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Does Discussion Lead to Opinion Change? An Experiment in Deliberative Democracy

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Does discussion lead to opinion change?
An experiment in deliberative democracy

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Abstract

While the model of deliberative democracy gives a crucial role to dialogue, empirical evidence has not yet established if discussion helps to reach a better understanding of political issues and, above all, if individuals are prepared to change their views and preferences. This article presents an experiment carried out within the Department of Political and Social Sciences at the LUISS University of Rome. Students were asked to discuss in the classroom the course issues, and to cast a vote on selected issues before and after the deliberation. Although our sample is not representative, we have managed to gather evidences from the same population on a rather large number of issues. Students changed their view in 25.5 per cent of cases, they agreed that discussion increased their understanding of the various issues, while students with strong ex-ante views are more reluctant to change their opinions as a consequence of discussion. The experiment also shows the presence of impermeable and permeable subjects, the former which are more refractory to the discussion in changing their opinion, while the latter are more likely to change their preferences following deliberation. Thanks to their volatility, this second group can provide different majorities and so to be crucial in any electoral dynamics.

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Introduction

One of the most fruitful recent developments in modern democratic theory is represented by deliberative, or discursive, democracy (Dryzek, 2000). This model is however effective when citizens are in principle willing to change their opinion if properly convinced by the arguments advocated by the other side. But are we sure that discussing and being exposed to others' beliefs has the effect of changing opinions? And what if, on the contrary, the discussion would have only the effect of consolidating each one in his original views? What would be the relevance of discussion? In a political community composed of totally stubborn citizens, democratic theory and practice would change profoundly, and it would be enough to aggregate citizens' preferences without any need to explain why each one cultivates certain preferences and opinions (Young, 2001).

In this paper, we present an experiment conducted during a course on “Global Justice” held within a Master Degree in a Department of Political and Social Sciences. During the course students had to present some motions in turn, with a group of two or three pupils depicting and defending a thesis, and another group opposing it. Before the presentations, we gave the students a questionnaire in which we asked to vote, but also to indicate what knowledge they perceived to have on each subject. At the end of the discussion, students had to fill in a new questionnaire and to vote again.

Compared to many other exercises of deliberative democracy, the experiment presented here has some obvious limits. Firstly, students were not asked to express their views on actual aspects of their economic and social life, but only on general issues being part of the course program. Secondly, the group of participants were not a statistical sample, since the experiment involved only university students with homogeneous socioeconomic characteristics, and specifically interested in a certain discipline. Nevertheless, our experiment has also some advantages. On the one hand, it allowed us to follow the attitudes of a group in several discussions and, on the other hand, involving students with a high level of education, moreover specific to political and social issues, may perhaps predict something more about the overall attitude of better informed citizens.

The next section discusses some findings in political studies about opinion change. The subsequent section highlights how discussion among students can be an important teaching tool, and what are its connections with the deliberative democracy model. We then present our experiment and the results obtained. The last section attempts to frame our contribution within the model of deliberative democracy.

Empirical research on opinion change

For deliberative democracy model, discussion is at the very kernel of the whole political system. The system is effective if citizens are willing to listen the reasons of other and, above all, to change their mind if persuaded (Bosetti & Maffettone, 2004; Pomatto, 2013). The deliberative method, therefore, has a twofold function: the first, is to expose the arguments favouring or opposing a certain collective choice, so that all citizens can become knowledgeable about the reasons underlying certain public choices; the second, is to allow participants to convince or to be convinced and, therefore, to change their minds as a result of acquiring more information (Fishkin, 2011). The constructive confrontation among people holding different ideas and theses is, moreover, a way to keep the political community cohesive also when there are opposite views. Obviously, change should not be random, nor the result of concealed manipulation or persuasion, but it must be a cause of a learning process that deliberation promotes and favours.

Numerous empirical studies have been conducted to disentangle the relationship between opinion change and deliberation. However, the results are not entirely concordant, and present mixed empirical evidences.

One of the first empirical researches on the subject is the study of Bohm and Vogel (1994), conducted in 1988-89 in Alabama. The authors' purpose was to verify whether the information and debate contributed to changing opinions about a classic ethical dilemma, the legitimacy of death penalty. The authors selected a sample of 222 university students, 120 in the experimental group, and 102 in the control group. The former participated in a 40-hour course on death penalty, providing academic materials, testimonials of guests, videos, and debates. The control group, on the other hand, was not involved in any activity concerning the subject in question. In order to verify that there were no imbalances in the knowledge on the topic, a questionnaire was given to both groups before the beginning of the courses, and the results showed that the initial opinions and the level of information were essentially the same across the two groups. At the end of the semester, the same questionnaire was submitted again to all students, and the differences, this time, were remarkable. Significant mutations did not occur in the control group, while the experimental group showed an aggregate opinion change of 32 per cent.

The same experiment was reproduced by Wright et al. (1995) in 1994, at a University in North Carolina. The only difference between the two experiments was the size of the sample, which in the second case was composed of 106 students (38 in the experimental group and 68 in the control group). The results of the experiment showed an increase of 32 per cent in the experimental group's knowledge levels, compared to a 12% increase in the control group. Moreover, it was found an opinion change of 36 per cent in the first group, and of 10 per cent in the control group. Unlike what happened in the experiment conducted by Bohm and Vogel (1994), the change was due to the fact that undecided people had matured a belief, favourable or contrary to the question.

