

Conformity in Groups: The Effects of Others' Views on Expressed Attitudes and Attitude Change

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Abstract Two experiments demonstrate the powerful influence of others' views on individual attitudes and attitude expression. Those around us can influence our views through persuasion and information exchange, but the current research hypothesizes that exposure to alternate views even *without* discussion or exchange of persuasive arguments can also alter what attitudes are expressed, and even generate long term shifts in attitudes. In an initial study, naïve participants were asked their attitudes on a range of standard survey items privately, publicly in a group with trained confederates, and again privately following the group setting. Findings indicate significant attitudinal conformity, which was most pronounced when participants were faced with a unanimous (versus non-unanimous) group. The group experience continued to influence participants' views when they were again asked their views in private. A second experiment varied whether participants heard views from live confederates or via computer, demonstrating that these effects could not be attributed only to issue-relevant information provided by or inferred from group members, and that attitude change persisted long after participants had left the laboratory. In summary, when people are asked their attitudes publicly, they adjust their responses to conform to those around them, and this attitude change persists privately, even weeks later. Accordingly, such purely social processes of attitude change may be every bit as important as more traditional cognitive informational

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processes in understanding where people's political attitudes come from, and how they may be changed.

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Those who surround us have a profound influence on how we understand the world in general, and politics in particular. Ideally, this influence happens through thoughtful exchanges of views and careful consideration, leading people to hold carefully constructed attitudes, make logical and informed decisions, and generally behave consistently with their underlying preferences (Fishkin 1991; Putnam 2000). Unfortunately, this is not always the case (Converse 1964). How, otherwise, can we account for the existence of political attitudes and movements that persist despite objective disproof of their beliefs? For example, “Birthers” insist that President Obama was not born in the US, despite various birth records, reports of those who were there, and even testimony of the Republican governor of the state in which he was born (Henig 2008; Malcolm 2008; PPP poll 2012). It therefore behooves us to look beyond pure logic and information, to more thoroughly consider the social roots of attitudes and judgments.

Research has taken two major directions in understanding why views are not a function of information alone. The first, motivated skepticism (Kunda 1990; Redlawsk 2002; Taber and Lodge 2006; see also Redlawsk and Lau 2013), establishes our tendency to arrive at desired (but not necessarily accurate) conclusions through phenomena like disconfirmation bias (Taber and Lodge 2006). Though ubiquitous, motivated skepticism has limits, and can generally not be stretched to explain disregard for overwhelming information (Kunda 1990; Redlawsk, et al. 2010). Additional, complementary explanations are required. A second direction of research therefore examines features of our social environment that can alter attitudes (Huddy 2004; Smith et al. 1956; Huckfeldt et al. 2004a) and can cause people to prioritize fitting in over correctness (see Baumeister and Leary 1995). Such social research provides some precedents for expressing erroneous judgments in the face of complete objective disproof, albeit with politically irrelevant stimuli (e.g. Asch 1951).

While those with whom we have social ties undoubtedly serve as sources of useful information and arguments, they also generate social pressure, and act as reference points for determining what is appropriate and correct. The result is often conformity, or attitude change towards the group as a result of social information rather than political information.¹ In order to fully understand public opinion and the attitudes citizens hold, we must look beyond overt persuasion and information

¹ Although researchers use the term “conformity” in various ways, it generally indicates a continuum such that individuals may be more conforming or nonconforming (see Willis 1963; Nail and MacDonald 2007). “Movement toward an influence source is the most prominent operational definition of conformity in the literature...” (Nail and MacDonald 2007, p. 195). Thus, we use “conformity” to mean a shift in expressed attitudes to be closer to (but not necessarily identical to) the views of others. This is especially appropriate for views in groups, in that individuals in groups rarely hold *identical* views, making being identical to a group operationally unclear.

exchange to examine social goals and influences that arise from simply knowing what others' attitudes are, without any justification of those attitudes.

Several particularly deleterious effects make it essential to incorporate such social influence processes into our understanding of political attitudes. First, public conformity of one individual may spiral to others and lead to pluralistic ignorance in which the views of the majority are misperceived (Noelle-Neumann 1974; Prentice and Miller 1993; Todorov and Mandisodza 2004). As the appearance of unanimity grows, a corresponding intolerance for dissenting opinions develops (Mutz 2002b; Mutz and Mondak 2006) increasing social pressure for attitudinal homogeneity. Those who perceive (however inaccurately) that their views are supported by those around them will subsequently hold those attitudes more strongly (Visser and Mirabile 2004; Levitan and Visser 2009) and become more likely act on those attitudes through voting and other forms of political participation (Mutz 2002a, but see Huckfeldt et al. 2004b). Most dauntingly, public conformity may lead to private acceptance of expressed views, without due thought. The potential negative implications of this attitude change based upon blind conformity need little explanation. The democratic ideal is that people base their attitudes and votes on careful consideration of available information (e.g. Fishkin 1991), not simply on what attitudes are most popular.

The current studies demonstrate that attitude change through social pressure can arise simply from knowing what other people's attitudes are, especially proximate others. Hearing justifications of these attitudes is not a necessary precondition for attitude change. We adopt the term "argument" to indicate such information about an issue *other than* the view of others, in keeping with the persuasion literature (see Shavitt and Brock, 1994, especially chapter 6). The current studies examine the extent to which brief interactions, in which few or no persuasive arguments change hands, can elicit public conformity and even generate enduring attitude change. We also examine features of the situation that can heighten this effortless social influence.

Social Influence

Our attitudes and behavior can be powerfully and often unwittingly shaped by the people around us (Hardin and Higgins 1996). Researchers have studied this premise from many perspectives involving different levels of analysis, mechanisms, and domains. Researchers have examined impersonal influence of mass media (e.g. Mutz 1998) and elites, as well as persuasion more generally (Zaller 1992), or have taken approaches focused more on social dynamics and relationships between individuals.

Social dynamics can unduly influence judgment and decision-making at the level of small group interactions because concurrence-seeking and concerns about group cohesion help generate negative phenomena like groupthink (Janis 1982; Tetlock et al. 1992). Similarly, small group dynamics can generate extreme views through group polarization (Myers and Lamm 1976). Experiments with small groups have been helpful not only in clarifying small group dynamics, but also in isolating

specific variables to test their causal impact, demonstrating that characteristics such as expertise (Petty and Cacioppo 1986), gender (Eagly 1983), and status (Eagly 1983) can cause some individuals to be more influential than others.

At a more abstract level, research has examined the role of social identity in attitudes, judgments, and behaviors. Initial research demonstrated that people sometimes change their judgments (e.g. about distribution of resources, perceptions of others) merely due to being randomly assigned to group X or Y, both small groups of strangers (Tajfel and Turner 1986). These beginnings developed into a broad literature on the impact of various socially ascribed identities (race, gender, religion, etc.) on how we view the political landscape (see Huddy 2004).

The current research, like the literature on small groups, focuses on the influence of those around us, specifically people with whom we interact *directly*. Importantly, it also emphasizes the role of social situations, rather than exchange of arguments, in generating attitude change.

Personal Social Contact

Of late, social network research has made important strides in understanding how direct contact with close others and political discussants can influence attitudes and behavior (Huckfeldt et al. 2004a; Mutz 2006; Sinclair 2012; see Klofstad et al. 2013 on conceptualization and measurement). Our networks socialize us politically (Settle et al., 2011). We borrow information and expertise from them, which in turn influence our views (Ryan 2011) and our behavior (McClurg 2006). Disagreement with those around us can destabilize our views, generating attitude change (Huckfeldt and Sprague 2000; Levitan and Visser 2009), and reducing our likelihood of acting on those attitudes (Mutz 2002a, but see Huckfeldt et al. 2004b).

Various mechanisms are involved in this influence of close others. Structural equivalence theory emphasizes the role of information exchange with similar others, especially discussion which leads to a mutual understanding of costs and benefits (Burt 1987, pp. 1290–1291). Indeed, individuals embedded in attitudinally heterogeneous networks are more aware of opposing arguments (Huckfeldt et al. 2004b; Mutz 2002b). This argument-based influence has often been the focus of research (e.g. Ahn et al. 2010; Huckfeldt and Sprague 1987), but influence is not limited to argument-driven persuasion. Differences of opinion in one's network also impact how we think about our views, influencing attitude accessibility (Huckfeldt and Sprague 2000), information seeking (Levitan and Wronski 2014), and how deeply we consider opposing information (Levitan and Visser 2008). This is partially because others serve as reference points for determining what attitudes and behaviors are correct and socially appropriate (Sherif 1936; Festinger 1954; Kelley 1952).

While those with whom we have social ties undoubtedly serve as sources of concrete arguments, social comparison theory proposes that others' views are *themselves* used as information (Festinger 1954). This "informational influence" occurs when people use the views of others as heuristic cues or reference points to

determine if their own views are likely to be correct (Deutsch and Gerard 1955). Despite the term “informational influence,” no arguments need to be exchanged – mere exposure to someone else’s opinion is enough to assess the accuracy of one’s own opinion, like students gauging whether their answer to a math question is correct by asking what others got. People intuitively believe that if more people share their view, then that view is more likely to be correct (Cialdini 1995). Conversely, learning that others hold discrepant attitudes, even without learning why, erodes confidence in that attitude (Visser and Mirabile 2004).

Informational influence is not the only means of influence without argumentation, however. Although people are motivated to be accurate and correct, they also have other motivations, including social motives (see for example Katz 1960; Taber and Lodge 2006). Humans are deeply social creatures, with an intense need to belong, which motivates people to affiliate with others, and to seek their positive regard (Baumeister and Leary 1995). People feel uncomfortable and ambivalent when their views are inconsistent with those of people they like (Priester and Petty 2001), and they are highly motivated to avoid this discomfort often through attitude change (Heider 1946). Such motivation to fit in is so powerful that mere postal mailings emphasizing group norms can influence people to vote (Gerber et al. 2008; Panagopoulos 2010; see also Cialdini et al. 1991). Indeed, some attitudes exist primarily to serve a “social adjustment” function (Smith et al. 1956; see also “value-expressive” function: Katz 1960), although any attitude might be affected by group norms.

