Abstract: This paper reports on a small group experiment designed to study how the preferences of an individual’s social network affect that individual’s ability to vote for the candidate that will provide her with the greater benefit on both valence issues and position issues. It diverges from traditional formal models and experimental studies of social communication by expanding the communication network beyond the dyad. The results suggest that social communication is a useful information shortcut for uninformed independents, but not uninformed partisans. Informed individuals incorporate biased social messages into their candidate evaluations which may lead to higher levels of incorrect voting.
Several experimental studies have examined the usefulness of political discussion as an information shortcut (e.g., Lupia and McCubbins 1998; Jackman and Sniderman 2006; Ahn, Huckfeldt and Ryan 2010). These experiments are typical based on formal models that view discussion as a dyadic process involving a listener receiving information from a speaker. These models suggest listeners should typically trust only those speakers with similar political preferences (see also, Downs 1957; Crawford and Sobel 1982). This decision to only model dyadic discussion is based on the assumption that, even if the listener speaks to four people, each of those conversations can be viewed as separate dyadic interactions. The listener can judge the credibility of each speaker separately and determine whether or not to accept the speaker’s message.

In the real world, however, voters do not consider these conversations separately. According to the autoregressive influence theory (Huckfeldt, Johnson, and Sprague 2004), speakers are influential to the extent that their messages conform to the other messages sent. This could mean that voters will accept messages from speakers in a different party and vote to benefit the speakers instead of themselves. Discussion could be an effective shortcut for the uninformed, but the informed may make poorer decisions following discussion.

This paper uses an experimental framework expanding the social communication process beyond simple dyads. Subjects choose between computer generated candidates who offer two types of benefits: (1) a global benefit that all subjects receive and is of an unknown size; (2) a partisan payoff that is a bonus the candidate from the subject’s party wins and a penalty if the candidate from the subject’s party loses. Subjects use private information and information from other subjects to determine the size of the global benefit. Social information helps independents without private information to vote “correctly” – i.e., vote for the candidate that will provide
them with the larger overall payoff. Social information harms some informed subjects because the subjects vote for the candidate from their social network favors instead of the candidate they should favor. This suggests that the social influence process is very different when discussion is dyadic and when it involves a larger social network.

**Voters Discussing Politics**

Voters want to vote for the “best” candidate, but may try to free ride off of the information gathered by their more politically engaged friends.¹ Even the engaged will learn about various candidates from their associates (Katz 1957). In this way, discussion can affect candidate evaluations and policy preferences through a process akin to Bayesian updating (Barabas 2004). Individuals receive information from the media and reach conclusions about the state of the economy, the competency of candidates, and other factors that influence vote decisions. These evaluations serve as their judgmental priors that are then updated based on the messages they receive from their discussion networks. The posterior judgment, therefore, is a combination of the messages individuals receive from the media and from their discussion partners.

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¹ It may seem that this is not a goal for many voters given the low levels of political knowledge in the public (Delli Carpini and Keeter 1996). No doubt many voters attempt to achieve that goal without exerting much effort (Downs 1957; Popkin 1991), but voters would prefer to vote for the “best” candidate even if they plan on only using a simple cue like party to make that decision. If an individual truly believes that making a correct vote decision is pointless, then he will stay home and will not be a voter.
Several formal models are helpful for understanding how individuals should incorporate socially acquired information (e.g., Lupia and McCubbins 1998; Jackman and Sniderman 2006). Since discussion does not affect the benefits candidates will offer voters, political discussion is a form of cheap talk and information is best trusted when both members of a discussion dyad share preferences (Crawford and Sobel 1982). The best informant will report the same information the individual would have reported if the roles had been reversed. This is most likely under the condition of shared preferences. Further, informants with different preferences have an incentive to provide information that is not only skewed, but also intentionally inaccurate (Boudreau 2009). \(^2\)

How the biases affect an individual listener will depend on the expertise of the listener. An informed listener does not need social information to make a correct decision. The informed should have enough information to vote correctly and additional information can only harm the process (Lupia and McCubbins 1998). The truly uninformed are the most in need of social information, but they are the also the most vulnerable to voting against their interests (Jackman and Sniderman 2006). It is paramount, therefore, that the uninformed identify a speaker’s biases and only incorporate information from a speaker with similar biases. \(^3\)

\(^2\) Even if they are not purposefully dissembling to gain a strategic advantage, information from partisan discussion partners may reflect their own partisan biases (Bartels 2002).

\(^3\) One might question whether individuals discuss politics with people with opposing preferences. Individuals frequently choose discussion networks for reasons that have little to do with politics and, as a result, often will speak with individuals who are members of a different party (Huckfeldt, Ikeda and Pappi 2005). Individuals speak with people on the other side of the issues, in part, because the choice of discussion partner is constrained by the discussion partners
These previous formal models suggest two hypotheses: \( H_1 \) the in-party message acceptance hypothesis and \( H_2 \) the uninformed are aided hypothesis.

\( H_1: \) Individuals will incorporate only those messages sent by members of their own party when making a vote choice.