Despite all the methodological issues affecting the two studies, they confirmed that discussing can lead to a change of opinion. Results on much broader issues are subsequently emerged from the deliberative polling[1] conducted by James Fishkin and colleagues, reachable on website of the Stanford University Centre for the Deliberative Democracy. The website reports all the salient data of each deliberative poll held from 1994 to today, showing how a change of opinion occurs in all cases, even if with very different values, ranging from a minimum of 1 per cent to a maximum of 51 per cent. In addition, all surveys show that the general knowledge of the participants greatly improved thanks to the deliberative process. For instance, in the case of a deliberation on crime, held in Manchester in 1994, post-deliberation questionnaires showed an increase between 7 per cent and 11 per cent in the correct answers to the questions related to the subject (Luskin, Fishkin & Jowell, 2002).

A deliberative poll held in Denmark in 2000, one month before the referendum on the Country's entry into the euro, added an important finding to the previous results (Luskin et al., 2002). This work also monitored how much change remained consistent in the three months following the electoral consultation. The data showed that, after that time, some participants returned to their initial positions. According to Hansen and Andersen (2004), this would have been due to the fact that the effects of the deliberative process on attendees' opinions would tend to diminish as time passes, when participants return to their daily lives. In other words, the effect of deliberation on opinion change, over time, would show a decreasing curve.

[1] For details, see http://cdd.stanford.edu/polls/docs/summary/.

Other studies, such as those on deliberative polls held in Italy in 2007, on the construction of the high-speed rail TAV, and on granting the right to vote to immigrants, confirm the previous findings. A significant increase in the level of knowledge about the topics was registered, as well as a significant change in the participant's orientations. In these cases, about 40 per cent of participants changed their original opinions (Isernia et al., 2008).

Other recent experiments, such as Barabas (2004) on Social Security reform in the USA, Cochran and Chamlin (2005) on death penalty, and Himmelroos & Christensen, 2014 on the use of nuclear power in Finland, also confirm that a certain change of opinion takes place following deliberation. Despite the methodological limitations and the often small sample considered, the available empirical literature suggest that the deliberative process has two effects:

(a) it contributes to an increase in the knowledge of the participants about the topic discussed, allowing them to make more informed decisions;

b) it contributes to the change of opinion on the issues dealt with.

However, these dynamics do not seem work in all the deliberative contexts. Sunstein (2002) argues that the effect of deliberation on opinion change, in some circumstances, would be far more counter-intuitive than what it could be expect. In particular, when deliberation takes place within groups with very similar visions and ideas, the positions of the various individuals tend to polarize toward more extreme positions. This phenomenon has been renamed the "law of polarization". Specifically, members of a discussion group in which all participants share the same political inclinations would tend to end the process in a more extreme position, in the same direction as their initial inclination. According to this theory, the deliberative process in some particular contexts not only does not contribute significantly to opinion change, but rather generates a radicalization of previous ideas, moving the subjects to more extreme positions, but in line with what they thought at the beginning of the discussion. Such a phenomenon, according to Sustein, would tend to be amplified or reduced by several factors such as the degree of closure of the group, and the strength in terms of authority and oratory capacity of the subjects involved in the discussion. However, it occurs in the contexts where the deliberation takes place between people sharing the same positions on certain themes.

The rule does not seem to be limited to particular periods, nations or cultures. In his book *"Going to Extremes - How Like Minds Unite and Divide"*, Sunstein (2009) reports several examples showing how polarization takes place in very different contexts. To test the correctness of the so-called "law of polarization", Schkade, Sunstein and Hastie (2010) conducted a study using a sample of 60 people divided into 10 groups, according to their self-positioning in the "liberal" or "conservative" categories. The aim was to stimulate discussion among people sharing similar orientations. All participants were given an anonymous questionnaire before and after the deliberation, and at the end of the experiment all the groups showed a change toward more extreme positions.

Sunstein's intentions were not to prove the ineffectiveness of deliberation on the change of opinion, but rather to test the deliberative process for shedding light on some of the risks that it may produce. Its purpose was to contribute to the development of an effective pattern of deliberation and to avoid some deliberation's "traps". In particular, Sunstein and colleagues demonstrated that when the deliberative process takes place in enclaves, or anyway inside groups with very similar visions, that is, when the subjects only meet people sharing their ideas, information is exploited in a distorted way, generating a radicalization of the original opinions rather than a genuine change.

Controversy as a teaching tool

The experiment described in the next section did not arise as one of the many exercises of deliberative democracy mentioned above. It is born in a university classroom, with the specific aim of stimulating learning and, perhaps even more so, engaging students in the hope of generating passionate debates. This is not a novelty, as many teachers are doing their best to involve students during their lessons and it is a widespread practice to require to students to prepare presentations about the subjects of the courses. A little less widespread is the practice of having students intervening in controversial motions around which to organize the discussion.

The use of disputations as a teaching tool is common in legal studies, especially in those countries, such as the United States, where popular juries are issuing verdicts. Many law school classes are even constructed by imitating the spaces of the courts, and students who intend to become lawyers or public prosecutors begin to practice accusing or defending imaginary suspects. Popular juries are made up of other students who are called upon to pronounce themselves, after listening to the arguments of their colleagues who interpret the roles of public prosecutor and defence lawyer. Even in political studies, debates are used as well. In this case, the class tends to imitate national (local parliaments or governments) or even international public assemblies (European Council, Security Council, United Nations General Assembly, etc.), and students interpret the role of political party representatives, ministers or ambassadors.

