Normative and Informational Influences in Online Political Discussions

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How do the statements made by people in online political discussions affect other peo ple's willingness to express their own opinions, or argue for them? And how does group interaction ultimately shape individual opinions? We examine carefully whether and how patterns of group discussion shape (a) individuals' expressive behavior within those discussions and (b) changes in personal opinions. This research proposes that the argu mentative "climate" of group opinion indeed affects postdiscussion opinions, and that a primary mechanism responsible for this effect is an intermediate influence on individ ual participants' own expressions during the online discussions. We find support for these propositions in data from a series of 60 online group discussions, involving ordi nary citizens, about the tax plans offered by rival U.S. presidential candidates George W. Bush and Al Gore in 2000.

Investigations of social influence and public opinion go hand in hand. Opinions may exist as psychological phenomena in individual minds, but the processes that shape these opinions—at least, *public* opinions—are inherently *social*–psychological. The notion that group interaction can influence individual opinions is widely accepted. Indeed, according to many participatory theories of democracy, lively exchanges among citizens are deemed central to the formation of sound or "true" public opinion, which is forged in the fire of group discussion. This truly public opinion is commonly contrasted with mass or "pseudo"-opinion developed in isolation by disconnected media consumers responding individually to the news (e.g., Blumer, 1946; Fishkin, 1991, 1995; Graber, 1982).

Although discussion is celebrated in democratic theory as a critical element of proper opinion formation, it also brings with it a variety of potential downsides. These include a possible tyranny of the majority (e.g., de Tocqueville, 1835/1945), distorted expression of opinions resulting from fear of social isolation (Noelle-Neumann, 1984), or shifts of opinion to more extreme positions than most individuals might actually prefer (see, e.g., Janis, 1972, on dangerous forms of "group think," or more recently

Sunstein, 2001, on the polarizing effects of "enclave" communication on the Web). The problem of how to foster productive social interaction while avoiding potential dysfunctions of group influence has occupied a large place in normative writings on public opinion and democracy. Modern democracies guarantee freedom of association and public expression; they also employ systems and procedures aimed at protecting collective decision making from untoward social pressure, including not only the use of secret ballots in elections but also more generally republican legislatures and executive and judicial offices that by design are insulated from too much democracy, that is, from direct popular control (e.g., Madison, 1788/1966). However, steady advances in popular education and growth of communication media have enlarged expectations of the ordinary citizen and brought calls for more direct, popular participation in government. In particular, dramatic technological changes over the past several decades—and especially the rise of interactive forms of electronic communication enabled by the Internet and World Wide Web—have fueled hopes for new, expansive, and energized forms of "teledemocracy" (e.g., Arterton, 1987).

Online political discussion is thus of considerable interest to students of public opinion and political communication. It has been credited with creating vital spaces for public conversation, opening in a new "public sphere" of the sort envisioned by Habermas (1962/1989), (see, e.g., Papacharissi, 2004; Poor, 2005; Poster, 1997). Though still not a routine experience for citizens, it has been steadily growing in prevalence and likely import for popular opinion formation. Recent surveys indicate that close to a third of Internet users regularly engage with groups online, with nearly 10% reporting that they joined online discussions about the 2004 presidential election (Pew Research Center, 2005). Online political discussion offers new and potentially quite powerful modes of scientific observation as well. Despite continuous methodological improvements, the mainstay of public opinion research, the general-population survey, has always consisted of randomly sampled, one-on-one, respondent-to-interviewer "conversations" aimed at extracting precoded responses or short verbal answers to structured questionnaires. Web-based technologies, however, may now permit randomly constituted *respondent-with-respondent group conversations*. The conceptual fit between such conversations and the phenomenon of public opinion, itself grounded in popular discussion, renders it quite appealing. Developments in electronic data storage and retrieval, and telecommunication networks of increasing channel capacity, now make possible an integration of general-population survey techniques and more qualitative research approaches, such as focus group methods, that have become popular in large part owing to the sense that they offer a more refined understanding of popular thought than might be gained from structured surveys (e.g., Morgan, 1997). Perhaps most important, the study of online discussion opens new theoretical avenues for public opinion research. Understanding online citizen interactions calls for bringing together several strands of theory in social psychology, small-group decision making, and political communication that have heretofore been disconnected (Price, 1992).

Social influence in opinion formation

Certainly, the most prominent theory of social influence in public opinion research has been Noelle-Neumann's (1984) spiral of silence. Citing early research on group conformity processes, such as that of Asch (1956), Noelle-Neumann argued that media depictions of the normative "climate of opinion" have a silencing effect on those who hold minority viewpoints. The reticence of minorities to express their views contributes to the appearance of a solid majority opinion, which, in turn, produces a spiral of silence that successively emboldens the majority and enervates the minority. Meta-analytic evaluations of research on the hypothetical silencing effect of the mediated climate of opinion suggest that such effects, if they indeed exist, appear to be fairly small (Glynn, Hayes, & Shanahan, 1997); nevertheless, the theory has garnered considerable empirical attention and remains influential.

In experimental social psychology, group influence has been the object of systematic study for over half a century. Although no single theoretical framework is available for explaining how social influence operates, some important organizing principles and concepts have emerged over time (Price & Oshagan, 1995). One of the most useful heuristics, proposed by Deutsch and Gerard (1955), distinguishes two broad forms of social influence (see also Kaplan & Miller, 1987). *Normative* social influence occurs when someone is motivated by a desire to conform to the positive expectations of other people. Motivations for meeting these normative expectations lie in the various rewards that might accrue (self-esteem or feelings of social approval) or possible negative sanctions that might result from deviant behavior (alienation, excommunication, or social isolation). Normative social influence is clearly the basis of Noelle-Neumann's (1984) theorizing about minorities silencing themselves in the face of majority pressure. *Informational* social influence, in contrast, occurs when people accept the words, opinions, and deeds of others as valid evidence about reality. People learn about the world, in part, from discovering that they disagree (e.g., Burnstein & Vinokur, 1977; Vinokur & Burnstein, 1974). They are influenced by groups not only because of group norms, but also because of arguments that arise in groups, through a comparison of their views to those expressed by others (see also the distinction between normative and comparative functions of reference groups in sociology, e.g., Hyman & Singer, 1968; Kelley, 1952).