\( H_2: \) Poorly informed individuals will benefit from social information, but only if they receive messages from a member of their party.\(^4\)

These models largely treat political discussion as a purely dyadic process, but social information is typically not sent in isolation as each person receives messages from several different people. From a strict rational choice perspective this should not matter. Each message could still be evaluated on a case by case basis. The listener could still reject any messages sent by someone with different political viewpoints. This further assumes, however, that a listener chooses which messages to accept and reject based on who sent the messages.

Individuals may not behave as the formal models would suggest – that is, they may not evaluate incoming messages based on the messenger’s biases and incentives. Instead, listeners may choose which messages to accept and reject based on the content of the messages. If this is the case, then the distinction between dyadic interactions and discussion with a larger social network is important. According to an autoregressive influence theory (Huckfeldt, Johnson and Sprague 2004) individuals accept messages when those messages are in accord with other messages that are received. Individuals, therefore, should be most likely to support the candidate available (Huckfeldt 1983). For example, for a Republican in Berkeley the most readily available discussion partners are Democrats and the Republican may have to pay a cost to speak with a likeminded Republican.

\(^4\) This would include independents whose informants are likeminded independents.
favored by the majority of the people with whom they discuss politics even if those people support a different party.

Why would subjects accept messages from two opposing partisans when they would ignore messages from a single member of the other party? It is possible that an individual will view two people providing similar information to be verification of those messages. If information sources are largely unbiased, then this would be a rational strategy. However, if social messages are biased and both discussion partners have the same preferences, then a biased message is “verified” by a source with the same bias. Thus, it is not really verified at all, but it may be incorporated into the posterior judgments because it has been corroborated by an untrustworthy source. The individual should ignore this social information, but may believe the messages because they all suggest the same vote. The autoregressive influence hypothesis ($H_3$) conflicts with the in-party message acceptance hypothesis stating:

$$H_3: \text{Individuals are more likely to vote incorrectly when they receive social messages primarily from members of a different party than if they receive messages from fellow partisans.}$$

What Does It Mean to Vote Correctly?

Scholars have failed to answer questions related to the efficacy of discussion as an information shortcut in part because of the method typically used to study voting behavior - analysis of survey data. When examining real world political behavior, it becomes difficult to determine if an individual made a “correct vote” choice because a researcher cannot objectively determine who a voter should have supported. Lau and Redlawsk (1997; see also Lau, Andersen,
and Redlawsk 2008) developed a creative means for using surveys to determine correct voting.\(^5\)

It was based on three factors: (1) whether the voter chose the candidate with positions on the same side of the issues; (2) whether the voter chose the candidate who has a close link to the voter’s social group; (3) the mean job performance rating of the incumbent if there is an incumbent.

Using Lau and Redlawsk’s (1997) method, Sokhey and McClurg (N.D.) have studied the effects of discussion on correct voting. They argue that having expert discussion partners has no effect on the probability that an individual will vote correctly. The preference heterogeneity of the individual’s discussion network, however, does matter. According to their findings, people are more likely to vote correctly if they speak exclusively with likeminded individuals. That is, people who discuss politics with people from their party are more likely to vote for the candidate who best represents them on the issues. In a similar analysis, Richey (2008) found that individuals who speak more frequently with political experts were more likely to vote correctly.

When voting correctly is defined as voting for the candidate with similar issue positions, then partisans should almost always vote for the candidate from their party.\(^6\) This is increasingly true as parties have become more homogeneous and polarized at the elite level (Brewer 2005).

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\(^5\) Lau and Redlawsk (1997) also examine correct voting in an experimental context. In that analysis, subjects voted after receiving a limited amount of information about fictional candidates and then were presented with full information about the fictional candidates. Subjects voted correctly if they initially voted for the candidate they would have preferred after receiving full information.

\(^6\) This assumes, of course, that the partisans have correctly sorted themselves into the parties that best represent them on the issues.
There are instances, however, when one should vote for the candidate from the other party. Candidates can provide two types of benefits to voters; they can provide benefits on valence issues and on position issues (Stokes 1963). Valence issues are consensual issues in which all voters desire the same outcome – e.g., a government that is not corrupt and provides peace and prosperity.\footnote{Lau and Redlawsk’s (1997) measure places more emphasis on position issues, but it does attempt to account for valence benefits by including a measure of incumbent job performance. For all of its strengths, this part of the measure is flawed. A poor performing incumbent provides a lower valence benefit than a well performing incumbent. It is still possible that the vote for the poorly performing incumbent is a correct vote while it is a mistake to choose the well performing incumbent. The poorly performing incumbent could face an even less qualified challenger. The well performing incumbent could face a challenger with superior qualities.} Position issues are divisive issues for which voters have different preferred policies.\footnote{One common treatment of position issues is that voters should prefer candidates closest to them on the policy scale, but this assumes that voters are not acting strategically. Voters may prefer to choose candidates more extreme than themselves hoping that the candidate will pull policy in that direction, but not so far that it will end up at the extremist’s preference point (Adams, Bishin, and Dow 2004). They may, in fact, be closer to the moderate on the other side of the issue, but vote for the extremist on their side. If this is the case, then the benefit offered for position issues would not be the benefit based on the sincere preferences of the votes and candidates. Rather, the position issue benefit would be the expected benefit the voter would receive from having that individual in office.} If a candidate lacks the competency to provide for the general social welfare, then
voters should think twice before voting for that candidate even if that candidate better represents them on the issues.