However, the idea of employing debates as a teaching tool is far more generalisable, and potentially usable in all instances where teachers want to stimulate student's critical sense. Discussion as a method of learning is at least as old as the Socratic tradition, based on the assumption that the teaching-learning relationship is not unilateral, but it can be more fruitful when it is interactive. Some scholars of educational problems recommend it as a tool to create critically-minded citizens capable of analysing ethical, political and social issues without prejudice (Brookfield & Preskill, 1999). Others see the teaching based on controversies as the foundation of democratic society (Hess, 2009), since it induces to listen and to respect opposing arguments, as already suggested by John Dewey a century ago (1916). Others see in the deliberative model even a new and better educational paradigm (Longo, 2013).

Discussions in universities and secondary schools are generally not subsequently used as empirical documentation to test the deliberative democracy model. This happens also because the samples, composed only of students, cannot be randomized nor represent the entire population, and also because there is no direct overlap between actual policy choices and courses' topics.

Yet, there is a clear connection between the philosophy of the deliberative model and the pedagogic intention of allowing students to discuss. In both cases, there is the idea that understanding problems and collective choices should not be resolved solely through preconceived and incommunicable deployments. Conversely, listening to the other's reasons can help to better understand the problems and therefore to find their solutions. The educational spirit grounded in the discussion does not intend only to convey knowledge, but also to rely on the logical process that brings individuals and groups to support certain theses. In other words, the pedagogical value of deliberation is to allow students to approach complex problems by understanding that every political choice presupposes a trade-off across advantages and disadvantages, and this helps stimulating the search for more feasible and effective solutions (Drury et al., 2016). Moreover, familiarizing with the deliberative model allows students to improve their public speaking skills

(Cole, 2013), to better argue their ideas and theses, and to listen to others' ideas and theses with fewer prejudices.
From the point of view of collective choices, this should on the hand help majorities to consider also the reasons and preferences of minorities. On the other hand, minorities would better accept the will of the majorities if this is well discussed, exposed and articulated. And, above all, it would help to understand that in a democratic system, majorities and minorities are not based on permanent deployments built on preconceptions, but they may vary on each issue.

The experiment at the LUISS Guido Carli University

Description of the experiment

Our experiment has been conducted during the Academic Year 2013/2014 at the Luiss Guido Carli University of Rome. It involved the students of the "Global Justice" course, within the Master Degree Program in International Relations of the Department of Political and Social Sciences.
The three-month course consisted of two weekly sessions, of two and a half hours each. In the syllabus, the teachers made it clear to the students that each lecture was followed by debates on a specific issuds. Students were required to vote before and after the debate. Based on a previously agreed timetable, two students were requested to support a thesis, and two other students to oppose it, with a fifth student chairing the debate and introducing the issue. Each team had about 20 minutes to expose their thesis. After the presentations, there was enough time for questions, comments and responses. The teachers drawn up a calendar that featured the topic of each lesson, most of which drawn from the textbook *Controversies in Globalization* edited by Peter Haas and John Hird (2013). The students were warmly encouraged to deepen the topics dealt by using other sources, both academic and non-academic. To convince their colleagues of the validity of their point of view, students could take advantage of a variety of tools and media including presentations and videos. In order to stimulate an active participation in the debates, and good quality presentations, presentations were also marked, contributing for the 20 per cent to the final grade of the course. We also required all students to choose a *nickname* and keep it for the entire duration of the course. The *nickname* should have been placed on the questionnaires distributed in each lesson.
For each lesson, each student should have completed two questionnaires, pre- and post-deliberation. The pre-deliberation questionnaire asked students to express their opinion on the motion by choosing between "Yes", "No" and "Undecided", and to express their degree of conviction (with values from 1 to 7, that is, from "totally unconvinced" to "totally convinced"). This pre-deliberative questionnaire contained also three questions that polled the level of knowledge the subject thought to have about each topic. Lastly, two questions asked whether the opinions expressed depended on the relevance of the topic for the student or on the fact that they were widely shared among public opinion. The post-deliberation questionnaire required again expressing a vote and the degree of conviction, adding two questions on how the opinion matured depended from the information acquired during the presentations. The questionnaires, so structured, made it possible to verify, for each motion, how the students' opinions reacted to the deliberation.

Methodological limits

From the methodological perspective, two aspects of our sample are critical. On the one side, the sample is made up only of college students aged between twenty-two and thirty years, and with the same level of education, therefore, it is certainly not statistically representative of the overall population. Moreover, being the LUISS Guido Carli a private university, the socio-economic composition of the sample was fairly homogeneous. Although it is a common problem for much of the empirical research on this subject, the non-randomness of the sample is a substantial limit of this research that does not allow generalizing the results obtained. Our experiment lacks a control group. In order to verify the effects of the deliberation, it would have been appropriate to compare the results of two groups, of which only one participated in the deliberation.

The sample and the topics dealt with

60 students enrolled in *Global Justice's* Master Course, but the actual number of participating students varied from lesson to lessons, from 46 to 9. Also, not all the students always completed both questionnaires. Since our study aims to investigate changes in opinions before and after deliberation, we have excluded from the analysis all the subjects who have completed only one of the two questionnaires so that the sample is constituted, as reported in Table 1, only by students who, for each motion, completed both questionnaires. This approach, of course, has reduced the number of observations. Questionnaires not entirely filled up were kept.

