



## Facilitating personal deliberation online: Immediate effects of two ConsiderIt variations



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### ABSTRACT

A healthy democracy requires cognizant citizens who are willing and able to make informed decisions about political issues. ConsiderIt is a software application aimed at facilitating and encouraging personal deliberation. This article reports on a pretest–posttest experimental study ( $N = 36$ ) into the immediate effects of two possible variations of ConsiderIt: a version with predefined pro and con statements, and one in which users decide for themselves whether statements are pro or con. The participants used ConsiderIt in a controversial case on the position of Greece in the European Union. Data were gathered on changes in standpoint, perceived knowledge, perceived understanding, and general open-mindedness. Irrespective of the variation used, the use of ConsiderIt significantly appeared to affect the users' standpoint as well as their perceived knowledge and understanding of the subject matter. No effects were found on general open-mindedness. Qualitative data, however, showed that it was still hard for the participants to commit themselves to full deliberative behavior. Based on these findings, it seems interesting to implement the usage of this type of software application in educational settings to contribute to a more deliberative society.

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### 1. Introduction

Democracy needs the political engagement and commitment of citizens to survive and thrive. Many Western democracies are confronted with a steady decline of voter turnout in the past 50 years (Blais & Rubenson, 2013; Niemi, Weisberg, & Kimball, 1993), and low voter turnouts among young people (Niemi & Hanmer, 2010). In Europe, the ongoing financial crisis and its consequences have further challenged the European Union (EU) and its goal to democratically unite the countries on the European continent (De Vries & Edwards, 2009; Downs, 2011; Lubbers & Scheepers, 2010; Serricchio, Tsakatika, & Quaglia, 2013). The rise of populism and radical right-wing parties in several European countries is indicative of a growing polarization and a loss of middle ground in European politics (Schumacher & Rooduijn, 2013).

To counteract such negative trends, politically interested and committed citizens are needed, who are willing and able to engage in healthy democratic discourse. This need relates to the concept of public (or democratic) deliberation (Burkhalter, Gastil, & Kelshaw, 2002; Delli Carpini, Lomax Cook, & Jacobs, 2004). Burkhalter et al.

(2002) define deliberation as “(a) a process that involves a careful weighing of information and views, (b) an egalitarian process with adequate speaking opportunities and attentive listening by participants, and (c) dialogue that bridges differences among participants' diverse way of speaking and knowing” (p. 418). Knobloch, Gastil, Reedy, and Cramer Walsh (2013) further operationalize these three elements of deliberation into specific evaluation criteria. Irrespective of such a phasing, Bohman (2007) stresses the overall importance of diversity in deliberative processes. On the basis of the literature, Delli Carpini et al. (2004) argue that deliberation can indeed have the democratic benefits that are associated with it, and that the Internet may play an important role in promoting deliberation as well as researching deliberation.

The connection between online and offline political activities has been investigated by several researchers, both regarding deliberation and regarding affiliation (Conroy, Feezell, & Guerrero, 2012) and mobilization (Baek, 2015; Warren, Sulaiman, & Jafaar, 2014). The studies on affiliation and mobilization underline the great potential of online media for such purposes. However, the results reported by Conroy et al. (2012) indicate that this use of online media does not necessarily correspond with political deliberation. They did not find a significant relationship between participation in online political groups and political knowledge, which they ascribe to the low quality of the online group discussions.

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With respect to political deliberation, Hoffman, Jones, and Young (2013) investigated how people view online and offline political participation and found that they consider online and offline behaviors as occupying separate spheres of activity. The results suggest that politically efficacious citizens see their online political acts rather as serving a communicative function than as a way of influencing the government. Bae, Kwak, and Campbell (2013) investigated the transition of political discussion from offline to online venues, and found that people who are politically interested are more likely to extend their political discussions to the online channels. In addition, they found that the technological requirements of online venues may be a barrier for older citizens to partake in online political discussions. Kim and Khang (2014) found that political participation on social network sites was an important predictor of offline political participation, and was in turn predicted by resources, recruitment, and psychological engagement. Hyun and Kim (2015) also found that political conversations via social media were a significant predictor for participants' political participation in the offline world. In all, the research suggests a two-way relationship between political participation in the online and the offline world.

Several earlier studies focused on general factors that may affect people's inclination to show deliberative behaviors. Lee, Choi, and Kim (2014) showed that educational level, interest, and exposure to information—either access to the Internet in general or exposure to specific campaign news—affect people's agenda diversity. Chung and Han (2013) investigated the way people process online deliberations, focusing on the effects of information type (hedonistic versus utilitarian) and regulatory focus (promotion versus prevention). They found that promotion-focused participants were generally more inclined to change their attitude based on new information. Furthermore, hedonic information had stronger effects on promotion-focused participants and utilitarian information was most effective for prevention-focused participants. Halpern and Gibbs (2013) focused on the role of specific media, comparing Facebook and YouTube as venues for online deliberation, and concluded that Facebook offers more opportunity for symmetrical conversations and equalitarian participation.

