

A Comparison of the Effects of Face-to-Face and Online Deliberation on Young Students' Attitudes About Public Opinion Polls

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Abstract. This study compared the effects between face-to-face and online deliberation on young citizens' attitudes about opinion polls. Two parallel experiments were conducted to test the outcomes of the two modes of deliberation in terms of (a) significance, (b) direction, and (c) valence of changes. Results suggest that online deliberation affected more respondents' attitudes compared to its face-to-face counterpart. Both modes of deliberation induced more opinion shifts towards the opposite direction of the initial attitudes instead of opinion reinforcements. Interestingly, the effect of the online deliberation was considered as more positive compared to the face-to-face deliberation, as online participants became more in favor of polls, pollsters and their relationships with politicians and the media. On the contrary, face-to-face participants became less in favor of the mediatization of polls and their impact on citizens-government communication and voting behavior. Hence, findings of this research highlight the potential role of online settings in facilitating effective deliberations.

Keywords: Face-to-face deliberation · Online deliberation · Opinion polls · Attitudes' change

1 Introduction

Public deliberation is regarded an integral part of democracy [1, 2]. According to [1], democratic decisions should be based on “informed, enlightened, and authentic” opinions of citizens which can be achieved through political deliberation. However, several theorists posit that it is almost impossible to manage large-scale deliberations due to the size and unruliness of the public [e.g., 3] as well as the cost of organizing such events. These impracticalities of an “ideal public deliberation” turned researchers' attention to other more innovative solutions for deliberative democracy such as “mini-publics” (e.g., consensus conferences, citizen juries, planning cells, deliberative polls) [4]. These mini-publics are comprised of ordinary citizens who are characterized

by some kind of representativeness [4] and engage participants in “symmetrical, face-to-face, and equal deliberation” [3, p. 17]. Besides the face-to-face forms of mini-publics, online deliberative events have been proposed by a number of researchers as another solution to the deficiencies of mass-public deliberation [5]. Indeed, a new stream of research suggests that the Internet is a viable channel through which large-scale deliberations can be made practical [6].

There exist conflicting viewpoints regarding the impact of new technologies on democracy. On the one hand are the “cyberoptimistics” who argue that the Internet is an effective platform for deliberation [7] that encourages different points of views [8] to be heard even from people who were not likely in the past to participate in political discussions and were marginalized [9] or indifferent to politics. Moreover, the anonymity on the Internet along with the absence of physical presence improves the quality of discussion since participants feel free to express their sincere opinions on an equal basis with other online discussants [10]. Hence, a more “enlightened exchange of ideas” is encouraged [11, p. 267]. It is also argued that new technologies can foster debates which are based on rational argumentation [12]. This argumentative aspect of online discussions could be partly attributed to their asynchronous and written format [10].

On the other side, the “cyberskeptics” highlight a number of obstacles regarding the deliberative potential and maturity of online discussions. For example, several scholars point out that the Internet tends to increase inequalities in representation [13]. The digital divide threatens the quality of online deliberations since most of the times these discussions are dominated by like-minded individuals [14]. This compatibility between online discussants leads to a polarization of views [10] that sabotage the basic requirement of deliberation which is the exchange of different viewpoints [12]. In addition, the sincerity of participants is not strongly secured as people on the Internet have the choice to conceal their identities using nicknames [10]. Another important caveat in online discussions is the predominance of “flaming” and the use of offensive and hostile language [13].

However, as Wright [15] notes researchers should not worry whether the Internet has a “revolutionary” or a “normalization” impact on deliberative democracy but rather concentrate on the effects of the Internet. He further points out that experimental designs can provide fruitful insights regarding the impact of online deliberations.