Topic discussed	**Pre-deliberation voters**	**Post-deliberation voters**	**Sample**
1. Poverty: can foreign aid reduce poverty?	42	43	38
2. Do we have global duties of justice?	42	39	37
3. Global egalitarianism: favourable or unfavourable?	32	31	31
4. Democracy: should all nations be encouraged to promote democratization?	48	48	46
5. Climate change and the environment: can international regimes be effective means to restrain carbon emissions?	37	37	36
6. Civil society: do NGOS have too much power?	34	34	33
7. Terrorism and security: is international terrorism a	38	36	34

significant challenge to national security?			
8. Maritime security: does controlling piracy and other criminal activities require systematic state interventions?	38	36	35
9. Are international criminal processes effective? The case of Saddam Hussein vs. the Lubanga case	15	15	14
10. International conflict: is war likely to occur between the great powers?	43	42	40
11. Trade liberalization and economic growth: does trade liberalization contribute to economic prosperity?	33	32	30
12. Trade and equality: does free trade promote economic equality?	15	15	15
13. Should the wealthy nations promote anti-HIV/AIDS efforts in poor nations?	23	22	20
14. Should countries liberalize immigration policies?	26	22	22
15. Financial crises: would preventing future financial crises require concerted international rulemaking?	35	35	32
16. Should Kosovo be independent?	39	39	36
17. Military intervention and human rights: is foreign military intervention justified by widespread human rights abuses?	16	14	13
18. Nuclear weapons: should the United States or the international community aggressively pursue nuclear non-proliferation policies?	38	37	33
19. Culture and diversity: should development efforts	13	13	11

seek to preserve local culture?			
20. The future of energy: should governments encourage the development of alternative energy sources to help reducing dependence on fossil fuels?	42	42	39
21. Gender: should the United States aggressively promote women's rights in developing countries?	11	11	9
TOTAL	**606**	**582**	**604**

Table 1. Voters and the topic discussed

The research hypotheses

H1. The discussion makes opinion change

Our first hypothesis corresponds to the most important research question underlying the deliberative model namely whether, and to what extent, discussion produces opinion change. Specifically, our hypothesis, even considering the results obtained by previous researches, is that this actually occurs in between the 15 and the 40 per cent of the cases.

H2. Are there people more predisposed to change their minds?

Our sample has a remarkable advantage over other similar exercises since it allows us to follow the same individuals on different topics. This consents us to check if there are people more "naturally" inclined to change their opinions and others who are not touched by the discussion. In other words, it allows us to verify whether there are individuals that generally preserve their opinions, and possibly what is the cause of such a characteristic. Our hypothesis is that there are more permeable people and others who are more impermeable to the discussion, and that these characteristics are associated with the degree of information that the subjects believe to have on a certain topic.

H3. Less informed people tend to change their opinions more frequently

What is the relationship between the level of knowledge and information about a given topic and the change of opinion? We hypothesize that less informed people, that is, those that show a lesser level of knowledge on the subject discussed, change opinions more frequently. The intention is also to check whether deliberation is a good means of encouraging learning. We suppose, in fact, that less informed people will learn more from discussion, and that the new information will have a stronger impact on their opinions. While empirical research generally tends to objectively investigate the level of information of participants, asking them to answer a series of questions with right or wrong answers, in our experiment we chose not to measure the level of information objectively, but to measure it in a subjective way asking students how they feel they know about the topics discussed. The reason for this choice is to test whether the belief in knowing a certain topic, regardless of the objective level of knowledge, could influence the change of opinion.

H4. Less convinced people tend to change their opinions more frequently

The fourth hypothesis we will test concerns the relationship between the degree of conviction and the change of opinion. As we have already pointed out, the pre-deliberation questionnaire contained a specific question in which the students could indicate how much they were convinced of their answers, on a scale from 1 to 7. In this case, we expect that people who are less convinced of

their pre-deliberation judgment, operatively those who answered with a value from 1 to 4 (inclusive), would change their opinions more often than the less convinced ones.

H5. The level of conviction and the level of information are positively correlated

The fifth hypothesis concerns the relationship between the level of conviction and the level of information. We expect people who are most convinced of their position would think to be most informed about the topics discussed.

H6. After the discussion, people will show higher levels of knowledge

The sixth and last hypothesis is closely linked to the second: we suppose that the level of general knowledge increases as a result of deliberation. We are expecting an increase, especially among those who showed lower levels of pre-deliberation information, however, we hypothesize that the discussion provides new insights also to the most knowledgeable subjects.

Results

H1. The discussion makes opinion change

Figure 1 shows the comparison, in absolute values, between the number of students who show a change of opinion and those in which the discussion did not produce such an effect. Data show how in any single motion there has been a more or less significant change of opinion. In general, considering all the motions altogether, we registered a change of opinion in 154 cases, against 604 total observations. At an aggregate level, therefore, data show a change of opinion of 25.5%.

