

Using web surveys to collect data from candidates: Experience from the 2019 Greek candidate survey

Maria Tsigkou

Aristotle University of Thessaloniki, Greece

[tsigmari@polsci.auth.gr]

Evangelia Kartsounidou

Aristotle University of Thessaloniki, Greece

[evankart@polsci.auth.gr]

Ioannis Andreadis

Aristotle University of Thessaloniki, Greece

[john@polsci.auth.gr]

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Abstract

Web-surveys are being used more and more often in social sciences, as a fast and low-cost mode of data collection. However, there are some serious drawbacks which are mainly related to the absence of an interviewer such as low response rates. Furthermore, the length of the survey instrument affects considerably the response behavior. There is evidence that lengthy online questionnaires lead to lower response rates and lower quality responses. The aim of this paper is to study whether different web survey designs affect the response rate of a candidates' survey. Specifically, during data collection for the Greek candidate study of 2019 we conducted three web experiments to test the impact on response behavior of: i) questionnaire length ii) web survey layout and iii) candidates recruitment. In order to test the impact of each factor we have manipulated the conditions of the survey in several ways. First, we divided the questionnaires into two or three parts in order to test whether shorter questionnaires increase response rate (splitting design). Second, we conducted an experiment on whether the layout of the survey affects the response rate. Specifically, there were two different designs of the questionnaire namely single page question and grid. Furthermore, some surveys were optimized for mobile devices to test if this affects the response rate. The final experiment is about the candidates' recruitment. Most of the Greek candidate MPs have e-mail addresses which are available online especially during the period of electoral campaign. We collected their e-mail addresses using search engines and visiting websites related to the candidates or to the Greek elections in general. We also got in contact with the candidates whose e-mail could not be collected, through their Facebook pages and personal accounts.

Keywords: web-surveys, candidates, survey methodology, Greek elections 2019, data quality, experiments, satisficing

Introduction

Web surveys are being used more and more often in the social sciences, as an increasing number of people have access to the Internet. During the last decade, web surveys became very popular mainly due to the rapid and low-cost way to collect data. Moreover, as Kaplowitz, Hadlock and Levine (2004) point out, web surveys promote the democratization of research as researchers do not have to rely on funding from exterior sources to conduct their surveys. However, these advantages are

confronted by some serious drawbacks which are mainly related to the absence of an interviewer (Chen, 2011; Fang, Wen, & Prybutok, 2014).

One of the main problems a researcher has to face while conducting a web-survey is highly related to non-response (Couper & Miller, 2008; Manfreda, Bosnjak, Berzelak, Haas, & Vehovar, 2008), especially in surveys where the target population can be identified (Couper, 2000). Response rates of surveys are declining over time (Beebe et al., 2010; Curtin, Presser, & Singer, 2005). Specifically, as Manfreda et al. (2008) indicate, web surveys have lower response rates -by around 11%- than other survey modes.

Furthermore, the length of the survey instrument affects considerably the response behavior. There is evidence that lengthy online questionnaires lead to lower response rates and responses of lower quality. As Crawford, Couper and Lamias (2001) indicate, the longer a questionnaire is, the lower the response rate. When respondents are told that a survey will last a few minutes (i.e. 8 to 10 minutes) they are more likely to participate in the survey.

In addition, survey design seems to affect the response behavior. As Link et al. (2014) point out, when a web survey is not optimized for mobile devices has high abandonment rates among the mobile users who respond. Mavletova and Couper (2015) demonstrate that, surveys that are optimized for mobile devices decrease the rates of abandonment along with some other factors. Dale and Walsoe (2020) also indicate that, grid questions cannot fit properly on a small screen of a mobile device, so a survey that is optimized for mobile devices is needed.

This study aims to contribute to this ongoing research about studying the response behavior of web surveys. Specifically, the aim of this paper is to study whether different web survey designs affect the response behavior of a candidate survey. Using the Greek candidate MPs' survey of 2019 as a case study we have conducted three web experiments to examine the impact of i) questionnaire length, ii) the web survey layout and iii) candidates' recruitment process on response rate.

