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Influencing Myself: Self-Reinforcement Through Online Political Expression

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Abstract

Over the past decade, various online communication platforms have empowered citizens to express themselves politically. Although the political impact of online citizen expression has drawn considerable attention, research has largely focused on whether and how citizen-generated messages influence the public as an information alternative to traditional news outlets. The present study aims to provide a new perspective on understanding citizen expression by examining its political implications for the expressers themselves rather than those exposed to the expressed ideas. Data from a national survey and an online discussion forum study suggest that expressing oneself about politics provides self-reinforcing feedback. Political expressions on social media and the online forum were found to (a) reinforce the expressers' partisan thought process and (b) harden their pre-existing political preferences. Implications for the role the Internet plays in democracy will be discussed.

Keywords

political expression, expression effects, self-reinforcement, polarization, social media

The development of digital technology and the online social sphere (e.g., social media, online forums, chat rooms, etc.) has empowered citizens to express themselves politically. In this new context, people voice their opinions directly by posting their

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own views or by commenting on others' posts. They also express their views indirectly by sharing messages from other sources. These online activities have increasingly gained prominence, expanding the horizon of citizen expression in the political process. Recently, for example, the U.S. Supreme Court recognized liking—clicking the "thumbs up" icon on a webpage—as a form of constitutionally protected political expression (Robbins, 2013).

The increase in citizens' expression of political views via social media and other online platforms raises questions about the political implications of virtual expressive culture. Recent research observations show that citizens' voluntary online expression conveys information and opinions that might not otherwise be available or accessible to many users (Howard & Parks, 2012; Tufekci & Wilson, 2012; Valenzuela, 2013). Functioning as an information alternative to traditional news outlets, online political expression changes the political information environment and shifts citizens' experience of politics (Dimitrova, Shehata, Strömbäck, & Nord, 2014; Kushin & Yamamoto, 2010; Vitak et al., 2011).

Although the political impact of online citizen expression has drawn considerable attention, research has largely focused on whether and how the political messages ordinary citizens produce (or re-distribute) exert influence on those who see the messages (cf. Gil de Zúñiga, Molyneux, & Zheng, 2014). Less known, however, is whether and how political expression affects those doing the expressing. Perhaps this is because much research conceives of "effects" as occurring when users are *exposed* to political content (Pingree, 2007). This exposure-effect framework, the guiding paradigm for media effects research (Bartels, 1993; Bennett & Iyengar, 2008; McLeod & McDonald, 1985), ignores the possibility that effects may take place as a function of *expressing oneself*, one of the key features of online media.

Drawing on the literature in communication and social psychology, we theorize and test how engaging in expressive behavior via social media and an online discussion forum influences the political opinions of the one expressing opinions. This "expresser-oriented" approach provides new insights into the role the Internet may play in politics. Under the traditional framework focusing on the message receiver, Internet effects are only partially understood as outcomes of message exposure online. By broadening the context of Internet effects to include expression effects, we seek to fill the gap in the literature and offer a more holistic understanding of what the Internet brings to users' opinion formation and behavior. This shift in perspective is of particular relevance and importance as the line between media-as-information-provider and citizen-as-information-consumer has become increasingly blurred. Furthermore, although studied in the context of social media and an online forum, illuminating the impact of expression on the expressers themselves adds to our general understanding of how such acts influence the processes of public opinion formation and democracy in a digital age.

Literature Review

Citizen Communication and Opinion Reinforcement

Research suggests that citizens' routine acts of political communication shape the way they make sense of politics. This has often been discussed in the context of

communication and partisan alignment. Research suggests that engaging in political conversation reinforces individuals' pre-existing partisan disposition. Psychological biases (e.g., homophily) in communication processes primarily account for the partisan reinforcement caused by political conversation. As the tendency of homophily in human behavior (McPherson, Smith-Lovin, & Cook, 2001) suggests, citizens feel more comfortable conversing with people who have similar political views and thus prefer political conversation between like-minded people (Huckfeldt & Sprague, 1995; MacKuen, 1990; Mutz, 2006). This propensity for homophilic communication eventually creates ideological segregation in society (Sunstein, 2001).

Available research also shows that there are some circumstances in which citizens build or at least access politically heterogeneous communication networks. Citizens with high levels of education, for example, have more opportunities to converse with those with different political views (Scheufele, Nisbet, Brossard, & Nisbet, 2004). The workplace, as opposed to other loci for conversation (e.g., family, neighborhood, volunteer associations), is a context that facilitates politically heterogeneous conversations (Mutz & Mondak, 2006). Beyond individual- and network-level differences, community structure (i.e., the political and racial makeup of each county) also shapes the composition of communication networks (Scheufele, Hardy, Brossard, Waismel-Manor, & Nisbet, 2006). Yet, it is more commonly observed that political similarity breeds networks and interactions. That is, people prefer a safe, agreeable conversation in a communication environment among others with the same political orientation. The communicative interactions in a politically homogeneous context then strengthen the impact of partisan disposition in the process of political thinking and decision-making (Beck, Dalton, Greene, & Huckfeldt, 2002; Cho, 2005).

As Internet-based political discussion and engagement have come to prominence, a growing body of research has examined the parallel question of homophilic communication and political polarization in the context of online citizen discussion (Baum & Groeling, 2008). Yet, research to date has yielded somewhat mixed results. On one hand, ample evidence suggests that partisan selectivity and ideological segregation is present in online citizen communication. Adamic and Glance (2005), for example, found distinct clusters of liberal and conservative blogs that are largely linked to other blogs that share the same ideology. A similar pattern has been observed on social media. Robertson, Vatrapu, and Medina (2010) found a clear partisan divide in posts on candidates' Facebook "walls." Facebook users who posted on a candidate's wall mostly only referred other users to the same candidate's website. Only a few users did "wall crossing"—posting on both the Democratic and Republican candidates' walls. Research analyzing Twitter traffic reveals the same pattern. Colleoni, Rozza, and Arvidsson (2014) demonstrated that Twitter users tend to construct virtual networks based on their partisan positions and interact with like-minded others in the form of following or retweeting (see also Himelboim, McCreery, & Smith, 2013). Overall, this research confirms the principle of homophily across various types of online discussion platforms. That is, people primarily interact with similar-minded others and seek out points of view to which they already subscribe. Thus, it is likely that, as Sunstein's (2006) "echo chamber" argument points out, the social corroboration process kicks in

when people's opinions are reaffirmed and become more extreme when others share the same view (p. 204; see also Baron et al., 1996).

On the other hand, there is considerable disagreement about the extent of partisan selectivity and ideological segregation in online political discourse. A number of studies have found no evidence of such ideological segregation (Hanna et al., 2013) or even that discussion heterogeneity does take place in online discussion platforms (Kelly, Fisher, & Smith, 2006; Lee, Choi, Kim, & Kim, 2014). Kelly et al. (2006), for example, found that participants in Usenet discussion newsgroups often engage in discussion with others holding different political views. Based on their observations, they argue that people, at least those who are highly interested in controversial issues, participate in online discussion to argue with "opponents" from different ideological clusters, rather than seeking out the shared views of "friends."

By contrast, other researchers assert that the way online discussion is held and its consequences are highly conditional and complicated. Interviewing online discussion forum users, Wojcieszak and Mutz (2009) suggested that the context of the discussion conditions the nature of the discussion. Specifically, they found that crosscutting political exchanges often occur in non-political, leisure-type spaces where politics is discussed incidentally and casually. Hargittai and colleagues' study of political blogs showed that both homophily and heterogeneity are present in the blogosphere. That is, online discussion occurs not only within clusters of like-minded people but also across them (Hargittai, Gallo, & Kane, 2008). In a similar vein, a case study of Twitter reactions to the murder of George Tiller, a late-term abortion doctor, found that people interact with both similar-minded and different-minded others (Yardi & boyd, 2010). Yet, they also suggest that exposure to different views does not lead to deliberative outcomes. Rather, it reinforces users' group identity and affiliations between pro-choice and pro-life factions. Pointing to the possibility of "intra-ideological dispute," work by Bode, Hanna, Yang, and Shah (2015) revealed that multiple sub-groups that share specific interests, concerns, or values emerge within traditional Left-Right political clusters (p. 152).