This paper defines correct voting as voting for the candidate that offers the greater benefit, taking into account both valence and position issues. A correct vote defined this way is made up of a component that is common to all voters and a component that varies based on an individual voter’s position preferences. Hence, there is no universally correct vote, but each individual has their own correct vote.9

This definition of correct voting rests on several assumptions. First, it assumes that a candidate provides an objective valence benefit. It is possible that the valence benefit is based on voter values and subjective as well (Gerber and Green 1999).10 For example, one voter may value providing the best average welfare while another may care more about raising the lowest level of welfare experienced in the society. These differences in values, however, should be captured by differences the position benefits.

Second, it assumes that voters have true, fixed issue positions.11 Voters may change their opinion in the course of a campaign. Even if they hold the same issue positions throughout the

9 There is, however, a candidate that would better reflect the aggregate preferences of the electorate (Feddersen and Pesendorfer 1997), an issue beyond the scope of this paper.

10 Certainly voter evaluations of candidates’ valence benefits are subject to large amounts of partisan bias (Zaller 1992; Bartels 2002), but correct voting is about how someone should vote and less about how they do vote.

11 Readers should note that voters lacking attitudes (Converse 1964) is not a problem for this definition of correct voting. A voter without any issue position simply receives no partisan benefit and only a valence benefit.
campaign, they may reevaluate which issues are important which may change the value of the benefits offered on positional issues. This also could change which members of the social network have similar preferences to the voter (Baldassarri and Bearman 2007). This assumption, however, is necessary to evaluate a correct vote. Without this assumption, it is impossible to tell when a voter was duped into voting in favor of someone else’s interests instead of their own and when a voter rationally updated her opinions.

Research Design

The specific hypotheses proposed here are best tested through an experimental research design for four reasons. First, there is no way to objectively measure the valence benefit candidates will offer in real world politics. Second, one has to see who a voter would have chosen in the absence of discussion to determine whether or not that discussion was beneficial. Third, the researcher needs to observe what social information the voter received and who sent those messages. Fourth, the experiment also allows for assignment to social networks answering the common critique that contextual results are simply selection effects (e.g. Achen and Shivley 1995).

To test the effects of interpersonal communication on correct voting, I employ a small group experiment in which subjects receive and share information about two computer generated “candidates” before voting for one of the candidates. The subjects for this experiment were recruited from undergraduate political science courses at [UNIVERSITY NAME].\(^\text{12}\) The

\(^{\text{12}}\) One of the control groups consisted of students recruited at [UNIVERSITY NAME]. The Supporting Information demonstrates that this group did not behave differently. The use of a student sample should be of little concern given the nature of the experiment. Common critiques
subjects received a ten dollar show up fee plus whatever earnings they accrued during the experiment. The experiment is programmed using zTree—software for designing experiments in behavioral economics (Fischbacher 2007).13

The subjects participated in groups of 9. In all 216 subjects participated in the experiment -- 135 subjects participated in the main treatment which is described below and an additional 81 subjects participated in a control experiment which will be described later.

**Parties and Candidates** The experimental design randomly assigns subjects to two parties—A and B. Subjects attempt to determine the benefits offered by computer generated “candidates” of the parties—named Adams and Bates, respectively—in a mock election. Nine subjects are used in each experimental session. Three are members of party A, three are members of party B, and three are independents.

**Global Benefits (Valence Benefits)** Much like candidates in a real election, the candidates offer subjects two types of benefits. First, candidates provide a global benefit that is the same for all subjects. This global benefit can be conceived as the benefit a candidate

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of students as subjects include their unstable peer groups and their lack of crystallized attitudes (Sears 1986). Groups and attitudes in this experiment are assigned, thus the subjects’ actual groups and attitudes are irrelevant for this study. A student sample is not an external validity problem unless a different sample would respond to the assigned treatment differently. This would happen only when the treatment effect is conditional on a variable that does not vary in the student sample (Druckman and Kam N.D.). There is no obvious, theoretical reason for believing that is the case in this study.

13 The exact instructions provided to subjects are available in the Supporting Information. Also available there are screen shots of the experimental treatment.
provides on valence issues. The global benefit provided by each candidate is independently and randomly drawn from a uniform distribution with a lower bound of 20 Experimental Currency Units (ECUs) and an upper bound of 100 ECUs. Subjects receive the global benefit offered by the candidate who received the most votes from the nine subjects.