“Normative influence” (Deutsch and Gerard 1955; Kelley 1952) follows along these lines, occurring when people we interact with serve as standards delineating what is appropriate and acceptable to the group, regardless of what is factually correct. The attitudes of others imply group norms, signaling what sorts of attitudes are proper and expected. People conform to these group norms to avoid social sanctions (Schachter 1951; Ulbig and Funk 1999), to remain in good standing with current social partners, or to join desirable new groups (Kelley 1952).

Consistent with the expectation that people will alter their views and behavior to fit in, one of the most remarkable findings of conformity research is that people sometimes express clearly incorrect judgments if those around them unanimously agree (Asch 1951; 1956; Deutsch and Gerard 1955). In Asch’s classic studies, participants were easily able to determine the relative lengths of printed lines when alone, but gave the wrong answer a stunning 37 % of the time in the presence of other “participants” who had just unanimously voiced a wrong answer (Asch 1956). A less touted, but also remarkable aspect of this research is that *strangers* had this influence. This suggests that, although research naturally focuses on close others, perhaps strangers and those with whom we have weak ties (who are more likely to disagree with us, Mutz and Martin 2001) have an underappreciated impact on our views.

While information exchange clearly affects attitudes, subtle features of the social context also have an impact. The underlying mechanisms of both normative and informational social influence rely on the knowledge of what others’ views are, without the necessity of any concrete arguments being exchanged. As such, the

attitudes of others provide a social yardstick by which to evaluate both the correctness and appropriateness of one's own preferences.

Conformity with Political Attitudes?

Political attitudes are quite different than the stimuli used in much of the conformity literature, allowing some to suggest that political attitudes may not be susceptible to such striking levels conformity as in classic conformity studies. This makes it especially important to empirically establish people's susceptibility to political conformity.

Much of our knowledge of conformity is based on unimportant perceptual tasks (e.g. judging the lengths of lines), whereas political attitudes are quite important and self-relevant (Katz 1960). As attitude importance increases, people are more likely to act in accordance with that attitude, and are therefore less susceptible to attitude change (Boninger et al. 1995), and so people may be more willing to risk social conflict by posing a dissenting opinion. People may also be more willing to resist conforming politically because of the relative subjectivity of political issues. To disagree politically may be uncomfortable, but to disagree on objective matters risks "appearing incompetent, foolish, or even mad," because one can be proven wrong (Ross et al. 1976, p. 149). The subjectivity of political views therefore reduces the social cost of non-conformity (see Ross et al. 1976).

Thus, there are valid reasons to doubt that the conformity so compellingly established in other domains will generalize to politics. Still, when there is no objective evidence, people are particularly reliant on social information to gauge the correctness of their attitudes and judgments (Festinger 1954; Kelley 1952; Deutsch and Gerard 1955), making it necessary and enlightening to test whether the purely social effects that psychologists tout are truly present with regard to political views.

Lasting Attitude Change?

Even temporary conformity in the face of disagreement has dramatic implications for the democratic process, but the possibility that it may presage lasting attitude change makes it critically important. Social information, even in brief interactions, can exert an influence on people's perceptions even months later (Sherif 1936). Consequently, the attitudes that people possess may not only be a function of their initial attitude, but also of past social encounters.

Previous research on conformity and normative influence has often neglected the possibility of lasting changes (after all, one does not expect persistent inability to judge length of lines after a group interaction), but with political attitudes this perseverance is a real possibility. Beyond any direct impact of social influence, the mere act of expressing an attitude (or not) can solidify it (or weaken it). Publicly stated attitudes are more resistant to subsequent persuasion than views that remain unexpressed (Roese and Olson 1994). More critically, the simple act of expressing a counter-attitudinal view can shift one's private attitude to be more similar to the

expressed view, generating persistent attitude change (Bem 1972; Festinger 1957; Cooper 2007). Thus, we expect that conformity may produce some lasting private attitude change, as well as public conformity.

Factors Influencing Political Conformity and Subsequent Attitude Change

In addition to hypothesizing about social influence, we anticipate that several factors will affect people's susceptibility to this influence. The range of views voiced by others is one such variable. The narrower the range of expressed attitudes, the more clearly the group norm is established. This makes deviation from that norm more evident, and normative influence more powerful. The more people agree amongst themselves, the less tolerant they are of disagreement (Laumann 1973; Mutz and Mondak 2006), and the more likely they are to apply pressure to deviants and ultimately ostracize them (Schachter 1951). When a group is unanimous, people therefore feel increased pressure to conform (Asch 1951). Even one other dissenter can make it easier to resist conforming (Nemeth and Chiles 1988). Reciprocally, when group members express a range of views, it becomes unclear whether or not a group norm exists and what that norm might be, even if the discordant group has the same ideological central tendency as the unanimous group. Dissent from the norm becomes less noticeable, more difficult to punish, and more acceptable. Hence, unanimity of others is expected to increase conformity.

The degree of difference between an individual's views and those of group members is also of interest. When an individual's views grow more distant from the group's mean view, the distinction between the group norm and the individual's view becomes more apparent. Clear deviants are the subject of greater social pressure, whereas minor deviations from the group's attitudinal norm may go unnoticed by group members, thereby failing to elicit attempts at social influence (Schachter 1951). If individuals' attitudes are close enough to the group to seem similar to those of others, this diffuses the social influence, reducing its impact (see Latane 1981). Additionally, assimilation effects may cause individuals who hold similar views to those around them to see little or no difference between their views and those of others (Hovland et al. 1949; see also Mussweiler 2003), and therefore feel no pressure to change to views with which they already "agree". Ultimately, the more an individual is exposed to disagreement by close others (or perhaps even strangers) the more likely they are to change those views (Huckfeldt and Sprague 2000; Visser and Mirabile 2004). Therefore, the distance of the ego from the group is also expected to relate to conformity.

These same contextual variables are also expected to influence the degree of continued attitude change. Attitudes expressed in the group might be mere public conformity for the sake of getting along, but social motives for public agreement often influence private attitudes expressed outside of the group context, as well (see Wood 2000; Kelman 1958, 1989). Additionally, expressing views to others is known to encourage persistent attitude change through both self-perception and cognitive dissonance. Either individuals take the fact that they have expressed a

view to indicate that they hold that view (Bem 1972), or they are uncomfortable with having expressed views at odds with their own, and so find ways to change their views (Festinger 1957, Cooper 2007). In either case, we anticipate that the likelihood of lasting attitude change should be greatest among those who initially conformed. As such, those factors that influence initial conformity should also influence likelihood of persistent change. We therefore expect that likelihood of persistent attitude change should increase when groups exhibit unity and when the ego is farther from the group mean both because these factors should affect normative and informational influence, and also because these factors first influenced expression of views within the group.

The Current Studies

The current studies (Stony Brook University IRB #82695) assess the degree to which people conform to the attitudes expressed by others without the necessity of exchanging persuasive arguments, and whether lasting attitude change results from this process. The above discussion points to two primary and several supplementary hypotheses.

Primary H1 Individuals in the presence of others will express attitudes more in line with the attitudes of those others than their initial attitudes had been.

Primary H2 Rather than reverting to their initial private attitudes after leaving the group context, individuals will exhibit persistent attitude change.²

Supplementary H3a Likelihood of immediate public conformity will be greater when others are unanimous.

Supplementary H3b Likelihood of persistent attitude change will be greater when others are unanimous.

Supplementary H4a Likelihood of immediate public conformity will be greater when the individual's attitude is more different from the group.

Supplementary H4b Likelihood of persistent attitude change will be greater when the individual's attitude is more different from the group.

Supplementary H5a Likelihood of immediate public conformity will be due, at least in part, to normative influence.³

Supplementary H5b Likelihood of persistent attitude change will be due, at least in part, to normative influence (see Footnote 3).

² Note that we do not hypothesize that later private attitudes will be exactly the same as attitudes expressed in the group, only that they will be more like those of the group than initial private attitudes had been.

³ Informational influence may, of course, also play a role, and will be held constant in tests of normative influence.

Two laboratory experiments were conducted during 2008 and 2009: a preliminary experiment and a second, expanded experiment. Study 1 examines the social pressures within a group and subsequent attitude change, as well as social and personality factors that enhance change. Study 2 demonstrates that the social pressures identified in study 1 were the result of not only informational influence, but also normative influence. Findings indicate that the physical presence of group members enhances the level of conformity considerably, indicating that participants changed their attitudes not just because the attitudes of others are useful information, but also because individuals feel especially motivated to hold attitudes that are similar to those with whom they interact. The second study also examines the longevity of these social influence effects over days and weeks, rather than minutes.⁴

Study 1 Introduction and Method

In order to understand the role of merely knowing others' attitudes in encouraging conformity and attitude change, we examined the reactions of participants to small groups of others (confederates) with varying attitudes. We experimentally manipulated both the unanimity of confederates and the average attitude of the confederates. The latter manipulation allowed us to vary the attitudinal distance between the participant and confederates without compromising the internal validity of the experiment. Both of these experimental manipulations were conducted in a within-subjects design to allow efficient causal inferences. The within-subjects design allows greater power and efficiency in our design.⁵

After providing consent, participants reported their attitudes about various issues privately, via computer. They then heard the attitudes of a small group of confederates, and were asked to state their own views verbally in the presence of the confederates in order to establish whether merely knowing the views of strangers could alter their views. Participants then reported their attitudes again privately, via computer, to establish whether persistent attitude change was occurring, rather than simply public agreement. Participants were then thanked and debriefed.

⁴ The results of both studies are presented in order to demonstrate a basic finding and an extension, and to demonstrate the reliability and robustness of these results, in accordance with the recommendations of King (1995).

⁵ For those who are less familiar, the within-subjects design is an experimental design in which a participant experiences more than one experimental condition (see, e.g., Keppel and Wickens (2004) for further discussion). Counterbalancing is employed for maximum internal validity. It enables causal conclusions, and is particularly valued in fields like medicine and psychology because each participant serves as their own control group, enabling greater power and efficiency than a between-subjects design. Within-subjects designs are especially well suited to circumstances when: (1) individual differences are expected to be large enough to obscure treatment effects by generating large within-group variability, or (2) trials are quite brief (as in our study), making it more efficient to have a participant take part in several different trials, rather than having multiple participants take part in only one brief trial apiece. In this study, there is an additional benefit: if participants were assigned to only one condition across attitudes, hearing their group members responding the same way on every trial would undoubtedly generate unnecessary suspicion.