Apart from the research into personal and media characteristics that affect people's general inclination to participate in deliberative activities, several studies in different contexts have focused on the deliberative nature of specific online initiatives, with partial or modest effects (e.g., Knobloch et al., 2013; Strandberg & Grönlund, 2012). Such studies, in our view, suffer from two related characteristics. First, the concept of deliberation is broad and multi-faceted, which means that it is hard to find nothing and even harder to infer that a desired level of deliberation was reached. Mutz (2008) therefore argues for “middle-range” theories that are “important, specifiable, and falsifiable parts of deliberative democratic theory.” Second, the effects of initiatives strongly depend on specific factors, such as context and design (Delli Carpini et al., 2004). Stromer-Galley, Webb, and Muhlverger (2012), for instance, draw attention to an important context variable: the alignment with the authorities. Wright and Street (2007) argue that design is a crucial success factor for online deliberation projects. Towne and Herbsleb (2012) analyze existing online deliberation systems and formulate design considerations for such systems, grouped into five main points: attracting contributions, navigability, usability, quality content, and adoption. Rose and Sæbø (2010) take a somewhat broader perspective, and place the development of deliberation systems in the context of stakeholder engagement, web platform design (predefined categories or not, synchronous or asynchronous, anonymity), service management, and political process reshaping.

A factor that may affect the success of online deliberation initiatives but that may also be considered to be at the heart of the

functioning of democracies are the deliberative skills and attitudes of citizens. Personal deliberation is the precursor to public or democratic deliberation (Mutz, 2006). Citizens, as political actors, may choose to be open- or narrow-minded. They may stick to a set political affiliation or identify themselves as non-affiliated free-thinkers. Research shows that there are two “modes of citizenship” available to citizens. They represent extreme archetypes of behavior, and most citizens can be found somewhere between those two poles (MacKuen, Wolak, Keele, & Marcus, 2010). On one side of this continuum, the “partisan” mode can be found. The partisan citizen is characterized by faithfulness to a certain political affiliation and an unwillingness to change existing beliefs. The “deliberative” citizen is located on the other side of the continuum. The deliberative citizen stresses the importance of building a profound informational base and engaging in reflective thought before making political decisions. Other characteristics of the deliberative citizen are consideration, balance, open-mindedness and a willingness to collaborate and accommodate (MacKuen et al., 2010).

People's exposure to and processing of diverse information can thus be seen as a *sine qua non* for deliberation. Kim, Wyatt, and Katz (1999), for instance, show that news-media use is positively correlated with several aspects of deliberation: having political discussions, willingness to argue, argument quality, and participation. De Vreese and Boomgaarden (2006) show in a longitudinal study that there is a causal relation between news media consumption and political knowledge and participation. Deliberative skills and attitudes can to some extent be learned in daily life. For instance, Burkhalter et al. (2002) hypothesize that acts of deliberation will reinforce people's deliberative skills and predispositions. A more systematic way of promoting personal deliberation would be to develop instructional or educational tools that help people train their deliberative skills and attitudes.

In this article, we report on an study into the immediate effects of a specific software application, ConsiderIt, on the deliberative attitudes of users. ConsiderIt is designed to facilitate and encourage personal deliberation online. We experimentally investigated the effects of this application, and compared two design variations.

Before we will describe the design and the results of our study, we will first briefly discuss the relationship between media usage and deliberation, the characteristics of and previous studies using ConsiderIt, and the research questions of our study.

## 2. Media usage and deliberation

The relationship between media usage and public opinions has been studied for many years. Traditional theories assumed that the number of media in a social environment was limited, and attributed a considerable amount of power to the institutionalized media (Shaw & Martin, 1992). Two dominant perspectives are agenda setting and framing (McCombs & Shaw, 1972). The agenda setting theory assumes that the media have their own agenda in selecting news facts, and determine which issues citizens will consider to be important. It involves the selection and highlighting of information. Framing assumes that the media provide their own perspectives to news events, and by doing so affect the way citizens interpret them (Cottle & Rai, 2006). Such media bias may be considered to be a structural problem in news production, since media professionals, journalists and producers are affected by external forces such as advertisers, management and other stakeholders (Herman, 2000). These constraints are inherent to the process of making news, and therefore hard to change (Baker, Graham, & Kaminsky, 1994; Park, Kang, Chung, & Song, 2009). If the information citizens receive is biased, their opinions and voting behavior may be skewed as well.

For most of the 20th century, people's media use was limited to relatively few media, like radio and television, and only few channels. The majority of the population, regardless of political affiliation, socio-economic standing and other characteristics, was exposed to largely the same information. Of course, there was still some divergence due to special interests or differing degrees of political engagement, but the majority of people shared the majority of news—a so-called “information commons” (Bennett & Iyengar, 2008). The prevalent communication pattern was one-to-many, with relatively few media outlets disseminating information to huge groups of citizens.