Until now, most of the studies on online deliberation have focused on analyzing the content and quality of deliberations that take place among usenet newsgroups and discussion forums [11, 14, 16] whereas few studies have examined the impact of online deliberation on participants using experimental designs. Moreover, there is a lack of studies that attempt to compare the effects between face-to-face and online deliberation on citizens’ attitudes using real experiments. Hence, the purpose of the present study is to test whether a deliberation conducted in a computer-mediated environment produces similar or different changes in citizens’ attitudes compared to a face-to-face deliberation. Towards this end, an online as well as an offline deliberative experiment was conducted. Note that, in the online experiment participants used their real names to deliberate with other discussants. Thus, participation in the online deliberation was not anonymous. This was done to (a) ensure that participants in the online mode responded sincerely to the deliberation, and (b) avoid the phenomenon of flaming.

2 Effects of Face-to-Face and Online Deliberation

The effects of offline deliberation are well established in the literature. According to [18], offline deliberation helps citizens become more informed about the issue of discussion. Moreover, it is argued that deliberation has a positive impact on citizens' attitudes [2] since citizens often "revise preferences in light of discussion, new information, and claims made by fellow participants" [18, p. 309]. The deliberation's effect on attitude change is particularly evident in experimental designs such as deliberative polls [19].

Similar positive effects on citizens' attitudes have been reported by researchers in the context of online deliberations [20]. For example, the study of [21] reports the results of an online deliberation experiment which examined the effects of computer-mediated deliberation on citizens' views about energy issues in Finland. The experiment was a live-event based on small-group discussions that took place through webcams. Findings indicate that online participants changed attitudes in six out of nine statements on energy issues. For example, participants became less supportive about the creation of another nuclear plant and the use of coal and peat in energy production in Finland. On the other hand, after the online deliberation, discussants held more positive attitudes regarding the need for improved energy saving and policy. Reference [22] investigated the effects of deliberation that takes place in computer-mediated environments. Toward this end a random sample of American citizens was surveyed prior to and after real-time electronic discussions. Discussion topics focused around the 2000 US presidential elections and health care reform issues. Although, in most of the issues discussed, participants did not change significantly their attitudes, on the issues where significant changes were observed citizens moved toward more rational views and agreed with the opinions promoted by policy elites.

While there is a critical number of studies which examine the effects of each mode of deliberation (i.e., face-to-face, and online) in isolation, few studies have compared the impact of the two modes on citizens' attitudes. Reference [23] conducted a face-to-face and an online deliberative poll to test whether the two experimental designs can yield the same changes in attitudes of citizens in regards to a number of United States policy issues (i.e., military intervention, trade and economic relations with other countries, and global environment). Although the two designs differ not only in the mode of delivery but also in the recruitment of samples, the panel experts, and the length of small group discussions, results indicated that the effects of face-to-face deliberation were almost identical with those of online deliberation.

The study of [24] also compared the outcome of a face-to-face deliberation with an online deliberation experiment around gun-related issues. Findings indicate that both experiments produced similar positive changes on citizens' issue knowledge, and political efficacy. However, offline deliberation proved to be more effective in influencing citizens' willingness to participate in politics than online deliberation. Reference [25] reported the differences in the effects between face-to-face and online deliberation settings in regards to citizens' opinion about global warming. Interestingly, online deliberation induced the expression of different opinions and led to higher levels of disagreement compared to the face-to-face mode. On the other hand, face-to-face deliberation proved to be of higher quality compared to the online deliberation.

Reference [26] testing the effects of offline as well as online deliberation on issues regarding public school consolidation and quality found that both online as well as face-to-face deliberation did not produce significant changes in policy attitudes whereas the reading material was an important factor for the changes found in the opinions of participants. Moreover, the comparison of the two settings indicates that face-to-face deliberation had stronger effects to policy attitudes than its online counterpart.

The aforementioned inconsistent findings call for further exploitation of the effects of the two types of settings (i.e., online versus offline) on the deliberative outcome.

3 Research Objectives

We expect that face-to-face as well as computer-mediated deliberation have an impact on citizens' attitudes. Specifically, the study's objectives are the following:

1. To describe the effects of face-to-face deliberation in terms of (a) number, (b) direction (i.e., opposite shift or reinforcement), and (c) valence (i.e., positive or negative) of significant changes on citizens' attitudes.
2. To describe the effects of online deliberation in terms of (a) number, (b) direction (i.e., opposite shift or reinforcement), and (c) valence (i.e., positive or negative) of significant changes on citizens' attitudes.
3. To compare the effects of face-to-face deliberation with its computer-mediated counterpart.