Participants

We recruited 54 undergraduate participants from a large public university, 8 of whom were excluded from all analyses for indicating suspicion when probed during debriefing.⁶ Of the remaining participants, 24 were male, and 23 identified as Democrats, 6 as Republicans, and 11 as independents.

Procedure and Cover Story

Participants were recruited in exchange for extra credit, under the auspices of a study about group-based political discussions, although no group discussion actually occurred. Participants were told that they would complete a short questionnaire, then engage in a group activity, and finally complete another questionnaire (Fig. 1). The consent form framed the initial, group, and post-group study phases as separate tasks.

Upon arriving at the lab, participants completed an attitude questionnaire (Online Resource, Appendix A) and filler questions anonymously on a computer. They were then taken to a separate room where three confederates were being seated for the anticipated group discussion. The same student confederates were used for every participant (2 male, 1 female, 1 minority). Once the naïve participant was seated, the experimenter told the group that in order to choose the best discussion topic he would ask them some “standard political attitudes questions” and requested that they respond verbally, one at a time, with the answer option only (i.e. “somewhat agree”), so that he could record their responses. These were the attitude questions previously asked, without the filler questions. The naïve participant by “chance” became the fourth participant in the group, such that each confederate answered a question in turn *before* them, ensuring that naïve participants always knew others’ responses prior to responding themselves. A round of responding to a particular item took a fraction of a minute. After the final verbal question, participants were told that in their specific case a discussion would not be useful (supposedly because their group’s attitudes were redundant with previous groups) and they were then taken back to their original room *without* any discussion of issues. The entire group portion of the study, including answering all 30 questions, took less than 15 min. All participants then completed a post-test questionnaire that consisted of the same survey questions embedded in a series of questionnaires about personality traits, demographics, and filler items to obscure the repeated questions.

Contextual Factors Influencing Conformity

Both unanimity of confederates views and the average attitude of those confederates were randomly assigned in within-subjects experimental manipulations. The

⁶ Suspicious participants questioned the naivety of the confederates, and a few mentioned group influence or verbal conformity. No participants guessed that we were examining persistent or private attitude change. Related research suggests that demand effects make attitudes *less* prone to our predicted social influences because of concern about appearing weak-willed to the experimenter (Deutsch and Gerard, 1955), minimizing concerns about demand effects.

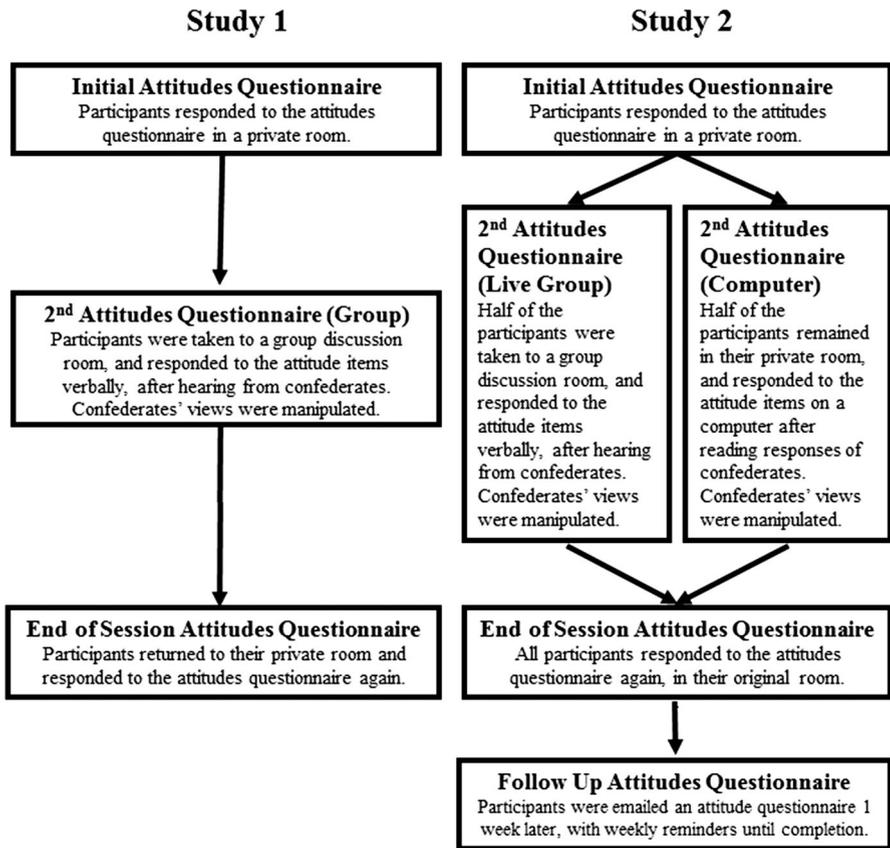


Fig. 1 Experimental procedures

manipulation of group *unanimity* kept the group average on an item constant, while altering the degree of pressure toward uniformity. On the unanimous condition items, confederates gave identical responses on a particular attitude item, whereas in the non-unanimous condition items, each confederate answered slightly differently from the other two (e.g. positions 1, 2, and 3 versus 2, 2, and 2). The confederates' average response was also experimentally manipulated to vary along the continuum from agreeing to disagreeing with the item. To avoid issue-specific confounding, both unanimity and the ideological direction of the average group response across issues were counterbalanced (e.g. which items were unanimous varied across participants by random assignment to a condition schedule). Confederates gave *only* the response option of their answer (e.g. “somewhat favor”), and were trained to react neutrally both when responding and when others were speaking (passive expressions and no comments).

To gauge the dissimilarity of the participant from the group, the absolute *attitudinal distance* between a participant's pre-discussion private response and the average response of the confederates was assessed for each item. This attitudinal

distance varied as a function of the experimental manipulation of the average group attitude and participants' initial attitudes. Therefore, although the distance between the individuals' initial attitudes and the group's mean response was not itself experimentally assigned, it varied probabilistically as a function of experimental treatment.

Individual Differences

We also assessed party identification and political sophistication to gain additional insights. Those who have greater political sophistication are better able to resist persuasion through counter-arguing (Zaller 1992), and so sophistication was assessed by summing the number of correct responses to 10 factual questions (Online Resource, Appendix D, Cronbach α = 0.79; $M = .53$, $SD = .27$). Party identification was measured with the standard branched item from the ANES, in which Republicans are at the high end of the scale.

Conformity and Attitude Change Measures

Changes in participants' response to the same attitude items across the phases of the study were used to assess conformity and persistent attitude change. Following Kelman (1958), we deemed a participant to have conformed if his or her verbal response in the group was more similar to the group's average response than his or her initial private response. Similarly, we deemed participants to have experienced true attitude change if they continued to express views more congruent to those of the group even when the group (and the attendant social pressure) was no longer present.

Study 1 Results and Discussion

We present our analyses in several stages (conducted using Stata, throughout the paper). First, we provide some preliminary analyses to demonstrate that social influence and conformity are in fact occurring, and to what extent. We then examine which factors especially encourage conformity. Finally, we examine whether these social influence factors induce persistent attitude change.

Overall Attitude Change

To develop a broad picture of the extent of conformity and persistent attitude change, our initial analyses examined the overall magnitude of conformity in the group and private attitude change thereafter, regardless of experimental treatment. Specifically, we investigated the degree to which participants altered their views to be more similar to the average attitude of the group by correlating their initial attitudinal distance from the group mean with the amount of change toward the group. The resulting positive correlation indicates that when participants were assigned to a group that was more conservative than them on an issue, participants

became more conservative, and when their group was more liberal, they became more liberal on that issue (top panel of Fig. 2). This strong positive relationship demonstrates that the more participants' initial views differed from those of their group, the more they changed the attitudes they expressed in the group ($r = 0.507$, $p < .001$), consistent with Hypotheses 1 and 4a. For example, when the group was more conservative, perhaps opposing something the participant was neutral about ($X = -2$), the participant could be expected to become more conservative, typically covering about $\frac{1}{2}$ the distance between their initial position and that of the group ($Y = -1$), and when the group was more liberal, the participant likewise became more liberal.⁷

Interestingly, attitude change persisted even after the group dispersed, consistent with Hypotheses 2 and 4b (Fig. 2, bottom panel). The more participants' attitudes stood out from the group, the more they changed, even after participants were no longer in the group setting ($r = 0.238$, $p < .001$). Thus, the impact of social influence persisted even when the source of that influence was removed. The magnitude of the correlation for the post-discussion responses is noteworthy, though predictably not as large as the correlation for responses while in a group. The drop in the correlation when the participants were no longer with the group suggests *some* initial compliance that was purely intended to minimize social conflict. Nonetheless, people changed their attitudes overall to be more like those of the group, demonstrating social influence even in the absence of discussion or exchange of arguments.

While these data deserve more detailed examination (below), these preliminary results have important implications. The perseverance of the significant correlation between initial difference of opinion and subsequent attitude change even after participants were no longer with others demonstrates that participants changed their private views to be more like those of the group. They did not simply verbally “go along to get along” with the group and immediately revert back to their private attitudes after the group dissolved, as might have been expected based on compliance alone (Asch 1951, Kelman 1958, 1961). When people are in a group they conform politically, and this conformity translates into actual attitude change that persists beyond the group setting.

Level of Initial Conformity

Having examined the magnitude of conformity, we next examine some descriptive information about the *frequency* of overall initial conformity irrespective of condition, followed by more in-depth analyses of the factors that make such initial conformity more likely. On some issues, the participant's initial attitude matched the average group attitude, as a consequence of random assignment of group views (as expected by chance $\approx 1/7$ th of the time, $n = 183$). In this case not changing one's attitude is the expected response for conformists *and* for those who are unaffected by the group. Due to this ambiguity, these responses were excluded from

⁷ Attesting to the robustness of these results, t tests confirm that participants' attitudes became more like the group attitudes to which they were randomly assigned (whether liberal or conservative).