In the last decades of the 20th century, two major developments in the media landscape made the “information commons” disappear: in the traditional media, the number of (public and private) channels increased dramatically, and the so-called “new media” emerged. The new media—among which the Internet, video games, and smart phones—are characterized by their interactivity and connectivity (Flew, 2008). These features allow users to retrieve, create and manipulate information and to collaboratively work and express themselves in communities. Many services on the Internet emerged in the 2000s, such as Wikipedia, Google, Facebook, YouTube and Flickr. They have in common that users can upload their own self-made content and share it with other people.

The current media landscape reflects those developments and consists of countless numbers of private bloggers, established as well as upcoming media outlets, aggregators like Google News, and many other services. Citizens have thousands of information sources to choose from. One could assume that the increased amount and variety of information will lead to better informed citizens. Some studies indeed provide small-scale evidence for such effects. A survey study by Kim (2011), for instance, found a positive relationship between social network sites use and exposure to cross-cutting political viewpoints. Choi and Lee (2015), however, showed that the relationship between social network use and interaction with heterogeneous others is complex and far from straightforward, with news sharing and political interest as interacting underlying factors.

On the other hand, researchers suggest that citizens only seem to become less informed and more biased toward affirming information (Bennett & Iyengar, 2008). There are two mechanisms that make it difficult for citizens to retrieve and receive the balanced information needed for a deliberative attitude: the psychological phenomenon of selective exposure, and the media content strategy of personalization.

*Selective exposure* refers to people's inclination to predominantly select information that affirms their pre-existing beliefs and attitudes, and to avoid information that would contradict their viewpoints (Chaffee, Saphir, Graf, Sandvig, & Hahn, 2001). It is often accompanied by two other selective behaviors: *selective perception* and *selective retention*: people not only tend to avoid contradictory information, they may also overlook or forget such information (Klapper, 1960, p. 19). The underlying psychological mechanism is called cognitive dissonance, which assumes that people will try to minimize feelings of discomfort when their own beliefs are not compatible with new information (Festinger, 1957). They can either adjust their attitude or avoid conflicting information. In politics, the mechanism of selective exposure is theorized to be very strong. People are continuously exposed to politically relevant information and often have strong pre-existing beliefs (Stroud, 2008). When using media to search for information, citizens with strong political opinions tend to avoid “mainstream media” and instead look for alternative news sources that cater to and affirm their political stance (Iyengar & Hahn, 2009). In their relationships, people also have an inclination to associate with politically likeminded people (Mutz, 2006).

Several researchers drew attention to a related phenomenon in online political discourse: *selective access*, and, as a possible result, *selective content availability*. Baek, Wojcieszak, and Delli Carpini (2012) compared online versus face-to-face deliberation, and concluded that online deliberation over-represents males, caucasians and ideological moderates, and leads to more negative emotions and less consensus and action. Likewise, in an analysis of information diversity for Dutch and Turkish Twitter users, Bozdag, Gao, Houben, and Warnier (2014) show that minority access is problematic in the Turkish context. Vraga, Thorston, Kligler-Vilenchik, and Gee (2015) draw attention to another mechanism that may lead to selective content availability on Facebook: people's political interests, inclinations toward conflict avoidance, and perceptions of Facebook's political climate may affect their willingness to address political issues. Mikal, Rice, Kent, and Uchino (2014) demonstrate in another context—in an image-sharing community—how cultural norms and content convergence may affect users' behaviors in online communities.

Thus, even though citizens have vast amounts of information at their fingertips, they may tend to consider only the information that will reinforce them in their beliefs. Some scholars call this the “Echo Chamber Effect.” Citizens live their lives in an imaginary chamber that constantly repeats their pre-existing beliefs, without providing substantial new or challenging information (Iyengar & Hahn, 2009).

The second mechanism that may lead to a narrowing of citizens' political horizons is *personalization*. By using data such as click-through-rates on specific topics, search history or time spent on websites, content aggregators such as Google and Facebook show search results that differ from person to person, according to their presumed interests. Pariser (2011) coined this phenomenon the “Filter Bubble,” and showed how a search query for “Deepwater Horizon” at the time of the disaster with the offshore oil drilling platform of the same name produced results with environmental content for one user, and investment information for another. The mechanism is not always clear to Internet users: they may think that they receive general results whenever they search when, in reality, they get personalized results.

When the mechanisms of selective exposure and personalization are combined, they lead to citizens who, in the most extreme case, are constantly reinforced in their own beliefs and attitudes without ever being challenged or exposed to new and contradicting information. Given the increasing importance of online sources for people, Sunstein (2001) fears that more and more people will “wall themselves off from topics and opinions that they would prefer to avoid” which will eventually lead to a “fragmented citizenry” (p. 201). Other scholars argue that this will lead to a polarization of political parties and their following, and that this will not be limited to partisan groups but will impact mass public opinion (Abramowitz & Saunders, 2006). Another possible result of this trend is a politically fragmented society—a society that consists of multiple political groups and camps that live in each other's vicinity but not with each other (Sunstein, 2002).