In this paper we examine factors that could affect the response rate of candidate surveys conducted online. The first experiment (i.e. the one about the questionnaire length) focuses on reducing the length of the questionnaire. As for the second experiment, we want to examine whether the layout of a web survey and mainly the way grid questions are presented influence the response rate, taking into account the device that a respondent use to answer the questionnaire (i.e. desktop or

mobile devices). Moreover, we want to test if a survey (which is not optimized for mobile devices) responded on a mobile device influence response behavior (as measured by drop-outs). Finally, the objective of the third experiment is to study which method of recruitment is appropriate for a candidate study in order to increase the survey coverage and the response rate.

The structure of the paper is as follows. We start with a literature review on response rate, mobile-friendly web surveys, candidate surveys and participant recruitment through Facebook. We continue with a section that discusses our research questions, data and the experimental design we have used to estimate the impact of the aforementioned experiments (i.e. questionnaire length, survey layout and candidates recruitment) on the response rate of the survey. In the final part of the paper we present the main findings of our analyses, followed by some concluding remarks.

Literature Review and Research Questions

Response rate and questionnaire length

In general, response rates of surveys, both for online and offline surveys, appear to be declining over time. According to Curtin's et al. (2005) findings, the response rate of the Survey Consumer Attitudes conducted as telephone survey has been gradually declined between 1979 to 2003 (i.e. the response rate was 72 per cent in 1979, 60 per cent in 1996 and barely 48% in 2003). In addition, Steeh, Kirgis, Cannon & DeWitt (2001), while studying the response rate in RDD surveys (Random Digit Dialing), note that over the years there is an increasing number of nonresponse in telephone surveys in terms of refusal and noncontact. Similarly, in a meta-analysis of 45 studies (from 1947 to 1992) referred to offline surveys (i.e. face to face, telephone and mail surveys), the response rate of the two of the three survey methods (i.e. face to face and telephone surveys) decreased over time (i.e. the response rate was 80%-82% in 1947 and 60%-65% 1992). On the contrary, the response rate of mail surveys increased from 1947 to 1992 (from 57%-58% to 65% (Hox & De Leeuw, 1994). However, Dey's (1997) findings show that, in a set of national student surveys, response rates decreased from around 60% in the 1960s to 21% in the late 1980s. It seems that questionnaire length affects the response rate; as Porter (2004) indicates, shorter surveys lead to higher response rates.

In online surveys, a negative relationship between the response rate and questionnaire length is also confirmed (Liu & Wronski, 2018). Galesic and Bosnjak (2009) indicate that more respondents will participate in a survey when they are told that the duration of the questionnaire is 10 minutes than when they are told that the questionnaire will last 30 minutes. Andreadis and Kartsounidou (2020) show that splitting a long questionnaire into shorter parts, the response rates of these sub-questionnaires are higher than the response rate of the undivided, long questionnaire. Mavletova (2013) points out that, the questionnaire length does not prevent someone from participating in a mobile survey; it only affects the number of completed questionnaires and the drop-outs. Therefore, our first research question is:

RQ1: Will splitting a long questionnaire increase the response rate?

Mobile-friendly web surveys

Mobile phone use has dramatically increased in the last decade as well as the access to the internet via smartphones. As Link et al. (2014) indicate, an increasing percentage of respondents participate in web surveys via their mobile phones (with estimates ranging from 8% to 23% depending on the study). Respondents also seem to participate in web surveys via their mobile phone even if they are in a domestic environment (Daniele Toninelli & Revilla, 2016).

However, as the most web surveys are not optimized for mobile devices, they have high abandonment rates among the mobile users who respond to these surveys (Link et al., 2014). As Andreadis (2015a; 2015b) points out, whether a survey is optimized for mobile devices, its responses are of same quality in both desktop and mobile devices users; there are no signs of satisficing. Toepoel and Lugtig (2014) indicate that there is no difference in response quality of both mobile devices users and desktop users when a survey is optimized for mobile devices as the total response times are almost the same for both devices users. Mavletova and Couper (2015) demonstrate that, surveys that are optimized for mobile devices decrease the rates of abandonment along with other factors such as email invitations, the opportunity to the respondent to choose the preferred mode of survey etc. Hence, surveys that are optimized for mobile devices are more suitable for both mobile devices users and desktop users, providing the researchers more responses of high quality; mobile devices users tend to abandon questionnaires that are not optimized due to the

difficulties they confront, such as the smaller screen size. As Dale and Walsoe (2020) point out, grid questions cannot fit properly on a small screen of a mobile device, so a survey that is optimized for mobile devices is needed. Response rates also seem to be lower on mobile devices compared to desktops or laptops when questions are not optimized (Andreadis, 2015). Therefore, our second research question is:

RQ2: Do web surveys that are optimized for mobile devices have less drop-outs than those that are not optimized? Moreover, do surveys with one question per page have less dropouts than surveys with grid questions as over the years more and more surveys are responded on mobile devices?