Although the distinction between informational and normative influence has proven useful and historically important in small-group research, it can become cloudy in many instances. This is so because normative pressure and persuasive information operate in similar ways within groups, and often with similar effects. For example, the tendency of groups to polarize—that is, to move following discussion to extreme positions in the direction that group members were initially inclined—can result either from adjustments to a perceived normative position of the group or from limited or biased pool of group arguments. It can also be difficult in practice to separate the informational content of persuasive messages from the normative pressure they may bring to bear, in other words, to separate the normative function of comments made within a group (i.e., conveyance of a group's overall

preference) from the informative functions served by those same comments (Postmes, Haslam, & Swaab, 2005, pp. 29–30; Turner, 1991, pp. 144–147). Turner (1982) argued for a third approach to group influence—one he labeled *referent informational* influence—which he saw as something of an amalgam of Deutsch and Gerard's (1955) informational influence and notions of reference-group power to shape behavior (e.g., French & Raven, 1959; Kelman, 1961). Turner's explanation centered on basic cognitive, self-categorization processes, following Tajfel (1978). He argued that, when people categorize themselves and others as belonging to distinctive groups (even broad social categories), they will tend to impute the perceived stereotypical characteristics of their own group to themselves. Unlike normative or informational influence as conventionally described, this form of influence stems not only (or not even) from normative or argumentative pressures brought by other group members but rather from one's *own beliefs* about the appropriate behavior of people belonging to whatever social category is used at the moment to define oneself (Turner, 1982, 1991). This form of influence is in essence a "self-stereotyping" process, involving internalized norms rather than external pressures. It is fully consistent with long-standing evidence that merely increasing the situational salience of group membership leads people to express more normative group opinions and attitudes, even in the absence of any direct social influence from others (e.g., Charters & Newcomb, 1952; Doise, 1969; Kelley, 1955; also reconfirmed by recent evidence that anonymous encounters online can exert normative group influence, e.g., Postmes, Spears, & Lea, 1998).

The Turner and Tajfel cognitive redefinition of social group influence, under the rubric of social identity theory, has met with substantial empirical support and informed large bodies of scholarship in social psychology, particularly so in the study of intergroup behavior, stereotyping, prejudice, and minority group relations (see, e.g., reviews in Hewstone, Rubin, & Willis, 2002; Turner & Reynolds, 2001). Given that the theory explains how people can be socially influenced even without direct interpersonal contact, it has been studied primarily in connection with "minimal," noninteracting groups or in relation to large-scale intergroup processes (where group categories are constructed experimentally or where preexisting group differences are made salient).[1] More recently, however, research has begun to apply social identity theory in the analysis of small-group interaction as well, particularly with respect to identity formation in computer-mediated communication (e.g., Postmes et al., 1998). Noting that the bulk of research to date has focused on the effects of making salient some existing or externally imposed group identity (what Turner, 1982 called the *deductive* aspect of referent informational influence), Postmes and colleagues (Postmes et al., 2005; Postmes, Spears, Lee, & Novak, in press) point out that relatively few studies have explored what Turner termed the *inductive* aspect: the "means by which the criterial attributes of some [group] category are inferred from one or more individual members" (1982, p. 28). Harkening back to Sherif's (1935) early work on norm formation through group interaction, Postmes and colleagues have begun to explore not only the "top-down" means by which group norms

influence members, but also the "bottom-up" means by which members actively construct their own group norms. Postmes, Spears, and Lea (2000), for example, monitored e-mail exchanged by 87 students enrolled in an online statistics course over 4 months. They identified 11 groups of students who regularly exchanged messages to each other, and examined patterns in messaging over time. Evidence of norm formation was found in terms of distinctive within-group message profiles based on features such as message categories, requests, complaints, humor, expression of emotion, flaming, and message length. Moreover, the data suggested that group members tended overtime to produce messages that were increasingly prototypical of the group norms, which the authors interpreted as evidence of normative influence.

Tracking the routes of influence

The mechanisms by which normative or informational influence might flow among members of a group discussing politics online, then, are myriad. Some theorists (e.g., Noelle-Neumann, 1984) heavily emphasize normative pressures to conform; others emphasize the role of argumentation (e.g., Sunstein, 2001, in his examination of "informational cascades" as a source of group polarization). Many outcomes, for example apparent conformity to a group majority, may stem from either normative or informational influences, or some amalgam (Asch, 1956; Deutsch & Gerard, 1955; Turner, 1991). As predicted by conformity theories, the dominant sense of feeling of a group (the opinion climate) might cause its separate members to misrepresent their private views, either by refraining from expressing them or by adapting them to the majority opinion. This process may occur and still *not* produce individual changes of opinion. Indeed, studies of small-group influence indicate that conformity processes often produce mere compliance rather than internal conversions of opinion (Kelman, 1961; Moscovici, 1985). The particular arguments expressed, on the other hand, might produce internal conversions of opinion even without extracting much behavioral conformity. That is, a group might generally agree on a particular issue and yet, in their discussions of it, uncover a range of both pro- and con-arguments. These may, over the course of time, lead to movements of group members to adopt new viewpoints, particularly if their initial opinions were not very well formed. Finally, as predicted by social identity theory, group members might conform their behavior to their perception of a prototypical group member, not out of any majority pressure or because they are persuaded by the substance of the arguments, but rather because they are enacting their understood roles as group members. The perceived group norms to which members conform could be preexisting, and brought into the group from the outside, or built up inductively through behavioral exchanges within the group.

Examining these sorts of interactive processes requires more than just input/output measures of how group members feel about an issue before and after discussion. Also needed are detailed assessments of what each person actually says in discussion, including both expressions of preference and arguments that are raised.

Data that closely track group interaction were usually not gathered in early social–psychological experiments. Rather, such experiments measured inputs to and outputs from group interaction, without close examination of actual *processes* of group discussion. And, oddly enough, many studies of group influence did not actually examine groups communicating in any ordinary sense; instead, they involved rounds of decision-making tasks, for example, perceptual judgments of line lengths or slides that are shared within the group (often constituted of experimental confederates in order to create opinion majorities or minorities, see Moscovici, 1985, for a review).

As noted earlier, recent research has begun to track patterns of group interaction. However, the focus of such interaction analysis has not been of the kind that illuminates the opinion formation and change processes of interest to political communication or public opinion researchers. The Postmes et al. (2000) study of online communication discussed above, for instance, coded features such as self-reference, requests, complaints, flaming, use of humor or slang, and the like. Research in formal decision-making groups has studied patterns of argumentation in some detail, both in face-to-face settings (e.g., Meyers, 1989) and in computer-mediated groups (e.g., Brashers, Adkins, & Meyers, 1994). These studies, however, have focused on group outcomes rather than on individual choices, finding evidence that group decisions are influenced both by the total proportion of arguments made supporting or opposing the proposition and by the number of group members offering support or opposition (Gouran, 1994; Hoffman, 1979; Lemus, Siebold, Flanagin, & Metzger, 2004; McPhee, Poole, & Siebold, 1982; Meyers & Brashers, 1998). The burgeoning array of studies into Group Decision Support Systems has thus made significant advances in tracing patterns of argumentation in groups; but the applicability of this work to online political discussion, where people are under no expectation of arriving at a group decision or shared judgment, remains open to question. Moreover, these studies have not typically examined the role of group arguments or normative pressure in shaping individual participants' expression or concealment of their own private opinions, or traced this behavior to subsequent individual opinion formation—processes of primary interest to public opinion researchers (Glynn et al., 1997).

