EFFECTS OF PERSONALIZATION ON WEB SURVEY RESPONSE RATES AND DATA QUALITY

Dirk Heerwegh[1], Tim Vanhove[2], Geert Loosveldt[3], Koen Matthijs[4]

Katholieke Universiteit Leuven, Belgium

The effects of personalization of survey invitations on response rates have been extensively researched in the realm of mail surveys. Commonly, it is found that response rates increase when personalization is applied. Recently, efforts have been made to investigate whether these findings extend to the field of web surveys that use e-mail invitations. Using data from two separate web experiments conducted among first year university students, we show that personalization of e-mail invitations significantly increases the response rate by 8.6 and 7.8 percentage points, respectively. However, we also show that personalization influences the responses collected. Theorizing that personalization decreases the level of anonymity and perceived privacy, we expected to find differences in responses to sensitive questions. We do indeed find, in both experiments, that personalization tends to bias the responses. More specifically, in the personalization condition, respondents had a greater tendency to report that the socially desirable situation applies to them. Moreover, responses on debriefing questions show that respondents in the personalization condition feel less at ease to openly respond to (sensitive) survey questions. From both these studies, we conclude that personalization of e-mail invitations should be considered if possible, unless a survey on a sensitive topic will be conducted.

Key words: experiment, social exchange theory, social desirability, response bias

1   INTRODUCTION

In mail surveys, personalization has proven to be a particularly powerful tool for increasing response rates. Dillman (2000, p. 152) for instance, argues that personalization in general public mail surveys increases response rates by 5 to 11%. Other researchers also have studied the effect of personalization (in a variety of definitions) on mail survey response rates and most of them found the expected increase in response rate (e.g. Boser, 1988; Dodd & Markwiese, 1987; but see Eisinger, Janicki, Stevenson, & Thompson, 1974; Andreasen, 1970). A useful general framework to interpret the positive effect of personalization is social

---

[1] Dirk.Heerwegh@soc.kuleuven.ac.be

[2] Tim.Vanhove@soc.kuleuven.ac.be

[3] Geert.Loosveldt@soc.kuleuven.ac.be

[4] Koen.Matthijs@soc.kuleuven.ac.be

exchange theory, which states that 'actions of individuals are motivated by the return these actions are expected to bring' (Dillman, 2000, p. 14). Three elements are crucial for predicting an individual's actions: rewards, costs and trust. Rewards refer to expected gains, costs to what one has to give up or spend to obtain the rewards, and trust to the belief that the rewards will outweigh the costs in the long run (Dillman, 2000, p. 14). By personalizing correspondence, one increases the degree to which recipients perceive the importance and value attached to them. In Dillman's terms, the recipient is shown positive regard, which has some reward value (Dillman, 2000, p. 15). Thus essentially, by personalizing correspondence, the researcher influences the reward, cost and trust matrix in such a way as to increase the likelihood of participation.

Recently, researchers have begun investigating whether the same positive effects on response rates can be expected from personalization of e-mail messages used to solicit respondents for web surveys. In a sample of university alumni, Pearson and Levine (2003) varied the degree of personalization in e-mail invitations to a web survey. Sample units in the control condition received a non-personalized salutation ("Dear Stanford Alum"), whereas those in the three treatment groups did receive some form of personalized invitation. One group received a formal salutation (e.g. "Dear Mr. Smith"), another group a familiar one ("Dear John"), and yet another group received a familiar salutation without "dear" ("John"). It was found that personalization, regardless of type, increased the response rate by a few percentage points, although the increase was not statistically significant (Pearson and Levine, 2003, p. 4). Within subgroups of the sample, specific types of personalization did produce significant effects on the response rate (see Pearson and Levine, 2003).

Porter and Whithcomb (2003) did not observe a significant effect of personalization on the response rate. The high school students receiving the e-mail with personalized salutation ("Dear John") did not respond to the web survey in larger numbers than those receiving the impersonal invite ("Dear Student"). The authors suggest that the absence of a positive effect may have been induced by the increasing problem of "spam," a term used to denote unsolicited, unwanted e-mails; mostly sent with a commercial motive. E-mail users may have treated the researchers' e-mail invites as spam and have disregarded them for that reason, thus disallowing the effect of personalization to become active.