4 Method

In order to achieve the objectives of the present study two parallel deliberations, one face-to-face and one online, were conducted to reveal whether online deliberation has similar effects compared to traditional face-to-face deliberative events.

4.1 Procedures

The face-to-face deliberative poll was conducted on October 17, 2014 at a conference room of a Technological Education Institute in a Northwestern city in Greece. The face-to-face discussants were 93 students who volunteered to participate in the deliberation. The sample of the face-to-face deliberation consisted of 69.9 % females and 30.1 % males while the majority of the students were seniors (78.5 %). In addition, 86.2 % of the respondents spend less than one hour a day reading newspaper or internet articles about politics and watching political television programs.

Upon arrival, students completed an initial questionnaire. Then, the sample was given a written material that consisted of 19 pages and contained information about the issues under deliberation organized around pro and con arguments. Then each of three experts (a politician, an election expert and pollster, and a journalist) presented his opinions, engaged in dialogue with the other panelists and responded to the questions made by participants. Discussion was supervised by a moderator whose responsibility

was to (a) make sure that the discussion proceeds in an orderly fashion, (b) address and guide the panelists (c) encourage audience participation, and (d) keep the discussion focused on the topic and within the allotted time. After the discussion, the sample was asked to complete the same initial questionnaire.

The online deliberation took place from December 30, 2014 to February 11, 2015. Participants of the experiment were again students of a Technological Education Institute in a Northwestern city of Greece. A total of 149 students, registered for the Public Opinion Polls course, agreed to participate in the project. It should be noted that participants were told in advance that they would be rewarded with extra credit for the course. Regarding the online sample, 81.9 % of the online discussants were females and 84.6 % were seniors. Furthermore, the majority of the online sample exhibited low involvement with politics since 62.4 % of the respondents spend less than one hour a day reading newspaper or internet articles about politics and watching political television programs.

In order to test whether the online sample was similar with the face-to-face, chi-square tests of independence were conducted and coefficient phi was calculated. Based on the results the online sample was significantly ($p < 0.05$) different compare to the offline in terms of gender ($\chi^2 = 4.685$, sig = 0.030, phi = 0.139), semester of attendance ($\chi^2 = 15.206$, sig = 0.030, phi = 0.251), and level of political involvement ($\chi^2 = 15.250$, sig = 0.030, phi = 0.254). However, based on the values of the phi coefficient the differences in the characteristics of the two samples appeared to be negligible.

The online experiment was conducted via the Wordpress software. Using the Wordpress tool a website was created specifically for the needs of the online deliberative project. Participants were required to create an account determining a username and a password. Students were instructed to set usernames using their real names and surnames. Moreover, students were asked to authenticate before accessing the deliberation materials and every time they accessed the platform.

At the beginning of the project students received an email that informed them to create an account on the website and answer a pre-deliberation questionnaire that was embedded in the platform. Afterwards participants were instructed to read the written material and watch a video that were posted on the website. The written material was the same as the one used in the face-to-face deliberation. Moreover, the online video included the recorded speeches delivered by the three experts of the face-to-face deliberative panel. The use of video helps “improving deliberative quality and making online mode more comparable with the face-to-face” [27, p. 192–193].

Then participants began to deliberate online with other participants by posting text messages about their views and comments. Note, that students could join the discussion from their home computers anytime at their own convenience. Thus, the online discussion was asynchronous in nature. Discussions were supervised by a moderator whose responsibility was to erase duplicate messages and respond to technical questions of participants. As in the face-to-face deliberation we wanted to minimize the influence of the moderator on the outcome of deliberation.

Students were also given the opportunity to formulate questions they would like to be answered by the three experts. These questions were relayed to the experts and their answers were posted on the deliberation website. Then students received an email which instructed them to read the answers of experts before completing the post-deliberation questionnaire.