Research questions and hypotheses
The present study focused on the influence of groups on individuals in settings where they engaged in political discussion without any explicit expectation of coming to a shared judgment. We took advantage of a unique data set to explore the *processes*—both normative and informational—through which group influences might operate.

Specifically, we examined a series of 60 online group discussions that occurred in 2000, involving ordinary citizens, about the tax plans offered by rival presidential candidates George W. Bush and Al Gore. These discussions, described below, were broadly deliberative in nature but did not lead to any common group judgment. Neither votes were taken nor were participants urged to arrive at a consensus. We recorded all of the group interactions and classified all statements made by

participants into either (a) mere expressions of preference or opinion, and (b) reasons or arguments in support of particular points of view. Mere expressions of opinion, while they can clearly create a normative climate of group opinion, should not contribute to opinion formation through any rational, argumentative mechanism. Arguments, on the other hand, should constitute a fund of potential informational value to participants.

Both traditional conformity approaches to social influence and more recent social identity approaches would predict that the people's arguments and expressions of opinion during online discussions should be affected by the tenor of group argumentation, such that:

> H1a: People are likely to express views favorable to candidate Bush when in groups where others express support for Bush; conversely, people will tend to express support for Gore when in groups where others support Gore.

> H1b: People are likely to make arguments for Bush's tax plan (and against Gore's plan) when in groups where others argue for Bush; conversely, people will tend to make arguments for Gore's plan (and against Bush's plan) when in groups where others argue for Gore.

The exchange of viewpoints is also expected to shape individual participants' opinions:

> H2: People are likely to report opinions, postdiscussion, supporting Bush's tax plan when others in their group supported Bush; conversely, people will tend to support Gore's plan, postdiscussion, when others in their group supported Gore.

Research has suggested that computer-meditated groups, relative to face-to-face interactions, produce less individual dominance (Walther, 1995), greater equality of member participation (Siegal, Dubrovsky, Kiesler, & McGuire, 1986), and at least in formal decision-making settings, a greater number of unique ideas (Dennis, 1996; Gallupe, DeSantis, & Dickson, 1998). Research findings on the comparative impact of computer-mediated communication on argument generation are somewhat sparse and mixed to date. However, we have cause to expect that computer mediation should facilitate disagreement in a political context (Stromer-Galley, 2003) and, in part because the exchanges focus entirely on textual messages (e.g., Rice, 1993), we expect that in the present context, arguments should prove especially influential:

> H3a: Individual's arguments and expressions of opinion will be more greatly influenced by arguments made by others in the group than by mere expressions of opinion among members of the group.

> H3b: People's postdiscussion opinions will be more greatly influenced by others' arguments than by others' mere expressions of opinion.

Finally, we expect that the particular arguments and expressed viewpoints proving most influential on postdiscussion opinions would be each participant's *own*

expressions. This is predicted in part on account of the higher salience of one's own statements, but also due to self-persuasion and self-attribution processes (Bem, 1970). Expressive behavior is a step in the process of self-definition and opinion change, a form of "test" behavior that helps a person along toward a well-formed judgment (Kelman, 1974; Price, 1992). This prediction is also consistent with social identity theory, in that it posits people induce the prototypical features of a group member from others' behavior, and then conform their own behavior to perceived group norms. We thus hypothesize

> H4: The influence of others' arguments and viewpoints on an individual's postdiscussion opinions concerning the candidates' tax plans will be mediated by the arguments and views that individual personally expresses during the discussion.

We carefully examined these hypotheses, inquiring as to whether and how mere opinion statements and arguments shaped both (a) individuals' expressive behavior in the discussions and (b) changes in personal opinions. Our results suggested that the argumentative "climate" of group opinion indeed affected postdiscussion opinions. Importantly, a primary mechanism responsible for this effect appears to have been an intermediate influence on individual participants' own expressions during the online deliberations.

Method

Data came from the *Electronic Dialogue* project, a yearlong panel project conducted during the 2000 U.S. presidential election. The project involved a multiwave, multigroup panel design, carried out for a period of 1 year. All data gathering was conducted via the World Wide Web. The core of project consisted of sixty groups of citizens who engaged in a series of monthly, real-time electronic discussions about issues facing the country and the unfolding presidential campaign.

The project did not rely upon a convenience sample of Internet users, as is common in Web-based studies. Respondents instead came from a random sample of American citizens aged 18 and older drawn from a nationally representative panel of survey respondents maintained by Knowledge Networks, Inc., in Menlo Park, California. The Knowledge Networks panel includes a large number of households (in the tens of thousands) selected through random digit dialing (RDD) and who have agreed to accept free WebTV equipment and service in exchange for completing periodic surveys online. Details of the sampling are presented in the Appendix.

A set of baseline surveys in February and March 2000 (N 1684) yielded information concerning participants' opinions, communicative behavior, knowledge of public affairs and of the presidential candidates, and a variety of demographic, personality, and background variables. Respondents were randomly assigned to one of three groups. Those in the *discussion* group (n 915) were invited to attend eight online group deliberations, once a month on average, beginning in April

and continuing through December. Topics of discussion included which issues respondents thought were of importance to the country and ought to be the focus of attention in the campaign, specific issues and policy proposals (e.g., in areas of education, crime and public safety, taxes, and foreign affairs), characteristics of the candidates, campaign advertising, and the role of the media. Members invited to the discussion groups, regardless of whether they attended or not, were also asked to complete a series of surveys, one preceding and one following each discussion event. Participants assigned to the *survey-only control* group (n 139) were likewise asked to complete all the surveys, although they were not invited to attend any online discussions. The remainder of the participants were assigned to a *project pre/post-only* condition: They were asked to complete only the baseline surveys and, 1 year later, the final end-of-project surveys. All three groups of project participants received these end-of-project surveys, conducted in January and February 2001. Details of the design are presented in the Appendix.

Sample

The present analysis involved only on the sixth discussion event, held from October 7 through October 17, 2000, when participants debated, among other topics, the tax proposals of rival candidates George W. Bush and Al Gore. The section dealing with tax proposals ran roughly 12 minutes and followed a standard prompt issued by the online moderators. The prompt was:

> Another issue under discussion this election season is taxes. Some argue that the national budget surplus should be used to cut taxes. Others argue that the surplus should be used to cut the deficit or pay for other government programs. What do you think should be done?

Just over one third of eligible participants assigned to the discussion group (34%) attended the October discussion event (n 306). These participants were the focus of our analysis. The vast majority of them (90%) completed the preevent survey, fielded between September 22 and October 2, and 87% completed the postevent survey, fielded immediately following discussions, from October 7 through October 18. Just over 80% (n 247) completed both pre- and postsurveys.[3]

Measures

Opinions about the tax proposals
Prediscussion opinion. In a section of the preevent questionnaire concerning the candidates' tax proposals, respondents were asked, "Which of the two plans do you think you would prefer, if you had to choose?" Responses were Bush's plan, Gore's plan, or "don't know." Of the 247 survey respondents included in the analysis, a majority chose Bush's plan (48%), followed by 31% who chose Gore's, and about 21% who did not know.