The present study also deals with the effects of personalization, but somewhat extends the scope. In addition to the effects on the web survey response rate, we will also look at the possible effect of personalization on the obtained data. We propose that personalization of e-mail invites decreases the level of anonymity of the respondent, which may lead to more impression management on his part. Therefore, responses to sensitive questions could be biased due to personalization.

2 RESEARCH HYPOTHESES

2.1 Response Rates

The primary aim of this study is to perform an experimental comparison between a personalization and a no-personalization procedure with regard to the response rate. In keeping with Dillman's theory (see Dillman, 2000), it is hypothesized that personalized e-mail invitations will generate higher response rates.

2.2   Effects On Data Collected: Social Desirability Bias

Apart from the positive effect on response rates, personalizing invitations might introduce biases on the obtained data. For instance, the issue of privacy appears to be of increasing importance. Goyder and McKenzie Leiper (2002) showed that between 1930 and 1981, the percentage of privacy-related objections to the Census (in the USA, Canada and the UK) has increased impressively. By personalizing invitations, one attempts to relate to a sample unit in a more direct, personal way. This however also implies that the level of anonymity of the respondent decreases, which potentially leads to a diminished effect of personalization on response rates (see also Cho & LaRose, 1999), and to differences in responses collected. That is, if a high level of personalization is applied, respondents might be more sensitive to their privacy and become more susceptible to a social desirability response tendency, especially when confronted with sensitive questions.

A question is potentially sensitive when it raises concerns about disapproval for reporting truthfully or if the question itself is seen as an invasion of privacy. Answering to potentially sensitive questions cannot be supposed to be simply 'providing data', but must rather be seen as an activity with miscellaneous and interwoven motivations such as maintaining social respect, obtaining social support, safeguarding privacy and managing a socially desirable impression. Respondents, or people in general, tend to organize or convey their behavior in light of what they feel the 'others' (interviewers, observers, the broad public) will expect to be appropriate for a given person in a given situation. Because the self-reporting of behavior perceived as potentially sensitive, intrusive or stigmatizing is inevitably influenced by what is regarded socially as good or desirable, it is important to take its context into account. In this study the population is limited to a rather homogenous group of more or less equally educated and same-aged students. Hence, our study excludes the possibility of controlling for potentially disturbing context variables, such as age, educational attainment, the characteristics of the Internet connection and the Internet experience of the respondents. Our results could differ when the analyses were replicated with a more heterogeneous sample (Tourangeau & Smith, 1996; Tourangeau, Rasinski, Jobe, Smith, & Pratt, 1997; Phillips & Clancy, 1972).

The presumed effect of personalization on social desirability is not unequivocal. According to Newman et al. (2002) the degree of granted anonymity and privacy is positively correlated with the amount of (sensitive) personal information revealed by a respondent. It is stated that heightened personalization can be regarded as a form of pressure to conform to perceived societal norms. This way, the measurement errors due to the social desirability bias should be addressed by ensuring maximal privacy and thus avoiding personalization. On the other hand, Henson et al. (1978) claim that respondents in the impersonal condition would be affected more by the self-presentation bias because the impersonal nature of the invitation is incongruent with the personal nature of sensitive questions.

In this study, we follow the argumentation of Newman et al. (2002) and assume that the more personalized approach will increase the tendency to respond in socially desirable ways. Therefore, the hypothesis is that respondents in the personalization condition will be more susceptible to a social desirability bias when responding to sensitive questions.