Taken together, research from online citizen discussion and polarization is not clear-cut, indicating that political discourse in the online sphere is more complicated than observed in the off-line setting. Some studies point out that, when citizens do engage in crosscutting online discussion, they are exposed to a range of ideas they would not otherwise encounter. Perhaps, this is in part because demographic characteristics and differences in social status, both of which function as barriers to open discussion, are less visible in online social interactions (Ellison, Steinfield, & Lampe, 2007). However, extant evidence suggests that, by and large, routine communication in the online sphere still takes place more often among politically like-minded users. Despite the enhanced openness and deindividuation in the digital sphere, it appears that online political discussion largely takes the form of fragmented interactions within politically homogeneous clusters, entrenching participants' opinions in their like-minded social networks and eventually reinforcing the partisan divide in society.

In sum, citizen communication, whether online or off-line, functions as a mechanism through which previously held partisanship or political views are reinforced to

the extent that homophily guides the way communication is structured and practiced. Which mode of communication is more conducive to political reinforcement remains to be seen. Despite robust evidence of partisan reinforcement through political discussion, it is less clear which aspects of interpersonal communicative interaction account for the discussion effect. Indeed, much research does not distinguish between the different sub-processes involved in political discussion as research has primarily focused on either the communicative transaction as a whole (e.g., discussion frequency) or the structure of communication networks (e.g., size, composition). Yet, the act of political discussion encompasses a series of intrapersonal and interpersonal sub-processes including the production and expression of one's own messages as well as the reception and processing of others' messages (Pingree, 2007). In past research, these sub-processes are often lumped together when conceptualizing political discussion. This might be due in part to the difficulty in discerning the two acts, expression of own ideas and exposure to others', in the context of in-person political discussion where the two occur hand-in-hand. In the online context, especially on social networking sites or discussion forums, however, communication is less synchronous, even when interactive. As such, the distinction between expression and exposure is more apparent than in the off-line context. We take advantage of the uniqueness of online communication to investigate the role of political expression in opinion formation of the expresser.

Expression Effects

Compared with in-person political communication, Internet-based communication through social media and online forums may take various forms. Although not nearly as interactive and synchronous as face-to-face discussion, posting within a virtual social sphere can take the form of two-way discussion with one person posting and others responding. At the same time, users can also produce or distribute political messages without involving other users' feedback. In such cases, political posting is simply an act of expressing one's own political view to unspecified others. In either case, the expresser undergoes complex psychological processes. To better understand this, as suggested by Pingree (2007), it is useful to look at the pre- and post-expression processes. First, prior to (or during the course of) expression, people tend to engage in mental articulation by which they clarify their thoughts and organize their ideas. Benhabib (1996) described this pre-expression process as intrapersonal reasoning that helps individuals ready themselves for speaking or expression. Furthermore, when talking to others about their point of view, individuals try to support their positions with good reasons. Thus, an expression of one's own view likely comes with self-reflection and cognitive organization.

Pingree (2007) viewed the pre-expression cognitive processes to have deliberative benefits, which he labels "composition effects." He argues that expression is an outcome of the reconstruction of existing ideas, through which new ideas are developed and prior beliefs questioned. Although possible, however, such impartial, deliberative reasoning might not always happen. More likely it would be that individuals' lay political theories guide the pre-expression articulation of ideas. That is, ideas are clarified

and organized prior to being expressed, and this cognitive elaboration aligns ideas with pre-existing political and ideological orientations (Hurwitz & Peffley, 1987). This so-called "top-down" or "theory-driven" reasoning is likely motivated by economy of judgment (Kahneman & Frederick, 2002). The propensity toward more economical reasoning is consistent with the literature about human decision-making. A variety of decision-making models commonly propose two distinguishable cognitive systems, one operating via relatively fast and minimal resource-demanding decision rules (e.g., intuition, heuristics) and the other operating via a deliberative and relatively effortful way of thinking based on reason and logic (Keren & Schul, 2009). Of these two systems, the less effortful decision-making is considered the default mode (Payne, Bettman, & Johnson, 1992). We thus postulate that the intrapersonal cognitive elaboration before and during expression is an opportunity to organize and augment one's prior attitudes, unless the domains of thought are highly sensitive politically or involve concerns of social desirability.

Available findings suggest that impartial deliberative reasoning does not appear to be salient in casual and compact online expression. Rather, a habitual mode of thinking, in which the user's posts are driven more by disposition than deliberation, is a better fit for expressive behaviors like making and sharing Facebook posts and Tweets. Recent observations of ideological divides and partisan discourses on social media and online forums indicate that online political expression is indeed a strong reflection of users' political dispositions (Himelboim et al., 2013; Robertson, Douglas, Maruyama, & Semaan, 2013; Yardi & boyd, 2010).

Once expressed, ideas often have feedback influence on the expresser, which Pingree (2007) termed "message release effects." One of these influences is to constrain the expresser to act in a manner consistent with what they have expressed. The reasons for this are twofold. First, as self-perception theory suggests, individuals often develop (or adjust) their attitudes by observing their own behaviors (Bem, 1967). Once one expresses an idea, she will be more likely to comply with the expressed idea because the initial behavior will change her self-image. To wit, individuals observe their own behaviors and infer that they must have a preference for the expressed idea. In a similar vein but with a difference emphasis, the notion of cognitive dissonance suggests that, to avoid discomfort that a disharmony between behavior and attitude may cause, individuals tend toward consistency between their behaviors and attitudes (Festinger, 1957). Cialdini (1984) referred to this psychological commitment to prior behavior as "automatic consistency," noting that "once a stand is taken, there is a natural tendency to behave in ways that are stubbornly consistent with the stand" (p. 68). Despite the differences between the theoretical concerns of self-perception and cognitive dissonance (Fazio, Zanna, & Cooper, 1977), the literatures of both speak to the possibility of self-constraining effects of political expression. That is, after expressing political opinions, the expresser tends to infer about his or her political preference based on his or her expressed ideas and/or calibrate his or her attitudes to align with what he or she has already expressed for the sake of psychological comfort (or in avoidance of discomfort). Thus, the common conclusion of both internal mechanisms—self-perception and cognitive

dissonance—is that expressive behaviors influence the expresser's attitude through self-constraint.

A second rationale for the expression effect pertains to the *social* pressure that follows the expression of ideas. Research on public commitment suggests that if people say something in public, they feel pressure to act in a way that is consistent with what they expressed (Cialdini & Goldstein, 2004; Kiesler, 1971; Lerner & Tetlock, 1999). As reversing oneself is often deemed socially undesirable, people feel committed to what they have said to avoid any anticipated interpersonal repercussions. Therefore, expressing oneself in public creates a self-regulatory loop where the *perceived* gaze of others on one's expression is a motivation to maintain consistent selfhood. In light of this research, it is plausible that if one's political opinions are expressed openly, he is committed to uphold and act consistently with them. Yet, this social pressure toward consistency is more likely to be felt when opinions are expressed to known others who can keep track of the expresser. Given that many, if not all, social media networks are built from off-line networks and based on identifiable relationships (boyd & Ellison, 2007; Mesch, 2012), users likely feel pressure to maintain consistency with views they have previously expressed on social media.

Taken together, we posit that expressing oneself has self-constraining effects on the part of the expresser, committing them further to what they have said. This happens both through internal mechanisms (i.e., self-perception and dissonance avoidance) and perceived social pressure toward self-commitment. Given that both intrapersonal and social mechanisms underlie the effects, it is plausible that expression effects would occur to varying degrees regardless of the contexts in which the expressions are made (e.g., the degree of privacy, size, or type of audience for public expression). That is, although the expression effects are stronger when expressions are made publicly, self-expression in a very private context (a personal diary as an extreme example) would have similar, though less intense, effects.