Postdiscussion opinion. Each respondent indicated on the postdiscussion survey whether he or she was favorable or unfavorable toward Bush's and Gore's tax cut proposals. Responses were on a 4-point ordinal scale, from *very favorable* to *very unfavorable*. Respondents to the postdiscussion survey were almost evenly split between the candidates, with 43% favoring Gore's tax plan and 44% favoring Bush's. About 12% were equally favorable toward both. The two items—evaluations of Bush's plan and evaluations of Gore's plan—were, not surprisingly, negatively correlated ($r = -.62$, $p < .001$). Consequently, they were combined into a 7-point index by subtracting the respondent's favorability toward Gore's plan from his or her favorability toward Bush's plan. Values ranged from -3 to $+3$, with higher scores reflecting preference for the Bush plan and lower scores a preference for Gore's ($M = 0.15$, $SD = 1.97$).

Opinion expressions in discussion

We recorded the full text of all online discussions and subsequently coded each to assess viewpoints expressed about the two competing tax proposals. The aim of the content analysis was to determine (a) the number of *merely valenced statements* each participant made about the candidates or their plans (i.e., statements that were positive or negative in valence, but which did not give any reasons for these feelings) and (b) the number of *arguments* each participant made about the tax plans (i.e., statements that gave some form of reason for a pro- or con-evaluation of the competing plans). An argument indicated both directionality (pro/con) and provided a reason, while a merely valenced statement indicated directionality only. The coding neither capture the potential truth value of an argument nor its complexity; it merely took account of whether some kind of reason was advanced.

Because the moderators' prompts asked about the two tax plans, rather than one at a time, the coding scheme captured four possible facets of the discussants' arguments: They could be pro-Bush, pro-Gore, con-Bush, or con-Gore. A statement could contain more than one argument, offer mixed arguments, or advance no argument at all.

For example, consider the following statements (group number, date, time):

A.   (Group 58, 10/07, 21:42): "As long as we don't use it all, cut taxes."
B.   (Group 38, 10/11, 23:48): "Gore will help the middle class and they seem to be the ones that get no tax breaks."
C.   (Group 7, 10/15, 19:43): "Gore will only cut takes [taxes] for the very poor … those that don't realy [really] give any money anyway."
D.   (Group 43, 10/12, 21:43): "Gore would keep any surplus and just make more government programs, Bush would return some to those who paid it."

Statement A is a merely positive statement (pro-Bush), without any reasons. Statement B, on the other hand, is favorable toward Gore and states a reason for supporting his plan, and hence represents a pro-Gore argument. Similarly, Statement

C states a reason, but this time against Gore's plan, and therefore constitutes a con-Gore argument. Finally, Statement D, as it gives reasons both for and against the respective candidates' tax proposals, embodies one con-Gore argument *and* one pro-Bush argument.

Reliability of the coding was assessed by comparing data from two independent coders evaluating random subsamples of 200 statements at a time. Inconsistencies between coders were resolved by discussing the examples with the principal investigators and refining decision rules. For the final coding system, Cohen's *kappa* values for chance-corrected intercoder agreement were generally close to .80, with assessments of directionality proving to be slightly more reliable (κ values between .77 and .84) than assessments of argumentation (κ values between .75 and .78).

Individual Arguments
To measure individual expression of arguments, we aggregated coded statement data for each individual, yielding four variables: number of pro-Bush arguments, number of pro-Gore arguments, number of con-Bush arguments, and number of con-Gore arguments. Pro-arguments for both candidates ranged from 0 to 5, whereas con-arguments ranged from 0 to 3. We recoded all four argument counts to reflect a common direction (pro-Bush) and examined them for dimensionality. A factor analysis (with varimax rotation) yielded a single factor, explaining 48% of the total variance, with loadings ranging between .63 and .73. Thus, the four measures were combined into a single scale, with values ranging from -6 (*pro-Gore argumentation*) to 7 (*pro-Bush argumentation*; Cronbach's α .63; M $-.20$; SD 2.26).

Merely Valenced Statements
Statements that reflected a favorable disposition toward the object of reference (Bush, Gore, or their respective tax plans) were coded as $+1$, whereas a statement that reflected an unfavorable disposition received a value of -1. We constructed a measure of exclusively valenced statements by subtracting the count of pro-arguments from the valence sum score and adding the count of con-arguments. Aggregating statements across individuals—counting in this instance *only* those valenced statements not containing arguments—produced two variables: average valence toward Gore and average valence toward Bush. The two measures were not significantly correlated (r $-.04$, p .497, n 288) and therefore were not combined.

Exposure to Group Arguments
For group-level argumentation, we aggregated the sum of individual-level arguments—pro-Bush, pro-Gore, con-Bush, and con-Gore—within each of the 60 discussion groups. Following the aggregation, we subtracted each individual's arguments from the group-level number of arguments for each of those four variables. The group-level variables thereby captured the climate of argumentation that each participant experienced, *independent* of his or her own contribution to the discussion.[4] A factor analysis (with varimax rotation) of the four aggregated group

counts yielded a single factor, explaining 61% of the total variance, with factor loadings between .77 and .81. Consequently, we combined the four measures to form a single scale, with values ranging from -16 (*pro-Gore argumentation*) to 15 (*pro-Bush argumentation*; Cronbach's α .78; M -1.10; SD 7.26).

Exposure to Group Statements of Mere Valence
We computed a group-level measure of merely valenced expressions in a similar manner. We aggregated statements that expressed directionality but contained no arguments to the group level, and then subtracted each individual's own contributions of merely valenced statements from his or her group's totals. These corrected group-level sums of valenced statements toward Bush and Gore were not significantly interrelated (r $-.09$, p .113, n 288). The group-level valence sums, on the other hand, were moderately to strongly correlated with group-level argumentation. For example, group-level argumentation (coded as pro-Bush in direction) was positively related to pro-Bush group valence (r .57, $p < .001$) and negatively related to pro-Gore group valence (r $-.30$, $p < .001$).

Controls

Group Size
The number of persons present for 5 minutes or more in the discussion room constituted our measure of group size, which ranged from 2 to 9 participants, with a median of 6.

Propensity to Participate in Discussions
Numerous characteristics of individuals might account for whether or not they participate in online discussions. Although we limited our analysis only to those who actually attended the October discussions, there is a chance that the variables of interest here—arguments, expressions of mere opinion, and shifts of opinion—might be affected in part by factors that lead to online participation in the first instance. Consequently, we included as a control variable an estimated likelihood of participating (a propensity score). We generated this measure by calculating a predicted probability of attending at least one of the online discussions. The propensity to participate is a multivariate, logistic function of variables such as age, gender, race, news media exposure, political knowledge, social trust, community participation, employment and family status, and ability to generate arguments in response to a survey question (see Price, Cappella, Tsfati, & Stromer-Galley, 2001).[5]

Analytical Procedure
We first investigated the possibility of systematic differences in political knowledge and education levels by group-heterogeneity condition (liberal, conservative, or heterogeneous), as these factors, rather than the argumentative climate, might conceivably have accounted for stability or change of opinion. Checks indicated no

significant differences in political knowledge, education, and attendance patterns across the heterogeneous and politically homogeneous group types. Next, we examined the postdiscussion opinion means across groups and estimated multivariate ordinary least squares regression models predicting individual expression and postdiscussion opinion. Finally, we explored several rival explanations for our findings.