4.2 Deliberation Topic and Experts

The subject of the face-to-face deliberative poll was “Political Public Opinion Polls”. The subject matter for discussion included five main areas (1) reliability-accuracy of opinion polls, (2) data manipulation in public opinion polls by media organizations, pollsters and politicians, (3) use of public opinion polls by politicians in decision making process, (4) impact of polls on political participation, and (5) impact of polls on voting behavior. The deliberation topic was chosen bearing in mind that the participants were students.

The three experts were also carefully chosen and were comprised of a well known politician, a well reputed expert and pollster, and renowned journalist.

4.3 Questionnaire and Measurement of Opinions

The pre as well as the post deliberation questionnaire included 31 questions that measure the attitudes of participants around the five main issues about polls. Specifically, to measure participants’ attitudes regarding the reliability-accuracy the first seven items (see Table 1) were used (e.g., polls always produce reliable results; a sample of 1000–1500 people can accurately represent the universe of potential voters). Opinions of respondents regarding the extent to which data in public opinion polls are manipulated by media organizations, pollsters and politicians were measured using seven items. Example of items are: Media organizations manipulate and publish selectively the results of opinion polls in order to exert influence on public opinion and when the clients of opinion polls are either parties or politicians then the chances of reporting results which favor them are increased. Participants’ attitudes regarding the use of public opinion polls by politicians in policy making process were measured through seven items such as: politicians need surveys to pursue the right policies and politicians use polls to specify the top issues of concern to the electorate and set their political agendas. Perceived impact of polls on political participation was measured using five items (e.g., through polls citizens can make their voices heard and participate in the policy making process and polls create a more democratic society). Finally, perceived impact of polls on voting behavior of citizens were assessed through five items such as: polls affect undecided voters and help them vote and polls may lead people to abstain from voting since they believe that their vote wouldn’t make a difference to the election outcome. Responses to all questions were elicited through five-item likert scales ranging from 1: Strongly Disagree to 5: Strongly Agree.

4.4 Results

In order to examine the effects of face-to-face as well as online deliberation on citizens’ opinions regarding polls we checked the differences between pre to post deliberation attitudes of students using independent t-tests. Results of the tests are presented in Table 1 (Appendix A).

As Fig. 1 shows both modes of deliberation significantly affected a number of attitudes. Overall, in the face-to-face condition, 7 out of 31 attitude statements

Table 1. Direction of attitudes' shift and valence of impact across the five deliberation topics

Participants' attitudes about (number of statements)	Face-to-Face		Online	
	Direction of shifts (number of shifts)	Valence of impact	Direction of shifts (number of shifts)	Valence of impact
Reliability-accuracy of opinion polls (7)	Reinforce (1)	Positive	Reinforce (1)	Positive
Data manipulation in public opinion polls by media organizations, pollsters and politicians (7)	Opposite shift (1)	Negative	Reinforce (1)	Positive
	–	–	Opposite shift (5)	Positive
Use of public opinion polls by politicians in decision making process (7)	Opposite shift (2)	Positive	Opposite shift (1)	Negative
	–	–	Reinforce (1)	Positive
Impact of polls on political participation (5)	Opposite shift (2)	Negative	Reinforce (1)	Positive
Impact of polls on voting behavior (5)	Reinforce (1)	Negative	–	–

exhibited statistical significant changes (items A3, B1, C2, C3, D2, D3, E4) whereas in the online condition the corresponding number was 10 out of 31 (items A3, B1, B2, B3, B4, B5, B6, C1, C7, D2).

The discussion of the results is organized as follows. For each one of the five main issues, the exact attitude statements that exhibited significant changes are described, first for the face-to-face treatment and then for the online. Then, the direction of the significant changes is discussed. Direction refers to whether the deliberation reinforced respondents' opinions (higher mean values after the deliberation) or shifted opinions towards the opposite direction (lower mean values after the deliberation). Moreover, the changes are interpreted in terms of valence. In particular, valence refers to the qualitative outcomes of deliberation. A positive change means that respondents become more in favor about the reliability of polls and their impact on voters as well as exhibit higher levels of trust regarding the use of polls by politicians and media organizations. On the other hand a negative change suggests that respondents after the deliberation become skeptical and less in favor about the accuracy of polls and their use by politicians and media.