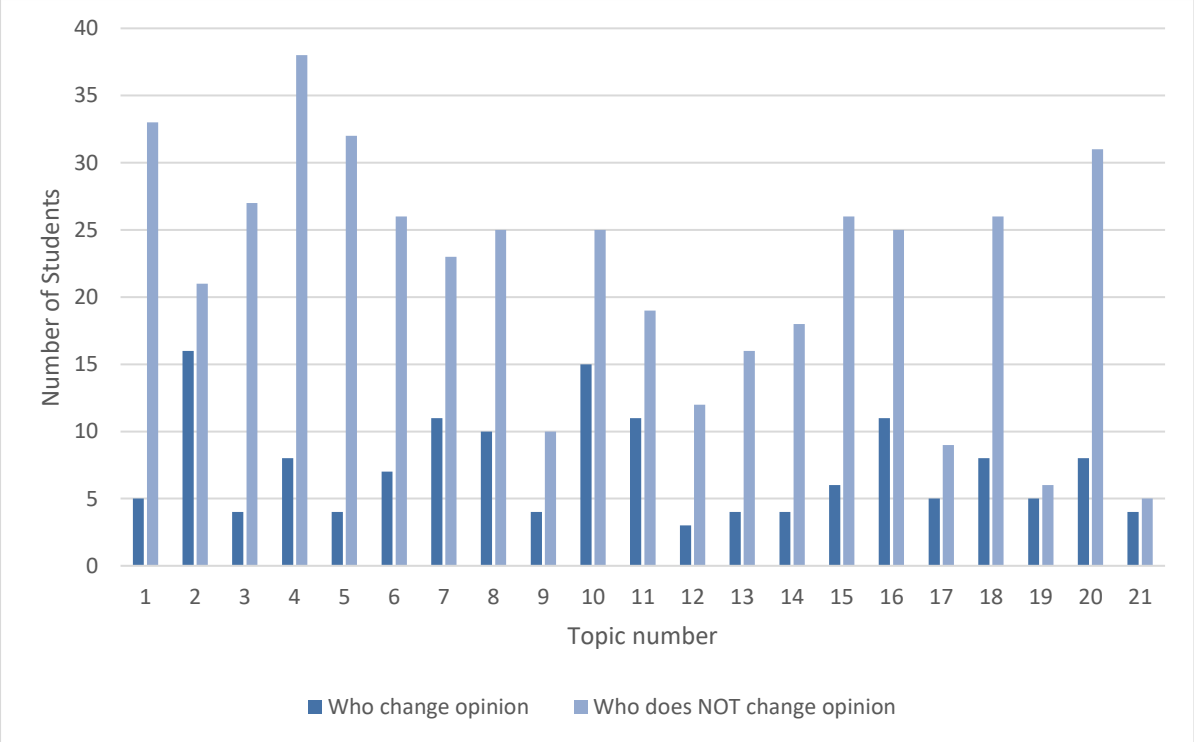

Figure 1. Comparison between the students who have changed opinions and those who have not changed it in absolute values

Our initial hypothesis is confirmed, but the figure does not yet clarify the direction of the opinion change occurred within our sample. Table 2 provides this information, at aggregated level, for all the 21 motions.

		After deliberation			
		Yes	**No**	**Undecided**	**Total**
Before deliberation	**Yes**	307	5	34	**346**
	No	18	85	31	**134**
	Undecided	44	21	59	**124**
	Total	**369**	**111**	**124**	**604**

Table 2. Opinion change matrix

The most interesting result is represented by the 23 students who have totally overturned their initial vote, from "Yes" to "No" and vice versa. However, this change appears to be poorly significant, since data show that the major change occurs between adjacent rather than between totally conflicting responses. The more typical is, in fact, the change of opinion from "undecided" to "Yes" and "No". This fact confirms that the deliberation is useful in providing a series of cues through which people can form informed opinions on issues on which they did not have an accurate opinion prior to deliberation. Within the sample, 59 students who were undecided before the deliberation remained undecided also afterwards. However, as many as 65 students, who in the first phase have been undecided, have chosen to take a position following the deliberation.
That there are at least some undecided people willing to change opinion is the ideal situation for the deliberative model: the existence of citizens who do not have preconceived opinions and that choose only after being adequately informed justifies many of the democratic procedures, including political forums and parliamentary debates. But, above all, it justifies the deliberation day suggested by Ackerman and Fishkin (2002). Equally important is the shift from "Yes" and "No" to "undecided", occurring in 65 cases. In fact, it demonstrates that deliberation is also capable of undermining some certainty, leading individuals to doubt about their initial positions. It would be interesting, in this case, to understand if subsequent discussions could help those subjects to assume a new position or to come back to their original one.

H2. Are there people more predisposed to change their opinions?
We registered a change of opinion of 25.5 percent. However, at individual level it varied from 0 to 75 percent. Analysing individual opinion change, and considering the average change in our sample, we outlined three profiles of subjects, as shown in Table 3: i) those who exhibit a behaviour consistent with the average group's behaviour (percentage values of opinion change between 10.1 and 39.9 percent); ii) *the permeable,* namely those who are more influenced by the discussion (from 40 to 100 per cent); and iii) *the impermeable*, namely those who are less influenced by the discussion (from 0 to 10 percent).

	Permeable students	On average students	Impermeable students
Number of students	14	33	12
Percentage	23.7	55.9	20.4
Percentage average opinion change	49.3	25.5	3.4
Average conviction level (from 1 to 7)	5.2	5.2	5.3
Average knowledge level_1 (from 1 to 7)	3.5	3.9	3.8
Average knowledge level_2 (from 1 to 7)*	4.6	4.8	4.8
Average opinion strength**	5.1	5.3	5.4

Table 3. Analysis of disaggregated opinion change

Notes: * Students response to question: "Have you already read the materials of the exam program about the topic?". ** "How are you convinced of the judgment expressed?"

In our experiment, the behaviour deviating from the average represented 44.1 percent of the total, with a 20.4 percent of impermeable and a 23.7 percent of permeable.

The presence of permeable and impermeable students is significant. We do not know, of course, whether these individual characteristics are more generally applicable and if, for example, the permeable subjects in our sample are more likely to change the political party they vote from one election to the other, or, on the other hand, if the impermeable subjects are those who perpetually vote for the same party. Indeed, for those who intend to persuade the public opinion, it would be crucial to know who are the citizens who can be convinced more easily and those who do not change their minds.