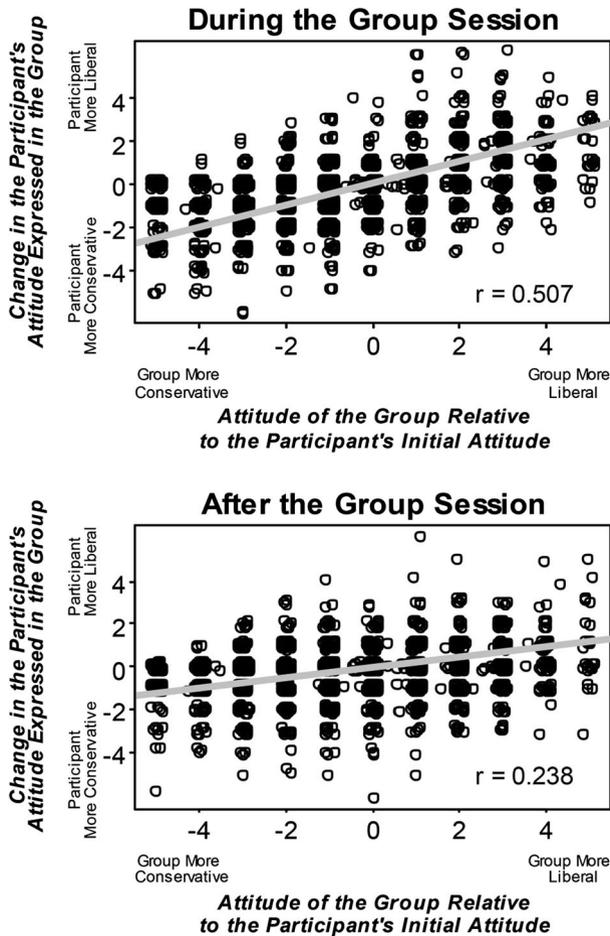


Fig. 2 The relationship between the participant's initial deviance from the group and the amount of initial conformity and persistent attitude change in study 1. These *scatterplots* represent how a participant initially differed from the group mean on an item, and how much they subsequently changed on that item. The r values indicated are Pearson's correlations

all subsequent analyses. Note that this occurred randomly across conditions because of the within-subjects manipulation of group attitude, and that particular observations, but not participants, were removed. The excluded observations did not significantly differ based on any of the condition or individual difference variables. On the remaining 1197 responses, participants conformed most of the time (57 %) and polarized away from the group only 7 % of the time (Fig. 3). Indeed, participants conformed disproportionately often ($\chi^2 = 26.17, p \leq .001$), more often than polarizing and maintaining the same attitude combined. Importantly, every participant conformed on at least 6 of the 30 responses (20 %). This level of conformity is notably higher than the prior literature on non-political judgments

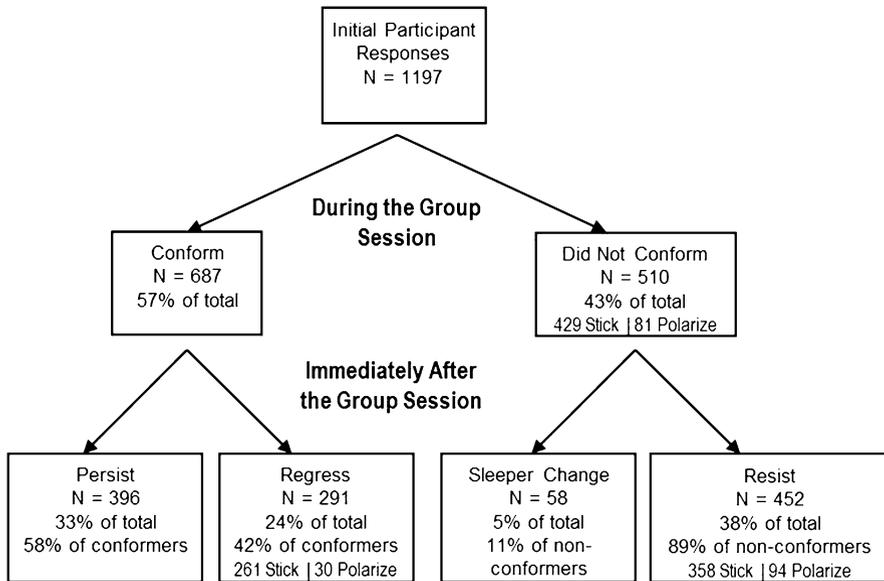


Fig. 3 The frequency of conformity and persistent attitude change in study 1. As noted, of the 46 participants, and 1,380 observations, participants reported agreeing with the group *before* the group session 183 times (~1/7, or at chance), such that change would not indicate conformity. For clarity, these observations were not included above, leaving 1,197 observations

where approximately 1/4 of the participants are able to completely resist conformity pressures on *all* trials (Bond and Smith 1996).

Some might argue that some of these results (particularly the correlations) might be vulnerable to a “regression to the mean” interpretation, in that the effect might be a result of those who are most different from their group (i.e. most extreme) changing toward both the mean and their group. The counterbalancing of group issue positions make this account unlikely by making regression towards the mean and conformity toward the group statistically distinguishable. Specifically, some neutral or liberal participants who become more conservative are deemed to be conforming because their group mean was conservative on an item, but others are considered *not* conforming on that same item because their group mean was liberal (and vice versa for conservatives), cancelling out any overall effect. Thus, significant effects indicate change not to “the” mean (as in regression to the mean), but toward the different means of participants’ groups. Additionally, regression to the mean cannot account for significant differences between experimental conditions. Regression to the mean dictates a general drift of initially extreme scores toward the average, rather than two equivalent experimental groups showing differing results. Significant effects of condition therefore rule out this concern, and so we turn to analyzing factors that encourage conformity.

Conditions Encouraging Conformity

To examine the antecedents of conformity, we assessed whether or not participants' attitudes expressed in the group were closer to the group average response than their initial attitude on each item. We chose this measure so as not to give undo weight to those who begin with the most extreme attitudes, and therefore have the most room to change. If a participant changed their attitude to align better with the group, the observation scored 1, and if not a 0.

Several statistical strategies were used to examine which factors encourage conformity, each yielding similar results to those reported here. These included different ways of coding the dependent variable and differing analyses. Attesting to the robustness of these results, parameter estimates changed minimally (generally within rounding error) and the substantive interpretation of the results was highly consistent across every method used.^{8,9} For the sake of clarity to the broadest audience, the simplest and most directly relevant analytic method is presented here. Thus, we report logistic regression analyses with nonconformity as the baseline condition (see Table 1, Col 1). Each response for each participant was treated as a separate observation. Responses were then clustered by the participant in the analysis to account for their non-independence. These analyses were conducted first on attitude change expressed in the group, then on attitudes expressed after the group phase to examine persistent attitude change.

Social Factors and Influence

In accordance with Hypotheses 3a and 4a, the contextual variables of unanimity and attitudinal distance from the group strongly influenced the likelihood that participants would conform on any given response (Table 1, Col 1). The probability of conforming significantly increases when the group is unanimous (predicted probability increases by 9 percentage points, holding all other variables at their means),¹⁰ supporting the idea that unanimity sends a clear message about what is correct and appropriate, generating increased conformity. Additionally, the significant coefficient for attitudinal distance indicates that the more the group members' average attitude differed from a participant's initial attitude, the more

⁸ Dependent variables included those already discussed, and a three category variable (move toward, stay, move away). Interpretation was substantively similar across dependent variable codings (Online Resource, Appendix F).

⁹ Due to the multi-stage responses of participants, nested logit models and conditional logistic regression models were also estimated. These models reduce to a multinomial logistic regression as a result of the structure of this data. The multinomial results closely resemble presented results (Online Resource, Appendix F) because too few participants polarized away from the group to provide additional leverage. Parallel logistic regression models were also run to examine subsequent responses contingent on behavior in the group. Again, results did not change substantively (Appendix F). Multilevel modeling proved untenable due to the cross-nesting of within-participant observations across times and conditions, and the need to use the outcome at time 1 to condition the effects in later stages.

¹⁰ Predicted probabilities throughout the paper were calculated based on the relevant logistic regressions, holding all other variables at the mean. Discussion of change of predicted probability indicates that the probability changed by the number of percentage points indicated.

Table 1 Logistic regression models explaining participant attitude change in Study 1

	In group setting	After group setting
Unanimity	0.366** (0.143) [.010]	0.299* (0.147) [.041]
Attitudinal distance	1.679*** (0.377) [<.001]	1.488*** (0.375) [<.001]
Political sophistication	-1.084* (0.474) [.022]	-0.252 (0.404) [.534]
Party identification	-0.556 (0.424) [.190]	-0.282 (0.387) [.466]
Constant	0.081 (0.316) [.798]	-1.399*** (0.287) [<.001]
Number of participants	40	40
Number of observations	1041	1041
Pseudo R^2	0.052	0.032
Log pseudolikelihood	-675	-633

Note In the group setting model, the dependent variable is whether or not a participant conformed to the group on a trial (1 = conformed). In the after-group model, the dependent variable is whether or not a participant persisted in holding attitudes more similar to the group on a trial, after having left the group (1 = persistence). All variables were recoded to range from 0 to 1. To correct for the non-independence of observations, standard errors (presented in parentheses) are clustered by the participant. P-values are listed in brackets. In addition to prior exclusions, 6 participants (156 observations not previously excluded) were dropped from these analyses for listing “other” as their party ID

+ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

likely that participant was to conform (the most discrepant being an estimated 39 percentage points more likely than the least discrepant). This is consistent with the idea that people who differ more feel more pressure to bring their views in line with those of others.

Individual Differences

Importantly, not every individual was equally likely to conform. The politically sophisticated were significantly less likely to conform (a predicted 26 percentage points less likely than the least sophisticated), suggesting that sophisticates are less susceptible to social influence (consistent with Zaller 1992). Importantly, although sophisticates were generally less likely to conform, sophistication did not completely inoculate participants against the social pressure created in the group setting. Predicted probabilities indicate that those with the highest levels of political

sophistication could still be expected to conform on 45 % of trials, with all other variables held at their means (compared to the observed 57 % conformity across all respondents). There were no significant interactions between sophistication or party ID and unanimity or distance.¹¹

Persistent Attitude Change

The presence of others had an immense impact on participants' attitudes, even after those others were no longer present (Figs. 2, 3). Conformity was likely to persist as real attitude change, and even some of those who did not initially conform later showed some signs of social influence in an apparent "sleeper effect".¹² To get a sense of the general frequency of persistent change, we again examine some basic statistics.

