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The use of an online survey to speed up the data collection process

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Abstract. On social media era like nowadays, people are more connected to their gadgets rather than meet in a direct interaction. Therefore, in many research situations, using an online survey will be an advantageous option. Respondents may use their available spare time to participate in the survey. This paper was prepared using a compilation of the author previous studies in which the data collections were conducted using both an online survey and direct survey. In general, the results from both survey approaches were similar. No statistically significant difference between them. By distributing the questionnaires through social media group such as Whatsapp, Line, Blackberry Messenger or through a mailing list, the questionnaires can be spread to thousands of potential participants. Many free applications such as Google Docs, Monkey Survey, etc are available online. Off course online survey will be suitable only for questionnaires with minimum needs of explanation regarding the items and the procedure to fill out the instruments. More complex surveys requiring direct interaction with the researchers such as in-depth interview is not suitable to be conducted online.

1. Introduction

Wright [1] stated that an online survey has several advantages such as access to the unique population, time-saving for researchers and cost saving for researchers. Compare to direct survey, the online survey can reach the group of people living far away from the researcher place in a very short time. It can also reach a certain group of people who might be reluctant to answer if approached directly such as people with HIV. By distributing questionnaires through an online survey, the researcher can also work on other projects while waiting for the survey responses. Some online survey applications also facilitate direct access to analyze the responses through statistical software. Some of them also provide survey design and interpretation assistance. An online survey can also reduce or even remove some costs such as postage, printing, and data entry costs. In higher education evaluation, Watt et al. [2] stated that web-based evaluation questionnaires can bypass data entry and administration in the evaluation system. Furthermore, it can eliminate costs of recording (and later transcribing), travel and telephone. However, Wright [1] also indicates some disadvantages of online surveys such as sampling and access issues. In conducting probability sampling, one should get an accurate sampling frame. Not all of the mailing lists and/or social media groups disclose the complete lists of emails and/ or mobile numbers of their members. Therefore probability sampling will be difficult. Moreover according to [3]



of group members are lurkers who do not actively participate in the group (passive member who only read the messages but do not write any message). Other concern is multiple responses for the same participant, especially when there is an incentive for participating in the online survey. An individual might have several active email addresses and mobile numbers. Researchers also need to consider that distributing an online survey might be categorized as a spam. Therefore asking for permission from the group administrator is a must. The researcher should also share the summary of the survey results which might be beneficiary for the group members. In higher education evaluation, Nulty [4] stated that the students will be more willing to participate if they believe that their feedback will be considered seriously by the academics. By disclosing contact number/ email of the researcher, he/ she should prepare for any hate messages sent by irritated group members.

Surprisingly in higher education evaluation, the response rates of a paper-based survey were significantly less than response rates of a web-based survey. Using data from 8 higher education evaluations, Nulty [5] found that mean response rates of a paper-based survey (56%) was higher than the response rates of an online survey (33%). However [2] stated that if the paper-based survey is not conducted directly (face to face), the response will be less than the online survey because the participant to physically mail the response. To boost the response rates of web-based higher education evaluation [5] observe 5 universities and the best result was in Murdoch University (46%) in which three methods were conducted i.e. sending an email reminder to students, sending an email reminder to the lecturers and provides an incentive to the students.

Watt et al [2] stated one source of sample bias is that web users are demographically different from non-web users. Another source of sample bias is that people who participate (respondents) in the online survey and people who do not participate (non-respondents) in the online survey belong to the different social class, age class [6]. In higher education evaluation respondents and non-respondents also belong to different study behavior and academic attainment groups [7-9] and also different in their attitude and behaviors (Goyder, 1987).

This paper was prepared using a compilation of the author previous studies in which the data collections were conducted using both an online survey and a direct survey. The objective was to assess the feasibility of using an online survey in the Indonesian context.

2. Method

This paper was prepared using a compilation of three author previous studies in which the data collections were conducted using both an online survey and a direct survey. The first research was the effect of family values to car driver and motorcycle rider behavior [11]. Three instruments were used, i.e. Indonesian family values questionnaire (IFVQ), Indonesian driver behavior questionnaire (IDBQ) and Indonesian motorcycle rider behavior questionnaire (IMRBQ). The second research was the effect of formal education in school to car driver and motorcycle rider behavior [12]. Three instruments were used, i.e. Indonesian formal education values questionnaire (IFEVQ), IDBQ and IMRBQ). The third research was regarding the satisfaction level of pedestrian facilities [13]. Satisfaction level was measured using a questionnaire containing 20 items. Mean difference analysis was conducted between online and direct survey. The mean difference was statistically significant if the significant level (derived from t value) was less than 0.05.

3. Results

All instruments in [11] and [12] were using a scale from 1 (very negative behavior) to 4 (very positive behavior). Therefore 2.5 is the departure from negative behavior to positive behavior. In general, the respondents show positive behavior as the mean values in Tables 1 to 6 were above 2.50.

Regarding the first research about the effect of family values to car driver and motorcycle rider behaviors [11], Tables 1 to 3 show that in general no significant difference between mean values from an online survey and direct survey except for control errors in IMRBQ (Table 2).