To summarize, if, as discussed above, the initial expression is driven by (or reflective of) one's political dispositions, the act of expressing opinions reinforces prior political beliefs. Through expression, people can better understand their own political identities and preferences. Once expressed, individuals tend to reaffirm ideas through observing and acting in a way that is consistent with them. Thus, it stands to reason that political expression could create a spiral of self-reinforcement in which individuals become more confident in their prior political convictions and less ambiguous in their attitudes. This study tests this general theoretical proposition in two different contexts: social networking sites and an online forum.

Study 1

Using social media as a context of online political expression, we investigate whether voluntary and casual posting about politics on virtual social networks strengthens individuals' pre-existing political beliefs. We first test the self-reinforcing effects of political expression in terms of partisan reinforcement. Given that party identification is a stable political orientation developed through socialization (Goren, 2005), it is less

likely that party identification itself will change substantially in a short time period. However, past research on partisan reinforcement suggests that as party identification can be reinforced by either internal or external factors, it acts as a key principle in the way people make political decisions (Conover & Feldman, 1989). Thus, we posit that if, as discussed above, political expression strengthens prior political beliefs, party identification, which is already an important criterion for political decisions, would become even more important in forming opinions about political issues. Put differently, the tendency for people to see politics through a partisan lens will be reinforced by self-expression on political issues. Drawing on past research about partisan reinforcement and the reasoning provided above, we hypothesize that the effects of party identification on opinions about political issues will grow stronger as political expression on social media increases, even after controlling for online and off-line political discussion and political involvement (Hypothesis 1 [H1]).

Data

The data analyzed in this study were collected in 2012 as a part of the Pew Internet and American Life Study (Rainie, Smith, Schlozman, Brady, & Verba, 2012). Using a combination of landline and cellular random digit dialing samples between July 16 and August 7, 2012, the Pew Research Center interviewed 2,253 adults, about 83% of whom were Internet users. The interviews were conducted in either English or Spanish and cooperation rates were 18.2% and 16.7% for the landline and cellular samples, respectively. Given that the focus of the present study is on social media, our analyses only utilize data from respondents who reported using at least one social networking site ($N = 1,209$).

Measures

Expressive behavior. Political expression on social media was measured by four questions asking respondents whether they have used social networking sites (a) to post links to political stories or articles for others to read, (b) to post their own thoughts or comments on political or social issues, (c) to repost content about political or social issues originally posted by someone else, and (d) to "like" or promote material related to political or social issues that others have posted. Then, by summing the scores of these four items, an additive index ranging from 0 to 4 was created (reliability $\alpha = .83$, $M = 1.28$, $SD = 1.51$).

Party identification. Party identification was measured with respondents' self-reports of partisan identity. Two questions were asked: "In politics today, do you consider yourself a Republican, Democrat, or Independent?" and "If identified as Independent, as of today, do you lean more to the Republican Party or more to the Democratic Party?" The answers to these two questions were combined to give a measure of party identification ranging from 1 (*Republican*) to 5 (*Democrat*) ($M = 3.16$, $SD = 1.58$).

Political opinion. Opinions about political issues were measured in a variety of contexts. First, opinions about three issues that have been discussed frequently in recent American elections (i.e., government spending, abortion, same-sex marriage) were measured. For government spending, respondents were asked how strongly they felt that the government should provide fewer services to reduce spending or provide more services even if it meant increased spending. Respondents' opinions were measured on a 7-point scale ranging from 1 (*should reduce services a great deal*) to 7 (*should increase services a great deal*) ($M = 3.79$, $SD = 2.14$). Opinions about the legalization of abortion were measured on a 4-point scale ranging from 1 (*illegal in all cases*) to 4 (*legal in all cases*) ($M = 2.67$, $SD = 1.01$). Similarly, opinions about same-sex marriage were measured by asking how strongly respondents favored or opposed allowing gay/lesbian couples to marry. Answers were given on a 4-point scale ranging from 1 (*strongly oppose*) to 4 (*strongly favor*) ($M = 2.58$, $SD = 1.17$).

Second, two political developments in American politics (i.e., the Tea Party, Occupy Wall Street) were considered as contexts of political opinion. Respondents were asked whether they agreed or disagreed with the Tea Party and the Occupy Wall Street movements. A 3-point scale was used, with 1 = *disagree*, 2 = *no opinion either way*, and 3 = *agree* ($M = 1.90$, $SD = 0.68$ for Tea Party; $M = 1.85$, $SD = 0.66$ for Occupy Wall Street).

Third, candidate preference in the current election was considered a type of political opinion. Respondents were asked for whom they would vote if the 2012 presidential election were held today and the candidates were Barack Obama and Mitt Romney. If respondents had not yet reached a decision, they were asked toward which candidate they were leaning. Based upon the answers to these questions, a measure of candidate preference was developed on a 5-point scale ranging from 1 (*vote for Romney*) to 5 (*vote for Obama*) ($M = 3.17$, $SD = 1.81$).

Controls. The survey measures of political expression on social media might reflect not only the expressive action itself but also the extent to which the expresser is involved in politics. Given that political involvement likely has effects similar to those hypothesized for political expression, it is crucial to statistically determine which effects stem from expression and which from political involvement. To assess the unique effects of political expression via social media, this study controlled for political participation, online and off-line political discussion, mobilization contacts, internal political efficacy, and political trust.

An index of political participation was created from eight items measuring whether respondents had engaged in a variety of political activities: working for a political party/candidate, being an active member of a political group, working with fellow citizens to solve a community problem, contacting a government official, signing a petition, or attending a political rally/speech, an organized protest, or a political meeting (reliability $\alpha = .72$, $M = 1.61$, $SD = 1.78$).

Online and off-line political discussions were measured with two parallel questions tapping respondents' discussion frequency, as measured on a 5-point scale ranging from 0 (*never*) to 4 (*every day*). The questions asked how often they discuss politics

and public affairs with others (a) in person, by phone call, or by letter ($M = 2.16$, $SD = 1.37$) and (b) online such as by email, on a social networking site, or by text message ($M = 1.02$, $SD = 1.32$).

Mobilization contacts were measured based upon how often respondents reported being asked by groups or individuals to participate politically. The frequency with which they were contacted in each of seven different modes (i.e., email, phone call, letter, text message, in person, social networking site, and Twitter) was measured on a 5-point scale ranging from 0 (*never*) to 4 (*every day*). The scaled answers to each of the modes of contact were then averaged (reliability $\alpha = .68$, $M = 0.56$, $SD = 0.58$).

Internal efficacy was measured with a single item asking, on a 4-point scale ranging from 1 (*no impact at all*) to 4 (*big impact*), how much impact respondents think people like themselves can have in making their community a better place to live ($M = 3.05$, $SD = 0.85$). Political trust was measured with a single item asking, on a 4-point scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*), whether respondents agree that most elected officials care about what people like the respondent think ($M = 2.15$, $SD = 0.94$).

Lastly, basic demographic variables such as age ($M = 44.0$, $SD = 17.43$), sex (a dummy variable with female coded 1; 56.6% female), race (a dummy variable with White coded 1; 76.1% White), education, and income were considered as controls. Education was measured on a 7-point scale, ranging from 1 (*Grades 1 to 8*) to 7 (*postgraduate training/degree*; $M = 4.83$, $SD = 1.58$). Household income last year was measured on a 12-point scale ranging from 1 (*less than US$10,000*) to 12 (*US$500,000 or more*; $M = 5.58$, $SD = 2.96$).

Results

It was hypothesized that political expression on social media would strengthen the relationship between party identification and opinions on political issues. To test this, a series of regression models were specified such that political opinion was regressed on expression, party identification, an interaction term between the two, and control variables. A significant coefficient for the interaction term indicates that the change in the relationship between party identification and political opinion per one unit change in political expression is large enough to be statistically significant. Given how political issues and party identification are measured, the direction of interaction is expected to be positive for issues such as government spending, abortion, same-sex marriage, Occupy Wall Street, and candidate preference but negative for the Tea Party. The regression equations were fitted using PROCESS, a modeling tool specialized for mediation and moderation analysis (Hayes, 2013).