### 3. ConsiderIt

ConsiderIt is a software application created and built at the University of Washington, which intends to nudge citizens toward deliberative attitudes and behavior (Freelon, Kriplean, Morgan, Bennett, & Borning, 2012; Kriplean, Morgan, Freelon, Borning, & Bennett, 2012). It is modeled after a classic “pro and con” list, a widely known and used method for reflective thought and deliberation. Users of ConsiderIt are presented with a statement, and asked to evaluate it and to consider pro and con arguments for the statement. They can seek support for their own position using statements they agree with, and evaluate their position using

opposite statements. They are also allowed to write new statements for either side, which will be available for users after them. Since the users need to consider statements from both sides, they are urged to critically reflect on where they stand and acknowledge that opinions are often the result of weighing support for the con and the pro side. Users are prompted to state their opinion twice: once before they start working with the statements, and once when they are finished. The application records to what extent users changed their opinion after considering all the statements.

ConsiderIt has been used successfully in the United States on websites for the Washington Living Voter's Guide and the California Living Voter's Guide (Freelon et al., 2012; Kriplean et al., 2012). On these websites, citizens are encouraged to form an opinion about current state issues, such as legalization of marijuana or same-sex marriage in Washington. Kriplean et al. (2012) found that the Washington Living Voter's Guide attracted over 8000 unique visitors. They analyzed their activities on the website, and conducted a small-scale lab study and a short survey to investigate the use of and appreciation for ConsiderIt. The results show that ConsiderIt is a promising tool for promoting deliberation. Freelon et al. (2012) describe a field study into the behaviors of registered users of the Living Voter's Guide, which showed that they actively engaged in deliberation related activities.

#### 4. Research questions

With the exception of Kriplean et al.'s (2012) small-scale lab study, the available research presumes the use of ConsiderIt in a web context, in which people can decide for themselves whether they want to expose themselves to the application. This may lead to a self-selection bias when it comes to the effects of the application: people who visit the website and register may already have a favorable attitude toward deliberation and informed opinions in the first place. In this article we therefore present a study into the immediate effects of ConsiderIt in a controlled research setting, in which we exposed participants to the application. This usage scenario would correspond to the use of ConsiderIt in educational settings.

RQ1: What are the immediate effects of ConsiderIt on the deliberative attitudes of users in a controlled setting?

A second research purpose of this article was to experimentally compare the effects of two design variations. In the literature, it is assumed that the interface design may be an important success factor in deliberation tools ((Rose & Sæbø, 2010; Towne & Herbsleb, 2012; Wright & Street, 2007). In our research, two design variations were compared: a pre-structured version in which users are confronted with pre-defined pro and con statements, resembling the ConsiderIt application used by Freelon et al. (2012) and Kriplean et al. (2012), and a more open version, in which users have to decide for themselves which statements are pro and which are con. It could be argued that the latter variation requires more engagement of the user and therefore may be expected to contribute more to the quality of their deliberations.

RQ2: To what extent do a pre-structured and an open version of ConsiderIt have differential effects on users in a controlled setting?

The third, more exploratory research purpose involved people's appreciation for working with ConsiderIt. As the success of deliberation tools will strongly depend on people's willingness to use them, we wanted to know more about the users' experiences while working with ConsiderIt.

RQ3: How do users experience three aspects of using ConsiderIt: handling the statements, reconsidering their opinion, and reflecting on the application's overall benefits?

#### 5. Methods

To answer the research questions, a two-group pretest–posttest experimental design was used. In a laboratory setting, participants were randomly assigned to one of two conditions (the pre-structured and the open version of ConsiderIt). In both groups, attitudes were measured before and after the use of the application. In addition to the quantitative variables, the participants also produced think-aloud data when working with ConsiderIt. The research was conducted in German, among German participants.

##### 5.1. ConsiderIt variations and content

In our study, we used an interactive prototype of ConsiderIt. It was fully functional and had a similar layout, but lacked some of the features that the online version of ConsiderIt has—specifically the possibility to write new statements, to comment on statements, and to see which statements other users had included.

The ConsiderIt procedure starts with a statement, about which the users have to indicate, using a slide, to what extent they support or oppose. After that they are presented with a set of statements (in our case 12 in total), and they are prompted to consider all statements and select a maximum of four most important pro and con statements that affected their decision. Finally, they are asked to update their initial standpoint, using the same slide.

The two versions of ConsiderIt differed in layout but not in content. The pre-structured version indicated clearly which statements were pro or con, by using different colors (green and red) and positions for both sides (left and right). The open version did not indicate whether a certain statement should be considered to be pro or con. All statements were yellow and located unsorted below. Fig. 1 shows mock-ups of both versions.

The participants were presented with one political issue, namely whether Greece should leave the EU monetary union or not. This political issue was chosen because it was a relatively recent topic, it had received much media attention, and it was unlikely to provoke strong emotional responses or offend people. A total of twelve statements on the topic was assembled, six statements that were in favor of an exit of Greece, and six statements that were against Greece leaving the monetary union. The statements were drawn from articles in multiple German news sources: Financial Times Deutschland, Berliner Zeitung, Tagesschau, and n-tv.de.