3   FIRST STUDY

3.1   Study Design

The sample was randomly drawn from the official database of all freshmen of the Katholieke Universiteit Leuven, Belgium (sample n=2,000)[5]. In addition to several background variables (such as faculty, date of birth, etc.), the database contained the e-mail address of each student, as well as his or her first and last name. The e-mail address of all students was of a standardized form (*firstname.lastname*@student.kuleuven.ac.be) because the university assigns free e-mail addresses to each of its students. The university provides free Internet access for all enrolled students in a large number of computer labs and libraries, but also in the housing units of all students residing in the vicinity of the city of Leuven. Therefore, it was assumed that most of the sample units would have the opportunity to access the Internet at a low or at no financial cost at all. The sample units selected from the database were randomly – but in equal numbers – assigned to one of both experimental conditions.

Two experimental conditions were defined. The first condition was labeled the 'no personalization' condition, and will be used as the control condition. Sample units in this condition (n=1,000) were sent e-mail invitations that were individually addressed but did not carry a personalized salutation. Therefore, their personal e-mail address appeared in the 'To:' header of the e-mail message, but they were addressed as 'Dear student' in the e-mail message itself. The second condition was called the 'personalization' condition, serving as the treatment group. The sample units in the personalization condition (n=1,000) were sent e-mail messages that were also individually addressed (i.e. their personal e-mail address also appeared in the 'To:' header), but in addition carried a personalized salutation (e.g. 'Dear John Smith') in the e-mail message itself.

The questionnaire was designed at the Centre for Population and Family Research (Katholieke Universiteit Leuven). The topic of the survey entailed adolescent attitudes toward marriage and divorce. Questions probing for respondents' attitudes and behavior concerning sexuality were also comprised in the questionnaire. The questionnaire was designed in such a fashion that all survey questions appeared on a single HTML page. Manually scrolling down the web page was made redundant by offering respondents hyperlinks leading to the subsequent survey questions. Depending on the skip pattern, 116 to 148 survey items were supposed to be filled in by the respondent.

The survey was launched on December 17, 2002 and was closed on February 10, 2003. During that period of time, two e-mail contacts were made: One initial invitation (December 17, 2002) and one reminder e-mail (January 28, 2003) sent to all sample units who had not completed the survey at that time. The e-mail reminders reiterated the experimental treatments that were used in the initial invitation e-mail.

---

[5] The Katholieke Universiteit Leuven is, with its 30,000 students, the largest university in Flanders (the Northern and Dutch speaking part of Belgium). A "freshman" is defined as a student enrolling for the first time at the University. The total number of freshmen equaled 4,748 (i.e. the sample frame).

3.2   Results

Response rates

Our primary research question pertains to response rates, and this rate is consequently the variable of first interest in this analysis. The response rate is defined as the ratio of the number of sample units clicking the 'Start survey' button on the login page (minus the number of 'lurkers'– i.e. respondents who do not answer a single question but merely browse the questionnaire, see Bosnjak & Tuten, 2001) to the number of invitations sent (of which known non-contacts and known ineligibles are subtracted). Because we can assume that all students were contacted (they are expected to check their student e-mail account regularly as it constitutes an official medium of communication between the university and its students and because none of the e-mails "bounced"), and that none of the sample units were ineligible, the base for our calculations is simply the sample size (n=1,945). Given the questionnaire design (all questions on a single page), the response rate equals the complete response rate (i.e. no partial nonresponse can be observed because there is only one page of questions). 1,038 Students completed the survey. Since none of the complete responders left all questions blank, no 'lurkers' are to be subtracted from this number. Hence, the overall response rate equals 53.4 percent.

The difference in response rate between the experimental conditions is of more importance however. In the control condition (no personalization), the response rate equals 49.1%, whereas the response rate amounts to 57.7% in the treatment group (personalization). As expected, personalization of the e-mail invitations increases the response rate. Moreover, this increase is statistically significant (χ^2=14.53, df=1, p=0.0001), as well as practically relevant. The effect of personalization is so pronounced (an increase of 8.6 percentage points) that it seems worthwhile to consider personalizing e-mail contacts whenever possible.

The analysis shows that personalization increases response rates, and as such could be a sufficient motivator to personalize e-mail contacts. However, from a theoretical point of view it is of importance to discriminate between different stages of survey response as argued by Lozar Manfreda (2001). Thus, a more exact localization of the effect of personalization is in order.