Candidate Surveys

Candidate surveys are conducted in many countries in the context of international efforts such as the Comparative Candidate Survey (CCS). Researchers use different methods in order to conduct a candidate survey; personal interviews, telephone interviews, questionnaires sent by mail, invitations sent by e-mail in order to participate in an online survey are most used by researchers over time (Freire et al., 2020).

In Greece CCS surveys have been conducted since 2007 by the laboratory of Applied Political Research of the school of Political Science of Aristotle University of Thessaloniki (A.U.TH). They are post-election surveys and they are conducted primarily online. However, in many countries such as in Italy and in Portugal, the questionnaires of candidate survey are sent by mail to the candidates MPs (Di Virgilio, Giannetti, Pedrazzani, & Pinto, 2015; Freire, Lisi, Andreadis, & Leite Viegas, 2014).

The Greek candidate survey of 2015 was also conducted as web survey. The candidates recruitment followed two methods: i) collecting their email addresses by using search engines and visiting websites related to the candidates or to the Greek elections in general, and ii) asking political parties to provide us with a list of their candidates along with their email addresses (Kartsounidou & Andreadis, 2015).

Participant recruitment through Facebook

Given that Facebook is the world's largest social networking service and many people use it in a daily basis, several researchers use it to recruit participants in a variety of surveys. Kosinski, Stillwell and Graepel (2013) use data from Facebook Likes,

demographic data and the results of psychometric tests of 58,000 volunteers in order to study sensitive personal attributes. Their project (myPersonality) did not recruit actively participants but participants found the tests of the project through the Facebook application list. Comparing the data collected through Facebook to the data collected through a website, Rife, Cate, Kosinski and Stillwell (2016) demonstrate that there is no significant difference between the two modes of recruiting participants and collecting data.

Researchers also use Facebook advertisements in order to recruit participants. For example, Akard, Wray and Gilmer (2015) used Facebook ads to recruit parents of children with cancer in order to participate in a web survey about preferences and technological capabilities. As Pedersen and Kurz (2016) point out, Facebook is an effective mode of recruiting participants due to its great popularity. In addition, recruiting participants and collecting data via Facebook is a quick process (Borodovsky, Marsch, & Budney, 2018). Although Facebook has been used as a recruitment and data collection mode in many surveys, as far as we know, is not an option when researchers want to send the questionnaires of a candidate survey to the candidates MPs. Therefore, our third research question is:

RQ3: Do candidates MPs respond to researchers through Facebook? Or is it more appropriate to get in contact with them by email in order to participate in a candidate survey?

Data and Methodology

This paper uses data from the Greek Candidate Survey, part of the Comparative Candidate Survey (CCS). CCS is a product of an international coordinated effort to collect data about the candidates, who participate at each country's national elections. The survey is conducted via a common core questionnaire that is sent to the candidates MPs in the aftermath of the national elections. The questionnaire includes a variety of questions that cover a broad spectrum of politics. Matters like relationships between the candidate, the party and the voters, democracy and representation, recruitment and carrier patterns, issues and ideology and campaigning, are located on the core of the questionnaire¹.

¹ From the official site of CCS: <http://www.comparativecandidates.org/node/1>

Our analysis is based on data from the 2019 Greek candidate survey which was conducted as a web survey after the 2019 national elections (July 2019). The target population was the group of all candidate MPs of the following Greek Parliamentary parties: The Coalition of Radical Left (SYRIZA), the New Democracy (ND), the Panhellenic Socialist Movement (PASOK), the MeRA25 (DiEM25) and the Elliniki Lisi (Greek Solution)².

The main purpose of this paper is to explore whether different web survey designs affect the response behavior of a candidate survey. Towards this direction, we implemented 3 web experiments about: i) questionnaire length, ii) the web survey layout and iii) candidates recruitment in order to examine if the aforementioned factors influence response behavior.