Consistent with the hypothesis, the estimated coefficient for the interaction between political expression and party identification is statistically significant across all six domains of political opinion (see Table 1). This result suggests that, as political expression on social media increases, the impact of party identification on political opinion changes significantly in the hypothesized direction. Specifically, the relationship between party identification and opinion about government spending increases

Table 1. Testing the Moderating Effects of Political Expression on the Relationship Between Party Identification and Political Opinion.

	DV: Political opinions					
	Government spending	Abortion	Same-sex marriage	Tea Party	Occupy Wall Street	Vote for Obama
Control variables						
Age	−.012 (.004)**	.004 (.002)†	−.013 (.002)***	.001 (.001)	−.004 (.001)**	−.003 (.003)
Sex (female = 1)	.214 (.118)†	.008 (.061)	.201 (.066)**	−.046 (.035)	.062 (.039)	−.030 (.076)
Education	.032 (.042)	.048 (.022)*	.106 (.023)***	−.046 (.012)***	−.003 (.014)	.053 (.028)†
Income	−.130 (.023)***	.052 (.012)***	.042 (.013)***	−.020 (.007)**	−.026 (.008)***	−.027 (.015)†
Race (White = 1)	.115 (.147)	.192 (.076)*	.544 (.082)***	−.100 (.044)*	−.022 (.048)	−.370 (.096)***
Efficacy	.136 (.074)†	−.037 (.038)	.004 (.041)	−.001 (.022)	.028 (.024)	−.011 (.048)
Political trust	−.039 (.065)	−.024 (.033)	−.021 (.036)	−.005 (.019)	−.044 (.021)*	.087 (.041)*
Off-line discussion	−.034 (.057)	−.037 (.029)	−.040 (.031)	−.013 (.017)	.004 (.019)	.010 (.037)
Online discussion	.063 (.056)	.016 (.029)	.033 (.031)	−.006 (.017)	.018 (.018)	.037 (.035)
Mobilization	−.171 (.128)	−.055 (.066)	.003 (.072)	−.015 (.038)	−.024 (.042)	−.064 (.077)
Participation	.068 (.039)†	−.002 (.020)	−.002 (.022)	−.006 (.012)	.019 (.013)	−.002 (.024)
Interaction effects						
Political expression	−.371 (.089)***	−.058 (.045)	−.087 (.049)	.180 (.026)***	−.125 (.029)***	−.086 (.055)
Party ID (Democrat = high)	.497 (.050)***	.174 (.026)***	.264 (.028)***	−.150 (.015)***	.088 (.017)***	.831 (.031)***
Expression × ID	.089 (.024)***	.031 (.012)**	.035 (.013)**	−.045 (.007)***	.032 (.008)***	.031 (.015)*
R^2 (%)	29.1	15.8	27.2	31.8	15.7	67.7
n	1,002	1,004	970	1,043	1,043	820

Note. Entries are unstandardized coefficients with standard errors in parentheses. Estimates were calculated using PROCESS. DV = dependent variable.
†p < .10. *p < .05. **p < .01. ***p < .001.

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by .089 (*SE* = .024, *p* < .001) per one unit increase in political expression. Similarly, the baseline relationship between party identification and opinions about other political issues increases significantly as political expression increases by one unit (*b* = .031, *SE* = .012, *p* < .01 for abortion; *b* = .035, *SE* = .013, *p* < .01 for same-sex marriage; *b* = .032, *SE* = .008, *p* < .001 for Occupy Wall Street; *b* = .031, *SE* = .015, *p* < .05 for candidate preference). Finally, as hypothesized, the link between party identification and opinion about the Tea Party decreases by −.045 (*SE* = .007, *p* < .001) per one unit increase in political expression.

PROCESS also estimates conditional effects so that the relationship between party identification and political opinion at different values in political expression (i.e., one standard deviation below the mean for Low Expression, one standard deviation above the mean for High Expression) can be formally assessed (Hayes, 2013). As shown in Figure 1, party identification consistently predicts political opinions at any value point of political expression. Yet, the relationship between party identification and political opinion grows stronger when political expression is high, even after the inclusion of controls such as online and off-line political discussions, political participation, exposure to mobilization efforts, internal efficacy, political trust, and demographics. The difference in slopes between the low- and high-expression models is statistically significant as assessed by a significance test for the coefficient of each interaction term. This pattern holds across the six issue domains considered in this study.

Study 2

Study 2 presents a second test of the effects of expression. In this study, we investigate whether individuals' opinions change over time as a function of their political expression on an online discussion forum. Study 1 provides evidence of partisan reinforcement through political expression. Considering that party identification is one of "the most central and enduring predispositions in the political belief systems of ordinary citizens" (Goren, 2005, p. 881), we did not hypothesize in Study 1 that party identification itself would change as a function of self-expression. Instead, it was hypothesized that expressing oneself politically encourages people to align their political opinions about issues and candidates with their party identification. Thus, the focus of the hypothesis and its testing was on the reinforcement of partisan thinking as indicated by the association between specific opinions and party identification.

Extending Study 1, we set out in Study 2 to investigate the self-reinforcing effect of expression by looking at whether individuals' online political expression strengthens their political opinion *itself*. Specifically, we consider candidate preference during the period of the presidential election campaigns as a political opinion that might change as a result of online political expression. Using a longitudinal research design, Study 2 keeps track of changes in individuals' candidate preference for a 3-week period before Election Day and examines whether the dynamics of candidate preference differ depending on their expressive behaviors on an online forum.

Research on voting behavior consistently suggests that voters generally make up their minds and solidify their candidate preferences as Election Day nears (Hillygus &
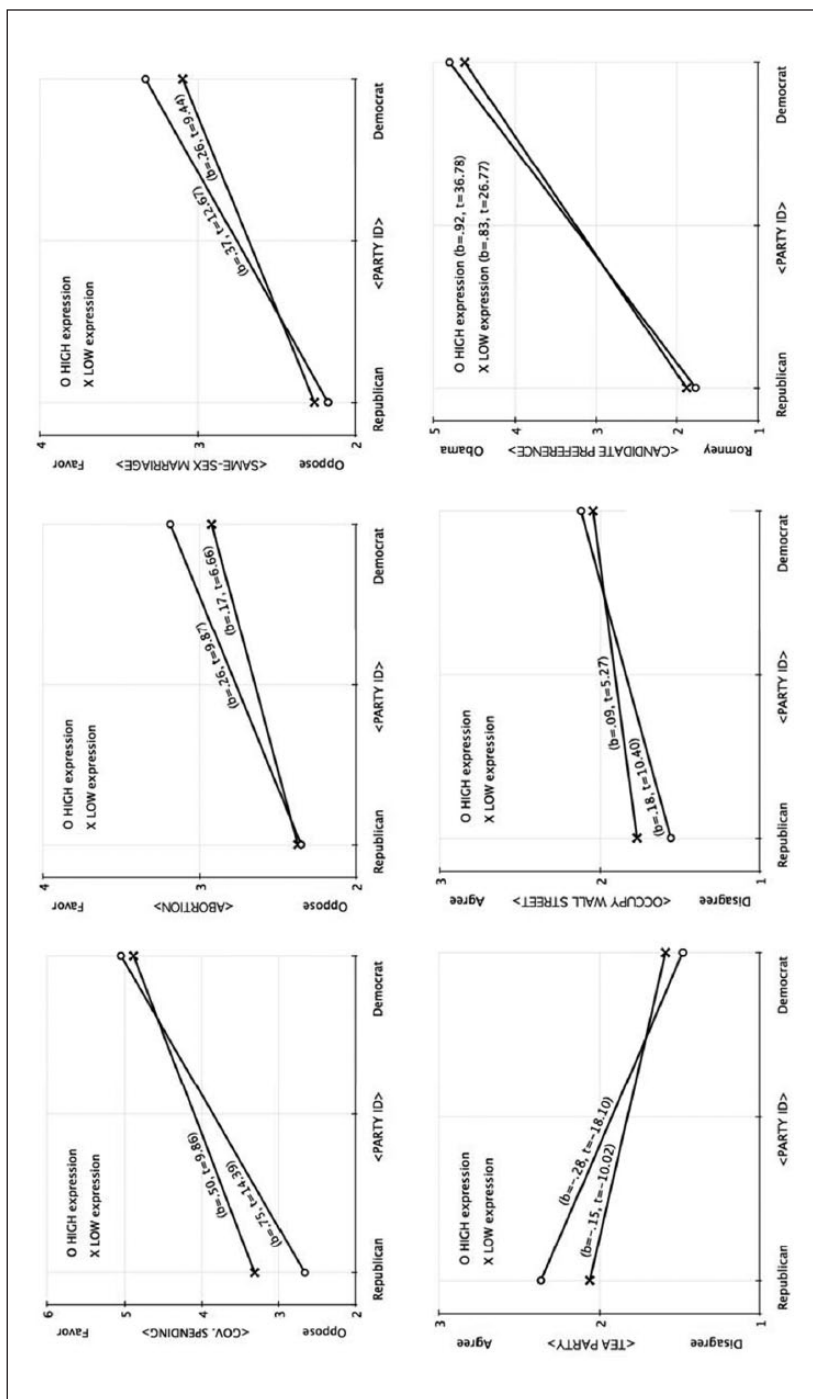
Figure 1. Interaction between SNS political expression and party identification.
Note. SNS = social networking site.