Results

Group-level effects

Table 1 presents a two-way cross-tabulation of postdiscussion opinion, across levels of group- and individual-level argumentation (categorized as pro-Gore, pro-Bush, or mixed patterns of argument). The higher the mean score, the more supportive the postdiscussion opinion was of Bush; the lower the mean score, the more it supported Gore. Overall, as the bottom row of means makes clear, there was a linear increase in postdiscussion support for Bush's tax cut in keeping with group-level argumentation, M -1.23 in groups that argued primarily for Gore, M $+1.46$ in groups that argued primarily for Bush; $F(2, 251)$ $51.059, p < .001$. The average posttest opinion score, not surprisingly, was also related to the pattern of individuals' arguments during the discussion. The more arguments a person voiced in favor of Gore, for instance, the lower the average score on the postdiscussion opinion scale. Individual arguments, however, appear contingent on the arguments made by others in discussion. The more *other* people in the group argued in favor of one candidate's tax cut (recall that the group-level argumentation measure involved subtracting each individual's contributions), the more participants voiced arguments that were consistent in that direction.

The pattern of means suggests that group- and individual-level arguments are related, and also that group-level arguments affect postdiscussion opinions (see, e.g., the linear increase in the top row of Table 1, which controls for individual

Table 1 Postdiscussion Opinion, by Group Level and Individual Level Argumentation

Individuals Arguing for…	Others in the Group Arguing in Favor of [a]		
	Gore	Mixed	Bush
Gore	1.90 (52)	1.44 (16)	0.71 (7)
Mixed	0.48 (27)	0.04 (49)	0.60 (20)
Bush	2.50 (4)	1.86 (29)	2.15 (47)
Total	1.23 (83)	0.31 (94)	1.46 (74)

Note: Valid N (listwise) = 251. Table entries are means of the postdiscussion opinion index, with positive values reflecting a preference for Bush's tax plan and negative values a preference for Gore's. *Ns* given in parentheses.
[a] Groups arguing for Gore, Bush, or mixed in their arguments are based upon a tercile split. Group level values exclude the respondent's contribution.

argumentation). However, these mean comparisons do not take into account prior opinion on the tax proposals, which presumably anchors not only postdiscussion opinion but individual argumentation as well.

Individual expression in discussion

Table 2 presents estimates from a series of multivariate regression analyses predicting each of the three measures of individual opinion expression. Each model includes as predictors (a) a person's prediscussion opinion and (b) group-level expression (counts of what *other* people in a respondent's group said and argued). Group size and propensity to attend online discussions served as controls. The model predicting individual argumentation explained nearly half of the variance. While prior opinion was clearly the strongest factor influencing what individuals argued, we found that others' behavior in the group also significantly affected individual expression (group-level argumentation β .15, $p < .05$). Although the coefficients for merely valenced statements made by others in the group were in the expected directions, they were not significantly related to the pattern of arguments individuals expressed.

The remaining columns of Table 2 present estimates from regressions predicting the expression of merely valenced comments in the discussions (i.e., statements in favor of one or the other of the candidates that contained no arguments). Two results are notable in these equations. First, the proportions of variance accounted for by the

Table 2 Predictors of Individual Expression During the Discussion

	Arguments[a]		Mere Valence (pro Bush)		Mere Valence (pro Gore)	
	B	β	B	β	B	β
Intercept	1.75**		.51†		.22	
Prediscussion opinion[b]						
Pro Bush	3.00***	.66	.31**	.20	.16	.09
Don't Know	1.85***	.33	.06	.03	.07	.03
Group level expression[c]						
Arguments	.05*	.15	.01	.08	.02	.13
Mere valence (Pro Bush)	.08	.07	.06*	.17	.05	.12
Mere valence (Pro Gore)	.06	.07	.00	.01	.08***	.21
Group size	.06	.05	.03	.07	.01	.01
Propensity to attend	.25	.02	.50	.09	.28	.04
R^2	.48		.12		.09	
N	247		247		247	

[a] Arguments coded to reflect positivity toward George Bush or his tax plan.
[b] Pro Bush opinion and don't know categories each entered in regression equation as dichotomous dummy variables. Omitted reference category is pro Gore opinion.
[c] Group level measures represent aggregations of statements from other group members. Each individual's contributions have been subtracted (see text).
†$p < .1$. *$p < .05$. **$p < .01$. ***$p < .001$.

models were substantially lower, largely due to the much smaller (indeed, in the case of statements about Gore, nonsignificant) effects of respondents' prior opinions about the tax plans. Second, in each case, we found that the valenced comments of others members of the group affect individual expressions, with respondents' valenced statements about Bush mirroring the group climate with respect to Bush (β   .17, $p < .05$) and respondents' valenced comments about Gore mirroring the group climate with respect to Gore (β   .21, $p < .01$).

Postdiscussion opinion

Table 3 concerns factors influencing postdiscussion opinion. Model 1 relates to postdiscussion opinion as a function of prediscussion opinion and group-level expressions during the discussion, with controls for group size and propensity to attend online discussions. Overall, the model accounted for 67% of the variance in opinion, with most of the explained variance, again not surprisingly, attributable to prior opinion. Initial Bush supporters were much more likely than Gore supporters to express their approval of Bush's tax plan on the postdiscussion survey. Similarly,

Table 3 Predictors of Postdiscussion Opinion

	Model 1			Model 2	
	B	β		B	β
Intercept	1.60***			1.14**	
Prediscussion opinion[a]					
Pro Bush	3.20***	.82		2.21***	.56
Don't Know	1.35***	.29		.76***	.16
Group level expression[b]					
Arguments	.03*	.11		.01	.05
Mere valence (pro Bush)	.09*	.10		.05	.06
Mere valence (pro Gore)	.02	.02		.01	.02
Group size	.00	.00		.02	.02
Propensity	.07	.01		.13	.01
Individual level expression					
Arguments				.31***	.36
Mere valence (pro Bush)				.21*	.09
Mere valence (pro Gore)				.05	.02
R^2	.67			.74	
N	221			221	

Note: Dependent variable is a postdiscussion opinion index, with positive values reflecting a preference for Bush's tax plan and negative values a preference for Gore's.
[a] Pro Bush opinion and don't know categories each entered in regression equation as dichotomous dummy variables. The omitted reference category is thus pro Gore opinion.
[b] Group level measures represent aggregations of statements from other group members. Each individual's contributions have been subtracted (see text).
†$p < .1$. *$p < .05$. **$p < .01$. ***$p < .001$.

those who did not know initially which tax plan they supported were less likely to support Gore in the postdiscussion survey (compared to Gore supporters, the omitted category in the regression model).