In order to study the effect of the length of the questionnaire, we divided the candidates MPs (n= 1013) into 4 groups by random sampling. Respondents received an invitation to participate in the survey via email with a link to answer an online questionnaire, which had different length for each group of respondents; we created four questionnaires of different lengths by splitting a long questionnaire into shorter sub-questionnaires (splitting design). Shorter questionnaires enable the candidates to complete the questionnaire before they lose their interest or become distracted by another activity. In the first group the survey includes the entire questionnaire of 175 questions (Survey A) while in the second the survey includes 119 questions (Survey B) (we estimate that the time needed to complete the questionnaires is 40 and 25 minutes respectively). Regarding the third group, the survey (Survey C) includes only a part of the questionnaire (44 questions). As for the fourth group, the survey (Survey D) includes an even smaller part of the questionnaire (23 questions). When respondents completed the first part of the questionnaire in each of the three surveys (Survey B, C and D), a follow up question appeared on the screen asking them if they wanted to answer the rest of the questions.

The email invitations sent to the first and the second group of the candidates MPs did not include any estimated time to complete the questionnaire while the email invitations sent to the third and the fourth group of candidates MPs emphasized that the required time for completion of the questionnaire is 8 minutes and 5 minutes respectively -instead of 40 minutes needed to complete the entire questionnaire.

² The Communist Party of Greece (KKE) has always refused to provide a list of email addresses for their candidates. Thus, the Greek Candidate datasets could not include this party.

Nevertheless, the respondents had the chance to answer all the sub-questionnaires provided if they completed each sub-questionnaire they are invited to.

The aim of the first experiment is to compare and investigate the response rate between the four groups of candidates, with the ultimate goal of collecting as many responses as possible and reducing the drop-outs. In order to achieve this goal, we will estimate the number of answers for each of the four groups of the survey as well as drop-outs and refusals.

Second, we conducted an experiment on whether the layout of the survey affects the response rate. Specifically, there were two different designs of the questionnaire namely one question per page and grid questions and an additional design that is grid but optimized for mobile devices. We want to examine whether the grid questions influence the response rate, especially for those users who responded the questionnaire on mobile devices (i.e. smartphones or tablets). In order to achieve this goal, we will examine response behavior (i.e. drop-outs and completed questionnaires) in both one question per page surveys and grid surveys. We designed two different questionnaires for this purpose, one mainly consisted of grid questions while the other contained only one question in each page. Moreover, we optimized some surveys for mobile devices to test if this affects the response rate. In this case, the grid questions are displayed to the mobile device users as one question per page while to the desktop/laptop users as grid questions.

In order to achieve this goal, we will estimate the completed questionnaires as well as the drop-outs per survey layout (i.e. single page question, grid and grid adapted for mobile devices). Moreover, we will apply this test on different categories of devices where the survey was responded, namely mobile devices and desktop or laptop, in order to examine whether the grid design that is optimized for mobile devices has more completed questionnaires and less drop-outs on mobile devices users.

In addition, we will examine the drop-outs of a grid question per survey layout and device that the questionnaire is responded to test in which survey layout the candidates MPs who responded via their mobile phone and desktop or laptop abandoned this question. We expect that mobile devices users abandon a survey when the survey layout is one question per page while the grid survey that is optimized for mobile devices will have less drop-outs on mobile devices users.

The final experiment is about the candidates' recruitment process. Most of the Greek candidates MPs have e-mail addresses which are available online especially during the period of electoral campaign. We collected their e-mail addresses (n=1013) using search engines and visiting websites related to the candidates or to the Greek elections in general and sent invitations to participate in the survey. Afterwards, we got in contact with the candidates whose e-mail could not be collected, through their Facebook pages or personal accounts. Moreover, for those who did not click the link of the survey that was sent to their email address, we searched their pages and personal accounts on Facebook. We then sent messages to all of them (n=745) asking them if they wanted to participate in the Greek candidate study of 2019.

Findings

In table 1, we display the number of the invitations, the number of non-interviews, the number of completed questionnaires, the number of refusals and the number of drop-outs for the four aforementioned surveys (i.e. entire survey, survey of 25 minutes, survey of 8 minutes and survey of 5 minutes). A total of 523 invitations were sent to the candidate MPs of the first group (entire questionnaire). In the second survey (25 minutes), 115 candidates were invited to participate, 195 candidates in the third survey (8 minutes) while in the fourth one (5 minutes) a total of 180 invitations were sent. However, many candidates did not click on the link in the invitation to the questionnaire; 58,5% of the Survey A, 58,3% of the Survey B, 56,4% of the Survey C and 63,3% of the Survey D.