Jackman, 2003). Based on the literature about vote choice and the above-discussed reasoning that expressing oneself about politics would crystallize one's opinions and provoke a sense of commitment to the expressed ideas, we hypothesize as follows: Individuals' candidate preferences, as indicated by a differential in preferences between the two major candidates, will grow more stable as Election Day approaches (Hypothesis 2a [H2a]), and this pattern of growing preference for one candidate over the other will grow stronger as they engage more in political expression on an online forum (Hypothesis 2b [H2b]).

Data

To test the hypotheses, this study set up an online discussion forum during the 2012 Korean presidential election campaign and collected data about participants' posting and reading activities. Embrain, a research firm in Korea, sampled a total of 400 participants from a panel of over one million identity-verified individuals that closely matches gender and age distributions of the entire Korean population. The participants were then invited to a website named "An Online Forum about the 18th Korean Presidential Election," created and run by Embrain for 3 weeks prior to Election Day, from November 27 to December 19, 2012. Each participant was instructed to create an account for the online forum and encouraged to post their opinions about the election and to read other participants' posts on the forum as they normally would in other online settings.[1]

Of the 400 recruited participants, a total of 334 participants remained on the online discussion forum during the 3-week period and completed three surveys. In return for their participation, they received a financial incentive of about US$100 upon completion of the project.

Over the course of the online discussion period, three surveys were administered: the first at the beginning of the online discussion project (Wave 1), the second in the middle (Wave 2), and the last at the end (Wave 3). Each survey measured participants' candidate evaluations, their routine online and off-line political communication behaviors, political dispositions, political ideology, interest, knowledge, efficacy, and participation. Basic demographics were measured only in the first survey.

After 3 weeks of online forum discussion, data logs of the participants' forum activities were retrieved from the research firm's web server and merged into data from the three-wave panel surveys. The log data were used to calculate the extent of each participant's reading and posting during the study period. This use of log data to measure the key variables improves measurement validity and addresses the concern of endogeneity caused by potential biases in self-reports (e.g., those with certain political predispositions might overate or underrate their past communication activities; Vavreck & Iyengar, 2013).

Measures

Candidate preference. There were a total of seven registered candidates in the 2012 Korean presidential election. Yet, there were only two competitive candidates, one

from the ruling party and the other from the largest opposition party. These two candidates received 51.6% and 48% of the votes, respectively, accounting for over 99% of the total votes.

To measure participants' initial candidate preference at the onset of the online forum study, they were asked for whom they would vote in the election for President. A majority of the participants ($n = 258$) reported their initial choice while about 24% of them ($n = 83$) were undecided. Then, in each of the three waves of data collection, participants were asked to rate each of the two major candidates on a 0 to 100 thermometer scale, with higher scores meaning more favorable. Based on the answers to these questions, we created a measure of relative candidate preference and kept track of changes across the three waves. The relative candidate preference was constructed through two steps. First, participants' candidate choice in the Wave 1 survey was coded as their initial candidate preference. If they were undecided at that time, their ratings of the two candidates in Wave 1 were compared to identify which candidate they initially favored. Of those who were undecided in Wave 1, 22 participants (26.5%) were evenly torn between the two candidates. Because they had no initial preference, they were excluded from the following analyses.[2] As a second step, an index of relative candidate preference was calculated by subtracting the rating of the non-preferred candidate from that of the preferred for each wave of data ($M = 39.31$, $SD = 30.76$ for Wave 1; $M = 41.92$, $SD = 32.77$ for Wave 2; $M = 43.32$, $SD = 34.59$ for Wave 3).

Posting and reading. Participants' posting and reading activities were assessed by data logs from the online discussion forum. Posting was measured as the number of posts each participant made on the online forum and reading as the number of clicks on other participants' posts. Data suggest that, on average, 24.78 posts were made and 463.49 posts were read per person over the 3-week period. That is, statistically speaking, one post written and 20 posts read on average per day per participant.[3] The distribution of posting and reading measures were positively skewed, as often occurs in count data (Cameron & Trivedi, 2013). To ease the skewedness, data were square root transformed prior to analysis ($M = 4.36$, $SD = 2.41$ for posting; $M = 15.22$, $SD = 15.25$ for reading).

Controls. As with Study 1, we controlled for any overall political engagement that might influence expression and opinion and, thus, confound the relationship between the two. This allows us to eliminate alternative explanations and narrow the analysis down to the hypothesized relationship between expression and citizen opinion reinforcement. In this effort, we employ a number of attitudinal, behavioral, and demographic variables as controls.

First, participants' routine political discussions, both online and off-line, were controlled. Off-line discussion was measured by a question asking participants how often they normally engage in discussion about politics with other people they know. Responses were recorded on a 7-point scale ranging from 1 (*never*) to 7 (*almost always; M* = 3.99, *SD* = 1.09). Online discussion was measured by asking participants how often in a typical week they visit online political discussion sites, excluding the

online forum study. Participants answered the question on an 8-point scale, ranging from 1 (*never*) to 8 (*every day; M* = 5.02, *SD* = 2.18).

Second, we considered five measures tapping into participants' political orientation and involvement (i.e., interest, knowledge, efficacy, ideology, and participation) as control variables. For political interest, participants answered two questions using a 7-point scale ranging from 1 (*not at all*) to 7 (*very much*): "I am interested in political issues" and "I tend to follow politics" (reliability α = .87, *M* = 5.06, *SD* = 1.05). Following Delli Carpini and Keeter's (1997) operationalization, political knowledge was measured by 10 questions about politicians, policies, and election procedures. Scores for the 10 questions were summed into an index of political knowledge that ranges from 0 to 10 (reliability α = .62, *M* = 6.15, *SD* = 2.12). Political efficacy was measured by two questions: "My vote does not make a difference in politics" and "I cannot influence the policy making process." Participants answered the questions on a 7-point scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Scores were reversed and averaged to create an index of political efficacy (reliability α = .74, *M* = 4.58, *SD* = 1.36). Political ideology was measured by asking participants how they identify themselves in terms of political ideology on a 7-point scale ranging from 1 (*very liberal*) to 7 (*very conservative; M* = 3.70, *SD* = 1.31). Last, an index of political participation was created from five items measuring how often participants engage in a variety of political activities on a 7-point scale ranging from 1 (*never*) to 7 (*always*): working for a political organization, making donations to politicians or political organizations, participating in campaign activities, signing a petition, and attending a political rally or protest (reliability α = .92, *M* = 2.52, *SD* = 1.22).