**Party Pay (Positional Benefits)** In addition to these global benefits, subjects in parties A and B receive either a party bonus or penalty depending on the outcome of the election. These are akin to the benefits candidates provide on positional issues. If Adams wins the election, members of party A receive a bonus while B partisans receive a penalty – vice versa if Bates wins the election. The magnitude of both an individual’s partisan bonus and her partisan penalty is randomly drawn from a uniform distribution with a minimum of 10 ECUs and a maximum of 20 ECUs. On average, (i) subjects in party A are better off if Adams is elected and subjects in party B are better off if Bates is elected because of the partisan bonuses and penalties, and (ii) independents are indifferent between Adams and Bates.

**Timeline of the Experiment** Each subject is aware of the distribution from which each candidate’s global benefit is drawn, and of her individual party payoff, but does not know any candidate’s global benefit in a particular election. The subjects must use private and social

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14 At the end of the experiment subjects are paid at a rate of 1 cent per ECU. Subjects received between $14 and $21 with a median pay of $17.

15 In expectation, the weakest partisans—those with a partisan pay of 10 ECUs—would receive a greater benefit from their party’s candidate 71.2% of the time; partisans with the mean partisan pay—15 ECUs—would receive a greater benefit from their party’s candidate 79.8% of the time; the strongest partisans—those with a partisan pay of 20 ECUs—would receive a greater benefit from their party’s candidate 86.9% of the time.
information to determine the candidates’ global benefits. The experiment proceeds over the following four stages:

**Stage 1 (Private Information Stage):** Subjects receive private information about the candidates’ global payoffs. Using this information they make initial estimates of the candidates’ global benefits.

**Stage 2 (First Social Information Stage):** Subjects send messages about the size of candidates’ global payoffs to one another. They update their estimates of the candidates’ global benefits.

**Stage 3 (Second Social Information Stage):** Subjects again send messages about the size of candidates’ global payoffs to one another. They again update their estimates of the candidates’ global benefits.

**Stage 4 (Voting and Payoffs):** Subjects vote for the candidate they believe will offer them the greatest total benefit. Subjects are then paid based on the benefits offered by the candidate who receives the most votes.

**Stage 1 (Private Information Stage):** Subjects are assigned to one of five different information conditions displayed in Table 1a. The information conditions are defined by the number of signals subjects receive about the candidates. Each signal contains information about both candidates. For each signal, the computer screen displays, “Candidate Adams/Bates says his benefit is:” and then an integer value. The integer values are randomly drawn from a uniform distribution centered on the candidate’s true benefit and extending 25 ECUs above and below
that benefit. Thus, on average, the private information received by subjects reflects candidates’ true global benefits, but the information is noisy.

In each treatment, one subject receives four pieces of information. The other eight subjects are evenly divided over the four remaining information levels i.e., three pieces, two pieces, one piece, or no pieces. Table 1A displays the amount of information a subject receives in each of the conditions. In the table, subjects are identified by their party and a unique participant identification number (1 though 9).

After receiving private information, each subject is asked to estimate the global benefit that each candidate provides. These estimates measure subjects’ beliefs prior to social communication.

**Stage 2 (Social Information Stage):** Next, each subject sends a message conveying information about the candidates to three other subjects: one from party A, one from party B, and one independent. Once again, the messages are integer values asserting the size of the global benefit each candidate offers. No other communication is allowed. Subjects are told that they do not have to make identical assertions to each subject, but they are not encouraged to misrepresent

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16 This means that subjects can receive assertions that a candidate offers a benefit that is impossible. For example, if a candidate offers the lowest possible benefit of 20 ECUs, subjects may receive signals that say the candidate offers a benefit of -5 ECUs. This is a necessary aspect of the design allowing subjects to easily calculate expected payoffs based on the private information they receive.
their beliefs. Subjects may make assertions strategically, however, because they know the private information level and partisanship of each subject.\footnote{Survey evidence suggests that individual can accurately identify the preferences of their political discussion partners, but they do have an easier time recalling the preferences of more stronger partisans (Huckfeldt et al. 1998) and are more likely to know the opinions of those with whom they discuss politics most frequently (Huckfeldt 2007). Individuals are also able to differentiate between political expert and inexpert individuals (Huckfeldt 2001). These perceptions are imperfect and can be biased by a discussion partner’s gender (Mendez and Osborne 2010) and political engagement (Ryan N.D.).}

Subjects receive social information from the networks listed in Table 1B.\footnote{Graphic displays of the networks are available in the Supporting Information. These discussion networks should not be thought of as the “ego networks” common in survey research (e.g., Huckfeldt and Sprague, 1995; Klofstad, McClurg and Rolfe, 2009; McClurg, 2006). In these studies, the named discussion partners are often viewed as political informants providing information on the cheap. In this experiment, the discussion networks are akin to everyone who might send a message about the candidates including people whose advice is unwanted.} Networks in this experiment take on one of three types: heterogeneous, homogeneous A, and homogeneous B. In heterogeneous networks, there is one member of each party and one independent. In homogeneous networks, there are two members of either party A or party B and an independent. Partisan subjects, therefore, may receive messages from a majority of likeminded subjects (an in-group network), a heterogeneous network, or a network without any subjects who share their biases (an out-group network).
After receiving this social information, subjects are reminded of their previous estimates of Adams’s and Bates global benefits, thus permitting subjects to update their estimates based on the social information they have just received. Then subjects are asked to estimate candidate positions again.