We do not know the exact reasons for the lack of any reaction (we do not even know if they have received the invitation). We refer to these cases as “non-interview” with unknown eligibility (The American Association for Public Opinion Research, 2016). If we focus on the completed questionnaires, we observe that almost one-fourth of the questionnaires of all the four surveys were completed (22,4% of the questionnaires of the Survey A, 22,6% of Survey B, 22,6% of the Survey C and 21,7% of Survey D). The difference of completed questionnaires between the four groups is approximately 0,2 to 0,9% points. As we see, there is no significant difference between these four surveys.

As refusals, we describe the candidate MPs who have clicked on the link in their survey invitation, but they have left the questionnaire without answering any of the questions. Approximately, 8,6% of the candidates MPs who were invited to

participate in Survey A, 11,3% in the Survey B, 14,9% Survey C and 10,6% in Survey D refused to participate. As we see, the lowest proportion of refusals is in the longest survey (Survey A). One possible reason why Survey A has less refusals than Survey C and D is that in the invitations that were sent to the candidates MPs of the first group (Survey A) there was no reference of an estimated time to complete the questionnaire while in the invitations of the other two groups (i.e. Survey C and D) there was a required time for completion of the questionnaires.

Table 1. Invitations, non-interviews, completed questionnaires, and drop-outs per survey (first sub-questionnaire per survey).

	<i>Survey A</i>		<i>Survey B</i>		<i>Survey C</i>		<i>Survey D</i>	
	<i>(1st group)</i>		<i>(2nd group)</i>		<i>(3rd group)</i>		<i>(4th group)</i>	
	N	%	N	%	N	%	N	%
Unknown eligibility	306	58,5%	67	58,3%	110	56,4%	114	63,3%
“Non interview”								
Completed questionnaires	117	22,4%	26	22,6%	44	22,6%	39	21,7%
Drop-outs	55	10,5%	9	7,8%	12	6,2%	8	4,4%
Refusals	45	8,6%	13	11,3%	29	14,9%	19	10,6%
Invitations	523	100%	115	100%	195	100%	180	100%

There is a remarkable difference in the number of drop-outs between the four surveys. In the first group, 10,5% of dropouts are observed while in the second group 7,8%, in the third group 6,2% and in the four group only 4,4%. As we see, most of the drop-outs occurred in the long survey while the less drop-outs were in the shortest survey. It is worth noting that the longest a questionnaire is the more the drop-outs are.

The comparison between the four surveys shows that the length of the survey influences the number of the drop-outs, meaning the number of respondents that abandoned the survey at some point. Although, there is no significant difference between the four surveys regarding the number of the completed questionnaires. An explanation to this finding is that in the invitations of survey A and survey B there was not a reference of an estimated time to complete the survey while in the invitations of survey C and D there was a required time of 8 minutes and 5 minutes respectively. Hence, the fact that in the two first surveys there was no reference of time required to complete the questionnaires may explain why many candidates MPs decided to participate to the survey. Moreover, the absence of time required to complete the survey in the invitation may be a reason why Survey A has the less refusals. However, this finding is in contrast with Mavletova and Couper's (2015) argument that when the expected survey duration is not mentioned in the invitation, the respondents are more likely to abandon the survey.

In table 2, we display the number of the invitations, the number of non-interviews, the number of completed questionnaires, the number of refusals and the number of drop-outs for the four surveys, but this time we are referring to the whole surveys. Specifically, we examine the completed questionnaires, the drop-outs etc. of the four surveys, all including 119 questions, in order to test whether a respondent who completed a short survey will continue answering the rest of the survey or will abandon the questionnaire at some point soon. Comparing the four surveys, we can see that Survey A (the longest questionnaire) has the most completed questionnaires (22,4%) of all the four surveys as well as the less drop-outs (10,5%) and the less refusals (8,6%). This finding is opposite to the hypothesis that people most of the times abandon a long questionnaire while they are willing to complete more shorter sub-questionnaires. We do not know the reason for this, but candidates MPs are a group of people with specific characteristics who may respond differently to candidate surveys than the rest of the people to an opinion survey. Although, it is worth examining this difference of candidates responding to candidate surveys and comparing it to the rest of the people responding to an opinion survey.

Table 2. Invitations, non-interviews, completed questionnaires, and drop-outs per survey (entire questionnaires).