It can be assumed that personalizing e-mail contacts has a more pronounced impact on starting the survey than on completing it once started (which is reflected in the response rate), because whether or not the survey is completed also depends on the degree of experienced difficulties by the respondent. As a result, we should observe a more marked impact of personalization on the login rate than on the response rate. The login rate indicates the percentage of recipients starting the survey. The number of recipients that log on to the survey but do not complete it (i.e. the dropout rate) should be influenced more by the experienced difficulties of filling out the questionnaire than by the experimental treatment (personalization). Hence, we should observe no significant differences in dropout rates (defined as the percentage of recipients who started the survey but did not complete it).

The overall login rate to the web survey equals 59.4% (1,155 out of 1,945). The login rate in the control group (no personalization) is 54.5%, whereas it equals 64.3% in the treatment group (personalized e-mail contacts). The difference between these two rates (9.8 percentage points) is statistically significant (χ^2=19.45, df=1, p<0.0001) and is as expected larger than the difference in response rates observed in the previous section (which was 8.6 percentage points).

Both experimental groups combined, out of 1,155 units that logged in to the web survey, 1,038 completed the survey. Hence, the overall dropout rate equals 10.1%. The analysis on the effect of personalization on the number of break-offs shows that, as expected, there is no significant difference in dropout rate between both experimental conditions. The dropout rate equals 9.9% in the control condition, and 10.3% in the treatment condition (χ^2=0.04, df=1, p=0.8461).

These analyses thus reveal that our additional hypothesis on the locus of the effect of personalization is corroborated by the data. That is, personalization appears to primarily affect the decision as to whether or not to start the survey, and not so much the likelihood that the survey will be completed once started. The latter likelihood is probably more affected by the experienced degree of difficulty while answering the questions than by whether or not the e-mail invitation is personalized.

The effect of personalization on social desirability bias

Apart from the effect of personalization on the response rate, the possibility was also raised that personalization could lead to a lower degree of perceived privacy by the respondent. Hence, his or her answers would become more subject to social desirability editing, especially when sensitive questions are asked. Consequently, we should observe a difference in responses between both experimental groups with regard to sensitive questions. As the survey questionnaire dealt with relatively intimate topics such as sexual behavior, this study is particularly useful to test the hypothesis at hand.

Between experimental conditions, there was no significant difference in whether or not the respondent had ever been in a sexual relationship (χ^2=0.06, df=1, p=0.8048). Two additional questions were asked probing for the sexual behavior of respondents. The first one asked for the total number of sexual partners the respondent had had until the day of the survey. Taking into account only the respondents who had been involved in sexual intercourse and who responded to this question, the mean number of sexual partners equals 1.67 in the no personalization condition (n=241), whereas it amounts to 2.00 in the personalization condition (n=275). Moreover, this difference is statistically significant (Kruskal-Wallis χ^2=8.45; df=1; p=0.0036). The second question probed for the age at which the respondent had had his or her first sexual intercourse. This question also proved to generate differences in responses depending on the experimental condition. Again taking into account only the respondents who had been involved in sexual intercourse and who responded to this question, the mean age of first sexual intercourse equals 16.82 in the no personalization condition (n=233), and 16.66 in the personalization condition (n=277). This difference is also statistically significant (Kruskal-Wallis χ^2=5.89; df=1; p=0.0152). These results show that personalizing the e-mail invitations has an effect on the responses to sensitive data. More specifically, the analyses show that respondents in the personalization condition report having had more sexual partners and having had their first sexual encounter at an earlier age than respondents in the no personalization condition.

These findings confirm that the level of personalization has an effect on the answering behavior. It is difficult however, to indicate which of both groups is answering in a more socially desirable way. It is possible that respondents in the personalized condition *over*report their sexual behavior, either because of the lack of anonymity or because of the greater congruence between the personal approach and the sensitive nature of the questions. It is equally possible though, that the respondents in the no-personalization condition *under*report

their sexual behavior, either because of the higher degree of anonymity or because the impersonal invitation is incongruent with the intimate questions asked.