In regards to participants' opinions about the accuracy and reliability of opinion polls both modes produced quite similar results. Specifically, in both conditions after the deliberation, respondents were significantly more likely to agree than before (higher mean value after the deliberation) that "a sample of 1000–1500 people could accurately represent the universe of potential voters". Hence, the face-to-face mode of deliberation as well as the online reinforced participants' opinion regarding the representativeness of opinion polls.

As far as, participants' attitudes about data manipulation in public opinion polls by media organizations, pollsters and politicians' results suggest that online deliberation induced changes in more opinion statements (6 out of 7) than its face-to-face counterpart (1 out of 7). In the face-to-face condition, after the deliberation, respondents were significantly more likely to disagree than before (lower mean values) that "media

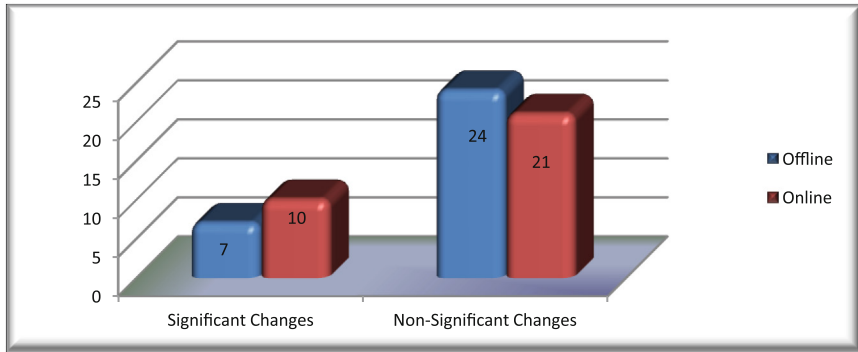


Fig. 1. Number of significant changes across the two modes of deliberation (offline versus online)

organizations most of the times fairly present and publish the results of opinion polls”. Hence, in regards to citizens’ attitudes about media presentation of polls, the offline mode shifted citizens’ attitudes in the opposite direction from their initial attitudes causing more negative views about the mediatization of polls.

On the contrary, online deliberation produced contradictory results compared to the face-to-face mode. After the online deliberation, respondents were significantly more likely to agree than before (higher mean value after the deliberation) that “media organizations most of the times fairly present and publish the results of opinion polls”. Hence, the online mode reinforced their opinions. In addition, after the online deliberation, respondents were significantly more likely to disagree than before (lower mean values) that (1) “media organizations manipulate and publish selectively the results of opinion polls in order to satisfy the interests of their (sponsors)”, (2) “media organizations manipulate and publish selectively the results of opinion polls in order to exert influence on public opinion”, (3) “many polling organizations selectively report opinion polls results in order to influence public opinion in a certain direction”, (4) “when the clients of opinion polls are either parties or politicians then the chances of reporting results which favor them are increased”, (5) “results of opinion polls are manipulated by the political offices of parties or candidates in order to influence public opinion”. In all of the above cases online deliberation changed citizens’ attitudes towards the opposite direction from their initial opinion. No significant changes were found in citizens’ attitudes on the above mentioned 5 attitude statements after the face-to-face deliberation. It can be argued that online deliberation changed participants’ attitudes by suppressing their negative views about the misuse of polls by media, polling organizations and politicians. As a consequence, after the online deliberation, students became less skeptical to the general idea that polls were deliberately manipulated by pollsters, media, and politicians in order to influence the public opinion. Thus, participants decreased their mistrust towards the use of polls by media and politicians after the online deliberation. The question still lingers why a shift in the

opposite direction was observed in the online deliberation mode that was not observed in the offline mode. Without having all the information at our disposal, we could posit that online participants either didn't look at all the posted material or engaged in selective exposure in processing information and were persuaded by the most easily accessible information at hand (known by what social psychologists refer as availability bias).