**Stage 3 (Second Social Information Stage):** Subjects convey new assertions about candidates’ global benefits to the same three subjects to whom they previously provided information. This allows individuals to incorporate information they received through social communication in addition to the private information they initially received. Subjects are reminded of their previous estimates of global benefits and asked to make a final estimate of the benefit each candidate provides.

**Stage 4 (Voting and Payoffs):** After making this final estimate, subjects vote for their preferred candidate. The outcome of the election is revealed to the subjects, as is the true global benefit of each candidate. The global benefit of the winning candidate is awarded to each subject (partisan or independent). In addition, each partisan of the winning candidate is awarded her previously-establish partisan bonus, and similarly, each partisan of the losing candidate is docked his penalty amount.

Subjects then participate in a new campaign with new, randomly-drawn, candidate benefits. The subjects’ parties, partisan pay, information levels, and networks remain the same throughout the experiment. Subjects participate in as many elections as they can complete within one hour.\(^{19}\)

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\(^{19}\) All subjects participate in one practice campaign. In that practice campaign, all partisan subjects have a party pay of 15 ECUs and receive two pieces of private information. The practice campaign is not used in the analysis. After the practice campaign, one experimental session
The Control Group An additional eighty-one subjects participated in a control group. Subjects in this control group participate in elections with candidates offering the same benefits and sending the exact same signals as in the previous elections.\textsuperscript{20} The subjects in the control group, however, receive their private information, estimate the candidates’ benefits, and then vote. They do not receive messages from their fellow subjects. Therefore, each of the treatment subjects is paired with a control subject and their votes can be compared to directly observe the effect of social communication.

The Hypotheses in the Context of the Experiment

Treatment subjects vary on two main dimensions: the amount of private information they possess and the partisanship of the network that provides social information. For simplification, involved five campaigns, and one session involved six, two involved seven, one involved eight, one involved nine, four involved ten, one involved eleven and four involved twelve campaigns. The analyses that follow use data from the first seven elections of each experimental session. Capping the number of elections at seven allows for balance across all fifteen sessions. Including all elections does not change the paper’s substantive conclusions.

\textsuperscript{20} Each treatment session was paired with a control session. Some control sessions first participated in elections of one treatment session and then participated in the elections of a second treatment session. This means that some control subjects participating in their eighth election are being compared to subjects who participated in their first elections. This could potentially affect the comparisons, but this potential is likely diminished given that -- on average -- subjects do not appear to have changed their behavior across rounds. For more on subject behavior across rounds please see the Supporting Information.
I will divide subjects into simply the informed and the uninformed because the marginal value of additional information after the first piece is small.\footnote{21 This is demonstrated by Figures S12 and S13 in the supporting information.} Subjects’ networks can be characterized as in-group, out-group, or heterogeneous based on the partisanship of the subject and the network.

The design allows for between subjects tests of the hypotheses and within subjects tests. The between subjects tests would compare the votes of the main treatment group to votes of the control group. The within subjects tests involve the treatment subjects’ initial estimates of the global payoffs. An implied initial vote can be calculated from the initial estimates and the party payoffs. These implied initial votes can be compared to the actual votes to determine if subjects used social information to make their decision.

**In-party message acceptance hypothesis (H\(_1\))**: If this hypothesis is correct, then control and treatment subjects should vote for the same candidates except when the treatment subject receives messages from someone in their party. In the within subjects analyses, the only subjects who should have different implied initial votes and final votes are those who received messages from someone in their party.

**Uninformed are aided hypothesis (H\(_2\))**: Based on this hypothesis, uninformed treatment subjects should vote correctly more often than uninformed control subjects. Further, a higher percentage of their actual votes should be correct than the percentage of implied votes would have been correct. These results should only hold for uninformed subjects who receive social information from a member of their party.

**Autoregressive influence hypothesis (H\(_3\))**: This hypothesis would imply that treatment subjects in heterogeneous and out-group networks would vote correctly less often than control subjects.
These treatment subjects also would have voted correctly more often based on their initial estimates than they actually did.

**Between-Subject Results**

If social information serves as a useful information short cut, then subjects in the treatment group – those who received social information – should vote correctly at higher rates than subjects in the control group – those who did not receive social information. One might expect that uninformed subjects would benefit the most from social information. Informed subjects should already be voting correctly at high levels making it less likely that they would improve their level of correct voting.

Figure 1 compares the percentage of correct votes in the control and treatment groups by information level and network partisanship. The light colored bars in Figure 1 show the percentage of correct votes in the control group. The darker colored bars show the percentage of correct votes in the treatment group. Control group subjects are not located in networks as they did not receive social information. For control groups, the networks refer to the network of the paired treatment subject who received the same private information.