##### 5.2. Procedure

At the start of a session, participants were briefly informed about the procedure of the experiment, but not about the study's real objectives. The study was framed as a usability test. The participants knew that they had to fill out a questionnaire, use a website, and think aloud while using the website. The participants were granted complete anonymity.

The session started with the pretest questionnaire, measuring the dependent variables, and also some background variables (gender, age, and education). After that, they started working with ConsiderIt. This consisted of three steps: (1) using the slide to indicate their initial opinion, (2) judging and handling the arguments, and (3) using the slide to indicate their post-use opinion. The session ended with a post-test questionnaire with the same questions as the pretest-questionnaire. Both questionnaires were

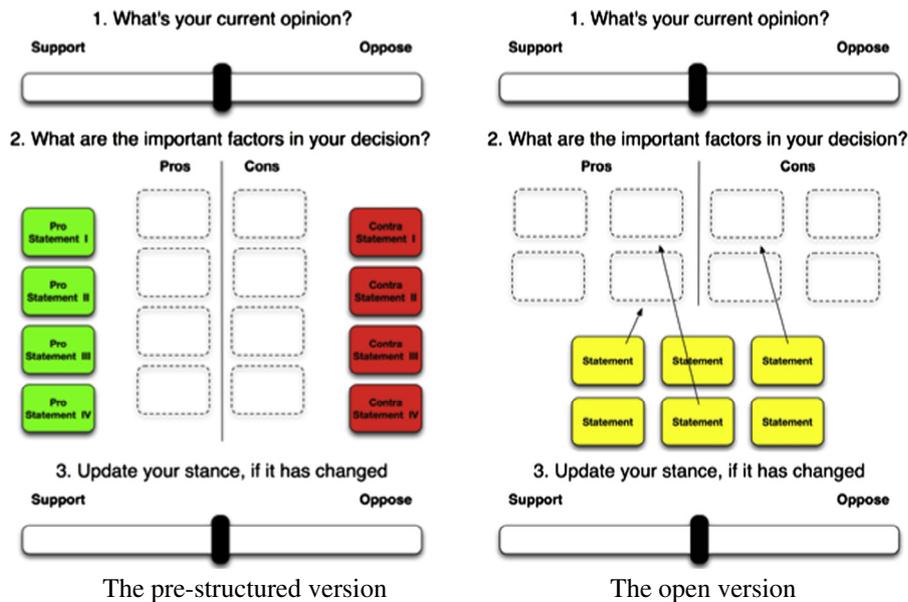


Fig. 1. The two versions of ConsiderIt used in the experiment.

administered on paper. When all was completed the participants were debriefed and thanked for their participation.

During their work with ConsiderIt, the participants were asked to think aloud, and the facilitator prompted them with a set of pre-defined probes (e.g., “Why did you set the slider like that?” or “In what order are you reading the arguments?”). Dumas and Redish (1999) argue that such of prompted think-aloud protocols work best if the goal is to reveal participants’ usage patterns instead of usability problems. The part of the session in which participants worked with ConsiderIt was audio-recorded (with permission).

### 5.3. Dependent variables

The participants’ deliberative attitudes were measured using multiple underlying variables related to personal deliberation. On the basis of the literature, we focused on two general categories of deliberation: having a profound informational base before making a decision, and respecting other views (Kuklibski et al., 1991; MacKuen et al., 2010; McCrae, 1987; Price, Cappella, & Nir, 2002).

In the pre- and posttest questionnaire, four constructs were measured. One of the constructs (political tolerance) did not result in a sufficiently reliable scale, and was left out of consideration. The three constructs we worked with were: perceived knowledge, perceived understanding, and general open-mindedness. All questions were asked using five-point Likert scales. All constructs contained some negatively formulated items, which were later recoded.

*Perceived knowledge* was defined as participants’ estimation of the information they had at their disposal about the issue at hand. Eight questions were asked: four about their general knowledge (e.g., “In all, I know the facts about this topic”), and four about their knowledge about diverging opinions about the issue (e.g., “I am aware of the different viewpoints”). After deleting one of the original items, the Cronbach’s alpha of this scale was sufficient in both measurements (pretest  $\alpha = .91$ , posttest  $\alpha = .78$ ).

*Perceived understanding* was defined as participants’ insight in the way people form standpoints regarding the issue at hand. Eight questions were asked: four about their understanding of the background of various viewpoints (e.g., “I have a good understanding of my own viewpoint”), and four reflecting on the

carefulness of their own viewpoints (e.g., “I based my opinion on a gut feeling”). After deleting one of the original items, the Cronbach’s alpha was sufficient in both measurements (pretest  $\alpha = .75$ , posttest  $\alpha = .80$ ).

*General open-mindedness* was defined as participants’ willingness to explore and consider opposing information. Eight questions were asked: four about taking diverging information into consideration (e.g., “I often look for opinions that I know I will oppose”), and four questions about their readiness to change their views (e.g., “New information can make me change my standpoint”). The Cronbach’s alpha of the complete scale was sufficient in both measurements (pretest  $\alpha = .62$ , posttest  $\alpha = .73$ ).