Although the interpretational problem of the results on sexual behavior cannot readily be resolved with the data from this first study, we can use additional information from the survey to help determine whether personalization increases or decreases social desirability bias by looking at a question probing for the amount of close friends the respondent reports to have. Whereas it is relatively unclear whether the norm in a student population is to have had many or few sexual partners, and to have had the first sexual encounter at a younger or at an older age, it is quite clear that having many close friends is the socially desirable situation. An analysis showed that the respondents from the personalization condition (n=461) report having more close friends (5.23 on average) than the respondents from the no personalization condition (n=539, 4.80 close friends on average). The one sided Wilcoxon test produced a p-value of 0.0508. Even though strictly speaking, this is a statistically insignificant result, we believe this additional test to indicate that personalization probably increases the tendency to answer survey questions in a socially desirable way. The fact that we only have an indirect test for the social desirability response bias hypothesis was the main reason to conduct a second study. This study had to include measures aimed at finding out which situation (concerning the amount of sexual partners and the age of first sexual intercourse) was deemed more desirable by the respondent himself or herself.

4   SECOND STUDY

4.1   Study Design

The second study was conducted approximately one year after study one. For the second study also, the sample was randomly drawn from the official student database of the Katholieke Universiteit Leuven, Belgium (sample n=2,520). However, for this study, first year students were selected instead of freshmen.[6] Similarly to the year before, the database contained the e-mail address of each student, as well as his or her first and last name. Due to a policy change however, for some students the default university e-mail address was substituted for a third-party address, which the student claimed to prefer using to the standard university address. For most students (64.99%) though, the listed e-mail address was the default University e-mail address (of the form *firstname.lastname*@student.kuleuven.ac.be). The remaining students had an e-mail address belonging to another e-mail provider (e.g. a Yahoo or a Hotmail address).

To test the effects of personalization, two conditions were defined. Prior to the fieldwork, fifty percent of the sample units were randomly selected and assigned to the no-personalization condition. The remaining 50% were allocated to the personalization condition. In the no-personalization group, the salutation used in all e-mail contacts read "Dear student", whereas in the other group it read "Dear [First name] [Last name]" (e.g. "Dear John Smith"). This manipulation is identical to that used in the first study.

---

[6] A "first year student" is defined as a student enrolling in a first year curriculum at the University – not necessarily for the first time. From the total database (n=6,304), students unlikely to speak Dutch, students over 20 years of age and students not enrolling for a full-time first year academic curriculum were excluded. After this operation, the total number of eligible first year students equaled 5,040 (i.e. the sample frame).

As in the first study, the questionnaire was designed at the Centre for Population and Family Research (Katholieke Universiteit Leuven). Although the survey topic had remained adolescent attitudes towards marriage and divorce, the questionnaire was not identical to the one used in the first study, but rather represented an "evolved version" of it. Questions probing for respondents' sexual attitudes and behavior were comprised in the questionnaire, as were some measures on trait desirability of some types of sexual behavior. In contrast to the first study, the survey questions were divided over several web pages, making it a page-by-page web survey. Depending on the skip pattern, 231 to 284 survey questions were to be filled in by the respondent. Skips were taken care of by the web server, and response to branching questions was made mandatory to insure a proper skip pattern. Response to other survey questions was not mandatory.

The invitations to respond to the web survey were sent out by e-mail on Wednesday, December 3, 2003. One week later, on Wednesday, December 10, 2003, an e-mail reminder was sent to the sample units who had not yet completed the survey. The survey was closed on Wednesday, January 14, 2004.