Last, basic demographic variables were controlled. Age (*M* = 35.53, *SD* = 9.88) was measured in years. Sex (female = 48.4%) is self-explanatory. Participants' level of education was measured on a 9-point scale ranging from *elementary* to *post-graduate school* (*M* = 7.71, *SD* = 0.98). Household income was measured on an 8-point scale ranging from 1 (*less than US$1,000 a month*) to 8 (*more than US$7,000 a month; M* = 5.03, *SD* = 1.85).

Results

Study 2 proposed two hypotheses. The first hypothesis predicts that candidate preference will become stronger as Election Day approaches (H2a), and this pattern will become more pronounced when one's political expression increases (H2b).

To test H2a, a repeated-measures ANOVA was performed. Results show a significant difference in relative candidate preference across the three time points ($F(2, 622) = 5.46$, $p < .01$). As hypothesized, mean scores increased consistently as time went on (*M* = 39.31 in Wave 1; *M* = 41.92 in Wave 2; *M* = 43.32 in Wave 3), indicating a significant linear trend ($F(1, 311) = 8.60$, $p < .01$) rather than a quadratic trend ($F(1, 311) = .42$, $p = .52$).

We then employed latent growth curve modeling (LGM) to formally test (a) changes over time in intrapersonal repeated measures (i.e., candidate preference; H2a) and (b) the moderation of the growth pattern by interpersonal factors (i.e., political expression; H2b). This technique extracts two latent variables representing "intercept" and
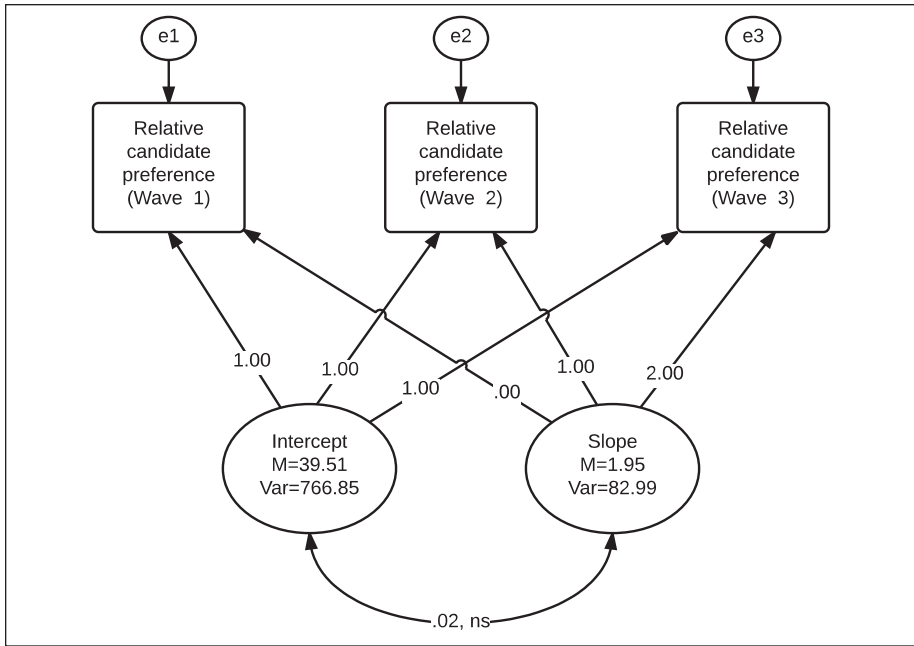
Figure 2. Unconditional model: Longitudinality of candidate preference.
Note. $\chi^2 = 0.42$; *df* = 1; normed fit index (NFI) = .99; Tucker–Lewis index (TLI) = 1.00; comparative fit index (CFI) = 1.00; root mean square error approximation (RMSEA) = .00.

"slope" by fixing certain coefficients in a structural equation model. Then, two-level modeling is implemented: an unconditional model without predictors (Level 1) and a conditional model with predictors (Level 2).[4]

Figure 2 shows the results of the unconditional model. The coefficients for the relationships between slope and three repeated measures of relative candidate preference were fixed to 0, 1, and 2, respectively. This decision was made based on the assumption that there is a linear trend in the three measures, a pattern that is confirmed by the above-reported results of a repeated-measures ANOVA. Goodness-of-fit indexes of this model were acceptable ($\chi^2/df = 0.42/1$, NFI = .99, TLI = 1.00, CFI = 1.00, RMSEA = .00). The estimated mean of slope was 1.95 (*SE* = .68, *p* < .01) and that of intercept was 39.51 (*SE* = 1.72, *p* < .001). That is, data suggest that candidate preference increased by 1.95 in each time period from Wave 1 to Wave 3, beginning with an average score of 39.51. The average growth rate of 1.95 is statistically greater than 0, which confirms H2a. The data also suggest that changes in candidate preference over time were unrelated to whether candidate preference was strong or weak at the beginning of the process, as illustrated by the non-significant correlation of .02 between the slopes and intercepts.

To test H2b, we specified a conditional model by including a predictor (i.e., online expression) and a set of control variables.[5] Overall, the model fitted the data
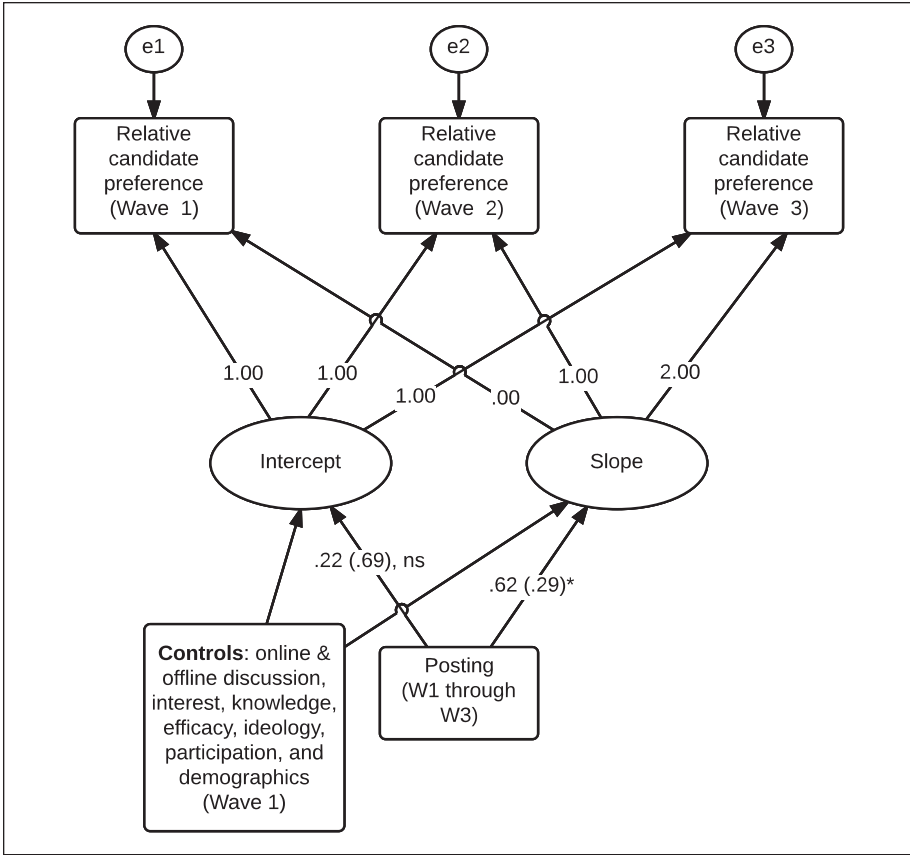
Figure 3. Conditional model: Political expression and candidate preference.
Note. Entries are unstandardized coefficients with standard errors in parentheses. Estimated coefficients for control variables are not presented in this figure for parsimony, but full results are available upon request. χ^2 = 18.96; *df* = 13; normed fit index (NFI) = .98; Tucker–Lewis index (TLI) = .95; comparative fit index (CFI) = .99; root mean square error approximation (RMSEA) = .03.

well (χ^2/df = 18.96/13, normed fit index [NFI] = .98, Tucker–Lewis index [TLI] = .95, comparative fit index [CFI] = .99, root mean square error approximation [RMSEA] = .03). Consistent with H2b, the results show that online expression was positively related to slope (b = .624, SE = .288, p < .05; see Figure 3). Taken together, the results of the unconditional and conditional models suggest that participants' relative candidate preference (i.e., favoring one candidate over the other) grows more stable from Wave 1 to Wave 3, as indicated by the positive mean of slope, and the rate of this growth in candidate preference significantly increases as participants' online political expression increases. It is worth noting that online political expression is not associated with intercept, which is participants' initial candidate preference in Wave 1 (b = .215, SE = .690, p = .76). This result suggests that how often participants have posted their opinions during the 3-week study period is

independent of the strength of their initial candidate preference. That is, it appears that, at least in the context of this study, strong opinion holders are not necessarily more vocal than others in an online forum.