### 5.4. Participants

The participants were German students, who studied at the University of Twente. They participated on a voluntary basis. In total, 36 students participated, 18 per condition. The male to female ratio was 69% versus 31%. Their mean age was 23.1 years ( $SD = 2.0$ ). They had 3.2 years of college education on average ( $SD = 1.1$ ). There were no significant differences between the two experimental conditions.

### 5.5. Analysis

The quantitative analysis consisted of a repeated measures ANOVA, with experimental condition as a between-subjects variable. Four dependent variables were included: opinion change, perceived knowledge, perceived understanding, and open-mindedness. The opinion change variable had to be recoded, since we did not have any expectations about the direction of change. The initial opinions were all recoded into zero; the post-use scores were recoded in terms of distance to the participants’ initial score. As an additional indicator of deliberation, we also analyzed the number of counter-arguments that participants with a non-neutral position had selected.

The qualitative analysis (of the prompted think-aloud protocols) focused on three topics: (1) the factors affecting participants’ inclusion of statements, (2) factors affecting opinion change, and (3) benefits of usage. Per topic an inventory was made of the variety of opinions of participants.

**Table 1**  
Pre- and posttest results for the two ConsiderIt versions (mean scores and standard deviations).

	Pre-structured version		Open version		Total	
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
Opinion	3.39 (1.09)	3.61 (1.09)	3.22 (1.00)	3.29 (1.17)	3.31 (1.04)	3.44 (1.13)
Perceived knowledge	2.88 (.92)	3.11 (.83)	2.57 (.87)	2.78 (.56)	2.73 (.90)	2.94 (.72)
Perceived understanding	3.25 (.81)	3.61 (.66)	3.06 (.42)	3.34 (.35)	3.16 (.64)	3.48 (.54)
General open-mindedness	3.74 (.37)	3.81 (.36)	3.83 (.47)	3.88 (.52)	3.78 (.42)	3.84 (.44)

Note: All items were measured on five-point Likert scales. The opinion scale ranged from support (1) to non-support (5); the other three scales ranged from low (1) to high (5).

## 6. Results

### 6.1. Quantitative results: effects on participants

Table 1 presents the test mean scores of the participants in both conditions in the pre- and the posttest. The multivariate repeated measures ANOVA showed that there was a significant overall effect of participants' exposure to either condition of ConsiderIt (Wilks' Lambda = 0.44,  $F(4, 31) = 9.783$ ,  $p < .001$ , partial  $\eta^2 = .56$ ). The univariate tests showed that three of the four variables differed significantly between the two measurements. The participants' standpoint had undergone a significant change ( $F(1, 34) = 15.015$ ,  $p < .001$ , partial  $\eta^2 = .31$ ). The same applied to their perceived knowledge ( $F(1, 34) = 4.772$ ,  $p < .05$ , partial  $\eta^2 = .12$ ) and their perceived understanding ( $F(1, 34) = 18.019$ ,  $p < .001$ , partial  $\eta^2 = .35$ ). In all cases, the partial  $\eta^2$  indicated a practically meaningful effect. No significant change was found regarding general open-mindedness ( $F(1, 34) = 1.568$ ,  $p = .22$ ).

These findings suggest that working with ConsiderIt had considerable effects on participants' deliberation and deliberative attitudes. The application urged participants to reconsider and often change their original opinion, and the participants general felt that their knowledge and understanding of the subject-matter had changed.

In the between-subjects test, no significant differences were found between the two conditions (Wilks' Lambda = 0.92,  $F(4, 31) = .689$ ,  $p = .61$ ), and, more importantly, there was also no significant interaction between the two conditions and the effects of using ConsiderIt (Wilks' Lambda = 0.99,  $F(4, 31) = .106$ ,  $p = .98$ ). This result suggests that the two variations of ConsiderIt did not have differential effects on the participants.

Finally, we examined how many counter-arguments were included by participants with a non-neutral initial position ( $N = 23$ ). Table 2 presents the results of this analysis. Only four participants (17%) with a non-neutral initial opinion did not select any counter-arguments, whereas 19 participants (83%) included at least one opposite statement in their opinion. This indicates that a majority of participants reflected on their opinion and considered both sides of the issue.

### 6.2. Qualitative results: participant experiences

The qualitative data shed light on the participants' experiences while working with ConsiderIt. Regarding the *handling of*

**Table 2**  
Selection of counter-arguments by non-neutral participants.

Number of counter-arguments included	Frequency	Percentage (%)
0	4	17
1	4	17
2	9	39
3	4	17
4	2	9

statements, the prompted think-aloud data revealed that participants' motives to include statements or not were not limited to the question whether they agreed with them or not. Table 3 provides an overview of other motives, along with illustrative quotes. The motives can be divided into two broad categories. The first is that participants tried to relate the statements to their own initial opinion or to assertions they were familiar with. The second is that participants excluded statements that raised doubts, because they did not match their prior knowledge, because they needed a reliable source, or because they felt unable to judge the information contained in them.