Regarding the attitude statements about the use of public opinion polls by politicians in decision making process, the different modes of deliberation changed 2 out of 7 statements. However, they did not change the same attitude statements. After the face-to-face deliberation, respondents were significantly more likely to disagree than before (lower mean values) that "politicians and political parties use public opinion polls to assist them in the development of their election campaign strategies" and "election campaigns are dominated by public opinion polls". As a result the offline condition shifted participants' opinions in the opposite direction from their initial attitudes.

In a similar vein, participants in the online mode were significantly more likely to disagree than before (lower mean values) that "politicians need surveys to pursue the right policies". Hence, the online condition changed respondents' attitudes in the opposite direction from their initial opinions about the use of polls by politicians and made them less in favor about the need of politicians to use of surveys as an input in the policy making process. Furthermore, after the online deliberation, respondents were significantly more likely to agree than before (higher mean value after the deliberation) that "politicians use polls as a source of accurate information about the expectations and preferences of the electorate". This finding suggests that the online mode reinforced students' attitudes about the proper use of opinion polls by politicians and political parties.

The deliberative effect of the two experimental conditions was found to be different in the number (offline: 2 out of 5 statements, online: 1 out of 5 statements) and pattern of changes in regards to citizens' attitudes about the impact of polls on political participation. In the face-to-face mode, after the deliberation, participants were significantly more likely to disagree than before (lower mean values) that "opinion polls facilitate a better communication between citizens and politicians" and "opinion polls serve as a communication channel between citizens and government and an indirect form of public participation". Thus, face-to-face deliberation changed respondents' attitudes in the opposite direction compared to their pre-deliberation attitudes and made them hold more negative views about the impact of polls on citizens-government communication. On the contrary, the online setting reinforced participants' attitudes about the positive role of polls on citizens' participation, since students were significantly more likely to agree than before (higher mean value after the deliberation) that "opinion polls facilitate a better communication between citizens and politicians". This difference found in the outcome of the two deliberations could be attributed to the asynchronous nature of the online condition. Specifically, it can be argued that online discussants might be more vulnerable to distractions by external cues which limit their attention span and their time spent on in-depth reading of the online arguments. As a

consequence, online discussants might use heuristics (mental shortcuts) during their decision making by examining fewer cues and alternatives or integrating less information. This phenomenon might not be elicited in the offline condition where participants are more involved in the process due the live and synchronous nature of the setting. Thus, they might process in greater extent counterarguments and opposite views before making their post-deliberation judgments.

Lastly, only the face-to-face mode of deliberation caused changes in students' attitudes about the impact of polls on voting behavior (1 out of 5 statements). Specifically, after the offline deliberation, respondents were significantly more likely to agree than before (higher mean value after the deliberation) that "polls may lead people to abstain from voting out of certainty that their candidate or party would win". Again, the face-to-face setting reinforced students' negative views about the de-motivating effect of polls during elections.

5 Conclusion

The purpose of the present study was to test whether there are differences in the effects between face-to-face and computer-mediated deliberation on respondents' attitudes about opinion polls. Towards this end two real experiments were conducted. Results suggest that both modes of deliberation had an effect on participants as they induced changes in their opinions. Table 2 summarizes the changes found in both face-to-face as well online deliberations in terms of direction and valence of their impact on participants' attitudes about the five topics of deliberation.

Several fruitful insights could be made from our findings. First, the online deliberation proved to be more effective since it changed more attitudes compared to its face-to-face counterpart. This finding could be attributed to the fact that participants were young students who were keen on interacting with others via computers. Thus, an online environment can be regarded as a viable channel for deliberation, just like face-to-face settings.

Second, both face-to face as well as online deliberation caused more shifts in attitudes in the opposite direction than reinforcements of initial attitudes. This result indicates that the two modes did not induce group polarization. It is herein suggested that a computer-mediated environment could reduce the phenomenon of group polarization found in prior deliberation studies, thus relaxing the mechanism of social comparison where citizens tend to conform to the views of the majority. Moreover, even though both samples were largely homogeneous and consisted of like-minded respondents, results suggest that deliberators in both modes were exposed to competing views and a diversity of perspectives. Arguably, computer-mediated environments can deliver on the promise of an efficient deliberation which is the exchange of different viewpoints and arguments.