Above and beyond these strong effects of prior opinion, group-level arguments also predicted postdiscussion opinion. Controlling for respondents' own initial opinions, the more the arguments made by other group members in favor of Bush's tax cut, the more the respondents tended to prefer that plan in the postdiscussion survey (β .11, $p < .05$). In similar vein, the more arguments a respondent heard in favor of Gore's plan, the more he or she tended to prefer Gore's proposal. Estimates for Model 1 also suggested that merely valenced statements referring to Bush—but not Gore—could predict postdiscussion opinions bearing on the tax plans (β .10, $p < .05$). In other words, negative and positive comments about Bush voiced by other people in the discussion are correlated with corresponding preferences for his tax plan.

The results presented thus far suggest that expressions of others in the group influence individual participants' statements about the tax plans during the discussion and also predict individual opinion change. Whether individual arguments mediate the relationship between group-level arguments and opinion change remains to be tested. Model 2 in Table 3 shows estimates from an equation that includes our three measures of individual-level expression. R^2 increased significantly over Model 1, with the expanded model accounting for 74% of the variance. Prior opinion continued to be a strong predictor. The model also shows significant effects of individual expression (β for argumentation   .36, β for merely valenced statements about Bush   .09). Notably, the previously estimated effects of group-level expression were considerably attenuated and no longer significant.

Discussion

Taken together, the regression models presented in Tables 2 and 3 suggest that (a) the expressions of group members—both arguments and merely valenced statements—predict patterns of individual expression and (b) individual expression contributes significantly to postdiscussion opinion change. Our results thus suggest that the argumentative "climate" of group opinion affected postdiscussion opinion change *indirectly*, by shaping the character of individual participants' own expressed opinions and arguments during the online deliberations. There appears to be a process of collective elicitation of arguments and mere opinion statements (perhaps a form of group "contagion"), in which individuals' behaviors mimic the general tenor of the group. Such behaviors—particularly the *arguments* each individual made—then contributed to individual shifts of opinion. Overall, there appears to be less consistency with the group tenor in the mere expression of opinion—making statements favorable or unfavorable about the candidates or their plans—than in the making of arguments.

These findings indicate clear social influence, although not the kind of majority-pressure processes posited by the spiral of silence (Noelle-Neumann, 1984). There is

no indication in these data of any silencing effect; rather, the influence appears to be operating via a positive elicitation of arguments. In this respect, the effects on individual opinions appear to be informational in nature, and the "persuasive arguments" explanation of group influence (Burnstein & Vinokur, 1977) thus appears a better fit with the data. This model seems consistent with our findings and cannot be ruled out, yet it fails to explain one important aspect of the results. Were exposure to others' arguments the operative mechanism of persuasion, "hearing" them expressed by others should have proven sufficient to generate shifts in individual opinion. Yet, changes in opinion appeared to have been mediated entirely by participants' *own* arguments. There is nothing in the "persuasive arguments" model that would predict such an outcome. Consequently, it remains a viable but only partial explanation for the results.

The pattern of results does appear broadly consistent with the notion that individuals may have accommodated their behavior to perceived group norms, as proposed by social identity theory (Postmes et al., 2005). According to this line of thinking, our participants gathered from observing others the emerging behavioral norms of the group, and under the influence of a highly salient identity as a group member adopted these perceived norms. This is a highly interactive process, in the sense that individual members themselves contribute to the shared norms by which they are in turn influenced. Importantly, the social identity model *does* account for the significant role of each person's own behavior in mediating the influence of collective group patterns of opinion expression and argumentation.

While the data are consistent with the social identity model, there do remain other possible explanations. The interactive process of argument elicitation we observed, for example, could have resulted from cognitive priming mechanisms (i.e., expressed thoughts stimulating retrieval of related thoughts). It may conceivably have been less a product of individual accommodation to a group prototype than the result of a collective, interactive knowledge activation effect. Instead of imparting new information, arguments expressed in the group may direct attention to certain aspects of an issue, heightening the likelihood that other members will render those salient beliefs and considerations applicable to the issue at hand (see Higgins, 1996) and thus indirectly shaping subsequent expressions. In the group context, the relevant knowledge store is a *collective* fund of ideas held by assembled group members—what psychologists have termed a *transactive memory system* (e.g., Hollingshead, 1998; Wegner, 1995)—and the spreading activation of constructs across the group takes place not only psychologically but also interpersonally, through discussion (see also recent research in organizational behavior on "shared cognition" and "team mental models," e.g., Cannon-Bowers & Salas, 2001; Mohammed & Dumville, 2001).

Limitations and alternative interpretations

Overall, our results lend credence to the proposition that group arguments and opinions influence the statements individuals make and so indirectly shape their

opinions. Still, we acknowledge several alternative interpretations. First, the "group effect" we found on argumentation may have been an artifact of the design. The ideologically homogeneous groups, conservative and liberal, outnumbered the heterogeneous groups by a ratio of 2:1. Consequently, people who participated in our discussions were twice as likely to talk with like-minded people as with people taking an opposing point of view. If aggregate-level opinion virtually mirrors individual opinions in highly homogeneous groups, this fact may explain in part the group-level "effect" observed here. However, follow-up analysis suggests this was not at all likely to have been the case. Models similar to those presented above but including dummy variables to capture differences in group heterogeneity indicated that the estimated group-level effects held for both heterogeneous and homogeneous groups alike.

Second, although we included controls for prior opinion (which accounted for large proportions of variance in our dependent variables), it may nonetheless have been the case that some other unmeasured variable, such as a generic candidate preference, explains the apparent effects of group-level argumentation and opinion expression. It could be, for example, that respondents' general dispositions toward Bush or Gore account both for their behavior observed during the discussion *and* their postdiscussion opinions. Again, follow-up analyses suggested this was not the case. The regression models presented above were reestimated after adding an additional covariate, a combined measure ranging from -100 *strong preference for Gore* to $+100$ *strong preference for Bush* (formed by subtracting a 100-point "feeling thermometer" rating of Gore from a similar measure of feelings toward Bush). While thermometer ratings accounted for a substantial proportion of the variance in individual statements during the discussions and in postdiscussion opinion, adding this additional control did not appreciably affect the estimates presented above.

A third possibility is that our results could simply reflect consistency. Those who were initially favorable toward Bush, this argument goes, would also have argued for his tax cut during the discussion and perhaps became even more convinced of that initial position as a result. Hence, our data reflect polarization of initial inclinations.