Although not hypothesized, we tested an additional conditional model where reading others' posts is specified to predict slope and intercept. The same set of control variables were considered as in the previous model. This model yielded acceptable goodness-of-fit indexes (χ^2/df = 25.14/13, NFI = .98, TLI = .91, CFI = .99, RMSEA = .05). The results suggest that, unlike posting one's own opinions, reading others' opinions was not related to slope (b = .026, SE = .048, p = .57). This null finding indicates that exposure to others' posts does not explain the changes (or growth) over time in relative candidate preference. Reading others' opinions in the online forum was also not related to intercept (b = .135, SE = .112, p = .23). That is, the amount that a participant read others' posts had little to do with the strength of that participant's Wave 1 candidate preference.

The null relationship between reading and slope speaks to the robustness of the finding that expression is related to opinion reinforcement. If reading others' opinions is related to both posting one's own ideas and assessing candidates, exposure to others' opinions could explain at least in part the relationship between expressing oneself and candidate preference. The data, however, suggest that this alternative explanation might not be the case. Although posting and reading are highly correlated (r = .722, p < .001), reading is apparently not associated with changes in relative candidate preference. Nonetheless, the correlation between posting and reading still raises the question of whether the effect is uniquely attributable to political expression, above and beyond political exposure. A common analytic strategy to estimate the unique effect of a variable is to simultaneously consider the relevant variables as predictors and calculate a partial coefficient for the variable of main concern. Unfortunately, this approach is not useful when there is a high correlation between the two predictor variables because it introduces bias into the estimation. Indeed, due to the high collinearity between posting and reading, entering the two variables simultaneously led to an improper solution. Instead, this study conducted an additional analysis to investigate whether posting still affects the slope of candidate preference, even after removing the portion of variance shared between posting and reading. This was done in two steps. First, reading was regressed on posting. Then, the residuals in posting (i.e., variance unique to posting, not shared by reading) were employed in a conditional model as the independent variable predicting slope and intercept. This residual model fitted the data well (χ^2/df = 16.42/13, NFI = .99, TLI = .97, CFI = 1.00, RMSEA = .03) and produced results parallel to those estimated with the original measure of posting. That is, after all control variables were considered, expression was significantly related to slope (b = .985, SE = .412, p < .05) but not to intercept (b = −1.450, SE = .984, p = .140). This finding about the unique variance in posting, which does not include shared variance with reading, gives more confidence to the testing of H2b.

Discussion

Overall, results from the two studies suggest that online political expression matters when it comes to the opinion of the expresser. The first study examined whether expressing political opinions on social networking sites reinforces partisan thinking.

Our analysis of national survey data reveals that the pattern of partisan decision-making in which citizens' opinions about political issues align closely with their party identification became more pronounced when the use of social media for political expression increased. Because factors associated with political expression might confound the hypothesized effect of expression itself, we considered a number of variables as controls. The findings held even when political involvement, online and off-line political discussion, political attitudes, and demographics were controlled.

Extending the first study, Study 2 investigated whether online political expressions harden the expresser's opinion. Drawing on longitudinal observations of participants' posting behavior on an online forum, the second study examined the changes in candidate preference over time. Results show that expressing opinions about election campaigns strengthened the expresser's initially held opinions. That is, candidate preference became stronger in general as Election Day neared. Yet, as hypothesized, the rate of growth in candidate preference over time was higher when online political expressions increased. These results held after controlling for a range of variables including political discussion, political dispositions and involvement, and demographics. This self-reinforcing effect was still observed even when variance shared between posting one's own opinions and reading others' opinions was statistically removed.

Taken together, despite differences in how data were collected and how the expression effect was tested, the two studies speak to the same conclusion: Political expression leads to political reinforcement. In Study 1, data were from a representative cross-section of the United States population, and expression was measured by self-reports about posting behavior on social networking sites. Study 2, however, employed a longitudinal design that tracked participants' opinion and posting behavior in an online forum during an election campaign in South Korea. To test self-reinforcement through self-expression, Study 1 looked at how closely individuals aligned their opinions about political issues with their party identification, whereas Study 2 observed how individuals' candidate preference changed over time. Although these two studies adopted different approaches, these two studies complement each other. Informed by research suggesting that specific preferences are often anchored to general beliefs or postures in one's political belief systems (Hurwitz & Peffley, 1987), the two studies examined whether political expression reinforces (a) the hierarchical structure between specific preferences and general attitudes and (b) the specific preferences themselves, respectively. The supporting evidence from two studies not only gives us more confidence in the overall theoretical arguments of political expression and opinion reinforcement but also sheds light on the nuanced effects of political expression on the expresser's opinion and the way the opinion is formed.

These findings suggest a range of important implications for the broader literature of political discussion and its effects. First, theorizing and testing expression effects contribute to a more detailed understanding of the impacts of political discussion. Although a normal discussion usually encompasses both speaking and listening, not all discussions are balanced between the two. For example, even within politically homogeneous communication networks, it would be rare that for a group of people who are equivalent in their interests, knowledge, motivation, goals, and personality to

have a conversation. Often, discussants have different characters, backgrounds, and motivations for conversation, which makes the conversation less symmetrical, with a few being more vocal than others. This imbalance leads to different experiences for most of the discussants. However, the traditional approach, which does not distinguish between expression and exposure, assumes that all participants have the same experiences and thus the same consequences. This is problematic unless the unit of analysis is the discussion *group*. Thus, we argue that the distinction between expression and exposure contributes to a more nuanced understanding of discussion effects that would allow for investigations of how political conversation is exercised and how the pattern of communicative transactions translates into each participant's opinion. Although these questions are beyond the scope of the current study, separating expression effects from overall discussion effects feeds into the broader context of studying the *content* and *form* of political discussion.

Second, the findings of this study provide a theoretical framework to understand the implications of various acts of self-expression for opinions of the expresser. Political expression exists in a variety of forms and contexts, beyond virtual and face-to-face situations of interpersonal political discussion. For example, there are instances in online settings (e.g., continued posts without or with little "visible" feedback from anonymous others) where expression only goes one-way, at least from the expresser's point of view. If we broaden the context of expression, there are a number of cases where citizens engage in seemingly one-way political expression, such as writing a letter to politicians or the editors of news media, putting out a yard sign, or carrying a bumper sticker. By distinguishing expression from discussion and testing expression effects, this study sheds light on the political implications of various acts of political expression and the explosive increase in the expressive culture of the virtual sphere.

The results of this study also have two-sided implications for the role of social media and online discussion platforms in the political process. On one hand, routine acts of online political expression may provide citizens with an opportunity to better understand their political views, crystallize their thoughts, and organize their attitudes on current issues in a manner consistent with prior beliefs. By engaging in this self-affirming process, those expressing their political opinions may gain confidence in their thoughts and develop opinions that reflect their political identities and interests. This process of self-reinforcement likely leads them to assert themselves further and become more involved in politics (Dilliplane, 2011).