	Survey A		Survey B		Survey C		Survey D	
	(1st group)		(2nd group)		(3rd group)		(4th group)	
	N	%	N	%	N	%	N	%
Unknown eligibility	306	58,5%	67	58,3%	110	56,4%	114	63,3%
“Non interview”								
Completed questionnaires	117	22,4%	13	11,3%	27	13,8%	22	12,2%
Drop-outs	55	10,5%	22	19,1%	29	14,9%	24	13,3%
Refusals	45	8,6%	13	11,3%	29	14,9%	20	11,1%
Invitations	523	100%	115	100%	195	100%	180	100%

Table 3 shows the completed questionnaires and the drop-outs according to survey layout. As we mentioned earlier, we designed two different survey layouts, namely one question per page (in tables: spq -single page question) and grid. Moreover, we optimized some grid surveys for mobile devices in order to get more responses from mobile devices users and less abandonments. As we can see, Layout C (the optimized survey for mobile devices) has the most completed questionnaires (67,8%) while one question per page and grid design have 53,2% and 57,7% respectively. Layout C has also the less drop-outs (32,2%) while Layout A has the most drop-outs (46,8%) and Layout B 44,3%. In general, it seems that the grid design that was also optimized for mobile devices (grid questions were displayed as single page questions to mobile devices users) is more effective and suitable for survey designing than one question per page design and grid design. It is worth noting that

the respondents of the surveys were 50% mobile devices users and 50% desktop or laptop users.

Table 3. Completed questionnaires and drop-outs³ per survey layout.

	<i>Layout A (Spq)</i>		<i>Layout B (Grid)</i>		<i>Layout C (Grid adapted)</i>	
	N	%	N	%	N	%
Completed questionnaires	83	53,2%	56	57,7%	40	67,8%
Drop-outs	73	46,8%	43	44,3%	19	32,2%
Respondents	156	100%	97	100%	59	100%

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If we look at this in more detail, we observe that both mobile devices and desktop or laptop users abandon the one question per page design more often. Specifically, regarding the mobile devices users (Table 4.), they completed the questionnaires whose design was grid but it was optimized for mobile devices (28,8%) more than the other questionnaire designs while they abandoned one question per page design and grid design (not optimized for mobile devices) more often (27,6%

³ We do not examine the refusals as we cannot know the user's device. We collect information about user's device from the second question displayed in the questionnaire which contains information about navigation.

and 27,8% respectively). It is known that grid designs are problematic for mobile devices users as they cannot see all the necessary information (e.g. response options, the whole question description etc.) at the same time due to the small screen size (Dale & Walsoe, 2020).

Table 4. Completed questionnaires and drop-outs per survey layout for mobile devices users.

	<i>Layout A (Spq)</i>		<i>Layout B (Grid)</i>		<i>Layout C (Grid adapted)</i>	
	N	%	N	%	N	%
Completed questionnaires	34	21,8%	23	23,7%	17	28,8%
Drop-outs	43	27,6%	27	27,8%	11	18,6%
Respondents	156	100%	97	100%	59	100%

As for the desktop or laptop users (Table 5.), they also completed the grid design that was optimized for mobile devices more than the other designs (39% against 34% for grid design and 31,4% for one question per page design). The design of the questionnaire that they abandoned most is one question per page design (19,2%). As we see, there is no big difference of the number of completed questionnaires and drop-outs between the two categories of devices where the questionnaires were responded. Both mobile devices users and desktop or laptop users seems to prefer the grid design that is optimized for mobile devices. Given that, this survey layout is displayed as grid design to desktop or laptop users and as one question per page design to mobile devices users, we conclude that it is the most appropriate design for both devices users.

Table 5. Completed questionnaires and drop-outs per survey layout for desktop/laptop users.

	<i>Layout A (Spq)</i>		<i>Layout B (Grid)</i>		<i>Layout C (Grid adapted)</i>	
	N	%	N	%	N	%
Completed questionnaires	49	31,4%	33	34%	23	39%
Drop-outs	30	19,2%	16	16,5%	8	13,6%
Respondents	156	100%	97	100%	59	100%

Table 6 displays the drop-outs of the first grid question displayed in the questionnaire per survey layout and per device that the questionnaire is answered to test in which survey layout the candidates MPs who responded via their mobile phone and desktop or laptop abandoned this question. It seems that none of the respondents of the survey with the grid design that it was optimized for mobile devices abandoned the grid question (both mobile devices users and desktop/laptop users). On the contrary, desktop/laptop users abandoned this question by 1,4% on one question per page design while mobile devices users abandoned it on grid design by 1,1%. This Table shows similar findings with Table 4 and Table 5 as the grid design which is optimized for mobile devices has less drop-outs (0% in this question) in both mobile devices users and desktop/laptop users while the grid design has more drop-outs in mobile devices users and one question per page design has more drop-outs in desktop or laptop users.