But what does the permeability (and impermeability) depend on? Our starting hypothesis was that these characteristics would depend on the level of knowledge students thought they have in relation to the topics discussed, and that those who thought to be more likely to know a subject would have been more impermeable to the discussion. However, as we can see from Table 3, and more accurately from Table 4, permeability and impermeability to the discussion do not depend on the knowledge the students think to have about a certain topic nor on the strength of their conviction. In particular, Table 4 shows the values of the correlation between the number of individual students' opinion changes and the average values of the variables concerning their level of knowledge and the strength of their opinions. The two variables measuring knowledge are represented by the responses to the answers: "Have you already read the materials of the exam program about the topic?" and "Are you aware of the terms of the debate?; while the variable measuring the level of

conviction is represented by the answer to the question: “How are you convinced of the judgment expressed?”.

Though the coefficients' signs are all negative, and therefore in line with our hypothesis, the values appear to be very low and, therefore, not particularly significant.

	Opinion change number	**Knowledge level_1**	**Knowledge level_2**	**Opinion strength**
Opinion change number	1.0000			
Knowledge level_1	-0.0393	1.0000		
Knowledge level_2	-0.0224	0.7247	1.0000	
Opinion strength	-0.1767	0.4641	0.5652	1.0000

Table 4. Correlation between the number of changes of opinion and individual average values of the variables concerning the level of knowledge and the strength of opinions prior to the discussion

Notes*:* For Knowledge levels 1 and 2, see legend Table 3.

These results demonstrate, on the one hand, the presence of "naturally" more impermeable and "naturally" more permeable subject, still, on the other hand, they do not clarify the nature of these characteristics. Therefore, the question that arises is whether it would be possible to generalize these findings to other deliberative contexts. But in any case, it is necessary to deepen the study of this phenomenon, since these two categories are of greatest interest to the political dynamics, the first group is not contendible, while the latter is too much, and it is the one to which political parties direct their efforts during electoral campaigns.

H3. Less informed people tend to change their opinion more frequently

The third hypothesis we have tested concerns the relationship between the level of prior information and the change of opinion. In empirical literature, the change of opinion seems to be usually greater for those subjects who access the deliberation with a relatively lower level of information. This may be due to the fact that the less informed subjects would have the opportunity to acquire more information through the deliberative process.

The results shown by our data, however, are not particularly relevant and do not allow us to fully accept our hypothesis, although the average information level of those who change opinion is actually lower than the level of those who do not change it. Table 5 shows the average values compared to the three questions designed to investigate the level of knowledge of the topics, i.e.: "Have you already read the parts of the exam program?", "Do you know the terms of the debate?", "Do you have an opinion on the subject?". Responses were gathered on a scale from 1 to 7, where 1 indicates poor knowledge and 7 high knowledge.

The average values of the "strength" of the previous opinion on the topics discussed, however, vary more markedly between those who change and those who do not change their opinion following deliberation. Therefore, the change of opinion seems to be therefore more associated with the "strength" of their beliefs rather than the subjective level of knowledge on a given topic.

Question	**Responses to those who have changed their opinions**	**Responses to those who have not changed their opinions**
Have you already read the materials of the exam program?	3.42	3.96
Are you aware of the terms of the debate?	4.40	4.92
Do you have an opinion on the topic?	4.77	5.47

Table 5. Comparison between average levels of information

H4. Less convinced people tend to change their opinion more frequently

Concerning the relationship between the degree of conviction shown before deliberation and the change of opinion, our hypothesis is that people who are less convinced before deliberation are also those who tend to change their opinions more markedly. Table 6 shows a comparison between the average values of the conviction level before the deliberation, among those who have shown a change of opinion and those who have maintained the same opinion. Although, in this case, the difference between the two groups of subjects is not very high, data show that students who do not change their opinions have a relatively higher level of conviction. Therefore, the hypothesis that people who are less convinced of their ideas tend to change their opinions more frequently is only partially confirmed.

	Pre-deliberation level of conviction
Students who have changed their opinions	4.67
Students who have not changed their opinions	5.39

Table 6. Comparison of pre-deliberation average levels of conviction

H5. The levels of conviction and information are positively correlated

The fifth hypothesis we tested concerns the relationship between the level of conviction and the level of information on a certain topic. We hypothesized that students who perceive to have a greater level of knowledge on a certain topic are also those who have a greater conviction about their ideas. We have thus analysed the pre-deliberation questions: "Have you already read the material relevant to the exam program?" and "Do you know the terms of the debate?", and our hypothesis seems to be confirmed. In fact, the sign of the correlation is positive in both cases

considered. Figures 2 and 3 present this relationship, also showing the number of observations (bubble amplitude).

