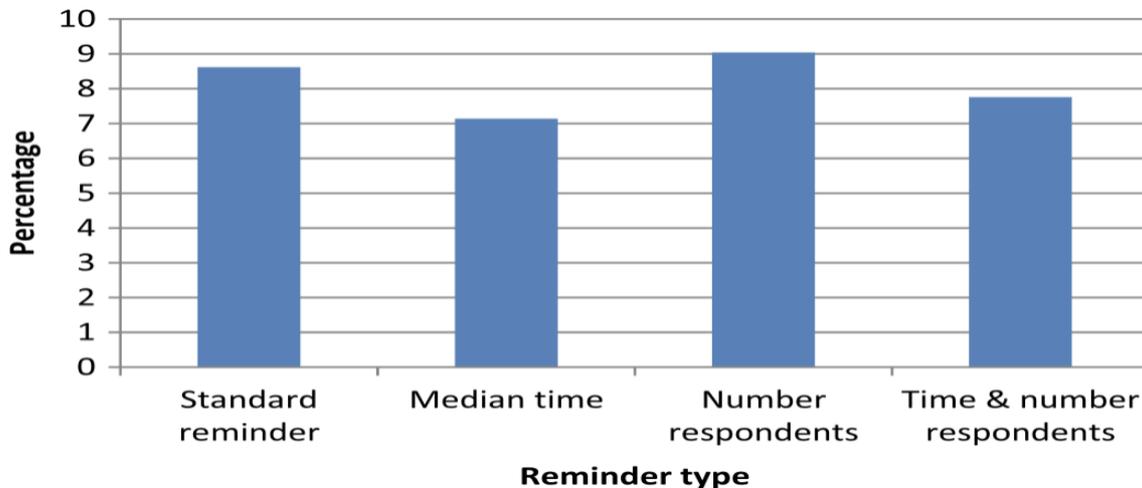


Figure 10: Evolution of the overall response rate



Van Mol (2017) did the experimental design on the extra reminders to test the response rates. The results show that extra reminders are effective in improving response rates. As shown in Figure 10, the response rate is 6.2% after sending the invitation. Meanwhile, the first reminder generated 10.3% additional response, the second was 8.7%, and the final was 6.1%.

Figure 11: Response Rate and Final Reminder, According to Reminder Content



Furthermore, Van Mol (2017) focused on the influence of final reminders on the response rates (additional increase of 6.1%). The whole sample is divided into four groups.

The first group received the standard reminder email. The second group received the standard reminder email, which contained the information about the median time for other students to complete the survey. The third group received a standard email, which included the number of students who completed the questionnaire. The last group of information received includes the median time to complete the survey and the number of students who have completed the surveys. The Figure 11 show that students who receive reminders mentioning the number of respondents will complete the survey actively since 9.04% of the students completed the survey.

### **Response Rate and Incentives**



Figure 12: Response Rate and Different Incentives

Prenotification	Promised Incentive							
	None			\$200 Lottery		\$50 Check		\$100 Check
	No Letter	Letter Only	Letter + \$2	Letter Only	Letter + \$2	Letter Only	Letter + \$2	Letter + \$2
Number of surveys (n)								
Fielded	500	500	500	500	500	350	350	350
Completed	15	31	31	33	43	47	54	89
Response rates (%)								
Overall	3.0 <sup>a</sup>	6.2 <sup>b</sup>	6.2 <sup>b</sup>	6.6 <sup>b</sup>	8.6 <sup>b</sup>	13.4 <sup>c</sup>	15.4 <sup>c</sup>	25.4 <sup>d</sup>
Incremental by contact attempt								
E-mail invitation	0.4	2.6	2.4	1.2	2.8	3.4	3.1	6.9
First e-mail reminder	0.4	1.2	1.6	1.6	1.8	2.3	3.4	5.7
Second e-mail reminder	1.0	0.8	1.2	1.2	1.0	1.4	2.0	1.7
Third e-mail reminder	0.0	0.0	0.0	0.2	0.2	0.0	0.0	2.0
Fourth e-mail reminder	0.2	0.6	0.0	1.0	0.6	0.3	1.4	1.1
Postal letter with URL	1.0	1.0	1.0	1.4	2.2	6.0	5.4	8.0

Dykema et al. (2011) also evaluate the relationship between response rate and different incentives. According to Figure 12, the highest response rate is 25.4%, which is the group that promised \$ 100. The response rate is significantly higher than any other group, which indicate more promised money incentive will promote a higher response rate of web surveys. Also, the response rate levels of the two lottery groups increase a little bit. Still, they are almost similar compared to the other two groups that were not promised any rewards, which indicates that the lottery incentive may not significantly enhance the response rate. In addition, the figure demonstrates in any related pairwise comparison, the \$ 2 pre-prevention did not significantly improve response rates.