Table 6. Drop-outs of grid question 3 per survey layout and type of device.

<i>Survey layout</i>	<i>Mobile devices</i>	<i>Desktop/laptop</i>
Grid	1,1%	0%
Grid adapted	0%	0%
Single page question	0,7%	1,4%

Regarding the third experiment on candidates recruitment, as previously mentioned, we followed two methods to get in contact with the candidates MPs: i) by sending an invitation to participate to the survey to their email addresses we found through search engines like Google and ii) through their pages and personal accounts in Facebook.

Firstly, we sent invitations (N=1013) to candidates MPs' email addresses we found by searching on Google; these invitations along with the reminders were sent from November 2019 to March 2020. As Table 7 shows, 58,9% of the candidates who were sent an invitation to participate to the survey via email did not took any action (they did not click on the link of the survey). We do not know whether the email addresses were the right ones or why candidates MPs did not click on the link.

Regarding the contact through Facebook, we sent a message to 745 candidates MPs (not knowing if all of them were candidates MPs indeed) asking them if they wanted to participate in the Greek candidate survey of 2019; we started sending messages to their Facebook pages and personal accounts from the end of May to the end of June of 2020. 33,3% of them either responded they wanted to participate or just read the message without responding. For them who answered that they wanted to participate in the survey (82 persons, 11%) we provided them with three options: i) send them a link of the survey to their email address, ii) send them a link of the survey to their inbox in Facebook or iii) conduct a telephone interview.

Table 7. Non-contact, reaction and invitations/contact in candidates recruitment via email invitation and message on Facebook.

	Via email		Via Facebook	
	N	%	N	%
Non-contact	597	58,9%	497	66,7%
Reaction	416	41,1%	248	33,3%
Invitations/Contact	1013	100%	745	100%

Comparing these two methods of candidates recruitment, we conclude that, sending an invitation to candidates MPs' email addresses is more suitable for a candidate survey than getting in contact with them through their Facebook pages and personal accounts. However, contact through Facebook could be more effective if we got in contact with candidates MPs no later than one to two months after the parliamentary elections as many candidates may stopped checking their pages after the legislative elections of July 2019.

Discussion

In summary, this paper has examined whether different web survey structures affect the data quality, using the data from Greek candidate survey of 2019. Specifically, we conducted three web experiments about: i) length of the questionnaire, ii) survey layout, iii) candidates recruitment in order to test if these factors influence data quality.

We have shown that the shorter a questionnaire is the less the abandonments are. Regarding the length of the questionnaire and the completion rate, we did not observe significant difference between the four surveys. Although, we think that a reason why the completion rate between the surveys was almost the same may be the reference of duration of the questionnaire in the invitations of the short surveys while in the invitation of the longest one there was no estimated time for completing the survey. Therefore, we conclude that it is more suitable not mentioning any required time to complete a questionnaire even if it lasts a few minutes.

We also have shown that the grid design which is optimized for mobile devices is the most suitable design for both mobile devices users and desktop or laptop users; the completion rate is higher in this kind of design than one question per page and grid designs along with the lowest abandonments along the three survey layouts. Moreover, we have demonstrated that mobile devices users are more likely to abandon a question in a grid design that is not optimized for mobile devices rather than one in a question per page design and mostly in an optimized survey.

Regarding the final experiment about candidates recruitment, we have shown that the most appropriate method to contact candidates in order to invite them to a candidate survey is by email. Contact through Facebook may be an effective solution if we get in contact with candidates no later than a month or two after the elections as many of them stop dealing with their Facebook pages and personal accounts when their electoral campaign is over.

Concluding this paper, we suggest that web surveys should be optimized for mobile devices as this design is proven to be more appropriate for both mobile devices users and desktop/laptop users. Moreover, further research is needed to find the most suitable questionnaire length in order to achieve the highest response rate possible. Finally, we think that candidates recruitment through Facebook is worth examining further.

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