Prior Conformity

The most intriguing effect that emerges from these data is the immense effect of participants' behavior while they were in the group upon their attitudes after they left the group (Fig. 3). Consistent with Hypothesis 2, participants who initially conformed on an issue were more likely than those who did not to retain attitudes more similar to those of group members' after the group was no longer present ($\chi^2 = 266.17$, $p < .001$). Specifically, 58 % of initial conformers' attitudes remained more compatible with group members'. By comparison, if the participant initially resisted the pressure to conform, only 11 % exhibited attitude change later.

Although this analysis is somewhat coarse, the sheer magnitude of these findings attests to the impact of actual behavior on attitudes. To examine persistent socially-induced attitude change in more detail, we estimated another logistic regression, this time examining which factors influenced the degree to which conformity persisted as private attitude change rather than mere public lip-service (Table 1, Col 2). In this case, the dependent variable was persistent attitude change, with those observations on which a participant conformed in the group and continued to exhibit a changed attitude being coded as 1, while other observations were coded as 0.

Social Factors and Influence

Unanimity and disparity of views both had continuing significant effects on persistent attitude change (Table 1, Col 2) consistent with hypotheses 3b and 4b. On attitude items where the group was unanimous, respondents were predicted to be 6

¹¹ Throughout, we individually tested the interactions between our covariates (party id, sophistication, and attitude strength) and our key variables of unanimity and distance. We had no a priori hypotheses about such interactions. All were non-significant, except where noted. Here, we found a *marginal* interaction between unanimity and political sophistication ($p < .1$), replicated in two of four subsequent analyses (Online Resource, Appendix E).

¹² The term "sleeper effect", coined by Hovland et al (1949), refers to a delayed attitude change, although it is sometimes used to refer to one theoretical explanation thereof (see Cook et al 1979; Kumkale and Albarracín 2004).

percentage points more likely to exhibit continued attitude change. Further, the participants who were most different from their group were an estimated 32 percentage points more likely to exhibit persistent change after the group session had ended.

Overall, the attitudes expressed in the presence of strangers had impressive implications not just for conformity, but also for the attitudes participants later professed. As with initial conformity, unanimity and disparity of views also influence persistent attitude change in turn. Critically, this demonstrates the occurrence of persistent attitude change without any persuasive arguments being exchanged.

Study 2 Introduction

Study 1 results advance our understanding of social influence by demonstrating the power of brief, potentially offhand expressions of attitude to generate public conformity and private attitude change without any persuasive arguments. Still, important outstanding questions remain, most essentially the question of, “Why?” Although this attitude change is not the result of overt persuasion (since arguments were not exchanged), it remains unclear whether attitude change was the result of normative influence (change to fit in with the group, rather than because of new information inferred from others views). Additionally, other questions remain, particularly about the susceptibility of strong attitudes (vs weak or non-attitudes) to this effect, and the longevity of these effects.

The most prominent concern about study 1 is whether the changes in views might be the result of solely informational influence: taking the views of others as evidence that an attitude is correct (e.g. “Can these 3 people *all* be wrong?”), and not normative influence per se. Put another way, participants may have had primarily weak or non-attitudes, such that even the limited evidence of other people’s views was sufficient to sway them. If this were the case, attitude change might have been a result of the informational role of others’ views in indicating which view is correct. In the case of normative influence, attitude change would be due to the social information others’ attitudes provided about what others felt to be socially appropriate and expected. While informational influence is interesting in its own right for generating attitude change without supporting arguments, normative influence is still more striking in signifying the role of purely social situations in attitude formation and change. A change triggered by normative influence is a change motivated neither by correctness nor even pro-attitudinal bias, but by fitting in.

This informational or non-attitude explanation is consistent with the observed buffering effect of political sophistication against conformity. This alternate explanation seems unlikely, however, given the overall high level of conformity and that analyses indicate that even political sophisticates (who could be expected to have stronger priors and more information) can still be expected to conform at relatively high rates. Additionally, sophisticates were not significantly less responsive to unanimity and attitudinal distance, and were not significantly less

likely to experience persistent attitude change. Indeed, sophisticates showed some signs of being more responsive to the unanimity manipulation, which is at odds with a non-attitude explanation (footnote 11 and Online Resource, Appendix E). Study 2 allows us to more deeply examine this issue primarily by comparing the influence of exposure to the attitudes of real, immediately present others to the influence of exposure to those same other's attitudes without their immediate presence. Study 2 also assesses attitude strength, to determine whether weaker and non-attitudes respond differently.

Study 2 Method

Study 2 is an expanded version of study 1, which includes a between-subjects manipulation of normative influence in which participants were randomly assigned to a live or computerized group session (see below). Additionally, study 2 focused on 4 salient issues, and assessed attitude strength of each in the first phase of the study. Finally, a follow-up attitude questionnaire was sent to participants to track longer-term attitude change.

Participants

We recruited 108 undergraduates, 13 of whom were excluded from all analyses for indicating suspicion when probed during debriefing, as in study 1. Of the remaining participants, 49 were male, and 52 identified as Democrats, 20 as independents, and 15 as Republicans.

Procedure

The second experiment followed the same basic procedure as the first, with some extensions (see Fig. 1). After filling out an initial attitude questionnaire and attitude strength questions, half of study 2 participants participated in a group task, just as in study 1. The remaining study 2 participants engaged in a similar task, but alone, and ostensibly receiving information from others via computer (see below). As in study 1, all participants then answered more questions privately, via computer, including repeated attitude questions. Finally, a follow-up survey was completed a week or more later.

Normative Influence Manipulation

To better understand the psychological mechanism at work, we explicitly manipulated the normative pressure to conform while holding constant the views to which participants were exposed. Half of the participants were randomly assigned to experience the group setting following the initial attitudes questionnaire, just as in study 1, with similar confederates to study 1 (live-group condition, higher normative pressure). The other half of the participants were exposed to exactly the same opinions, but rather than being face to face with group members, those opinions

were presented on their computer screen (e.g. “somewhat favor” appeared in a text box) and were attributed to prior participant 1 rather than being said by confederate 1. These responses were attributed to other students in the participant pool who also participated in the study. Thus, the computerized condition offers participants the same insight into the attitudes of others as the group situation, but without the additional immediate normative social pressure arising from direct interactions with others. This variation allows us to examine high and low levels of normative influence while holding constant the informational influence of knowing others’ attitudes. This type of remote responding is the traditional means used to distinguish these types of influence (Deutsch and Gerard 1955), and continues to be used to distinguish informational influence from other types of social influence (e.g. Visser and Mirabile 2004).¹³

Attitudes and Attitude Strength

Attitude questions focused on 4 issues: abortion, affirmative action, gay rights, and immigration (Online Resource, Appendix B), and assessed attitude strength of each in the first phase of the study. These issues are high profile issues on which many have strong opinions, to ensure that the social influence demonstrated in study 1 is not driven primarily by non-attitudes. Participant attitude strength (Krosnick and Petty 1995) for each issue was measured through a 12-item battery of various antecedents of attitude strength (Online Resource, Appendix C; Cronbach α for abortion = 0.88, gay rights = 0.93, immigration, 0.90, and affirmative action = .89).

Attitudes of Others, and Other Factors Influencing Conformity

As in study 1, unanimity and the average attitude of confederates on an issue were manipulated within-subjects, enabling examination of the effects of unanimity and attitudinal distance. Individual differences including party identification and political sophistication ($M = .62$, $SD = .22$, Cronbach $\alpha = 0.73$) were assessed as in study 1.

Follow-up Questionnaire

Attitudes were reassessed in a questionnaire sent to participants via email about a week after their participation. If the participants did not reply, reminders were sent. Ninety-one participants (84 %, 11 suspicious) completed the follow-up questionnaire (modal time to completion: 7 days, range: 6–75 days).

¹³ A scripted group discussion also took place for 1/2 of study 2 participants to test orthogonal hypotheses. This took place *after* participants’ reported their attitudes in the group, and therefore after conformity was assessed. Somewhat unexpectedly, this had no 1st or 2nd order effects on any of the results discussed herein.

Conformity and Attitude Change Measures

Conformity and attitude change were assessed and coded as in study 1. Longer-term attitude change was calculated in the same manner using follow-up questionnaire responses.

Study 2 Results and Discussion

As in study 1, we present our analyses in several stages. First, we provide some preliminary analyses regarding overall change in views. We then present analyses to determine whether normative influence is indeed at work, and replicate earlier analyses regarding which factors encourage conformity. Finally, we examine whether these same social influence factors induce persistent and longer-term attitude change.

Overall Attitude Change

To examine the overall magnitude of conformity and persistent attitude change, we examined the degree to which participants altered their views to be more similar to the average attitude of their group overall, as in study 1. Our preliminary analyses correlate the difference between participant and group attitudes with subsequent attitude change (Fig. 4). Replicating study 1, the positive correlation demonstrates that the greater the difference between participant and group views, the more participants subsequently changed the attitudes they expressed in the group ($r = 0.341, p < .001$), consistent with hypotheses 1 and 4a. Observant readers may note that this moderate correlation is weaker than in study 1, but should keep in mind two points: first, that this analysis includes all participants, including those in the computerized condition, and second that the issues examined in study 2 were selected specifically for their salience, and attendant strength of views.

Social influence again persisted even after the group dispersed (Hypothesis 2). Specifically, the more participants' initial attitudes stood out from the group, the more they changed, even after participants were no longer in the group setting ($r = 0.234, p < .001$, Fig. 4, middle panel). Thus, the influence of others persisted even when those others were no longer present, just as in study 1.

The question then becomes, how long does this effect last? If participants in study 1 simply did not have enough time to regress back to their initial attitudes during the experimental session, we would expect null effects on the follow-up, but in fact a significant relationship was maintained in follow-ups that took place a week or more later ($r = 0.182, p < .001$, Fig. 4, bottom panel). This continuation of a significant relationship between initial difference of opinion and subsequent attitude change after the study concluded again demonstrates that participants changed their private views to be more like those of the group. It also illustrates (Hypothesis 2) that surprisingly durable, lasting attitude changes can be instigated by comments as insignificant as “somewhat agree”.