Third, the two deliberative conditions were quite different in regards to the valence of their impact on attitudes. Specifically, after face-to-face deliberation, participants held more negative views about the mediatization of polls and the impact of polls on

citizens-government communication as well as on voting behavior. At the same time, face-to-face deliberation induced respondents to become more in favor of the accuracy and reliability of polls and the use of polls by politicians and parties during election campaigns. However, it should be noted that the negative impact of the face-to-face deliberation was found in more attitude statements (4 out of 7).

On the contrary, the effect of online deliberation on citizens' attitudes was mostly positive (9 out of 10). Specifically, after the computer-mediated deliberation, participants held more positive views about the accuracy and reliability of polls while they decreased their negative opinions about the relationship among pollsters, media, and politicians. This difference in the valence of impact on participants' attitudes might indicate that the mode of deliberation (i.e., face-to-face, online) could be an important factor that contributes to the outcome of deliberation. The aforementioned effects of deliberations on citizens' attitudes should be interpreted with care since the outcomes of deliberation are highly context specific depending on the issue under discussion [24].

In addition, it should be noted that we took special care so as to minimize the bias caused by the differences in several aspects of the two experimental conditions. For example, the briefing materials as well as the panel experts were identical in both deliberations. However, the two experiments differed in their duration as well as the number and the content of questions asked by participants during the deliberation. Specifically, online participants asked far more questions the three experts compared to their face-to-face counterparts. Moreover, the two samples differed in a small degree in regards to the gender, the semester of attendance and their level of political involvement. Another experimental condition that might impose bias to our results is the non-use of small group discussions. Based on the aforementioned, the findings of the study should be interpreted with care.

Our face-to-face and online projects differ from other deliberation experiments. Moreover, the mode of the online deliberation was asynchronous while the samples used in our deliberations were not representative since we relied on students. Another differential feature of our study is that we did not use control groups in order to compare attitudes of participants after deliberations with attitudes of respondents who did not participate in the deliberations.

Future research could focus on the impact of different aspects of online deliberation on attitude change. For example, by surveying participants during different moments of virtual deliberation (i.e., after reading the written material, after online discussion, after reading experts' answers) fruitful insights could be yielded about which specific feature of deliberation causes changes in opinions.

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Appendix A

Table 2. Effects of face-to-face and online deliberation

	Pre-deliberation mean values		Post-deliberation mean values		T-value/significance	
	Offline	Online	Offline	Online	Offline	Online
A. Reliability-accuracy of opinion polls						
1. In general, the process of polling as conducted in Greece is reliable	2.88	3.06	2.83	3.04	0.542/ 0.589	0.177/ 0.860
2. Polls always produce reliable results	2.44	2.62	2.38	2.61	0.560/ 0.577	0.144/ 0.886
3. A sample of 1000–1500 people can accurately represent the universe of potential voters	2.20	2.20	2.49	2.52	–2.753/ 0.007*	–2.905/ 0.004*
4. Polls are an accurate snapshot of public opinions at a particular point in time	3.18	3.14	3.15	3.28	0.276/ 0.783	–1.317/ 0.189
5. Answers given by respondents in polls reflect their true beliefs	2.38	2.21	2.19	2.24	1.719/ 0.089	–0.277/ 0.782
6. Respondents will give their answers based on what they believe is the most socially acceptable/favorable or the most popular, rather than their true opinions	3.19	3.25	3.08	3.22	0.920/ 0.360	0.339/ 0.735
7. Respondent have the particular knowledge required to answer the questions of opinion polls	2.56	2.38	2.64	2.48	–0.776/ 0.440	–1.000/ 0.318
B. Data manipulation in public opinion polls by media organizations, pollsters and politicians						
1. Media organizations most of the times fairly present and publish the results of opinion polls	2.83	2.63	2.60	2.87	2.497/ 0.014*	–2.518/ 0.012*
2. Media organizations manipulate and publish selectively the results of opinion polls in order to satisfy the interests of their (sponsors)	3.66	3.86	3.61	3.69	0.540/ 0.590	2.029/ 0.043*
3. Media organizations manipulate and publish selectively the results of opinion polls in order to exert influence on public opinion	3.72	3.77	3.69	3.48	0.235/ 0.815	3.186/ 0.002*
4. Many polling organizations selectively report opinion polls results in order to influence public opinion in a certain direction	3.66	3.81	3.79	3.63	–1.365/ 0.176	2.037/ 0.043*
5. When the clients of opinion polls are either parties or politicians, then the chances of reporting results which favor them are increased	3.76	3.94	3.69	3.73	0.726/ 0.470	2.372/ 0.018*
6. Results of opinion polls are manipulated by the political offices of parties or candidates in order to influence public opinion	3.49	3.56	3.52	3.33	–0.336/ 0.738	2.421/ 0.016*
7. Polls reported often conceal the real opinion of respondents.	3.23	3.14	3.43	3.00	–1.751/ 0.083	1.526/ 0.128