4.2   Results

Response rates

Similarly to the first study, the login rate is significantly higher in the personalization condition (68.09%) than in the group that received the impersonal salutation (61.16%; $\chi^2(1)=13.0314$; $p=0.0003$, $n=2,479$). Again similarly to the first study, the personalization does not appear to influence the break-off rates. Whereas the break-off rate equals 10.08% in the personalized group, it amounts to 12.65% in the other group. This difference is not statistically significant ($\chi^2(1)=2.6224$; $p=0.1054$, $n=1,602$). A higher login rate and a somewhat lower break-off rate combine into a significantly higher (complete) response rate when personalization is applied than when it is not (61.23% vs. 53.42%, respectively; $\chi^2(1)=15.4251$; $p<0.0001$, $n=2,479$). Thus, the second study reaffirms the positive effects of personalization on the response rate in a web survey. This also implies that although the target population has changed over the timeframe (most of the freshmen in study 1 will have passed to the second year, so they are not included in the sample frame for the second study), the results have remained comparable.

The effect of personalization on social desirability bias

With regard to the social desirability bias, potentially introduced by personalizing the e-mail messages, a few interesting observations can be made. First, the average score on the debriefing question 'to which degree did you feel at ease to honestly and sincerely respond to the questions?' was significantly higher in the impersonal salutation group than in the other group, denoting the personalization group to be less at ease to honestly report opinions, behavior or facts (average scores on a 1 to 5 point scale of 4.13 en 4.01 respectively, Kruskal-Wallis $\chi^2(1)=7.7931$; $p=0.0052$, $n=1,399$).

Second, we looked at two questions regarding sexual behavior in combination with the trait desirability as rated by the respondents. The first question probed for the total number of sexual partners the respondent had had. The corresponding trait desirability measure – located elsewhere in the survey – probed for the degree to which respondents found it desirable to

have had many sexual partners. In this respect, it is hypothesized that if personalization increases the tendency to respond in a socially desirable fashion, then higher trait desirability in combination with personalization should increase the reporting of a certain behavior, over and above the main effect of trait desirability itself. To this purpose, a generalized linear regression model using the Poisson distribution was tested. One main effect was specified (trait desirability) as well as one interaction effect (trait desirability x personalization). Only respondents who had ever been in a sexual relationship were included in the analysis. Both effect parameters were statistically significant ($p<0.0001$ and $p=0.0241$ respectively; $n=799$). Drawing from the directionality of the parameters, the results lend themselves for interpretation according to our prediction. That is, higher trait desirability of having many sexual partners increases the reported number of partners. In addition, when a personal salutation is used in the e-mail, the number of sexual partners reported increases even more.

The second sensitive, sex-related question asked at what age the respondent had had his or her first sexual intercourse. Again, a trait desirability question was asked probing for the degree to which respondents thought having had sex at an early age was desirable. For this variable, a generalized linear model was tested. In this model, only the main effect was significant. The more desirable respondents found it to have had first sexual intercourse at a younger age, the lower their own reported age of first sexual intercourse. However, there was no interaction between trait desirability and personalization ($p=0.8668$; $n=619$). Thus, for one of both sensitive questions, we find that personalization introduces a response bias in the direction of the situation deemed more desirable by the respondent. These results provide further indications that personalization increases the tendency of respondents to adjust their response in the socially desirable direction.

5   DISCUSSION AND CONCLUSION

The results of these studies indicate that personalization of e-mail invitations by using the recipient's name in the salutation of the e-mail invitation text has a positive effect on the response rate of a web survey. Moreover, the analyses indicate that the effect of personalization is primarily concentrated on the stage at which people make up their minds about participation. It does not appear to have a large influence on completion of the survey once cooperation is gained. From a practical point of view, the disentanglement of the effect of personalization in different stages of survey cooperation is of less importance. The key finding of this study is that personalizing e-mail contacts elicits higher response rates, as expected from the theory on personalization (Dillman, 2000). Unfortunately, personalization requires that names are available from the sample frame or that they are inferable from the e-mail account. When this is not the case, personalization as defined here cannot be applied.

One should be cautious to extrapolate our findings based on a population of students to other or more general populations. Cho and LaRose (1999, p. 422) stress that intrusions into the private life by strangers are perceived more invasive and odious than intrusion by social intimates. Therefore, one should be cautious in applying personalization when groups of people are approached with which the researcher has no relationship. As reported elsewhere, we did not find evidence for the Cho and LaRose (1999) argumentation, but this could be due to our sample composition (Heerwegh, Vanhove, Matthijs, & Loosveldt, In Press).