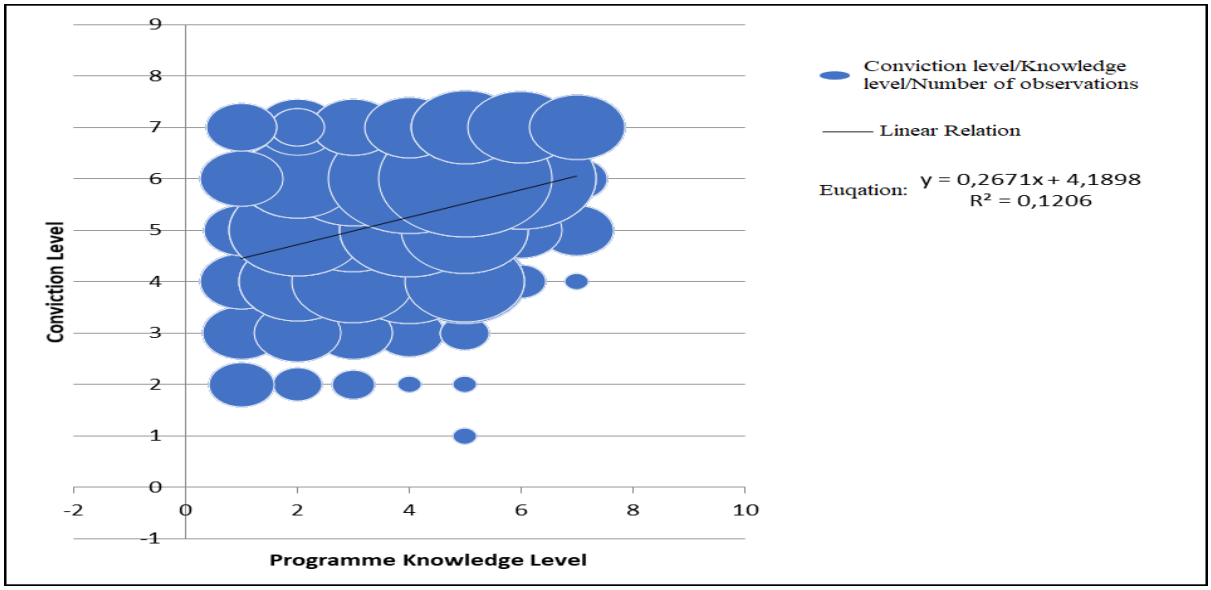

Figure 2. Relationship between levels of conviction and levels of knowledge of the course programme (before the debate)

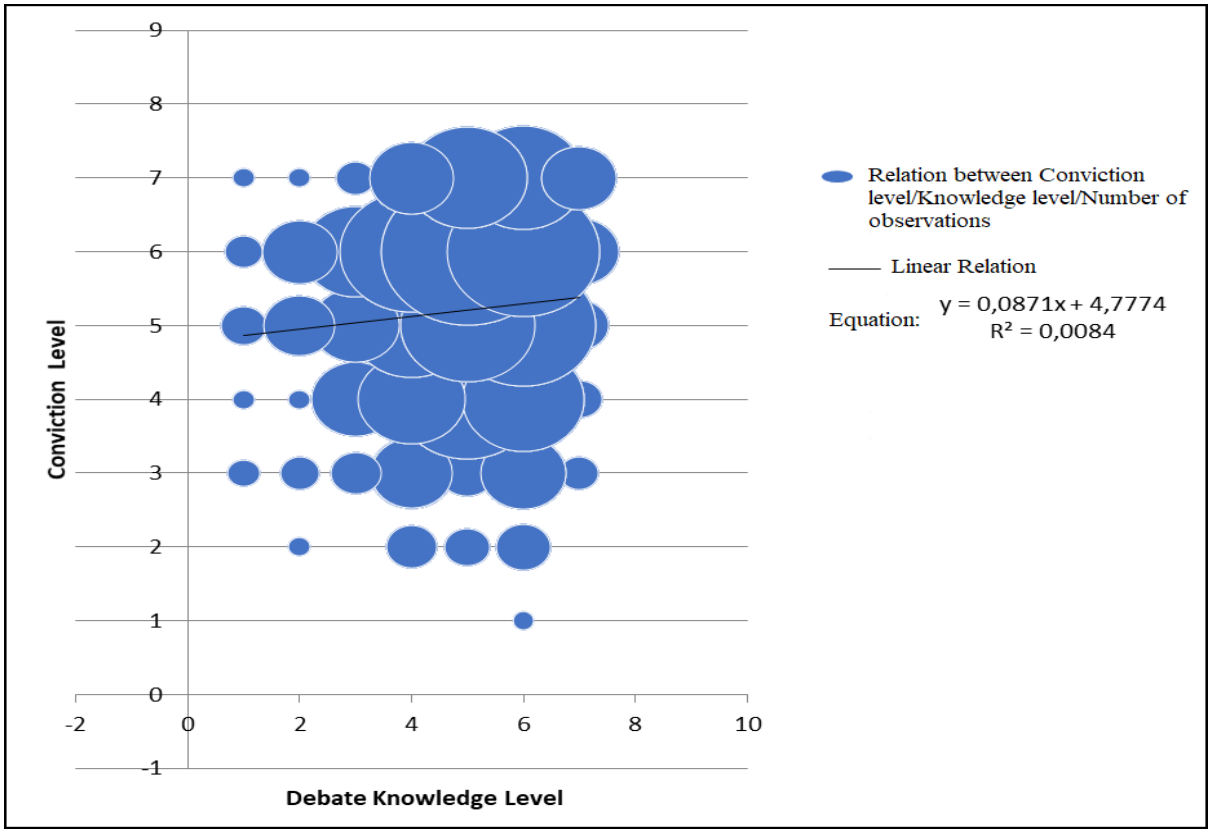

Figure 3. Relationship between levels of conviction and levels of knowledge of the terms of the debate (before the debate)

H6. After the discussion, people show higher levels of knowledge

The sixth and last hypothesis that we tested concerns the ability of deliberation to increase knowledge among participants. According to the answers to the question "Do you feel that the debate has changed your knowledge of the topic?", the hypothesis seems to be proven since 51.6% of students answered this question with an evaluation of 5 to 7, that is, with a positive or extremely positive judgment. Even if it is a subjective and non-objective assessment, the participants in the discussion still feel that their knowledge has improved following the discussion. It would be interesting, in future experiments, to verify also whether the subjects' actual level of information diverge or converge with their subjective judgments about the level of knowledge on the topic discussed.