## Strategies for Improving Response Rate

### Strategies on Sampling Methods

To solve the issue of coverage error and formulate an appropriate sampling framework for web-based surveys, it is necessary to determine the units to be included (Kempf Leonard, 2005). In some cases, the population and sampling framework are clearly known. Examples of these situations usually involve smaller populations, such as groups with known e-mail addresses, website visitors, etc. (Kempf Leonard, 2005). In this case, it is simple to identify all target population members and make sure that these target populations will be sampled with a high probability.

As for sampling error, Couper (2000) pointed out two basic methods of web survey recruitment: probability and nonprobability surveys. The probability methods include researchers identifying the population, developing a sampling frame, and generating random research samples by using the sampling frame (Kempf Leonard, 2005). With this method, the probability that any unit of the population will be sampled is known, so sampling error can be calculated. Other types of internet surveys based on non-probabilistic methods may be the most popular surveys on the internet (Kempf Leonard, 2005). These types of online surveys are usually used when it is difficult to identify random samples from the target population.

### Strategies on Contact Delivery Modes

According to the data analysis in section 4.2 (Response Rate and Contact Delivery Models), the invitation with only email seems to have a higher response rate than the invitation with only postcards or only SMS. The reason is that participants can easily access the survey by clicking on the URL in the email, which makes it an excellent medium for web survey invitations. Consistent with Porter and Whitcomb (2007), our results show that using two postcards and one email invitation works better than using three email invitations. At the same time, the most effective combination in Figure6 is the SMS pre-notice combined with an email invitation. Therefore, the multiple contacts and mixed mode to invite web survey participants are expected to be used in online surveys.

### Strategies on Designs of Invitations

The results show that longer invitations significantly improve the response rates of faculty and staff, but it has no significant impact on the responses of the student. For certain groups of respondents, longer



invitations may have a significant positive impact on response rates. The reason may be that the long invitation text helps potential participants to understand the content of the invitation (Kaplowitz, Lupi, Couper, and Thorp, 2012). Survey invitations should not be too short at the expense of integrity and persuasiveness.

Placing the URL at the top of the invitation is obviously not good for all three of our groups. These results provide support for designing web survey invitations, which is suggested to place the survey links at the bottom or below the e-mail. Thus, the survey URL should be placed near the bottom of the web survey invitation.

Only students who received the "about 10 minutes" invitation have a significantly higher response rate to the investigation invitations (2.1%,  $P < 0.01$ ). This may also indicate that the difference between "about 10 minutes" and "less than 30 minutes" is not significant for some groups of people. Therefore, we suggest that we should not overestimate the time spent on the surveys and provide accurate web survey time.

All three sample groups showed high response rates to the invitations of using an authoritative subject line. The responses from the "authority" subject line increase because there is a kind of intimacy with the sender (Gue'guen, Jacob, & Morineau, 2010). Therefore, using an authoritative subject line is recommended.

### ***Strategies on Pre-notification and Reminders***

Results showed a slight but significant increase in response rates between the prenotification letter and without the prenotification letter, as pre-notifying participants to participate in a web survey is the first step in attracting participants. Moreover, prenotification may increase potential respondents' trust in the researcher and reduce the likelihood that emails will be deleted before they are opened and read. Therefore, prenotification is especially important and effective in improving the response rate of web surveys.

Figures 9 and 10 show that the first two reminders are the most effective, which can significantly improve the response rate. However, 3 or 4 reminders are not very effective, and they will prolong the time of data collection and lead to additional resource costs. Therefore, it is expected that 1 or 2 reminders will be used. The results also show that students who receive reminders mentioning the number of respondents will complete the survey actively. This tells us that we can provide more information related to respondents when sending reminders.

### ***Strategies on Incentives***

The results suggest that more promised money incentives would promote higher response rates to online surveys. However, with or without a \$2 pre-incentive, it was not enough to generate a satisfactory response rate. The reason is that higher incentives and rewards will help elicit positive responses from participants. As shown in the study by Patrick et al. (2013), the more financial value incentives, the higher the response rate. In addition, the response rate levels in the two lottery groups increased slightly compared to the other two groups, which did not promise any rewards, possibly because when assessing value, participants seemed to consider the risks involved in obtaining the rewards. As shown in the study by Dykema et al. (2011), respondents seem to prefer the \$100 prize to the uncertainty of the \$100 lottery draw.

## **Conclusion**

In summary, this research paper demonstrates that five main factors in the survey delivery process, including sampling methods, contact modes, invitation design, pre-notification and reminders, and incentives, affect the response rate of web surveys. Our main goal is to enable respondents to receive survey invitations through various communication technologies and, more importantly, to ensure that they can easily find survey websites and delightfully open the online surveys. Therefore, five strategies are presented corresponding to the five main factors in the survey delivery process. Further research is needed to evaluate the potential synergy of combining several of the above five factors and the potential value of five factors in improving response rates (Sammut, Griscti & Norman, 2021).



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