Fig. 4 The relationship between the participant's initial deviance from the group and the amount of initial conformity, persistent attitude change, and lasting attitude change in study 2. These *scatterplots* represent how a participant initially differed from the group mean on each item, and how much they subsequently changed on that item. The *r* values indicated are Pearson's correlations that pool live-group and impersonal computerized conditions. Subsequent logit analyses examine differences across experimental treatments

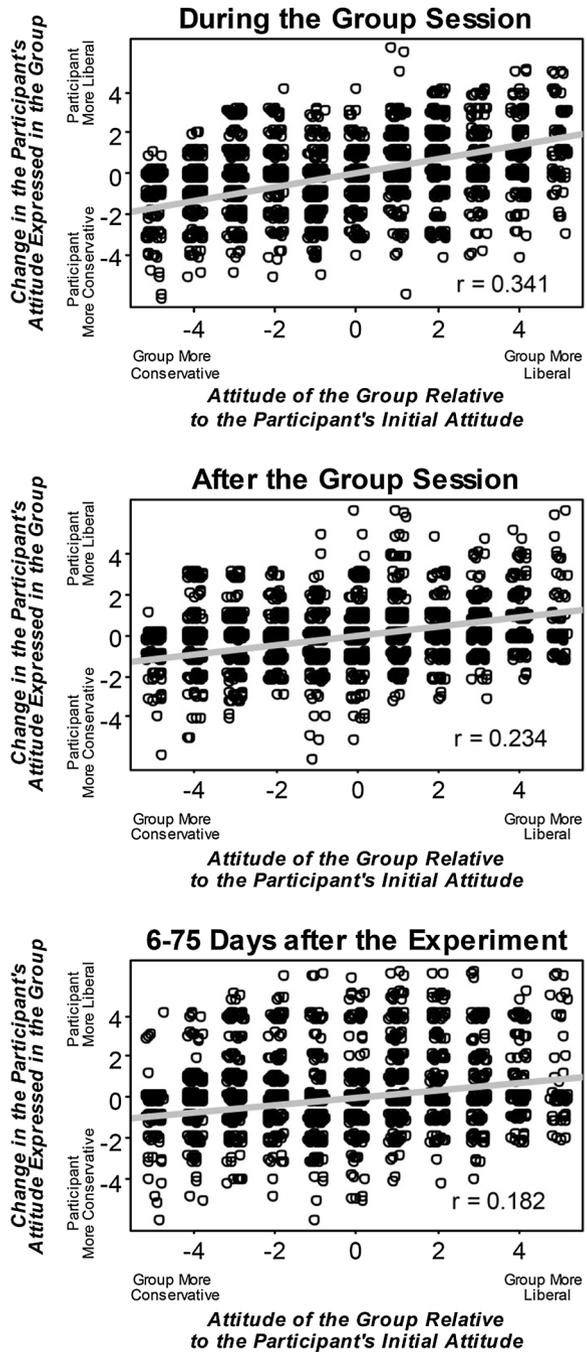


Fig. 5 The frequency of conformity, and persistent and lasting attitude change in study 2. As noted, of the 95 participants, and 1,900 observations, participants reported agreeing with the group *before* the group session 280 times ($\sim 1/7$, or at chance), such that change would not indicate conformity. Additionally, participants declined to respond to an additional 3 items. For clarity, these observations were not included above, leaving 1,617 observations. An additional 15 participants did not complete the follow-up questionnaire

Level of Initial Conformity

Next, we again provide some information about the frequency of conformity, and then examine factors encouraging conformity. As in study 1, observations were removed when the participant's initial attitude on that observation matched the randomly assigned average group attitude ($\approx 1/7^{\text{th}}$, $n = 280$). The excluded observations did not significantly differ based on any of the condition or individual difference variables. Overall, participants were, indeed, more likely to conform when faced with a live group than when faced with the same attitudes remotely, via computer ($\chi^2 = 96.12, p < .001$), suggesting a role for normative influence (Fig. 5). Participants conformed on approximately 53 % of the live-group condition items (similar to study 1), compared to only 29 % of the impersonal computerized condition trials. Further, 5 % polarized in live-group condition, compared with 10 % in the computerized condition. There was, however, a noteworthy amount of conformity in both conditions. Only one participant in the computerized condition was able to completely resist the pressure to conform, and all participants in the live-group condition conformed at least twice. Subsequent analyses test these differences.

Conditions Encouraging Conformity

To examine the antecedents of conformity, we used logistic regression with non-conformity as the baseline condition, as in study 1 (Table 2, Col 1). Responses were again clustered by the participant to account for non-independence.¹⁴ These analyses were conducted first on attitude change expressed in the group, then on change expressed after the group phase, and then in the follow-up to examine persistent and longer-term attitude change.

Type of Influence

Study 2 allowed us to more deeply examine whether normative influence was at work, in other words, whether participants changed to fit in with the group, rather than solely because the new “information” of other people's attitudes convinced

¹⁴ Given the nesting of responses within individuals and issues, we cluster the responses within participants. As noted by Gelman and Hill (2007), multi-way clustering is not an option due to perfect nesting, making clustering by the participant the more conservative test of the null hypothesis. Parameter estimates do not change as a function of clustering choice (by issue or item). Analyses of individual issues provide the same basic pattern of results, although with less power, so results presented here are collapsed across issues.

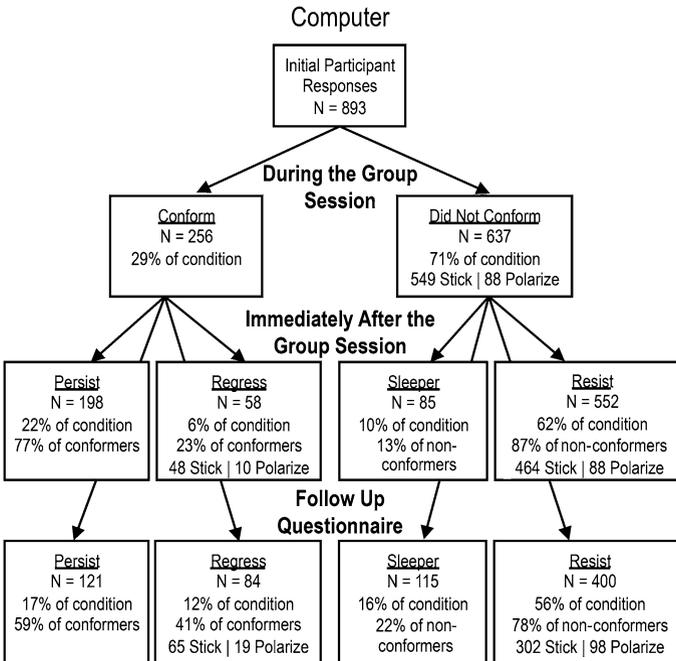
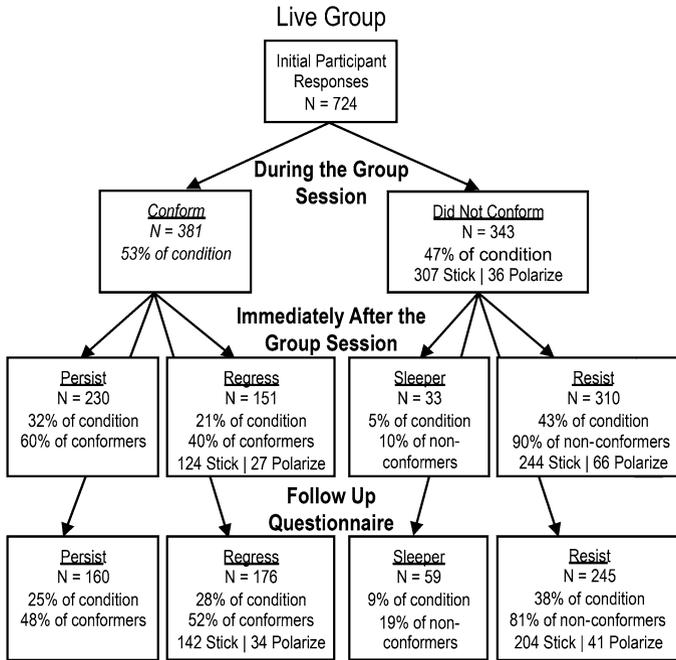


Table 2 Logistic regression models explaining participant attitude change in Study 2

	In group setting	After group setting	Follow-up responses
Live-group condition	1.072*** (0.175) [<.001]	0.531** (0.169) [.002]	0.513** (0.180) [.004]
Unanimity	0.297* (0.138) [.032]	0.337* (0.137) [.014]	0.408* (0.162) [.012]
Attitudinal distance	1.194*** (0.265) [< .001]	1.000*** (0.287) [< .001]	1.366*** (0.338) [< .001]
Political sophistication	-1.092** (0.417) [.009]	-0.669 (0.421) [.112]	-1.055* (0.439) [.016]
Party identification	0.422 ⁺ (0.242) [.081]	0.046 (0.242) [.850]	-0.119 (0.251) [.636]
Attitude strength	-1.088* (0.429) [.011]	-0.687 (0.425) [.106]	-1.355** (0.512) [.008]
Days			-0.023** (0.008) [.006]
Constant	-0.519 (0.368) [.158]	-1.186** (0.375) [.002]	-0.760 (0.495) [.125]
Number of participants	87	87	72
Number of observations	1446	1446	1204
Pseudo R^2	0.090	0.036	0.064
Log pseudolikelihood	-884	-805	-574

Note In the group setting model, the dependent variable is whether or not a participant conformed to the group on a trial (1 = conformed). In subsequent models, the dependent variable is whether or not a participant persisted in holding attitudes more similar to the group on a trial after having left the group (1 = persistence), or during the follow-up (1 = lasting change). All variables were recoded to range from 0 to 1. To correct for the non-independence of observations, standard errors (presented in parentheses) are clustered by the participant. *P* values are listed in brackets. In addition to prior exclusions, 8 participants and a total of 174 observations were dropped from these analyses for omission of an included variable (e.g. party ID, attitude strength). An additional 15 participants did not complete the follow-up questionnaire

⁺ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

them that they had been wrong. To do so, we examined the effect of our normative influence manipulation by comparing the effect of exposure to the attitudes of real, immediately present others to the effect of exposure to the same attitudes via computer.