The results support the *uninformed are aided hypothesis* (*H*$_2$), but only for independents. Forty-five percent of uninformed independents vote correctly in the control group. The percent of uninformed independents who vote correctly rises to seventy-one percent in the control group. A t-test comparing those percentages shows a statistically significant difference (*t*=3.54; *p*<.002).$^{22}$

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$^{22}$ In all analyses standard errors are corrected for clustering on subjects.
There is no statistically significant improvement for uninformed partisans overall or for uninformed partisans in particular networks. Overall, uninformed partisans voted correctly more frequently in the treatment group -- seventy-eight percent compared to sixty-seven percent in the control group – but this difference is not statistically significant (t=1.56; p<.13). It is not surprising that social information had less of an effect for partisan subjects. Uninformed partisans had more information to help them choose between the candidates than uninformed independents. Uninformed partisans could always vote for the candidate from their party and be correct most of the time.

Informed partisans and independents voted correctly at very similar rates in both the treatment and control groups. Informed subjects voted correctly about eighty percent of the time in all cases except for partisans in out-group networks. Partisans in out-group networks voted correctly about seventy-three percent of the time. This percent of correct votes among out-group subjects is not statistically different from informed subjects in the other groups.

The results in Figure 1 would suggest that social information had little effect on how individuals voted with the exception of uninformed independents. The results in Table 2 present a different story. The unit of analysis in Table 2 is a subject pair. The dependent variable takes on one of four categories: (1) if both subjects voted for the same candidate and that was a correct vote; (2) if both subjects voted for the same candidate and that was an incorrect vote; (3) if the subjects voted for different candidates and the treatment subject voted correctly and thus was helped by social communication; (4) if the subjects voted for different candidates and the control group subject voted correctly and thus social information hurt the treatment subject.

As Table 2 shows, the uninformed are aided because, when the treatment and control subjects vote for different candidates, the social information was typically helpful. For informed
subjects, however, the social information was often helpful, but just as frequently the social information led the subject to make an incorrect vote.

The *in-party message acceptance hypothesis* ($H_1$) would suggest treatment and control subjects should vote for the same candidates unless the treatment subject is located in an in-group network. The results in Table 2 show that this is clearly not the case. Treatment and control partisans vote for different candidates more than one-third of the time when the treatment partisans receive social information from members of another party. Clearly, the treatment subjects were updating their evaluations of the candidates based on social information even if that information came from informants with conflicting preferences.

Informed partisans deserve special attention. These subjects should see the least updating based on social information. As partisans, they have strong ex ante reasons to prefer a particular candidate. As informed subjects, they do not need social information and have reasons to be skeptical about any social information that contradicts their previous beliefs. And yet, the statistically significant $F$ statistic shows that the subjects behaved differently based on who was providing the information in partial support of the *autoregressive influence hypothesis* ($H_3$). The treatment subjects were persuaded by members of the out-group. In the aggregate this did not have a negative effect on correct voting, however, because the information was just as likely to be helpful as harmful.

**Within-Subjects Results**

Another way of testing the hypotheses is to look at how treatment subjects updated their estimates of the global benefits the candidates offer. The analysis in Figure 2 does this by comparing the implied votes based on the subjects’ initial estimates to the actual votes.
Remember, the initial estimates are based solely on private information. Hence, they can be used to determine how the subjects would have voted without social information.

Once again, these results support the uninformed are aided hypothesis ($H_2$), but only for independents. This time the difference between uninformed partisans and independents is even more striking. Uninformed independents were twice as likely to vote correctly following social information. For uninformed partisans, social information appears to have made little difference on average; they were just as likely to vote correctly prior to social information as they were after receiving social information.

The within-subjects analysis makes the strongest statements about the in-party message acceptance hypothesis ($H_1$) and the autoregressive influence hypothesis ($H_3$). The in-party message acceptance hypothesis is clearly rejected as informed subjects updated their vote decisions based on social information regardless of the partisanship of the subjects providing information. The in-group networks actually showed the least amount of updating. This is not surprising as subjects in this case planned on voting for their party’s candidate prior to social information and the messages they received only confirmed that decision.

These results offer strong support for the autoregressive influence hypothesis. The implied vote of informed partisans in heterogeneous networks was correct eighty-nine percent of the time. These subjects voted correctly only eighty percent of the time a statistically significant difference ($t=2.04; p<.06$). The difference is even more striking for informed partisans in out-group networks as they vote correctly only seventy-four percent of the time ($t=3.52; p<.01$). Uninformed independents were helped by social information, but informed independents were

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23 This difference is not statistically significant at the .05 level, but I still argue that it is statistically significant because there are only 24 subjects in this subset of the data.
slightly hurt. Their implied vote was correct ninety-one percent of the time. There was a statistically significant seven point drop in correct votes following social information ($t=2.81$; $p<.01$).

Taken together the within subjects results cast doubt on the efficacy of political discussion. A small segment of the subjects – uninformed independents – were aided by social information. Informed subjects, on the other hand, were hurt by social information. This was especially true for partisans who spoke with members of the other party.