When it comes to *reconsidering their opinion*, two of the earlier mentioned considerations were mentioned again: doubts about the factual correctness of statements (but this time the doubts seemed to concern the entire set of statements) and doubts about their own ability to judge the information (Table 4). In addition, some participants argued that the collection of statements was

**Table 3**  
Participants' additional motives to include statements or not.

Motives	Illustrative quotes
Agreement with own opinion	"Of course it's easier for me to look for con statements, because it's my own opinion."
(Un)familiarity	"I am looking for statements that I have in mind already, to feel reassured."
Doubts about own knowledge	"If it comes to things like finance, I'm just unable to assess this. And this is why I won't include it."
Doubts about factual correctness	"I know all these statements. You can find them in the mainstream media, but they're just wrong. That's why I can't use them."
Lack of source information	"I'm missing solid sources to go with these. The statements are really weak, if they're not supported by hard facts."

**Table 4**  
Participants' reasons to change their opinion or not.

Reasons	Illustrative quotes
Not partaking in deliberation	"I think the reason for that is that I already had my opinion [...] I looked for statements supporting my position. I'm more conservative in my position."
Negative judgments about significance of statements	"I have a pretty solid standpoint. I found the significance of the statements weak, too weak to change my opinion."
Doubts about factual correctness	"I can't assess whether the new statements are true like that"
Doubts about own knowledge	"I lack the background knowledge to say whether the statements are true or not. You need a basis of political science, economics, stuff like that. And I lack that. This is why I can't form a solid opinion."
Decision based on number of pro or con statements selected	"That I found more statements against the exit.. That means I have a tendency against the exit. But that's more of a tendency, which can still be changed by new statements."

not strong enough to change their original opinion. One participant explicitly refused to partake in a process of deliberation. Another participant thought that the numbers of pro and con statements selected must be indicative for his/her standpoint.

Both sub processes underline that it was not easy for participants to fully engage in personal deliberation. Regarding ConsiderIt's overall benefits for themselves, however, most participants were positive about the application. The appreciation of ConsiderIt seemed to depend on the novelty and relevance of the statements included. In all cases that participants did not appreciate working with ConsiderIt, they referred to a lack of new or valuable information. Another participant, who appreciated ConsiderIt, argued that the number of statements may be overwhelming and intimidating. Most participants described the benefits of working with ConsiderIt in terms of knowledge, either the acquisition of new knowledge or the refreshment of knowledge they already had (Table 5). One participant explicitly mentioned the facilitation of reflective thinking.

Although not all reactions of participants were in support of a deliberative mindset during their work with ConsiderIt, the majority of the utterances did point in that direction. Participants were open to new information (and felt disappointed when they did not find such information), and the need some of the participants felt for more facts about the source of or support for statements may be seen as a potentially important aspect of deliberation.

The qualitative results draw attention to the content provided in ConsiderIt. This appears to be the most significant variable deciding whether people are willing to deliberate about the statement. Important aspects are the novelty value of statements, their support, their relation to users' prior knowledge and skills, and the total number of statements included.

## 7. Discussion

Literature suggests that the rise of online media has the potential to be beneficial for political deliberation among citizens, but may also threaten people's inclination to show deliberative behaviors. The rapidly increasing amount of potentially relevant information about societal and political issues is a blessing and a curse at the same time. People have the opportunity to be better informed than ever before, but they need to manage all potential sources in order not to drown in the information. In this situation, mechanisms such as selective exposure and information personalization may easily affect the heterogeneity of the information that people are confronted with. Information competencies are indispensable in modern society. Only citizens who are willing and able to handle different viewpoints and to critically assess supporting arguments can be expected to function well in a healthy democratic discourse.

ConsiderIt is a software application that may contribute to such information competencies and to people's preparedness for personal deliberation. Earlier research showed that ConsiderIt works

well for self-selected users in the context of elections (Freelon et al., 2012; Kriplean et al., 2012). In these contexts, the ConsiderIt users were likely to already have a deliberative disposition and to be intrinsically interested in the subject-matter at hand. Our study took a different approach: we tested the effects of using ConsiderIt in a controlled setting, with participants who did not necessarily have a deliberative disposition and who used the application to form their opinion about a topic that they did not choose themselves. The purpose of such usage of ConsiderIt is to contribute to people's general deliberative attitude and skills.

### 7.1. Main findings

The results of this first evaluation of ConsiderIt in a controlled setting appear to be favorable. The use of ConsiderIt led to significant changes in standpoint, perceived knowledge, and perceived understanding among users. Of course, it should be emphasized that a change in standpoint is not necessarily an objective of ConsiderIt, but a willingness to change a standpoint on the basis of new information is, and the significant change in participants' standpoints reflected such willingness. These are all signs of deliberative behavior. Only for general open-mindedness no significant effects were found. Participants' willingness to also include counter-arguments in their selections of statements further supports the application's potential to increase people's deliberative skills and attitudes.