Participants in the live-group setting were predicted to be an impressive 25 percentage points more likely to conform than when viewing the exact same attitudes of others on a computer screen (Hypothesis 5a). The fact that people were significantly more likely to conform when in the presence of others (Table 2, Col 1) is strong evidence that normative influence is at work. Participants did not simply draw broad inferences about the correctness of their own views on the basis of their knowledge of the views of others. Nor can these results be solely a function of non-attitudes that are easily swayed by small amounts of information like others' views, rather than by the social situation. If either had been the case, levels of conformity would have been similar in both the live-group and impersonal computerized conditions, in which *identical* information about others' positions was given. Instead we see that individuals also use the views of proximate others as a social guideline, and are more likely to alter their views to accommodate others with whom they interacted *in person*. These results underscore the importance of social context, not just political information, in attitude change.

Social Factors and Influence

As in study 1, the contextual variables of unanimity and attitudinal distance from the group significantly influenced the likelihood that participants would conform on any given response (Table 2, Col 1). Unanimity increased the predicted probability of conforming by 7 percentage points, and those whose initial attitudes differed most from the group members' average attitude were a predicted 27 percentage points more likely to conform than those whose initial attitudes were the least different. People who more clearly differ from the group feel more pressure to bring their views in line with those of others (Hypotheses 3a and 4a).

Individual Differences

As in study 1, not every participant was equally likely to conform (Table 2, Col 1). The politically sophisticated were significantly less likely to conform (a predicted 26 percentage points less likely than the least sophisticated). Participants with the strongest attitudes were also significantly less likely to conform than those with the weakest attitudes (26 percentage points less). Importantly, neither sophistication nor attitude strength completely eliminated the conformity instigated by knowing others' views. Both the sophisticated and those with strong attitudes could still be expected to conform on 29 % of trials, (compared to 39 % of all participants).¹⁵

¹⁵ Here, the effect of unanimity was qualified by an unexpected significant sophistication by unanimity interaction, such that the buffering effect of sophistication against social influence was reduced under conditions of unanimity (see Appendix E). Attitudinal distance and party id also interacted significantly, $b = 2.44$, $SE = 0.67$, $p < .001$, but this interaction did not replicate in study 1 or in other study 2 analyses, and so is believed to be a statistical anomaly.

Persistent Attitude Change

As in study 1, others had an immense impact on participant's attitudes (Figs. 4, 5), even after they were no longer present, such that initial conformity transformed into persistent attitude change. Here, again, we provide some basic information about the frequency of persistent attitude change, followed by more in-depth analyses.

Prior Conformity

As in study 1, when participants initially conformed on an issue, they were in general more likely to retain attitudes more similar to those of group members' after the group was no longer present ($\chi^2 = 525.01, p < .001$). Specifically, 67 % of initial conformers' attitudes remained more compatible with group members' attitudes, averaging over conditions (Fig. 5), but if participants initially resisted conformity, they were much less likely to exhibit attitude change later (12 % chance overall).

Type of Influence

As in study 1, we augment this coarse analysis with a logistic regression examining the effect of specific independent variables on persistent attitude change (Table 2, Col 2). Participants exposed to a proximal group rather than the impersonal computerized condition were significantly more likely to show persistent attitude change (Table 2, Col 2). The informational influence of knowing others' attitudes may be (and probably is) also at work in both conditions, but the impact of the normative influence manipulation indicates that the normative influence present due to the proximity of the group in the live-group condition generated persistent attitude change over and above that of any informational influence present in both experimental conditions (Hypothesis 5b).

Unanimity and disparity of views also had significant effects on persistent attitude change, as in study 1 (Table 2, Col 2). Participants were predicted to be 6 percentage points more likely to show persistent attitude change on items on which the group was unanimous, and those that differed most from the group were predicted to be 19 percentage points more likely to maintain changed attitudes outside of the group (Hypotheses 3b and 4b). When others are unanimous or when an individual has more divergent views, it is clearer that the individual does not hold the appropriate attitude, and the likelihood of attitude change increases. Attitude strength also *marginally* reduced persistent attitude change, again suggesting that strength of views may help buffer against social influence effects.¹⁶

Overall, the results with respect to persistent attitude change confirm study 1 results that unanimity and attitudinal distance influence not only initial public conformity, but also persistent private attitude change. Additionally, these results

¹⁶ Sophistication again unexpectedly interacted with unanimity such that sophistication was less of a buffer against attitude change in unanimous groups than non-unanimous groups (Online Resource, Appendix E).

show that exposure to differing views of immediately present others is more likely to instigate continued attitude change than exposure to the same differing views of others who are not present, as in an internet or “chat”-like context, demonstrating that a socially motivated normative influence is at work.

Lasting Attitude Change

We performed similar analyses on follow-up responses to assess whether participants’ long term attitudes were affected by our group setting. As above, we remove items on which the participant was initially the same as the group (237 items), leaving 1,363 observations. Again, we provide some basic information about the frequency of persistent attitude change, followed by more in-depth analyses of the factors that make such change more likely.

Prior Conformity

Replicating results at earlier stages, conforming in the group also had immense effects on attitudes a week or more later (Hypothesis 2). People who had previously conformed were significantly more likely to exhibit continued attitude change in the follow up survey ($\chi^2 = 137.88, p < .001$), across conditions. On attitudes for which participants initially conformed, they exhibited lasting attitude change 52 % of the time. By contrast, when participants did not initially conform, they exhibited subsequent lasting attitude change only 21 % of the time (Fig. 5). We also see again that moving away from the group is relatively unlikely.

Type of Influence

As above, we conduct a logistic regression to examine effects of specific variables. Because time taken to return questionnaires varied, this delay is included as a covariate.¹⁷ Again, the normative influence manipulation significantly increased the likelihood of attitude change (Table 2, Col 3). Those in the live-group condition were more likely to show lasting attitude change, even weeks later (Hypothesis 5b). Participants were predicted to be 8 percentage points more likely to show attitude change in the long term, having conformed to a live group, over the computerized condition. These results indicate that normative influence is at work, conceptually replicating conformity and private attitude change analyses.

Group unanimity also significantly increased the likelihood of lasting attitude change (Table 2, Col 3) such that when the group was unanimous, participants were predicted to be 6 percentage points more likely to exhibit continued attitude change after leaving the laboratory (Hypothesis 3b). Additionally, increased attitudinal

¹⁷ As expected, participants who took longer to complete the follow-up exhibited less long term attitude change. These effects are not fleeting, but may slowly diminish over time, as participants’ everyday circumstances and social networks exert their own pressures (e.g. Huckfeldt et al 2004a). As noted by a helpful reviewer, this finding also rules out a regression to the mean account, in that the strength of movement toward the group changes over time. Since the mean remains constant, it must be our experimental procedures that generate this change.

distance was associated with a significantly increased likelihood of private attitude change that lasted after participants left the study (Table 2, Col 3). The most initially discrepant participants were 20 percentage points more likely to exhibit lasting attitude change than the least discrepant from the group (Hypothesis 4b).

Individual Differences

Political sophistication and attitude strength again significantly buffered individuals against attitude change (Table 2, Col 3).¹⁸ Specifically, highly sophisticated participants were predicted to be 17 percentage points less likely to change their views, while participants with strong attitudes on the specific issue were an estimated 22 percentage points less likely to change their views than those at the lowest levels of sophistication or strength, respectively.

Overall, the attitudes expressed in the presence of others, or even on a computer, had enormous implications for participants attitudes, even weeks later. Critically, this demonstrates the occurrence of lasting attitude change without any persuasive arguments being exchanged. The additional attitude change among those exposed to a live group also establishes that normative influence is at work, in which people change their attitude for social reasons rather than reasons of accuracy, and without the necessity of overt persuasive attempts or information exchange.

General Discussion

People adjust their attitudes to tone down disagreement and express views that are more in step with others. When people are faced with others who disagree with them, they are quite likely to conform, and this conformity presages a shift in underlying, private attitudes that persists for an extended period of time. These results reveal that lasting attitude change can occur without requiring any persuasive arguments or explicit information supporting attitude change (as has been implicitly assumed necessary in much research on political attitude change).

Of course not everyone conforms all the time, or to the same extent, but virtually everyone conforms sometimes, to some extent. Once people initially conform, it can take weeks or months to revert back to their initial attitudes, if they ever do. Thus, socially induced compliance occurring even during brief interactions with strangers can initiate true attitude change that lasts days or months, and perhaps longer. This finding with political attitudes contrasts with prior conformity research based on objective tasks which circumvent the possibility of any persistent attitude change. (In a group, I may *say* an 8 inch line is shorter than a 6 inch line, but I won't come to *believe* 8 inches is shorter than 6.) We demonstrate that purely social influence can initiate a much deeper and more persistent attitude change process, rather than merely fleeting compliance while in the presence of others.

¹⁸ Two significant interactions (unanimity by strength, $b = 2.15$, $SE = 0.85$, $p = .01$, and distance by attitude strength, $b = -3.18$, $SE = 1.48$, $p = .03$) did not replicate in any preceding analysis, and are probably statistical anomalies.

This conformity and lasting attitude change in response to proximate others is not just a function of persuasion and informational influence, but also *normative* influence: individuals do not use others only as a source of information or as an indicator of what views are correct, but also of which views are expected and appropriate. People, particularly those with weak attitudes, may use the views of others to heuristically assess the correctness of their own views (as with Cialdini 1995, or even Bayesian signaling), but if this informational influence was the only cognitive mechanism at work, seeing views of others presented on a computer screen would be sufficient information to generate a similar level of conformity to hearing the same words from actual people. The informational value of attitudes was equalized across conditions by attributing them to other participants (other students at their university), and there was no other interaction with the confederates, making it unlikely that live confederates were somehow deemed more similar or a better guide. Further, confederates' speech was limited to brief, neutrally uttered phrases (“somewhat oppose”, see also footnote 13) which makes it difficult if not impossible to impute any more or less certainty on the part of live confederates than computerized ones. Therefore, the increased attitude change of those in the live-group condition over the impersonal computerized condition must be due to the social value of agreeing with a proximal group (normative influence), rather than any information provided by their attitudes alone. In essence, people hold some views simply because those around them do, too.

Predictors of Conformity and Persistent Attitude Change

Although the mere presence of others is a major instigator of conformity, this research also demonstrates that other factors magnify the likelihood of conformity and persistent attitude change. First and foremost, unanimity increases the probability of conforming to others' views, as does greater divergence between an individual and others. Consistent with both informational and normative social influence, when those around us disagree with us and agree with each other they send a clear signal about what is correct and appropriate. As a result, individuals are more likely to change their views in the face of a unanimous group or an attitudinally distant group, and having conformed, they are especially likely to persist in their new attitudes.