Social networks harmed correct voting among the informed because the subjects sent biased social messages. This is shown by Table 3A’s OLS models. They regress the bias in the messages sent by subjects on the partisanship of the message sender and receiver. Bias here is measured by subtracting the message sent from the sender’s initial estimate of the candidate’s global benefit. Therefore, a positive value would indicate that the sender was saying the candidate provides a larger benefit than the sender believes and the opposite for a negative value. As the predicted values in Table 3B show, partisans send messages that assert that the other party’s candidate will offer a smaller benefit than the sender believes. Partisans also exaggerate the benefit offered by their candidate, but this effect is not as pronounced.24

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24 Two additional findings should be noted. First, partisans send biased messages regardless of the receiver’s party affiliation. In a dyadic context, this would usually not be the best strategy. If the sender and receiver are from the same party, the sender wants the receiver to vote exactly as she does – even if that means defecting and voting for a party to which neither belong. Second, the typical bias is less than five ECUs meaning that the assertions reflect the sender’s true beliefs to some extent. Subjects may have felt constrained in what they could assert and felt that they were more likely to persuade others by slanting the truth rather than through complete distortion.
Partisans in out-group networks tend to vote incorrectly because the messages they receive are biased in favor of the other party’s candidate. This increases the number of situations in which that candidate appears as a plausible choice and increases the probability that the subject will defect – i.e., vote for the candidate from the other party. In expectation, defection is a correct decision for partisans only twenty percent of the time. In this experiment, half of the subjects who defected were making a mistake. Subjects in out-group networks were more likely to defect and hence they were more likely to vote incorrectly.\(^\text{25}\)

Conclusion

This paper used an experimental design to test three hypotheses about social information and correct voting. Both the between- and within-subjects analysis showed that social communication is an effective information shortcut for uninformed independents, but it less necessary for uninformed partisans. The between-subjects results showed that informed subjects used social information even when the messages came from a member of another party. Economic models of discussion suggest that this is a mistake (Downs 1957), an argument supported by the within-subjects analysis. Informed subjects voted incorrectly more often following social information when they received messages from members of another party.

These results call into question standard communication theories that view discussion as a dyadic process (e.g., Crawford and Sobel 1982; Lupia and McCubbins 1998; Jackman and Sniderman 2006). In this experiment, out-group subjects changed their votes because they

\(^{25}\)Forty-percent of subject votes in out-group networks were defections. Twenty-seven percent of votes in heterogeneous networks and twenty-one percent of votes in in-group networks were defections.
received several messages from members of another party. In other experiments, subjects failed to take into account the message sent from a single subject with conflicting preferences (Lupia and McCubbins 1998; Ahn et al. 2010). From a rational choice standpoint, subjects should not have viewed messages from two biased sources as more compelling than a message from a single biased source. It appears, however, that subjects were often persuaded to vote as their social network was voting. This suggests modelers need to take into account imitation (Boyd and Richerson 1985; Schlag 1999) and group conformity (Asch 1958; Granovetter 1978; Rolfe 2005) when attempting to understand the effects of social communication.  

These results also speak to the ongoing debate about the efficacy of deliberation and group decision making. Deliberation is promoted because it exposes individuals to other points of view and helps inform their judgments (e.g., Fishkin 1991; Chambers 2003). Others have noted that deliberation may result in certain individuals or groups dominating discussion (Sanders 1997). The results of this experiment suggest that this would cause people to vote in-line with the interests of those dominating discussion and potentially against their own interests (see also Beck 2002). There is virtue in engaging with opposing viewpoints, but this can also lead individuals to become ambivalent and withdraw from politics (Mutz 2006).

26 The desire for group conformity can be seen in other research on group decision making. Subjects in group decision making experiments tend to concentrate on discussing the information they all possess. They do not share information that they hold privately allowing for a pooling of information and better decisions than any individual could have reached on their own (Stasser and Titus 1985). Individuals will also often try and silence those who question the group’s initial decision to protect the group instead of determining the best course of action (Janis 1982).
References


Table 1. Subject information levels and networks.

A. Subject’s Private Information Levels

<table>
<thead>
<tr>
<th>Condition</th>
<th>Number of Pieces of Information Received by Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A1</td>
</tr>
<tr>
<td>#1</td>
<td>1</td>
</tr>
<tr>
<td>#2</td>
<td>4</td>
</tr>
<tr>
<td>#3</td>
<td>0</td>
</tr>
<tr>
<td>#4</td>
<td>1</td>
</tr>
<tr>
<td>#5</td>
<td>3</td>
</tr>
</tbody>
</table>