(Continued)

Table 2. (Continued)

	Pre-deliberation mean values		Post-deliberation mean values		T-value/significance	
	Offline	Online	Offline	Online	Offline	Online
C. Use of public opinion polls by politicians in decision making process						
1. Politicians need surveys to pursue the right policies	3.50	3.65	3.39	3.43	1.043/ 0.300	2.450/ 0.015*
2. Politicians and political parties use public opinion polls to assist them to the development of their election campaign strategies	3.90	3.79	3.51	3.74	4.340/ 0.000*	0.537/ 0.592
3. Election campaigns are dominated by public opinion polls	3.75	3.60	3.37	3.76	3.556/ 0.001*	-1.743/ 0.082
4. Politicians use polls to specify the top issues which concern the electorate and set their political agendas	3.49	3.55	3.42	3.38	0.617/ 0.539	1.752/ 0.081
5. Politicians use polls to persuade the public for or against a certain political position	3.80	3.90	3.59	3.77	1.973/ 0.052	1.692/ 0.106
6. Politicians use polls to make the right political decisions	2.63	2.59	2.74	2.64	0.971/ 0.334	-0.523/ 0.601
7. Politicians use polls as a source of accurate information about the expectations and preferences of the electorate	3.18	3.03	3.00	3.30	1.495/ 0.138	-2.634/ 0.009*
D. Impact of polls on political participation						
1. Polls provide a way for citizens to stay informed about the top political issues and the opinions of the public towards them	3.55	3.51	3.37	3.50	1.804/ 0.075	0.152/ 0.879
2. Opinion polls facilitate a better communication between citizens and politicians	3.04	3.10	2.84	3.32	2.195/ 0.031*	-2.314/ 0.021*
3. Opinion polls serve as a communication channel between citizens and government and an indirect form of public participation	3.22	3.26	3.02	3.36	2.273/ 0.025*	-0.887/ 0.376
4. Polls create a more democratic society	3.07	3.00	3.06	3.13	0.118/ 0.906	-1.197/ 0.232
5. Through polls citizens can make their voices heard and participate in the policy making process	2.87	3.00	3.47	3.16	-1.325/ 0.189	-1.424/ 0.156
E. Impact of polls on voting behavior						
1. Results of election polls may affect the voting behavior of the public	3.74	3.79	3.73	3.88	0.127/ 0.899	-1.003/ 0.317
2. Polls affect undecided voters and help them vote	3.64	3.60	3.53	3.55	1.079/ 0.283	0.488/ 0.626
3. Polls may lead people to not vote for the party or candidate that appears to be losing the elections	3.37	3.45	3.47	3.42	-1.000/ 0.320	0.253/ 0.800
4. Polls may lead people to not vote for the party or candidate that appears to be winning the elections	3.24	3.25	3.50	3.39	-2.345/ 0.021*	-1.303/ 0.194
5. Polls may lead people to abstain from voting since they believe that their vote will not make a difference to the election outcome	3.34	3.46	3.44	3.48	0.791/ 0.431	-0.125/ 0.901

*Significant at the $p < 0.05$ level.

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