Discussion

This article attempted to explore the effects of deliberation on the change of opinion in a student community. The experiment conducted in the Global Justice course within the Department of Political and Social Sciences of the LUISS Guido Carli University helped to shed light on this relation providing some more information.

Firstly, we hypothesized that: i) the discussion had the effect of favouring a change of opinion in aggregate terms; and that ii) in the deliberative contexts there is the presence, at disaggregate level, of "naturally" more permeable and impermeable subjects. Secondly, we hypothesized that, within the dynamics of the discussion: iii) less informed people tend to change opinion relatively more often than most informed ones; and that iv) less convinced people tend to change opinions with a higher chance with respect to less convinced ones. Finally, we also hypothesized that: v) the level of conviction and the level of information are positively correlated; and that vi) following the discussion, people will show higher levels of knowledge with respect to the debated topic.

Our data confirms the hypothesis according to which the discussion contributes to the change of opinion: considering all the motions altogether, there was a change of opinion in 154 cases, against 604 total observations. At an aggregate level, therefore, the data showed a change of opinion of 25.5 percent. Equally confirmed is the presence of two types of subjects that we called "permeable" and "impermeable" to the discussion, which show respectively higher and lower opinion change's rate with respect to the average values. The "permeable" are about 23.7 percent and the "impermeable" 20.4 percent of the sample. In addition, contrarily to our expectations, we found that these characteristics do not depend on the level of self-perceived knowledge of the students. To what extent are permeability and impermeability common to all deliberative contexts? Our data did not allow us to answer these questions, but this is a research line that is worth pursuing in future experiments on the relationship between deliberation and change of opinion.

For what concerns our secondary hypotheses, not all the results of the analysis appear to be significant, and this does not allow us to completely accept them. First, the relation between the level of knowledge and the change of opinion is not significant, although the level of information of those who have shown a change of opinion is, on average, lower than that of who did not change it. Secondly, the students more reluctant to change their opinions were those who had a relatively stronger views. However, even in this case, the result does not seem particularly significant, and therefore our hypothesis is only partially confirmed. Otherwise, the hypothesis of a positive correlation between the level of conviction and the level of information is confirmed. Finally, the

data confirm also that the discussion increases individual knowledge on the debated topics. As a result of the discussion, 51.6 percent of students thought that their knowledge of the topics discussed was greater than in the phase prior to the discussion. It is something worth considering not only for the political discourse, but also for education.

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Appendix

Pre-deliberative Questionnaire

Luiss Guido Carli University of Rome
Department of Political Science
Master Course in Global Justice, second semester 2013-14
Professors: Daniele Archibugi and Daniele Santoro

Student Nickname: _____ Date: _____
Motion's Title:_____
Motion Number: _____
Moderator: _____
Favourable:_____ Unfavourable:_____

Voting Method: Only **one choice** for each question

Are you favouring or opposing the motion?	Yes No Undecided
How are you convinced of the judgment expressed?	(Low) 1 2 3 4 5 6 7 (High)

Have you already read the materials of the exam program about the topic?	(Low) 1 2 3 4 5 6 7 (High)
Are you aware of the terms of the debate?	(Low) 1 2 3 4 5 6 7 (High)
Do you have an opinion on the topic?	(Low) 1 2 3 4 5 6 7 (High)

Do you think your beliefs:

They depend on the importance that the topic has for you	(Low) 1 2 3 4 5 6 7 (High)
They depend on being widely shared	(Low) 1 2 3 4 5 6 7 (High)

Post-deliberative Questionnaire

Luiss Guido Carli University of Rome
Department of Political Science
Master Course in Global Justice, second semester 2013-14
Professors: Daniele Archibugi and Daniele Santoro

Student Nickname: _____ Date: _____
Motion's Title:_____
Motion Number: _____
Moderator: _____
Favourable:_____ Unfavourable:_____

Voting Method: Only **one choice** for each question

Are you favouring or opposing the motion?	Yes No Undecided
How are you convinced of the judgment expressed?	(Low) 1 2 3 4 5 6 7 (High)
Do you think that your opinion depends on how the theses have been presented?	(Low) 1 2 3 4 5 6 7 (High)

Do you think the debate has changed:

Your knowledge of the subject	(Low) 1 2 3 4 5 6 7 (High)
The relevance that the topic has to you	(Low) 1 2 3 4 5 6 7 (High)
The opinions of your fellow students	(Low) 1 2 3 4 5 6 7 (High)

After the debate, were the arguments in favour or against the motion reformulated?

If so, answer the following questions:

Thesis in favour of the motion Yes No Undecided

Do you think the reformulated question:

Is more accurate than the original question	(Low) 1 2 3 4 5 6 7 (High)
Reduces the differences of opinion	(Low) 1 2 3 4 5 6 7 (High)

Thesis against the motion Yes No Undecided

Do you think the reformulated question:

Is more accurate than the original question	(Low) 1 2 3 4 5 6 7 (High)
Reduces the differences of opinion	(Low) 1 2 3 4 5 6 7 (High)

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