Table 1. Mean difference between the online survey and direct survey for each IDBQ construct in [11]

| Construct | Mean | | | Significant Level | Significant at $\alpha=0.05$? |
|-----------------------|---------------|---------------|------------|-------------------|--------------------------------|
| | Online (n=27) | Direct (n=23) | Difference | | |
| Aggressive Behaviours | 3.667 | 3.522 | 0.145 | 0.167 | No |
| Ordinary Violations | 3.348 | 3.339 | 0.009 | 0.931 | No |
| Errors | 3.360 | 3.349 | 0.011 | 0.917 | No |
| Lapses | 3.025 | 3.232 | -0.207 | 0.167 | No |

Table 2. Mean difference between the online survey and direct survey for each IMRBQ construct in [11]

| Construct | Mean | | | Significant Level | Significant at $\alpha=0.05$? |
|--------------------|---------------|---------------|------------|-------------------|--------------------------------|
| | Online (n=40) | Direct (n=26) | Difference | | |
| Speed Violations | 3.142 | 3.171 | -0.029 | 0.761 | No |
| Safety Violations | 3.329 | 3.289 | 0.040 | 0.672 | No |
| Control Errors | 3.190 | 2.977 | 0.213 | 0.002 | Yes |
| Traffic Errors | 3.270 | 3.127 | 0.143 | 0.133 | No |
| Traffic Violations | 3.250 | 3.223 | 0.127 | 0.260 | No |
| Stunts | 3.950 | 3.936 | 0.014 | 0.736 | No |

Table 3. Mean difference between the online survey and direct survey for each IFV construct in [11]

| Norm | Mean | | | Significant Level | Significant at $\alpha=0.05$? |
|--------------------|---------------|---------------|------------|-------------------|--------------------------------|
| | Online (n=67) | Direct (n=49) | Difference | | |
| Religious | 3.463 | 3.311 | 0.151 | 0.077 | No |
| Discipline | 3.091 | 3.009 | 0.082 | 0.181 | No |
| Ethic and Courtesy | 3.141 | 3.138 | 0.030 | 0.959 | No |
| Law | 2.974 | 3.054 | -0.080 | 0.289 | No |

Regarding the second research about the effect of formal education in school to car driver and motorcycle rider behaviors [12], Tables 4 to 6 show that in general no significant difference between mean values from online survey and direct survey except for IDBQ (Table 4) in which only in aggressive behaviors there were no difference between the online survey and direct survey. In Table 6, only in Law norm, there was a significant difference between the online survey and direct survey.

Table 4. Mean difference between the online survey and direct survey for each IDBQ construct in [12]

| Construct | Mean | | | Significant Level | Significant at $\alpha=0.05$? |
|-----------------------|---------------|---------------|------------|-------------------|--------------------------------|
| | Online (n=32) | Direct (n=16) | Difference | | |
| Aggressive Behaviours | 3.586 | 3.391 | 0.195 | 0.217 | No |
| Ordinary Violations | 3.381 | 3.181 | 0.200 | 0.040 | Yes |
| Errors | 3.411 | 3.134 | 0.277 | 0.024 | Yes |
| Lapses | 3.282 | 2.917 | 0.365 | 0.016 | Yes |

Table 5. Mean difference between the online survey and direct survey for each IMRBQ construct in [12]

| Construct | Mean | | | Significant Level | Significant at $\alpha=0.05$? |
|------------------|---------------|---------------|------------|-------------------|--------------------------------|
| | Online (n=25) | Direct (n=27) | Difference | | |
| Speed Violations | 2.884 | 2.991 | -0.107 | 0.345 | No |

| | | | | | |
|--------------------|-------|-------|--------|-------|----|
| Safety Violations | 3.387 | 3.389 | -0.002 | 0.986 | No |
| Control Errors | 3.240 | 3.259 | -0.193 | 0.883 | No |
| Traffic Errors | 3.072 | 3.170 | -0.098 | 0.398 | No |
| Traffic Violations | 3.392 | 3.393 | -0.006 | 0.997 | No |
| Stunts | 3.694 | 3.852 | -0.159 | 0.227 | No |

Table 6. Mean difference between the online survey and direct survey for each IEV construct in [12]

| Norm | Mean | | | Significant Level | Significant at $\alpha=0.05$? |
|--------------------|---------------|---------------|------------|-------------------|--------------------------------|
| | Online (n=67) | Direct (n=49) | Difference | | |
| Religious | 3.333 | 3.271 | 0.062 | 0.507 | No |
| Discipline | 3.449 | 3.391 | 0.058 | 0.527 | No |
| Law | 3.597 | 3.387 | 0.210 | 0.022 | Yes |
| Ethic and Courtesy | 3.390 | 3.279 | 0.110 | 0.221 | No |

Similar results were found in [13]. There were four pedestrian facility constructs, i.e. safety, (free from) disturbance, compliance with regulation and convenience. Only in pedestrian facility convenience, there was a mean value difference between the result of the online survey and direct survey. All examples provided were based on author's previous studies. Therefore all were about transportation related studies. Experience in other fields might possibly different.

4. Conclusion and Recommendation

In general, the results from the online survey and direct survey approaches were similar. No statistically significant difference between them. By distributing the questionnaires through social media group such as Whatsapp, Line, Blackberry Messenger or through the mailing list, the questionnaires can be spread to thousands of potential participants. Many free applications such as Google Docs, Monkey Survey, etc are available online. Off course online survey will be suitable only for questionnaires with minimum needs of explanation regarding the items and the procedure to fill out the instruments. More complex surveys requiring direct interaction with the researchers such as in-depth interview is not suitable to be conducted online.

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