To some extent, this line of argument rings true: witness the large effects of prior opinion in our estimated models. But what of those who, on the preevent survey, indicated *no preference either way*? How were they affected, if at all, by the group climate of opinion and argument? Additional analyses involving only those respondents who had no preference on the prediscussion survey (n 55) indicated that these respondents were indeed influenced by the arguments and opinions expressed by other members of their groups. Figure 1, which plots postdiscussion opinion by prior opinion and group-level arguments, illustrates the pattern. The top three bars in the figure represent the postdiscussion opinion means for those who initially favored Gore (white bar) or Bush (gray bar) or who were undecided (black bar), and who were in groups where others argued for Gore's plan. The second and third clusters represent groups that were mixed in their arguments or that argued for Bush's tax plan.
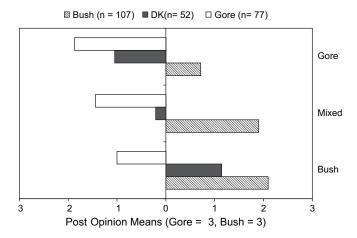
Figure 1 Postdiscussion opinion by prior opinion and group level argumentation.

Note: Means plotted are on a scale running from −3 = prefers Gore tax plan to +3 = prefers Bush tax plan. Different shadings indicate the respondent's preference before the discussion. The right hand labels denote the overall direction of arguments that were voiced by other participants during the online discussions (not including the plotted respondents).

Focusing first on those who were initially decided (the white bars for Gore supporters and the gray bars for Bush supporters), we see a dominant pattern of continued support for their initial preference (though the postopinion means do show a linear trend in keeping with the dominant character of group argumentation). Meanwhile, and critically given our present concerns, those who were initially undecided (the black bars) clearly moved toward the side supported by others in their groups. The "undecideds" in groups arguing for Gore moved toward support for Gore, whereas those in groups arguing for Bush moved toward Bush.

Thus, the results of our analysis suggest that the argumentative "climate" of group opinion indeed affected postdiscussion opinion. A primary mechanism responsible for this effect appears to be an intermediate influence on individual participants' own expressed opinions and arguments during the online discussions. For those respondents who entered the debate supporting one or the other of the tax plans, this effect may have consolidated or magnified a preexisting preference. For those entering the discussions not knowing quite where they stood on the two tax plans, this effect appears to have moved these uncommitted respondents into one or another of the two opinion camps, depending on the tenor of group argumentation.

This analysis applies only to online discussions about a single issue that were of relatively brief duration. These were also experimentally constructed groups that may have differed in unknown ways from naturally occurring online groups (e.g., UseNet or Yahoo! Chat groups). It remains for future research to reveal whether the processes observed here can be generalized to other issues and discussion situations. Nevertheless, these findings represent an important step forward in research on the

normative and informational influences of group discussion on the formation of individual opinion. We have begun to gain insight into group influences on a person's actual expressive behavior while in a group setting, alongside that person's opinions and preferences, as indicated on confidential pre- and postdiscussion questionnaires. This unusually detailed collection of measures has produced a suggestive image: It appears that collective group environments elicit from members arguments and mere opinion statements that reflect the general trend of the group, and that these elicited behaviors—particularly *arguments* made—subsequently influence postdiscussion opinions. Note that, absent the interaction data, we still would have been able to document that groups had influenced personal opinions. But the fact that this influence was mediated nearly entirely by the sorts of statements people themselves contributed would have remained unknown.

The fact that arguments beget arguments can be viewed normatively, with respect to public opinion formation and political deliberation, as a positive outcome. Although our groups did not need to debate to any consensus, a norm of reasoned interaction appeared to have emerged, even in group settings where it might have been sufficient simply to agree. Yet, as shown in Table 2, we also found that arguments clearly called forth additional arguments. At the same time, however, the group climate of group argumentation also had a directional influence on individual's expressed reasons, indirectly producing the modest polarizing pattern in postdiscussion opinions apparent in Figure 1.

In general, these findings underscore the subtle but significant effects of group discussion on individual participants. They also testify elegantly, we believe, to the considerable value of comprehensive theoretical and empirical accounts, not only of basic group inputs and outputs but of group structure and communicative interactions as well.

Acknowledgment

Notes

1 The fact that social identity theory explains how social influence can operate indirectly has also rendered it quite useful in mass media research, for example in explaining how news reports of group conflict can subtly but significantly shape audience opinions (Anastasio, Rose, & Chapman, 2005; Price, 1988, 1989).

2   This research suggests that groups debating "intellective" issues (Laughlin, 1980), which involve ascertaining a demonstrably correct answer to a problem, generate more information based arguments than do groups deciding on "judgmental" issues, for which demonstrably correct solutions are less clear and where answers are sought on moral, ethical, or other value based grounds (Kaplan & Miller, 1987).

3   Participation rates in this case were typical. Generally, 30 40% of eligible participants attended most discussion events. Over the course of the project, just over 70% of eligible participants in the discussion group attended at least one online event, while about 40% attended four or more events (see Appendix).

4   It should be noted that the group level variables differ for individuals within each group, rather than remain constant within groups. The multivariate models we present con sequently estimate standard errors for the group climate measures based on individual cases rather than on 60 groups.

5   Potential confounders included in the estimation of propensity scores were identified with the guidance of prior research on political participation, which has identified a number of motivational variables, opportunity related factors, and resources that generally predict civic engagement (e.g., Brady, 1999; Brady, Verba, & Schlozman, 1995). Variables used to calculate the propensity score were: age, gender, race, education level, income, interest in politics, political knowledge, church attendance, media exposure, political discussion, party strength, political participation, full time employment, number of children, full time student status, and a measure of a respondent's ability to generate arguments in response to open ended survey questions ("argument repertoire," described in Cappella, Price, & Nir, 2002).

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Appendix: Sampling and study design

Initial recruitment

The project recruited study participants from a survey panel maintained by Knowledge Networks, Inc., of Menlo Park, California. The panel includes a large number of households (in the tens of thousands) that have agreed to accept free WebTV equipment and service in exchange for completing periodic surveys online. The Knowledge Networks Panel Sample begins with a list-assisted RDD sample provided by a Survey Sampling, Inc. (SSI). Samples are acquired approximately once a month to ensure that they are drawn from up-to-date databases. Numbers in the SSI sample are then matched against a database of numbers known to be in the WebTV network. These numbers are then contacted, and households are asked to participate as members of the Knowledge Network panel. In exchange for completing surveys (approximately 40 minutes of cumulative survey time per household per month), panelists receive WebTV equipment and access free of charge. The recruitment process results in a response rate of approximately 55–60%. It produces a sample of American households that closely approximates the population at large, with a very slight underrepresentation of minorities and the elderly (Knowledge Networks, 2000).