These studies also suggest socio-politically advantageous effects of political sophistication and strong attitudes in buffering individuals against non-argument-based attitude change, although even sophisticates still conform much of the time. This is broadly consistent with suggestions made by proponents of participatory democracy and within the attitude strength literature (Fishkin 1991; Krosnick and Petty 1995). Political engagement increases political sophistication, strengthens attitudes, and provides individuals with a deeper and wider pool of political knowledge to draw from, providing tools to resist social influence. Naturally, other related traits such as political efficacy and self-confidence may also alter participants' likelihood of conforming to the group, and we would expect that the buffering effect of these traits might be similar to political sophistication and attitude strength.

Limitations and Future Directions

There are two limitations that must be given due consideration. The first has to do with the fact that these two studies rely on college student participants, and the second rests on the fact that the experiment utilizes an admittedly contrived scenario. While our results must be interpreted in light of these limitations, these steps allowed us to examine causal effects, and they should not ultimately be seen as undermining our substantive effects.

Research shows that college students are more susceptible to peer influences and have weaker, less crystallized attitudes to begin with (Sears 1986), which would seem to limit the generalizability of these results. Although this concern should be taken seriously, similar effects are found in non-political studies using objective stimuli and adult participants to study conformity (Bond and Smith 1996). Even decisions of Supreme Court justices show some effects of social context (Granberg and Bartels 2005), although the exact mechanism is uncertain. Further, because student attitudes are notoriously uncrystallized, college samples may encourage conformity, but this actually works against finding *lasting* attitude change because college students' attitudinal instability should cause attitudes to easily bounce away from the group after the study. Yet even with this handicap, our results demonstrate both initial conformity *and* persistent attitude change. Additionally, a susceptible population cannot explain differences *between* conditions whose participants are drawn from the same population.

One might also be concerned that, being a college sample, our sample skews liberal. It is plausible to hypothesize that conservatives, who are disproportionately authoritarian (Feldman 2003), might react more dogmatically to a threat to their views (Jost et al. 2003; Lavine et al. 2005). Still, at minimum our results indicate noteworthy effects for liberals and independents, and we found no significant main effect of party ID on attitude change in general. Furthermore, we found no evidence of an interaction between party ID and unanimity at any stage, and only one significant interaction between party ID and distance out of 5 analyses (see footnote 15). While null results cannot completely rule out the existence of an effect, they do leave us with scant evidence that Republicans and Democrats differ in this respect. A larger study aimed more directly at this question may in the future identify some additional effect of partisanship or authoritarianism, but these null and unreliable interactions should alleviate concerns that *our* effects are dependent upon the liberal-skewed sample.

In terms of realism, the situation we create in the lab is broadly analogous to a difficult to measure real-life situation that people quickly forget, but one that is nonetheless central to normative democratic theory: a situation in which people are briefly exposed to opposing political ideas by those around them (e.g. neighbors passing by, coworkers at the water cooler, or new acquaintances at a party). More importantly, using the laboratory to control the situation allows us to break it down and isolate the relevant pieces from extraneous variables, making it possible to directly test causality, which, strictly speaking, cannot be done in survey or observational studies. Accordingly, the use of experimental controls, rather than asking respondents to recall previous naturally occurring conversations, allows us to

more clearly and reliably disentangle the causal elements of social influence. People frequently talk haphazardly to those around them (their coworkers, neighbors, friends, and parents of their children's friends) in brief exchanges rather than nuanced political debates. People comment on politics, and we politely agree so that we can move on with our lives without heated arguments. These are the sorts of exchanges that we may have with mere acquaintances or strangers such as cabbies or people sitting next to us on a train, limiting our ability to avoid this mere exposure to others' views. These brief, incidental political exchanges are precisely the type of conversation that people neglect to mention on surveys. People may not even remember them at all, yet it is in these types of interactions that people are most likely to be exposed to different political perspectives (Mutz and Martin 2001). As we show, these seemingly irrelevant interactions exert a lasting impact on a person's attitudes. Moreover, people chat with the same clusters of neighbors, coworkers, and other acquaintances not once, but regularly, possibly every day. Their influence may be compounded with every interaction, generating larger and longer-lasting effects. In the real world such pressure may be even stronger because others *actively* try to utilize this social pressure through approval or derision, unlike these impassive confederates. The artificial, one-shot laboratory situation may actually *underestimate* the cumulative effect of these brief conversations on political attitudes.

Having established that purely social pressures are at work with regard to political interactions, we may question when and with whom such pressures will be most prevalent. We may expect that experts and men might generate stronger influence (Petty and Cacioppo 1986; Eagly 1983). Similar others might also generate more influence, by virtue of being a better comparison point (Festinger 1954; Burt 1987). Traits of the person being influenced, such as personal experience with the issue, or level of thought about the issue, might also be relevant (see Petty and Krosnick 1995). Perhaps most critically in the political realm, we might examine which issues are most open to this argument-free influence. Perhaps (being a social influence) social issues are more impacted, or perhaps such influence will mirror the easy issue/hard issue divide (Carmines and Stimson 1980). These results provide one component of a larger picture illustrating the utility of looking beyond information and arguments to understand how elements of individuals' psychology ranging from their motivations (Redlawsk 2002) to social goals (DeWall et al. 2006) to social norms (Panagopoulos 2010) may influence political views and behaviors.

Implications of Initial Conformity and Persistent Attitude Change

These findings have implications not just for small groups such as work groups, church groups, or neighborhood groups, but for many situations in which we have direct contact with others of potentially differing views, from that wedding where we don't know anyone at our table to Thanksgiving dinner. The use of an experimental microcosm allows us to isolate informational and normative influence, and provides causal insight not available if we rely on asking questions about prior political discussions with others. Such use of a small groups experimental paradigm to study social influence more broadly is increasingly common, especially within the networks literature (e.g. Ahn et al. 2013; Ryan 2011), and findings tend to

converge well with findings derived from survey methodologies (see e.g. Visser and Mirabile 2004). Indeed, the social pressures observed here are likely even *stronger* for those with whom we have closer social ties (see Latane 1981). The current findings represent a mechanism of influence rooted particularly in our need to fit in and obtain the positive regard of others. This need should be heightened for those who are important to us in some way (Kelley 1952), and thus these effects should be even more powerful in the context of close others rather than strangers. One author remembers well a family gathering that turned into an uncanny reflection of this research when the family matriarch went around the table asking everyone who they were voting for, in order to pressure her son into changing his vote.

These results also demonstrate another way in which exposure to social network heterogeneity may motivate us to change our views. Indeed, it is quite likely that this normative influence pressuring us to “go along to get along” is also what motivates those embedded in attitudinally heterogeneous networks to seek out more opposing information from media sources (Levitan and Wronski 2014), and more carefully consider that information (Levitan and Visser 2008). Furthermore, this suggests one possible explanation for the paradox that disagreement with a network member can reduce political discussion (see Bello and Rolfe 2014), and still increase attitude change (Huckfeldt et al. 2004a), in that the influence observed here requires only that an individual *know* the views of others, not that they discuss the reasons behind those views.

Conformity effects have substantial implications for political attitudes and discourse more generally. The combination of the spiral of silence (Noelle-Neumann 1974) and pluralistic ignorance (Prentice and Miller 1993; Todorov and Mandisodza 2004) dictate that the reluctance to express ones unadulterated views that is demonstrated here will spread to others and contribute to misperceptions of public opinion. This can lead to a perception of unanimity or homogeneity of others, which our results indicate will amplify social influence. More troublingly, an increased appearance of unanimity will result in a growing intolerance for dissenting opinions (Mutz 2002b; Mutz and Mondak 2006), increasing overt social pressure toward attitudinal homogeneity. Furthermore, when people conform without debate, everyone is exposed to a truncated set of arguments, and the absence of verbal dissent can lead to increased persuasion of bystanders simply because only one side of the issue is articulated.

Public conformity also affects those who start with majority opinions. The more attitudinal uniformity they perceive, the more their attitudes will be bolstered, resulting in less thoughtful consideration of alternate views (Levitan and Visser 2008), greater resistance to attitude change (Levitan and Visser 2009; Visser and Mirabile 2004), and more attitude-congruent political behavior (Mutz 2002a). In essence, conformity can give a false sense of confidence to individuals who already hold the majority view, with striking attitudinal and behavioral consequences. Members of political groups from Suffragettes to the Tea Partiers may reinforce fellow group members’ beliefs not just through shared information, but through normative and informational social influences that reinforce their perception of the “rightness” (both correctness and appropriateness) of their thoughts and subsequent actions, and diminish their need to consider other perspectives.

Most importantly, public conformity also has immense down-stream consequences for the attitudes people later profess. Our studies demonstrate that people can and do change their attitudes without any real information being exchanged at all, and without any overt persuasive effort. This attitude change without any deliberation suggests a troubling possibility: simply acquiescing to others can exert a lasting impact on attitudes. The negative implications of this persistent attitude change need little explanation. The data show a circumstance in which views are influenced by purely socio-relational concerns, which is far from the democratic ideal of attitude formation.

In addition to the campaign ads costing hundreds of millions of dollars, people's views on candidates and issues are greatly influenced by brief, content-less exchanges like hearing someone dismissively say, "Who would vote for a guy like *Candidate A*?" or implore, "We need stronger *Issue B* laws," and seeing everyone nod politely. These minor incidents can bolster the views of those who agree, and cast doubt into the minds of those who don't.

Closing

One of the central tenets of democratic theory is that a wide variety of arguments should be voiced, reflected upon, and debated, such that political preferences are based on strength of arguments. Democracy is a process that requires people to engage in discussions with those who disagree with them, and through discourse come to a deeper understanding of politics (Fishkin 1991; Putnam 2000). Our experiments examined the impact of fleeting exposure to oppositional views, and tracked how this exposure influenced subsequent attitudes. We demonstrated that attitudes can be changed (or maintained) through ephemeral interactions, with no rationales. This suggests that the attitudes that people hold are not simply a function of the information they have learned, the arguments they can recall, or their political experiences, but also the accumulation of their *social* experiences.

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