Apart from effects on the response rate, personalization appears to decrease the perceived level of anonymity and privacy. This leads to respondents being less at ease to openly respond to the questions, and to response distortions to some sensitive questions. Therefore, we would recommend to cautiously use personalization if a survey on sensitive topics is conducted.

In summary, we conclude that personalizing e-mail invitations by using the recipient's name in the salutation of the e-mail message is a promising venue leading to higher web survey response rates. However, researchers should keep in mind that personalization might be less successful in increasing response rates if a relationship between surveyor and surveyee is absent prior to the survey request. Also, personalization could introduce a social desirability bias with regard to sensitive questions. Therefore, one should be cautious to personalize the e-mail contacts when a survey on sensitive topics is conducted.

6   REFERENCES

Andreasen, A. R. (1970). Personalizing Mail Questionnaire Correspondence. *Public Opinion Quarterly*, 34, 273-277.

Boser, J. A. (1988). Teacher-Education Graduate Surveys: Variables Related to Response Rate. *Journal of Educational Research*, 81, 369-373.

Bosnjak, M. & Tuten, T. L. (2001). Classifying Response Behaviors in Web-Based Surveys. *Journal of Computer Mediated Communication*, 6,

Cho, H. & LaRose, R. (1999). Privacy Issues in Internet Surveys. *Social Science Computer Review*, 17, 421-434.

Dillman, D. A. (2000). *Mail and Internet Surveys: the Tailored Design Method*. New York: John Wiley.

Dodd, D. K. & Markwiese, B. J. (1987). Survey Response Rate As a Function of Personalized Signature on Cover Letter. *Journal of Social Psychology*, 127, 97-98.

Eisinger, R. A., Janicki, P. W., Stevenson, R. L., & Thompson, W. L. (1974). Increasing Returns in International Mail Surveys. *Public Opinion Quarterly*, 38, 124-130.

Goyder, J. & McKenzie Leiper, J. (2002). "The Decline in Survey Response: A Social Values Interpretation." In D. de Vaus (Ed.), *Social Surveys*, pp. 191-210. London: Sage.

Heerwegh, D., Vanhove, T., Matthijs, K., & Loosveldt, G. (In Press). The Effect of Personalization on Response Rates and Data Quality in Web Surveys. International Journal of Social Research Methodology: Theory and Practice (*forthcoming*).

Henson, R., Cannell, C. F., & Roth, A. (1978). Effects of Interview Mode on Reporting of Moods, Symptoms, and Need for Social Approval. *The Journal of Social Psychology*, 105, 123-129.

Lozar Manfreda, K. (2001). *Web Survey Errors*. Ljubljana, Slovenija: University of Ljubljana.

Newman, J. C., Des Jarlais, D. C., Turner, C. F. , Gribble, J., Cooley, P., & Paone, D. (2002). The Differential Effects of Face-to-Face and Computer Interview Modes. *American journal of public health*, 92, 294-297.

Pearson, J. & Levine, R. A. (2003). *Salutations and Response Rates to Online Surveys*. Paper presented at the Fourth International Conference on the Impact of Technology on the Survey Process, September 19 2003, University of Warwick (England).

Phillips, D. L. & Clancy, K. J. (1972). Some Effects of "Social Desirability" in Survey Studies. *American Journal of Sociology*, 77, 921-940.

Porter, S. R. & Withcomb, M. E. (2003). The Impact of Content Type on Web Survey Response Rates. *Public Opinion Quarterly*, 67, 579-588.

Tourangeau, R., Rasinski, K., Jobe, J. B., Smith, T. W., & Pratt, W. F. (1997). Sources of Error in a Survey on Sexual Behavior. *Journal of Official Statistics*, 13, 341-365.

Tourangeau, R. & Smith, T. W. (1996). Asking Sensitive Questions. The Impact of Data Collection Mode, Question Format and Question Context. *Public Opinion Quarterly* , 60, 275-304.