In February 2000, a random sample of American citizens aged 18 and older (N 3967) was drawn from the panel. The aim of the initial sample survey was to recruit participants into three groups for the Electronic Dialogue project: first, a main group of people who would participate in monthly, hour-long moderated discussions about the presidential election in small groups (target n 900); second, a control group of people who would complete all monthly surveys associated with the project but would *not* engage in online discussions (target n 100); and a third group of people who would complete only the project's initial baseline surveys in February and March 2000 and the final, postproject surveys 1 year later (target n 500). The third group was intended as a control for panel effects, and also as a potential "set-aside" pool of new recruits for use should attrition necessitate additions to either of the two panel groups. All members of the main discussion panel and the survey-only control panel were released from all obligations to complete other surveys for

Knowledge Networks, aside from those issued as part of the Electronic Dialogue project. Assignment to the three groups (main discussion panel, survey-only control panel, and pre/post-only "set-aside" group) was randomized.

Overall, 51% of those recruited agreed to participate and completed consent forms, with overall acceptance rates roughly similar across the three groups of respondents. The final number of recruited project participants was 2014. Of these, 1076 were assigned to the main discussion panel, 168 to the survey-only control panel, and the remainder to the project pre/post-only group. Analysis of group characteristics (demographics, age, race, gender, political interest, ideology, and party leanings) confirmed that the randomization was successful.

The baseline surveys

Two baseline surveys were conducted, the first from February 8 to March 10, and the second from March 10 to 23. All three groups (discussion, survey-only control, and set-aside) were contacted. The surveys included extensive measures of media use, interest in the presidential campaign, general political knowledge and knowledge of the campaign, political discussion, and a wide variety of political attitudes and opinions. A total of 1801 respondents completed the first baseline (89%), and 1743 completed the second (87%). Both baselines were completed by 1684 respondents, or 84% of those who completed consent forms. Cooperation rates were generally similar across the three main groups.

Characteristics of the obtained baseline sample were compared with those from a random-digit dial telephone survey conducted by the Annenberg Public Policy Center during the same days the Electronic Dialogue baseline surveys were in the field (contact rate was 54%; cooperation rate, 57%; eligibility rate, 92%; and final response rate, 30%). In general, the samples are rather similar; however, the final baseline and discussion group samples for Electronic Dialogue tend to slightly overrepresent males, and to underrepresent those with less than a high school education, nonwhites, and, especially, those who have low levels of interest in politics. This is perhaps not surprising in light of the fact that participants agreed to join a yearlong project associated with the presidential election campaign—a substantially greater commitment than that generally associated with completing surveys (for more details, see Price & Cappella, 2002).

Organization of the small-group discussions

Beginning in April, participants in the main discussion group were invited to attend small-group discussions (i.e., 5–10 person), one per month. The intention was to maintain consistent group membership over the course of the campaign. Anticipating far less than perfect attendance, and in order to ensure adequate group size, a total of 60 groups were formed, with roughly 15 participants per group. Because groups were to meet live, in real time, with membership straddling several time zones, a complete listing of participant availability (in the afternoons and evenings, 7 days a week) and rank-ordered preference for meeting times was obtained from all

respondents. Analysis of these data suggested that 16 timeslots would accommodate over 60% of participants' first choices of meeting times and would meet virtually all availabilities (though for many participants not a top choice). Participants were offered these 16 possible timeslots and were requested to choose *all* timeslots for which they would be available. Final groups, 60 in all, were then constituted.

Because of the theoretical interest in the impact of disagreement, composition of the discussion groups was manipulated in order to ensure variance in levels of political agreement and opposition. Specifically, three experimental conditions were created: homogeneously liberal groups (n 20), homogeneously conservative groups (n 20), and heterogeneous groups consisted of members from across the political spectrum (n 20). For this purpose, a 7-point party identification scale and a 5-point political ideology scale were combined into a single index, which ranged from -5 (*strong Republicans/very conservative*) through 0 (*independents/moderates/other centrists*) to $+5$ (*strong Democrats/very liberal*). Conservative groups were drawn from the lower end of this continuum (the 20 groups averaged -3.09 on the index, with an *SD* of 1.6), the liberal groups from the upper end (the 20 groups averaged 2.53 with an *SD* of 1.58), and heterogeneous groups from the entire continuum (the 20 groups averaged $-.33$ with an *SD* of 3.5, more than twice as large as the *SD* across homogeneous groups).

The discussion events
Most monthly discussion "events" consisted of three parts: a prediscussion survey, online discussion, and a follow-up postdiscussion survey. Participants in the main discussion panel (n 915) were asked to do all three parts, whereas those in the control panel (n 139) completed only the survey portions.

Participants logged on to their "discussion rooms" at prearranged times, using their WebTV devices, television sets, and infrared keyboards. The full TV screen was used. Participants typed their comments and, when they hit the "enter" key on their keyboards, would post these comments to all other group members present in the room. All discussions were moderated by project assistants and were carefully coordinated and scripted to maintain consistency across groups. Prompts and questions were "dropped" by moderators into the discussions at prearranged times. The full text of all discussions, including time stamps for each comment, was automatically recorded. Discussions were lively and engaging, and participants contributed on average between 200 and 300 words per event.

The first event, with discussions held in mid-April, focused on getting acquainted and identifying issues of main concern to participants. The second, held in mid-May, focused on educational issues, and the third event, in mid-June, dealt with issues of crime and public safety. The fourth, held at the end of July and in early August, centered around participants' views of campaigning. The main campaign season involved three further discussions. Right after Labor Day in September, groups viewed and then talked about advertisements from each campaign. Following the first presidential and vice presidential debates in October, groups discussed the

candidates' stands on health care and taxes, and how effective they thought each campaign had been to that point. In the week prior to the election, groups talked about a variety of other issues that had surfaced during the campaign. With the election results still in doubt, groups met again in early December to discuss the electoral process, how each candidate and the press were handling the disputes over the election, and the role of the Electoral College.

Given the prediscussion and postdiscussion surveys every month, the project amounted to a 28-wave panel study for the discussion group, and a 19-wave panel study for the survey-only control group. Given this extraordinary level of burden, it is not surprising that cooperation rates were far from perfect. However, the majority of study participants did complete most surveys. Survey cooperation rates were generally similar for both the discussion and control groups, hovering at around 70% early in the project and declining over the course of time to about 60% at the project's end.

By far the most demanding elements of the project were the online discussions themselves. Rates of participation in these discussions ranged from about 40% at the outset and declined to roughly 30% toward the end, producing groups that averaged between 5 and 6 participants each. There was a fair degree of turnover in attendance from one event to the next. By the end of the eighth event in December, over 70% of the discussion group (663 respondents) had attended at least one of the online discussions, and roughly 40% (or 350) had attended half or more of the events.

End of project surveys
In January, two end-of-project surveys were conducted. The first was fielded from January 4 to 18, and the second from January 19 to February 1. These surveys again included extensive measures of media use, participation in the presidential campaign, and discussion behavior over the course of the campaign and in its aftermath, and a wide variety of political attitudes and opinions. All three original study groups surveyed during the project baseline (those invited to discussions, the survey-only control group, and the set-asides) were contacted for reinterview at this time. Fifty-five percent completed the first survey, and 56% completed the second.