B. Network Providing Social Information

<table>
<thead>
<tr>
<th>Recipient</th>
<th>Alter 1</th>
<th>Alter 2</th>
<th>Alter 3</th>
<th>Network Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>A2</td>
<td>I4</td>
<td>B9</td>
<td>Heterogeneous</td>
</tr>
<tr>
<td>A2</td>
<td>A1</td>
<td>A3</td>
<td>I5</td>
<td>Homogeneous A (in-group)</td>
</tr>
<tr>
<td>A3</td>
<td>I6</td>
<td>B7</td>
<td>B8</td>
<td>Homogeneous B (out-group)</td>
</tr>
<tr>
<td>I4</td>
<td>A2</td>
<td>A3</td>
<td>I5</td>
<td>Homogeneous A (out-group)</td>
</tr>
<tr>
<td>I5</td>
<td>I6</td>
<td>B7</td>
<td>B9</td>
<td>Homogeneous B (out-group)</td>
</tr>
<tr>
<td>I6</td>
<td>A1</td>
<td>I4</td>
<td>B8</td>
<td>Heterogeneous</td>
</tr>
<tr>
<td>B7</td>
<td>I4</td>
<td>B8</td>
<td>B9</td>
<td>Homogeneous B (in-group)</td>
</tr>
<tr>
<td>B8</td>
<td>A1</td>
<td>A3</td>
<td>I5</td>
<td>Homogeneous A (out-group)</td>
</tr>
<tr>
<td>B9</td>
<td>A2</td>
<td>I6</td>
<td>B7</td>
<td>Heterogeneous</td>
</tr>
</tbody>
</table>
Table 2. Comparing correct votes in control and treatment groups by information level and network partisanship.

A. Partisans

<table>
<thead>
<tr>
<th>Uninformed</th>
<th>Informed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In-Group</td>
</tr>
<tr>
<td>Both Right</td>
<td>63.4%</td>
</tr>
<tr>
<td>Both Wrong</td>
<td>7.3%</td>
</tr>
<tr>
<td>Social Helps</td>
<td>17.1%</td>
</tr>
<tr>
<td>Social Hurts</td>
<td>12.2%</td>
</tr>
<tr>
<td>N</td>
<td>41</td>
</tr>
</tbody>
</table>

F=0.7859; p=0.5257

F=2.4423; p=0.0328

B. Independents

<table>
<thead>
<tr>
<th>Uninformed</th>
<th>Informed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hetero.</td>
</tr>
<tr>
<td>Both Right</td>
<td>39.4%</td>
</tr>
<tr>
<td>Both Wrong</td>
<td>15.2%</td>
</tr>
<tr>
<td>Social Helps</td>
<td>33.3%</td>
</tr>
<tr>
<td>Social Hurts</td>
<td>12.1%</td>
</tr>
<tr>
<td>N</td>
<td>33</td>
</tr>
</tbody>
</table>

F=0.4125; p=0.6782

F=0.3388; p=0.7876
Table 3. Bias in first messages sent about global benefits provided by candidates Adams and Bates by partisanship of sender and receiver. The dependent variable is the message minus the sender’s initial estimate.

A. O.L.S. models with standard errors corrected for clustering on subjects.

<table>
<thead>
<tr>
<th></th>
<th>Adams</th>
<th>Bates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sender: Party A</td>
<td>Receiver: Party B</td>
<td>5.052</td>
</tr>
<tr>
<td>Sender: Party B</td>
<td>Receiver: Party B</td>
<td>-6.451</td>
</tr>
<tr>
<td>Sender: Party B</td>
<td>Receiver: Independent</td>
<td>-6.859</td>
</tr>
<tr>
<td>Sender: Independent</td>
<td>Receiver: Party A</td>
<td>2.268</td>
</tr>
<tr>
<td>Sender: Independent</td>
<td>Receiver: Party B</td>
<td>-6830</td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td>-1.941</td>
</tr>
</tbody>
</table>

N (Subjects) 2754 (135) 2754 (135)
R² 0.059 0.030

B. Predicted Values from Part A

<table>
<thead>
<tr>
<th></th>
<th>Adams</th>
<th>Bates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sender</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Receiver</td>
<td>A</td>
<td>-6.75*</td>
</tr>
<tr>
<td>B</td>
<td>3.11*</td>
<td>-8.39*</td>
</tr>
<tr>
<td>Ind.</td>
<td>1.97</td>
<td>-8.80*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Bates</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sender</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Receiver</td>
<td>A</td>
<td>-2.95*</td>
</tr>
<tr>
<td>B</td>
<td>-4.61*</td>
<td>3.72*</td>
</tr>
<tr>
<td>Ind.</td>
<td>-5.90*</td>
<td>1.16</td>
</tr>
</tbody>
</table>

*95% confidence interval does not contain zero.
Figure 1. Percentage of correct votes for control and treatment groups by information level and network partisanship. Error bars display 95% confidence intervals with standard errors corrected for clustering on subjects.

A.

B.
Figure 2. Comparing the percentage of actual correct votes to the percentage of initial, implied votes that were correct. Error bars display 95% confidence intervals with standard errors corrected for clustering on subjects.

A.

![Bar chart for Uninformed Partisans and Informed Partisans showing the percentage of correct votes for In-Group, Hetero, and Out-Group categories.](image)

B.

![Bar chart for Independents showing the percentage of correct votes for Uninformed and Informed categories.](image)