The participants' comments in the prompted think-aloud data, however, show that it was hard for participants to fully commit themselves to deliberative behavior. For several participants, their initial opinion about the topic was leading in their interpretation and use of statements. Furthermore, participants had problems handling the new information contained in the statements, in particular assessing the factual correctness of the statements and the exhaustiveness of the set of statements. The latter, however, is not necessarily in contradiction with personal deliberation. Assessing the value of new information is considered to be an important component of deliberation (Burkhalter et al., 2002). Still participants largely acknowledged the benefits of using ConsiderIt for themselves.

In all, our research shows that deliberative competencies may not be easy and self-explanatory for people, but that working with ConsiderIt has the potential to improve people's deliberative skills and attitudes.

Based on the literature (Rose & Sæbø, 2010; Towne & Herbsleb, 2012; Wright & Street, 2007) we expected that the specific design of ConsiderIt might affect its effects on users. The results of our study show that the interface, operationalized in a pre-structured and an open version of the application, did not have any influence on the effects of ConsiderIt on users. To promote an inviting and user-friendly interface, it seems advisable to use the pre-structured version. However, there may be situations in which the distinction between pro and con statements is not so easy to make. In those circumstances, an open version may also be used without problems.

### 7.2. Theoretical implications

Many of the problems regarding the functioning of democracy in modern societies may be attributed to the deliberative skills and attitudes of citizens. Ideally, citizens are willing and able to form their opinions about societal issues on the basis of well-balanced information. They should be aware of the arguments plus supporting information on the full range of the spectrum, and form their standpoint on the basis of a careful weighing of these arguments. Such deliberative skills and attitudes are not systematically taught in school.

**Table 5**  
Participants' evaluation of ConsiderIt's overall benefits.

Reasons	Illustrative quotes
Perceived increase of knowledge	"Now I know more opinions and more con statements. I think I'm a little less opposed to [Greece's] exit."
Refreshment of memory	"I only informed myself a little bit about this topic, and I think this is a good refreshment."
Facilitation of reflective thinking	"You are presented with a couple of statements and you get a good overview on all the statements. Consequently you know more about your own position, and you're reflecting more about it."

The most plausible way of improving people's deliberative skills and attitude is by confronting them with the difficult task of forming an opinion on the basis of diverse information sources. Applications such as ConsiderIt offer unique possibilities that were not available in traditional learning materials. The application links forming an opinion and handling information in a natural way. The results of our study show that ConsiderIt indeed had the intended effects, on perceived knowledge, understanding, and standpoint. The positive findings after a single usage of ConsiderIt are a promising sign for a more systematic usage of ConsiderIt in educational settings.

### 7.3. Limitations and future research

Of course, it should be noted that the research reported in this article was limited to the immediate effects of ConsiderIt after only one session. It is imaginable that the effects of using the application will disappear over time. However, when the application is used more structurally, it seems plausible that prolonged effects may be reached. One could, for instance, argue that more structural forms of use are needed to be able to reach effects on general open-mindedness. After all, the difference between general open-mindedness and perceived knowledge and understanding is twofold: (1) it is a difference between attitudinal and cognitive variables, and (2) it is a difference between general and topic-specific variables. For both characteristics, more may be needed than a single specific experience. Of course, we should not speculate on this. After the successful test described in this article, the effects of repeated use of ConsiderIt should be investigated in follow-up research.

Another limitation concerns the content included in the ConsiderIt session. The qualitative results, especially those regarding the handling of statements and the participants' inclination to reconsider their initial standpoint, draw attention to a design variable that seems to be more significant than the interface: the content of the statements that are offered. The prompted think-aloud data showed that the quality of the statements included may have a strong effect on the perceived usefulness of ConsiderIt and possibly also on its effectiveness. Future research should focus on the optimal number of statements, on the effects of additional support for or explicit sources of the statements, on the effects of better or worse connection to the users' prior knowledge, and on the effects of novel versus familiar statements.

Finally, it must be noted that the participants in our study were university students: highly educated young people with computer literacy. Our study showed that the basic approach and the application is well-suited for university students. Future research should indicate whether ConsiderIt is equally effective for younger users, for users with lower levels of education, and for older users with more life experience.

### 7.4. Practical implications

The results of our study open the door for using ConsiderIt in educational settings. The formation of deliberative skills and attitudes is a core competence for citizens in modern society. Those educational settings may be formal ones (like high schools and universities), but it is also possible to offer people online possibilities to reflect on societal or political issues on a regular basis. Both directions would require further adaptations of ConsiderIt, embedding of ConsiderIt usage in an educational context, and the development and fine-tuning of specific content for ConsiderIt modules. Based on our findings it seems plausible that the usage of ConsiderIt will contribute to students' knowledge and understanding and helps them to form a well-considered standpoint. The

challenge is whether the prolonged usage of ConsiderIt will also contribute to a general open-mindedness of students.

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