These effects would not be exclusive to political expression on social media or online discussion forums. Expressive behaviors in other contexts, such as off-line political discussion, may produce similar effects. Yet, not all citizens have equal access to everyday communication networks where political expression is possible and likely. Citizens from advantaged backgrounds tend to have "a broader sphere of everyday activity, a greater number of reference groups, and more interpersonal contacts," all of which combine to increase the likelihood of political discussion (Tichenor, Donohue, & Olien, 1970, p. 162). Given this communication inequality, our findings speak to an important, unique role of Internet. By granting low-cost, easy-access opportunities for political expression (Ellison et al., 2007), the Internet, specifically social media and

discussion forums, opens up the benefits of political expression to a broader socio-economic range.

On the other hand, the results of this study cast doubt on the idea that Internet-based citizen communication facilitates political deliberation. If, as our data suggest, political expression strengthens the partisan views of the person sharing political opinions or hardens one's current opinions, expressive culture on the online sphere might function as an engine to reinforce one's political beliefs rather than promote open deliberation. It is still possible, of course, that exposure to opinions expressed by others encourages deliberative reasoning (Mutz, 2006; Price, Cappella, & Nir, 2002), a possibility that is beyond the scope of the present study. Nonetheless, at least in terms of political expression, the impact of the Internet on citizens' political lives does not appear to expand political deliberation.

Furthermore, our finding of self-reinforcement suggests that Internet use, at least when used for expressive activities, may exacerbate the pattern of opinion polarization in society (Abramowitz, 2010). Indeed, much research has shown that a high degree of user control results in more selective use of the Internet. That is, users tend to seek information consistent with their political orientations and interact with similarly minded people, a pattern viewed as the main mechanism behind political polarization in the digital age (Bennett & Iyengar, 2008; Sunstein, 2001). The results of our study not only reaffirm the concerns in the literature but also extend them by providing additional theory and evidence that routine, voluntary online political expression could be another mechanism contributing to the widening political polarization.

Political expression is at the heart of democracy (Dewey, 1927), and the Internet has greatly empowered citizens to express themselves. Our study suggests, however, that the increase in online political expression has mixed implications for the health of democracy. Although it provides an opportunity for intrapersonal reflection and contributes to a vibrant democracy (Macafee & De Simone, 2012), political expression through various online outlets might also result in the hardening of citizens' political identities and prior beliefs, thus hampering balanced reasoning and collective deliberation. Future research should look at conditions that shape the outcome of political expression and examine the circumstances for which expression leads to deliberative outcomes.

We conclude by discussing two potential caveats of this study. First, this study tests and presents two different phenomena (i.e., expression and partisan reinforcement in Study 1 and expression and opinion reinforcement over time in Study 2), using data collected in two countries, the United States and South Korea, respectively. Thus, a country effect and the hypothesized expression effect could be confounded. This is a serious issue to the extent that the two countries constitute two very different contexts. To address, or at least alleviate, this concern, we replicated Study 1 with Study 2 data, which were collected in South Korea. The results indicate that the data employed in Study 2 very closely replicate the findings of Study 1. Thus, in combination, the converging results from Studies 1 and 2 suggest that the phenomena originally examined in Study 1 are generalizable across at least the two countries, the United States and South Korea. Yet, we acknowledge that this replication does not fully address the original concern. For example, we still do not know whether Study 2, conducted in

South Korea, could be replicated with data collected in the United States. Unfortunately, the data used for Study 1 (i.e., the Pew Internet and American Life Study) do not have measures that are necessary for replicating Study 2. Nonetheless, the comparable replication of partisan reinforcement by expression in both studies seems to suggest that the two countries might not be so different, at least when testing the hypothesized effect of political expression on opinion reinforcement.

Second, our testing of expression effects was only based on the *amount* of expression. Future research should consider the *content* of expression and explore the possibility that features in expression might shape the outcome of political expression. For example, the tone of expression might moderate the relationship between expression and opinion reinforcement. Political expression likely would elicit different emotions in the mind of the expresser, depending on the tone. That is, one would feel more positive emotions (e.g., enthusiasm) about a candidate after making positive comments about him or her and more negative emotions (e.g., anger) about him or her after doling out criticism. Thus, a reinforcing spiral of emotion is expected to occur, which will likely result in different cognitive and behavioral consequences. As the idea of hedonic asymmetry (Frijda, 1988) suggests, negative emotions tend to be more stimulating, persistent, and mobilizing than positive emotions. Taken together, it is plausible to expect that expression effects on opinion reinforcement might be stronger when the expression focuses on undesirable aspects of candidates.

Contemporary research about emotions (Huddy, Feldman, & Cassese, 2007; Marcus, MacKuen, Wolak, & Keele, 2006) suggests that the pattern could be further complicated when negative emotion is split into the components of anger and anxiety. This research suggests that anger, which is driven by the disposition system, induces actions through habits and prior convictions rather than thoughts. Thus, anger-induced actions are often skewed toward prior opinions and stereotypes. In contrast, feelings of anxiety, driven by the surveillance system, induce actions in a way that loosens the hold of prior convictions and political habits. This deliberative potential of anxiety is a point that distinguishes it from anger. It is thus plausible that, if one expresses concerns about a candidate and this in turn provokes anxiety, the effects of expression on opinion reinforcement might be weaker than when expression is based on criticism and anger. Although interesting, we leave this idea for future research because this possibility is beyond the scope of this study. Future studies should consider the content of expression as well as resulting emotions and examine whether and how the *degree* of the relationship varies depending on the characteristics of the expression, including tone.

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Declaration of Conflicting Interests

Funding

Notes

1. The online forum not only allowed participants to initiate their own posts but also to read and respond to others' original posts and the subsequent comments. The structure of the site adopts a format common on most online discussion forums. That is, comments were posted under an initial post in the order they were posted, forming a thread of discussion. Using data logs, initial posts and comments both counted as "expression." On the forum site, participants were only exposed to the posts made by participants. No other information was provided.
2. Data show that some participants did not choose a candidate but revealed their preference via thermometer ratings while others who had equal ratings for both candidates chose a candidate. As such, using both the candidate choice measure and thermometer ratings in a complementary manner allowed for a more precise measure of participants' initial candidate preference.
3. Our analysis of the content of expression showed that, on average, about 25 posts were made per participant, resulting in more than 8,200 posts. Of these, a total of 1,336 posts were randomly sampled by selecting four posts from each participant ($n = 334$). Four coders then manually coded the sampled posts in terms of candidate mention (average agreement = .89, Cohen's κ = .86, Krippendorff's α = .86). A word processing application was used to calculate the average length of the posts. On average, the length of each post was 55.6 words, indicating that posts were generally longer than Tweet-style writing. A vast majority of the posts (76.7%) mentioned at least one of the candidates in the ongoing presidential race.
4. Based on nine observations (correlations among three repeated measures, means and standard deviations of the three measures), the unconditional model was specified to estimate eight parameters including five variances (of two latent growth factors and three measurement errors), one covariance between the latent factors, and two factor means (testing initial status and linear change, respectively), with 1 degree of freedom.
5. We specified a conditional model by adding a variable of our theoretical concern (i.e., expression) and a number of relevant covariates ($n = 11$) to the unconditional model. These variables were included in the mean structure and specified as predicting change in candidate preference over time. That is, the latent growth factors (i.e., intercept and slope) were regressed on the hypothesized predictor and covariates, all of which were allowed to covary. Also, the error variances for intercept and slope were specified as correlated, with the assumption that initial level and linear change in candidate preference share omitted causes beyond the hypothesized predictor and covariates. The rest of the conditional model is identical to the unconditional model analyzed earlier. When fitting this prediction (conditional) model, we decided to keep all covariates in the model and estimate their relationship with the latent growth factors, whether statistically significant or not. This decision was made for the purpose of adequate control. Given that the goal of this study is to test the hypothesized relationship rather than to find the best fitting model, we did not follow the procedure of model trimming that removes non-significant paths. Although the model modification process based on what data suggest would eventually lead to a better model fit, we believe that fitting the model with conceptually relevant controls is a more important consideration. Nonetheless, the conditional model that we specified exhibited a highly acceptable model fit in all measures.

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